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FinTech as a tool for Financial Inclusion: A Perspective of South African Financiers on SME Development

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Declaration

I, Thapelo Mokwena hereby declare that the work (thesis) is my original work, (except where acknowledgement indicates otherwise) and neither the whole work nor part of it has been or is being or is to be submitted for another degree in any other or this university. I do authorise the University to reproduce for research purposes either any portion or the whole of the contents in any manner whatsoever.

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Dedication

I would like to dedicate this mini dissertation to the Almighty heavenly father God. (My top 6) including Sarah my mom, Thabang, Lebo, and Germinah my siblings. Special mention to my daughters Nokukhanya and Zani.

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Glossary

BRICS	Brazil Russia India China and South Africa
CSIR	Council for Scientific and Industrial Research
DFI	Development Finance Industrial
FINTECH	Financial Technology
FSCA	Financial Sector Conduct Authority
GDP	Gross Domestic Products
IFC	International Finance Corporation
IDC	Industrial Development Corporation
IFWG	Intergovernmental Fintech Working Group
SAIS	South African Innovation Summit
SARB	South African Reserve Bank
SEDA	Small Enterprise Development Agency
SDG	Sustainable Development Goals
SEFA	Small Enterprise Funding Agency
SME	Small and Medium Enterprises
DTIC	The Department of Trade, Industry and competition
TIA	Technology Innovation Agency
UN	United Nations

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Abstract

According to Statistics South Africa, SMEs play the significant role of creating employment opportunities for more than 25% of South Africans. In addition, this not only increases chances but ensures that many have access to means of production, and it also increases the (GDP) and overtime improves the standard of living in many communities. It has been noted that the high unemployment rate of almost 32.9% at the first quarter of 2023 can be significantly reduced by ensuring that sectors such as SMEs are viable and well-funded. It has been reported that nearly 75% failure rate of most SMEs is attributed to limited financial access. Even if financial institutions make efforts to provide SMEs with financial assistance so that their operations run smoothly and they remain profitable going concerns, SMEs still struggle to get financial access which makes it difficult to sustain operations and create job opportunities. Moreover, it was reinforced that for c s to be effective there is need to ensure that they are well developed and have access to financial services. It is therefore justified to undertake this study to explore the role played by FinTech in enhancing financial access to SMEs in South Africa. The study employed the thematic qualitative analytical approach to analyse primary data which was collected from twelve (12) professional bankers, development finance institutions personnel and South African government agencies. These participants were relevant, suitable and credible because they provide various support and services to SMEs including providing transactional services such as tailored current accounts to help manage daily transactions and make payments. In addition, some equally assist in providing financial advice such as identifying financing options, risk management services such as insurance and credit guarantee scheme.

The findings indicated that FinTech has significantly contributed to ensuring that SMEs are not financially excluded by assisting them to make use of automated systems which often helps them to improve service delivery. This occasionally helps to foster collaborations among institutions for instance, DFIs partnering with government agencies to work on incubation programmes for SMEs. Moreso, strategic partnerships among businesses are established as businesses have the opportunity to network on platforms such the South African Innovation Summit (SAIS). Although FinTech was assumed to have significantly improved operations and the productive capacity of SMEs some challenges have also been highlighted, and these include

failure to comply with stipulated regulations particularly in government institutions who are expected to adhere to PFMA.

The other challenge which was identified was the reluctance to use FinTech as people still prefer face to face contact with financial service providers. It was also established that some participants were not technologically savvy therefore, relevant skills development programmes had to be implemented. The other challenge was that government agencies and some (DFIs) were found to be lagging behind with 4IR and AI whilst banks level of readiness was advanced. For instance, it was noted that while it is convenient and effective to provide mechanisms useful in ensuring financial inclusion of SMEs like banking applications (Apps) and other various online systems like the bridge portal, simplyBiz, finfinder, SAP, CRM, and sefalas; the sad reality is that these platforms may either not be sufficiently provided or not fully utilized. Such a setback not only excludes SMEs from accessing financial services such as loans and online banking it reduces their growth rate. On the other hand, some barriers to financial access by SMEs were found to be bureaucracy, collateral and lack of business skills. Therefore, it is recommended that government and DFIs should fully adopt and implement FinTech as it is a tool for financial inclusion of SMEs.

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CHAPTER 1: INTRODUCTION

1.1. Background of the Study

Small and Medium Enterprises (SMEs) play a critical role in the economy of countries due to their contribution in creating jobs, thereby reducing poverty and as such experts have considered this sector as the engine of economic growth (Rasheed, et al., 2019). It is therefore important for every country to create an enabling environment for the SMEs to thrive. South Africa as a developing country has been making attempts to assist this critical sector to encourage its growth and sustainability, however the efforts occasionally fail to provide the expected results. Studies have reported high failure rate of 75% for SMEs and the cause being lack of financial access and financial literacy amongst other things (Fatoki, 2010). Financial access is especially a challenge in emerging markets like South Africa as financial institutions like banks are reluctant to provide funding to SMEs (Rasheed, et al., 2019). Approximately 2% of new SMEs in South Africa can access bank loans according to Finscope (2006). Equally so, nearly 75% of applications for loans by new SMEs in South Africa are rejected, this according to Foxcroft et.al cited in (Fatoki, 2010). This challenge also exists within the public sector where government agencies whose mandate and objectives are to provide financial support to SMEs are struggling to meet the funding demands of SMEs, (Fatoki, 2010; South African Reserve Bank, 2017).

It is therefore the aim of the study to explore the role played by FinTech in enhancing financial access to SMEs in South Africa.Financial inclusion was recognized as one of the main pillars of the global development agenda at the 2010 G20 Summit in Seoul, as an effort to provide affordable access to financial services including funding for businesses (Timermann & Gmehling, 2017). This is because it allows individuals and businesses to transact outside the traditional methods typically used by banks and other financial services providers. Although banks have been found to be the main source of funding for SMEs, it is not always easy for SMEs to access these funds and other several financial services (Rasheed, et al., 2019).

Financial Technology (FinTech) has made strides in financial inclusion and competence of financial markets through disruption of traditional financial market structures and as such it has become an important tool for inclusive growth (Yang, 2017). A report by the South African Reserve Bank (SARB) found that FinTech is fast transforming the financial service sector across the globe and South Africa's financial service sector as a developing country is internationally recognized as one of the most sophisticated (SARB, 2019). FinTech has often been described as having the capacity to improve productivity, efficiency and communication, (Yang, 2017). It is therefore worthwhile to explore FinTech as a tool for financial inclusion of SMEs in South Africa.

1.2. Statement of the problem

The study seeks to address the following problem areas the assumption that;

a) financial exclusion of SMEs remains a huge concern for developing countries as it negatively impacts the economic development of such countries.
b) there are funding opportunities in South Africa, however they are not widely accessible to many SMEs.
c) there are limitations in previous studies which the current study aims to address.

a) A case for Developing Countries

It has been widely reported that SMEs are critical players in the creation of employment and reduction of poverty which are some of the United Nations (UN) sustainable development goals (SDGs) (Buckley, 2020). Thus, it is important for them to operate in an environment that enables them to operate sustainably to continue meeting these important goals. However, there are challenges still with financing these SMEs under the traditional financial service structures which are known to be rigid and cumbersome, (Global Entrepreneurship Monitor, 2010). It has also been found to be more relevant in the APEC member countries which includes fellow South Africa, BRICS members namely Russia, India, and China, with their SME sector accounting for 97% of enterprises and employing over half of the workforce in the region (Yang, 2017). Thus, the financial inclusion of SMEs can contribute immensely to the overall economies of developing countries as their success could translate into poverty reduction due to employment created. Hence the study is necessary to investigate whether FinTech can be used as a tool to ensure that SMEs are financially included.

b) A case for South Africa

In South Africa SMEs provide employment to about 47% of the workforce with their total economic output accounting for about 20% of the country's GDP (Johannesburg Business Schools, 2020). Statistics South Africa has reported an unemployment rate of 34,5% for the first quarter of 2022. This is alarming especially in the economic climate that the country finds itself in with high inflation which result in increased poverty levels. A strong SME sector can help in relieving the country's unemployment level because SMEs would be able to provide the much-needed jobs and reduce poverty, (Global Entrepreneurship Monitor, 2010). However, the assumption is that SMEs are not empowered and enabled to sustain themselves and ultimately provide employment. The issue of financial exclusion of these SMEs limits their abilities to fully take part in the economy. A study by (Global Entrepreneurship Monitor, 2010) shows that although South Africa has the second largest economy on the African continent, it is ranked way behind fellow African countries like Ghana and Zambia in its ability to sustainably and successfully growing SMEs. This calls for government (DFIs and agencies)

and the private sector (banks) as possible suppliers of funding, to actively build a financially enabling environment to grow this sector.

c) Limitations on Previous Studies

Previous studies have investigated the impact of FinTech on Financial Inclusion; however, they have not delved deeper to assess whether FinTech can aid SMEs in accessing Financial Inclusion. Others have researched the role of financial literacy in financial inclusion. McCaffrey & Schiff, (2017) posit that FinTech innovation will improve financial inclusion only if it meets the needs of broad members of poor and working class, whose day-to-day finances are often characterised by volatility, complexity, and improvisation. Yermack, (2018) noted that improperly designed FinTech systems can worsen problems of financial inequality if the services are costly or difficult for the entire population. As Ozili, (2018) puts it, "the goal of financial services made available via digital platform thus (FinTech) is to contribute to poverty reduction and to contribute to the financial inclusion objectives of developing economies, McCaffrey & Schiff, (2017). Therefore, considering the knowledge gaps along with insufficient research on FinTech's role in SMEs' financial inclusion, this study sought to explore FinTech as a tool for financial inclusion specifically of SMEs in South Africa.

1.3. Research Questions and Objectives

1.3.1. Research Questions

The study intends to answer the following questions:

a) What is the role of FinTech in promoting financial inclusion of SMEs in South Africa?
b) What finance mechanisms are being used to financially include SMEs?

1.3.2. Objectives of the study

The objectives of the study are:

a) To explore the role of FinTech in enhancing financial inclusion of SMEs in South Africa.
b) To understand the mechanisms utilized in financial inclusion of SMEs.

1.4 Significance of the study

McCaffrey & Schiff, (2017) are of the view that, FinTech has been instrumental in promoting streamlined processes to include automating manual processes, improving cashflow management,

providing access to digital banking services and advanced security measures such as biometric authentication and encryption. It is therefore justified to undertake this study to explore how innovative alternative methods like FinTech, are likely to ensure the inclusion of SMEs who would typically be excluded by traditional funding methods. The study is also useful as it is assumed to assist in providing substantial information to SMEs who face challenges accessing funding. Since the study will be focusing on the South African market it would set the tone for other African countries to use the case study as a benchmark for their own SME markets. Equally so, it is likely to inspire other researchers to expand on the findings to include other players who can benefit from FinTech methods of financial inclusion.

1.5. Scope and Limitations of the study

The study will focus only on 12 participants who will be representatives of various institutions in the financial service sector from both the public and private sector, who play an active role in funding SMEs, and they constitute the banks (4), development financial institutions (DFIs) (4), and government agencies (4). The study will specifically focus on access to funding which is a challenge for many SMEs. Exploring FinTech as a solution to this funding challenge on SMEs is worthwhile for the entire South African economy. The success of SMEs is a positive outcome for the country, and should the study prove that FinTech is indeed the tool required to finance SMEs, this will positively impact the SME sector, improve people's lives, and grow the economy. This study is limited to government agencies, the banks and DFIs and excludes other players in the financial service sector.

1.6. Organisation of the study

The study comprises of 5 chapters and the remainder of the study will be organized as follows: Chapter 2 will focus on the literature review on financial inclusion, which will be related to FinTech and the role it plays on SMEs. Chapter 3 will outline the research methodology used to conduct the study. Chapter 4 will discuss the findings of the study, and Chapter 5 concludes the study and would give recommendations for further research.

CHAPTER 2: LITERATURE REVIEW

2.1. Introduction

Researchers are more likely to position new endeavours within frameworks already in place through adopting and leveraging on prior and existing literature. Along these, integrating data from current and previous research enables the researcher in this study to pinpoint the gap(s) that the current effort seeks to fill. Since they are crucial to the current study, this chapter concentrates on the following three aspects: (1) To provide a comprehensive understanding of the concepts relating to the various key facets of financial inclusion; (2) To describe the interrelatedness in financial institutions and to clearly articulate the concepts pertinent to financial inclusion of Small and Medium-sized Enterprises SMEs; and (3) To identify relevant impacts that financial technology (FinTech) has on financial inclusion for SMEs in South Africa.

This chapter's literature review is organised thematically (into themes that correspond to the study's objectives) to sustain the three aforementioned aspects. First in section 2.2., terminology essential to the study are defined, including SMEs, financial inclusion, and financial technology. The review then turns to summarising financial technology from a wider developed-world viewpoint before elaborating on its specific use in the South African context in section 2.3. Thereafter, the report presents an overview of financial inclusion for SMEs in section 2.4. While the study is useful for explaining the various aspects of financial inclusion in section 2.5, it also emphasises the significance of innovation that FinTech brings forth as an enabling tool thereof, first by explaining financial inclusion's purpose and its linkage with innovation.

2.2. Definition of terms

2.2.1. SMEs (Small and Medium-sized Enterprises)

Since the definitions of SMEs varied greatly depending upon who or which institution was defining them or where it had been defined, Ward (2005) contended that there is no single definition of SMEs. At a global level, A widely known definition of SMEs features enterprises employing fewer than 250 staff members (International Finance Corporation, IFC, 2009). While this is the case, other authors, such as Ayandibu and Houghton (2017) in the South African context define SMEs in accordance with their tax bracket, their nature of operation, their number of workers, their ownership type, or their management structure. As such, it is evident that there is no standard meaning of what SMEs are as they have been interpreted in different ways by distinct groups or individuals, much as an enterprise that is classified as tiny and medium-sized in one country is held to a different standard in another (Bouazza, Ardjouman & Abada, 2015).

According to South Africa's National Small Business Amendment Act of 2003, which replaced the National Small Business Act of 1996, small to medium-sized businesses are designated differently on the basis of their annual revenue or staff size. The Act stipulates that an SME is:

"a distinct and unique organisation, along with cooperative enterprises as well as non-governmental institutions operated by one or more entrepreneurs, along with any subsidiaries or branches must be regarded as a SME through fulfilling the requirements outlined in the scope of size standards. One such entity must focus primarily on the case of certain parts of the economy or segments outlined in the schedule" (Mafundu & Mafini, 2019).

The SMEs sector has been recognised in earlier research as a means of enhancing economic and employment expansion in any economy. In addition, the provision of jobs and economic expansion in both in emerging and advanced economies are often credited to the SME sector. Small and medium-sized enterprises SMEs are regarded as having a substantial influence on profit creation and work creation worldwide, but in particular in South Africa as has been the case (Justino & Tengeh, 2016; Meyer & Meyer, 2017).

Small companies are vital to the expansion and success of the economy considering that they represent the vast majority of entrepreneurial activity in South Africa, comprising over about 40% of the state's economy (Govuzela & Mafini, 2019). SMEs vary enormously unlike large corporations in a plethora of ways, through being flexible, having a response and recovery approach, owning fewer resources, implementing relaxed practices, and supporting adaptable components. In fact, SMEs will often encounter more setbacks than larger corporations (Terziovski, 2010). Small and medium-sized businesses, whether official or informal, fall under this category. According to the National Small Business Act 102 of 1996, as amended in 2003, enterprises are classified as SMEs based on the number of employees and yearly turnover (Meyer & Meyer, 2017).

In the plethora of previous research, a variety of definitions for SMEs could only be split into two categories dependent on "conceptual" and "practical" parameters (Myslimi & Kaçani, 2016; Foghani, Mahadi, & Omar, 2017). The original intent of this two-set segmentation is to eliminate whatever potential conflict which can arise due to varying SMEs perspectives (Myslimi & Kaçani, 2016). Thus, according to Myslimi and Kaçani (2016), the conceptual interpretations of SMEs rely on qualitative factors including owner freedom, empathy of others, and individual and/or financial commitment. The practical meanings, in turn, incorporate quantifiable variables including yearly revenue, personnel headcount, and working capital (Foghani et al., 2017).

2.2.2. Financial Inclusion

Financial inclusion is referred to as the condition of having a comprehensive spectrum of high-quality services accessible to customers at minimal cost, supplied by a variety of businesses in a highly competitive environment, with efficiency, integrity, and financial regulation to customers who can

finance it (Center for Financial Inclusion, 2016). Other authors, Matsebula and Yu (2020) complemented this by defining financial inclusion as the absence of price constraints for widespread access to financial services and products. This idea of financial inclusion has too many facets as well as discernments. In terms of intricacy, financial inclusion can be understood applying the following four popular viewpoints by (World Bank ,2014; Alliance for Financial Inclusion ,2010; Financial Sector Conduct Authority (FSC) ,2020):

a) Access: This exemplifies the sphere of influence financial services have to include permeation of local banks and the application of point-of-sale equipment in remote areas) along with the demand-side hurdles that users must conquer in order to obtain access to financial institutions (namely the price and connectedness of bank service sites including ATMs), (World Bank ,2014; Alliance for Financial Inclusion ,2010).

b) Usage: This monitors the volume and extent of consumers' consumption of financial products and services, as well as their longevity over time. Information on reliability, intensity, and period of use are essential for determining customer utilisation. Not everyone who has access to financial products and services will have to use them, (Alliance for Financial Inclusion ,2010; World Bank, 2014). Given this, not every individual who does not utilise the products and services are labelled besides being "excluded" or "unbanked" complicated.

c) Quality: One such dimension assesses how well clients' expectations are fulfilled by financial services or products, overall selection of choices accessible to them, including their consciousness and grasp of financial products. In this context, safety, ease of use, disclosure, brand fit, customer protection, but also financial literacy has all been characteristics of quality attributes (Alliance for Financial Inclusion, 2019).

d) Welfare: One such indicator evaluates the effects of financial goods and services on buyers' lives, encompassing modifications (if there are any) in intake, operational processes, as well as wellbeing. It's vital to distinguish the purpose of financial services in clients' activities from other contemporaneous variables, notably, - rising revenue (Alliance for Financial Inclusion, 2019).

Again, other studies defined financial inclusion as the existence and usage of financial services for any and all individuals on an equitable level (Kabakova & Plaksenkov, 2018). The potential of financial inclusion to alter the financial status of the economy as well as to stimulate growth and long-term sustainability in a country are two factors that have attracted attention from around the entire globe (Kabakova & Plaksenkov, 2018). In light of the fact that 1.7 billion people worldwide are without access to financial services, financial inclusion offers both low- and upper-income earners the prospect to be absorbed into the financial institutions (Demirguc-Kunt, Klapper & Singer, 2017). As an outcome, financial inclusion fosters wealth creation which in turn is a vital tool for fostering economic growth and elevating people's standard of living worldwide (FinMark Trust, 2017).

In the context of this study, financial inclusion refers mostly to how SMEs must obtain access to financial assistance such as financial support, loans, grants, or other financial means from institutions such as Small Enterprise Finance Agency (SEFA), Small Enterprise Development Agency (SEDA), and others, to further their entrepreneurial and innovative activities for economic growth purposes. This definition is more akin to that of the Financial Services Authority, cited in Wati, Nisa, Isprihayadi and Lufti (2020:233) defined financial inclusion as the existence of a wide range of financial institutions, items, and offerings depending on the requirements and capabilities of the community to enhance the wellbeing of the society.

2.2.3. Financial Technology

The origin of FinTech as a concept began at the time when Johan Reed, a chairman of Citicorp, proclaimed at the unveiling of the Smart Card Forum consortium around the early 1990s that "FinTech, in addition to another Citicorp-initiated financial research project, appears to subdue any remaining critique concerning Citicorp's becoming pompously out of touch with market demands" (Puschmann, 2017).

As such, the origin of FinTech as a concept both in practice and theory is necessitated by the eagerness to bring about advancement in the way the financial sector is operated, thus bringing ease and convenience. For instance, during the execution of the financial services, the parties involved, the provider and buyer, meet one or multiple key challenges, namely moral hazard but also adverse selection. Such difficulties are triggered by "asymmetric information", something that results in failure since the prior parties did not disclose the same content insight (Mishkin, *et al*., 2013).

Additionally, Information Technology (IT) facilitates in managing information and quickening its flow, thus contributing to reduce the negative consequences of asymmetric information. Considering that information is crucial to financial services, IT therefore has a major influence on the financial services sector (Puschmann, 2017).

According to some researchers, FinTech is "a shortening of financial technology" or the "marriage of technology and finance" (Zavolokina *et al*., 2016:1; Puschmann, 2017). Motivated by the fact that FinTech helps generate innovative products and services, new business models, including new procedures, the phrase gets often interchangeably confused with financial innovation (Frame & White, 2014). Alternately expressed, it establishes and improves "new financial instruments, along with new financial technologies, entities, and sectors of the economy" (Lerner & Tufano, 2011). Further, it establishes a new business model (Fichman, *et al*., 2014). Likewise, this concept is intimately associated to IT because it uses technology within financial services or products for transforming and innovating how we view money and finance in general (Baur et al., 2015).

Consequently, FinTech enables people with the opportunity to cut intermediaries, control expenses, and improve accountability, which alters influence in their favour (Zavolokina, *et al*., 2016). As a practical

matter, FinTech companies or sometimes financial innovations can be described as additional services, innovative products, new organisational structures, or new production methods (Frame & White, 2004). Presently, financial innovations as well as the offerings of FinTech firms are constantly associated with the developed world inventions, such as mobile applications, which are thus available everywhere globally. Whilst the above are definitions and conceptualisation of FinTech from a global perspective where the term originates, the following section summarises FinTech from both broader (developed world) and narrowed (South African) perspectives.

2.3. Financial Technology: Developed World and South African

Since an observation is that the developed world is where FinTech first emerged, the developed world is where it has been conceptualised in its broadest sense. FinTech, as explained by Arner, Barberis, and Buckley (2015), is the concept that refers to financial solutions that are facilitated by technology. This is considered as integrating information technology with financial services.

FinTech can be characterised as "the offering of financial services and products through the merging of technological and innovation in business strategies by (Buckely & Webster, 2016), who concur with all of this characterisation. FinTech, according to Lu (2017), is the application of internet technology and innovation to the offering of financial services. Gulamhuseinwala et al. (2015) distinguish FinTech as "firms that use technology and innovation in an attempt to disrupt the financial sector" in juxtaposition to the already stated interpretations.

The preceding definitions show that the keyword "FinTech" is not viably used in the literature currently in existence as well as in previous research. By examining the unpredictability of FinTech and trying to modify a meaning that was collected from diverse research publications citing the concept "FinTech" throughout the course of a 40-year period, Schueffel (2018) endeavoured to close this gap. In line with the research, there is currently no universally accepted definition of FinTech and there have been interpretive difficulties in the literature. Moreover, according to Schueffel (2018:15), the manifestation of FinTech is when the financial services sector start utilising technological tools to enhance financial affairs. This study will apply this understanding of FinTech throughout the research.

In South Africa, there is limited information on FinTech as a tool for SME financial inclusion. Available research has often referred to FinTech by assessing its role in the financial sector: wherein it is referred to as a technological innovativeness to improve the sector (Matsepe and Van der Lingen, 2022), other researchers refer to it as part of disruptive innovators in the sector (Crouse, 2019); Elsewhere it is only elaborated upon regarding its significant role in aiding start-up businesses (Raphoto, 2021).

In essence, the term FinTech should be interpreted as a crucial term for its relative importance in the enhancement of SMEs across the economy, and not necessarily certain others. Moreover, literature and research on FinTech should examine it beyond being a mere determinant of technological

innovativeness of the financial sector, but rather more on its influence on SMEs as they are crucial for economic growth.

As such, it is important to understand that available literature shows only the overview of FinTech on a sub-Saharan (Demirgüç-Kunt & Klapper, 2012), and where it is mentioned in the South African context, much attention and debate is merely on how it is regulated, particularly with interest only on emerging forms of digital currency (Sadhaseevan, 2019). One closely related literature to this study on the impact of FinTech as a tool for SMEs financial inclusion is that by Mungai (2019), although it also has its own limitation of only focusing on FinTech's economic impact on banks as important institutions in the economy.

The most encompassing definition that should be taken to be relevant for this study as alluded above is that by Schueffel (2018:15), who indicates that the manifestation of FinTech is when the financial services sector start utilising technological tools to enhance financial affairs. In a similar instance, although not South African in perspective the conceptualisation of some authors, such as Mud Husin, Haron, and Aziz (2020:13), emphasises on the concept of FinTech as integrating modern business strategies alongside technological developments to expedite the offering of daily financial services.

This therefore necessitates the understanding of how FinTech has in practice evolved in the context of the South African financial sector.

2.3.1. The evolution of FinTech in the South African financial sector

It is important to first discuss some of the FinTech Models and associated products for SMEs in South Africa. FinTech facilitates the creation of cutting-edge service sectors, business operating models and practices (Zavolokina, Dolata & Schwabe, 2016). Researchers such as Gulamhuseinwala, Bull and Lewis (2015) identify "FinTech" as enterprises that combine technology with innovative ideas to stir up the financial services sector, and this is applicable in the context of accessible or existing FinTech models and related products for SMEs in South Africa.

In contrast, Lu (2017) identifies FinTech as the use of innovation as well as internet technologies in the financial sector. In this sense, FinTech start-ups offer clients cutting-edge goods and services that facilitate the ability for them to make payments, manage their investments, get affordable insurance, pay off debt, and raise equity capital (Gulamhuseinwala *et al*., 2015).

Snapscan is an instance of a FinTech invention in South Africa that enables customers to make purchases without resorting to a conventional bank card. The FinTech revolution is considered to benefit individuals who have been overlooked or unmet by banking and financial services in the conventional sense (Kuo Chuen & Teo, 2015). Banking, payments, online lending, insurance, wealth management, and virtual currency are just a few of the many areas that go under the overarching label "FinTech.".

More recently, elsewhere in literature it has been highlighted that poor funding has been linked to the slowing growth and high failure rate of small firms in South Africa (Msomi & Olarewaju, 2021). The financial viability of SMEs in South Africa is also affected by a lack of financial inclusion (Msomi & Olarewaju, 2021). Small and medium-sized businesses contribute significantly to economic growth by generating jobs, reducing poverty, distributing income, and innovating (Maneesha, 2020). A solid SME sector becomes crucial for developing a strong industrial sector throughout the economy. For economic growth to be ongoing and sustainable, businesses must run effectively (Parvin, Asimiran & Ayub, 2021). SMEs have potential to be more profitable in the markets, either locally and globally, attributable to the emerging world's quicker economic expansion and increased profitability (Yeh, Hu & Chen, 2021).

According to Tuffour, Amoako, and Amartey (2020), SMEs in South Africa allow people to use their imaginations to come up with creative answers to new societal problems that create employment opportunities, end inequities, and promote economic progress. There is a low rate of survival in SMEs, particularly in their first five years of business trade or operations (Hossain, 2020).

Prior to outlining in brief, the south African models that currently apply FinTech models and associated products for SMEs, it is best to show the global world context. A business model illustrates how a company creates, distributes, and proves value. Its value may vary in terms of economics, culture, society, politics, or any other aspect (Lacasse, Lambert, Osmani, Couture, Roy, Sylvain & Nadeau, 2016). Furthermore, Oshodin, Molla, Karanasios & Ong (2019) reckon that the growth of the business model is essential in FinTech start-ups.

Six operating models or practises for FinTech businesses were categorised by Lee and Shin (2018). The value propositions, an overview of how they work, as well as the FinTech start-ups adopting each business model were considered when the Lee and Shin (2018) sub-divided each of such business practises or models. According to Lee and Shin (2018), the models of FinTech are as follows:

- **Payment model** - This concept is used by FinTech startups who offer payment processing services as a value feature. Startups in both the commercial payment industry along with the retailers and consumer markets embrace this strategy.
- **Wealth model** - Offers consumers additional financial guidance.
- **Crowdfunding model** - Stimulates people to fund ventures, initiatives and concepts which might benefit a greater number of customers.
- **Lending markets model** - Decreases the interest rates at which money lending occurs between firms and people.
- **Capital market model** - Concentrates, emphasise, and directs efforts as well as attention on risk management, trading, but also transactions involving foreign currencies.

- **Insurance services model** - Provides a platform in which consumers as well as insurers could interact more effectively using discrimination-free, advanced, and contemporary algorithms.

In the same global context, to understand the role that data plays in business models, Schmidt, Drews, and Schrimer (2018a) examined a variety of FinTech start-up models. They were capable to offer the following six data-based FinTech business strategies as a result of their assessment (Schmidt *et al*., 2018a):

- **Data processing model** - This concept is used by FinTech startups who offer their customers value within data directly. Startups throughout the peer-to-peer as well as payments marketplaces adopt this concept.
- **Information processing model** - Creating access to various datasets and client data, then supporting the data to give the clients insights will add value. FinTech start-ups employ it in the market for crowdsourcing, estate development, factoring, as well as charitable contributions
- **Data aggregation model** - Provide clients value in the form of combined data, typically a package of data that has been compiled and is accompanied by tools and visual components. It is used by FinTech companies that work in the order/cash trade, financial management, or bookkeeping.
- **Data analytics model** - Processing and analysing the customer's data enables the devising of recommendations for customers according to their financial circumstances. FinTech businesses employ it in the identification, insurance, as well as savings markets.
- **Data distribution model** – Process and disseminate consumer data, emphasising data distribution as a crucial role. used mostly by FinTech companies in the financial services, API banking, or cryptocurrency sectors.
- **Data value chain model** - Delivers a range of beneficial along the whole data value chain. It is mostly employed by FinTech start-ups which specialise in loans/borrowing.

Moreover, (Schmidt, Drews, and Schirmer ,2018b) created collaborative business models involving FinTechs as well as banks in parallel towards the data-based FinTech strategies:

- **Private plugin service model** - Through this strategy, FinTech startups exclusively collaborate with one bank to supply a particular solution that will boost the institution's value proposition. A single bank which receives services from a FinTech has the chance to develop its operational procedures, goods, and services. There is a lot of dependency on data from one bank.
- **Multiple private plugin service model** - This model functions with several institutions. The value proposition of FinTech is combined with that of the financial institutions, and service delivery frequently involves an algorithm. There is a lot of dependence on the data from the various banks**.**
- **Public backend service model** - The only external partners served by this model are several other FinTech startups and financial institutions.

- **White label add-on service model** - This concept is used by financial institutions to create their unique products and add the capabilities of other parties as an extra service to existing product portfolio. Despite their collaboration, both brands are still seen by customers as independent businesses.
- **Private platform provider model** - According to this approach, FinTech start-ups make use of outside parties' offerings and provide a platform whereby these services could be offered, such as Amazon Pay.
- **Public API banking provider** - This concept uses a network of banking institutions and FinTech companies as well as application programming connectivity technology to supply services. The goal is optimal system integration**.**
- **Adaptive service provider model** – This business model offers services in partnership with a single bank at cheaper prices to a particular target market. Typically, this is done to encourage financial inclusion.

In the South African context, Mothibi and Lazaridis (2021) presented eight digital platform types as follows:

Table 1: Digital Platforms for FinTech's

FinTech Digital Platform	**Use for FinTech SMEs**
Computer Platform	The setting during which a software component is run on a computer platform. It is used as the storage, computation, and communication foundations for practically all financial digital platforms. For instance, SmartThings, MacOS, Alexa, Windows, Android, and iOS.
Crowd Funding Platform	A crowdsourcing platform is used when a sizable number of users are tapped to provide products and services. Circle Up, Lending Club, YouTube, Yelp, TripAdvisor, Pinterest, Medium, and so forth are a few examples.
Harvesting Platform	A vast amount of customer data is generated and gathered on data harvesting platforms, including Sense360, Inside Sales, Waze, Moovit, and OpenSignal. This data gathered is used by data harvesting platforms to provide financial services, such as credit scoring and risk rating, for example a platform known as M-Pesa.
Interactive Platform	People can use interactive platform to create social networking sites or interpersonal connections with other individuals. This includes Snapchat, LinkedIn, WeChat, Twitter, and WhatsApp. Given such a vast user base,

	financial services and goods are gradually added, like Diem with Facebook.
Market Place Platform	Buyers and vendors are brought together through the marketplace platform. For instance, Alipay or Compare Asia Group both provide financial services through online marketplaces. Several other markets exist, such as Amazon, eBay, Taobao, AirBnB, etc.
On-Demand Platform	The On-Demand Platform are when customers order services through vendors the platform have approved. Examples include Lemonade for insurance services, Uber providing transportation, Mr.D. with food delivery, and so on.
Technology platforms	Technology platforms serve as a foundation for the development of new applications, procedures, or innovations. Azure, Amazon, Bluemix, Thingworx, Twilio, Jasper, Predix, Layer, and so on. are a few examples. Such technological platforms serve as the cornerstones upon which financial services will be built.
Utility Platform	Utility Platforms carry out functions that benefit users. For instance, Waze, salesforce, Google Maps, Moovit, and Nexar are some of the relevant examples.

Source: Mothibi and Lazaridis (2021).

This was in response to the three stakeholders found by Alstyne, Parker, and Choudary (2016) who employ digital platform models for FinTech and related goods for SMEs in South Africa as follows:

- **a producer** develops financial services as well as products that will be marketed on the platform. Possessing a sizable, centralized customer base from which to buy goods and services is helpful to the producer. For instance, an insurance provider on a vacation aggregation website.
- **a consumer** makes use of the platform to find goods and services. Having a comprehensive list of goods and services centralized is helpful to the consumer. One possible saver was given a choice of fixed deposit rates on some kind of digital platform, for instance.
- **a platform provider** wherein the interactions between the creator of financial products and customers are made easier by a digital interface. A platform provider gains since it doesn't need to own a financial license to sell the product or have a lot of physical assets or places where customers may purchase the products and services (Alstyne *et al*., 2016).

Mothibi and Lazaridis (2021) provided a further description of digital platform-based intermediation to underscore the use cases in financial services as follows:

i. **Investments** - Crowdfunding for investments is a possible format for investments made on internet platforms. Consumers and investors can choose from a range of asset kinds, including financial instruments and business ideas, and invest money directly in them using digital platforms. In a platform enabling investment crowdfunding, the audience is dispersed in the choice process for funds and projects.

ii. **Alternative lending** – Peer-to-peer (P2P) lending or loan-based crowdfunding are two instances of lending through digital platforms. Customers can choose from a range of borrower categories and lend straight to them by means of the digital service. On an alternate crowdfunding site, the crowd serves as a way to choose capital or even debtors. Utilizing menus, ratings, and recommendation algorithms, digital platforms build an intuitive user interface for consumers and lenders. Platforms employ gaming, psychology, as well as user activity tracking to stimulate action. The digital platform makes it easier for borrowers and lenders to work together on loans and repayments

iii. **Insurtech** - peer-to-peer (P2P) or crowd-based insurance is one type of coverage available on digital platforms. By pooling funds in a network to cover losses to certain other policyholders within their network, the digital platform helps policyholders to cover themselves**.**

iv. **SuperApps** - digital platforms powered by SuperApp provide an extensive selection of supplier offerings, including e-commerce, ride-hailing, classified ads, social networks, financing, insurance, as well as payments. On the opposite face of the platform, customers are given a practical, customized, and reasonably priced solution.

v. **Mobile money** - mobile phones, retail items, airtime, and utility services are all included in the supplier side of the mobile money online platforms. On the opposite end of the platform, the consumer gets a practical service that eventually replaces banking services and therefore is secure than cash (Mothibi & Lazaridis, 2021).

In order to investigate the prospects of FinTech, regulators of the South African financial sector notably— Financial Sector Conduct Authority (FSCA), the Financial Intelligence Center (FIC), South African Reserve Bank (SARB), as well as National Treasury (NT)— joined forces to create the Intergovernmental FinTech Working Group (IFWG) at the end of 2016 (IFWG, 2018).

The first workshop of the IFWG was on April 19 and 20 in 2018. It addressed a broad range of FinTech-related themes, covering private crypto-currencies, innovation facilitator, and most importantly to this study the notion of financial inclusion. One such event yielded two distinct phases. Firstly, it sought to convene another event well before end of 2018 to consider other concerns previously covered in the first workshop, while they also sought to draught a position document outlining South Africa's approach towards FinTech and innovation around the beginning 2019 (IFWG, 2018:46).

The South African Reserve Bank (SARB) started a FinTech initiative to effectively monitor the growth of the FinTech environment in an orderly fashion and to take its regulatory ramifications into perspective (The South African Reserve Bank, SARB, 2018:2). Its three fundamental objectives of the FinTech initiative include:

a. Introduce an initiative "Khokha" where distributed ledger technologies (DLT) would be pilot tested.
b. Reassess the SARB's stance on private virtual currencies to upgrade its regulatory regime and compliance control.
c. Peruse and plan on the practical application of innovation hubs (SARB, 2018:2).

The SARB's projects were aligned with those of other central banks, particularly Project Jasper in Canada, Project Stella within Europe, and Japan, as well as the Singapore Project UBin. Various local banks, including Capitec, ABSA, Discovery, Investec, First Rand, Standard Bank, and Nedbank, take part in Project Khokha, alongside a FinTech enterprise by the name of Consensys. A FinTech segment was set up by the SARB by early August 2017 to assess FinTech innovation as well as all financial services throughout South Africa (SARB, 2018:9-16).

Didenko (2018:356) notes that while South Africa is lacking a coherent set of regulations focused on FinTech, the country has some sophisticated financial services policies in place, along with the Banks Act, the Financial Advisory and Intermediary Services Act, and now the Financial Market Act. Most attendees in the event highlighted that the sector-specific requirements in South Africa potentially makes it more challenging for financial institutions and technology businesses to interact. The draft report on digital payments (NPS 01/2009), within which the SARB strives to make a distinction between amounts paid to a third party to whom the due payment is owed and sending electronic valuation to a recipient who can cash that valuation well without liability to such a recipient, lays out the regulatory regime to mobile financial services in South Africa (Didenko, 2018:359).

In South Africa, there is no specific legislation governing crowdfunding. The Financial Services Board stated in a report early 2016 that it was evaluating how and when to establish crowdfunding regulations (Didenko2018). The regulator additionally emphasised that, based on how the operations were undertaken, current regulations are potentially applicable to crowdfunding. Anybody interested in taking part in crowdfunding must first ascertain if it is permissible to do so by approaching the Financial Services Board (Didenko, 2018:359). As a result, Didenko (2018:360) maintains that there exists a lack of communication among regulators and stakeholders throughout the FinTech industry and that self-regulation is extremely challenging owing to the variety of FinTech firms. In light of this evolution of FinTech, it is imperative to state that existing literature on how SMEs have come to use FinTech as a tool in their financial inclusion in South Africa is therefore limited and this gap necessitates further findings.

2.3.2. FinTech Models and Products associated with SMEs

Financial technology has played an instrumental role in providing access to the informal economy by providing access to financial services. Today it is possible for someone without a bank account to access financial services through various methods made possible by FinTech like, Cashsend from Absa, e-wallet from FNB, Sendimali from Nedbank. All the individuals need is a cellphone to receive codes and pin numbers to access the cash. There are other FinTech Models that are relevant to SMEs, and they include the following:

a) Alternative Credit Scoring

Credit scoring is a critical step to consider by any financier as part of a thorough due diligence on the borrower and as such FinTech has brought about alternative scoring approach. This approach considers social signals and scoring amongst similar loan groups (Doegar, A. 2021). This method improves decision making related to lending matters over time if combined with self-learning and Artificial Intelligence (AI) algorithms (Doegar, A. 2021).

b) Digital Banking

Banks offer accounts with complete digital infrastructure to individuals and businesses (Doegar, A. 2021). Less physical offices and more digital banking for FinTech businesses have become the norm (Doegar, A. 2021). SMEs such as Nomanini SA based in Cape Town have been instrumental in assisting informal merchants access financial services without walking into a physical bank.

c) Peer-to-peer Lending

P2P lending is a mechanism used by individuals and businesses to lend each other money and it's a platform created by FinTech companies (Smyrnova, T. 2020). This model helps investors to get comparatively better returns than the rates offered by in debt markets (Smyrnova, T. 2020).

d) Small Ticket Loan

This model is not preferred by traditional banks and other financial institutions due to their low margins (Doegar, A. 2021). This has created a gap for FinTech companies like Nomanini SA who give access to small businesses to buy stock on credit and pay later.

2.4. Overview of financial inclusion: The case for SMEs

The World Bank Global Findex Report (2015) places South Africa distinctively in terms of having high debt average compared to it is very well structured professional financial industry but also demographics. Nevertheless, the country battles with financial inclusion. Therefore, the challenge of acquiring and using financial services is not merely a barrier for disadvantaged income backgrounds or emerging economies, from which these issues are most prevalent (Kabakova & Plaksenkov, 2018). Moreover, with an exceptionally high Gini index of 0.67, South Africa remains one of the most unequal

societies in the rest of the globe (Van Schaik Publishers, 2021). Considering that the nation's financial sector is well-developed, financial inclusion can sometimes be key to enabling equitable growth and eliminating inequities, particularly for SMEs which are seen as drivers for economic growth (Van Scheers, 2016:349).

Despite considerable progress in financial inclusion, banks now provide approximately 20% of private sector financing to SMEs in South Africa, while the Industrial Development Corporation contributes proportionally larger capital to major corporations (IDC, 2013). Large corporations or companies in later stages of expansion and growth do, in reality, have more financing options than SMEs, as stated by the World Bank (World Bank, 2017). Additionally, there is a linkage between SMEs' financial inclusion and locality, with greater business access in wealthy/urban communities wherein utilising and buying financial services is less inexpensive.

As a result, less wealthy business owners—who are often found in rural but also low-income areas—are excluded. Because of the absence of collateral as well as credit history, almost 40% of SMEs generally do not obtain access to financing (National Credit Regulator, 2016). Consequently, in order to save enough funds to set up an enterprise, poorer entrepreneurs would be expected to gather big bequests across a prolonged period of time.

Conversely, such cash-strapped entrepreneurs might be pressured to search for jobs, which is a more reality alternative for the majority of black South Africans. The latter make about 80% of the populace, have lower academic capabilities, and dwell in less privileged, remote, rural, and peripheral locations such as townships away from economic sectors of the economy (Van der Berg, 2007; Bhorat, Leibbrandt, & Woolard, 2000).

The level of education among SME business owners is likewise disparate. About 69% of small and medium enterprises entrepreneurs only have a high school education as contrasted to 80% of big company entrepreneurs who have a post-secondary certificate. Compared to how 70% of staff in bigger size companies have post-secondary education, merely over 60% of SME staff have that educational background (National Credit Regulator, 2016). The Sector Education and Training Authority (SETA) was founded in 2005 to overcome the skills mismatch in South Africa as a consequence of the lack of appropriate skills. In this instance, secondary school leavers lack the capabilities to conduct core management tasks including labour management, money planning, effective record-keeping for enterprises, building business plans, or compliance with regulations (Makina, Fanta, Mutsonziwa, & Khumalo, 2015).

This lack of expertise makes SMEs more susceptible to theft, noncompliance with regulation, and exclusion from the loan market. Therefore, a lack of skills prevents not just the expansion of SMEs but also the reduction of poverty. In addition, the convergence of SMEs to high levels of productivity in South Africa is threatened by the continuance of the skills gap between workers in SMEs and in big size

enterprises, amid diminishing low-skills employment sectors (Kayizzi-Mugerwa, Lufumpa, Shimeles, Kamgnia, & Salami, 2015).

In general, literature is limited showing how in this era of FinTech, providing financial assistance for SMEs and enhancing skills might promote their expansion. Thus, resulting in the creation of employment as well as the reduction of economic inequality in the country.

This overview is not ignorant of the significance of SMEs in the creation of wealth, as well as the necessity for their financial inclusion. Hence, it is imperative to note that throughout 2007 until 2015, the number of SMEs in South Africa maximised by 3% (a 553,491 reaching 2.25 million), although the GDP per SME expanded by 8%. Meanwhile, the SME Sector contributed measurably 18 to 22% from 2010 until 2015 and accounted for almost 60% of jobs in the retail, commercial, mining, and service sectors of the economy (Bureau for Economic Research [BER], 2016). Yet, such numbers are significantly lower compared to other developing nations including Brazil, China, Mexico, and India. The root problem of this is the struggle to obtain financing (Wilkinson, 2000; BER, 2016). In reality, SMEs with adequate access to finance produce significant output per SME, while factor inputs yield greater returns than SMEs with minimal access to finance.

SME businesses can increase their existing physical capital, lessen crises, and transition to high-profit activities by eliminating financial restrictions (Nanziri & Wamalwa, 2021:450). Lacking access to finance, means SMEs' progress could be constrained even in the presence of real capital because prospective entrepreneurs and/or business owners would be unable invest in skills acquisition (Coad, Pellegrino, & Savona, 2016). Moreover, the variability of entrepreneurial talent is compounded worse by financial restrictions, which culminates in an income disparity (Murphy, Shleifer, & Vishny, 1991). Such slow growth of SMEs with persisting inequality have rekindled questions about the role of finance in promoting SME growth and financial inclusion, notwithstanding improvements in financial inclusion in South Africa as well as other emerging economies (Nanziri & Wamalwa, 2021).

2.5. Theoretical Framework: Financial Technology and financial inclusion

Many theories help us to understand the rationale behind the pursuit of financial institutions towards innovations. Thus, according Sundbo's (1997) classical theory of financial innovation, the creation of innovative technology is the critical part in the innovation process. In essence, among other things, the advancement of information and communications technology has rendered it simpler for financial institutions to respond to their customer requests in a more simple and cost-effective approach. Sundbo (1997) asserts that market players' new ventures also sometimes lead to financial innovations. This means that the prospect for economic profit from innovations continues to inspire financial institutions to seek for more efficient ways to service their clients.

Panel autoregressive distributed lagged models were applied by Qamruzzaman and Wei (2019) to examine the connection between innovation and financial inclusion. The correlation was modified by the researchers to reflect for financial growth and capital inflows. Six countries' month - to - month statistics, encompassing the years 1990 to 2018, were gathered. The findings show a long-term and short-term favourable link between innovation and financial inclusion (Qamruzzaman and Wei (2019). According to Andrianaivo and Kpodar (2012), the prevalence of innovative technology and financial inclusion are highly significantly associated. For example, mobile phone use has the ability to boost financial inclusion by giving the poor access to effective financial items and services. Consequently, having access to automatic teller machines (ATM), digital payment technologies, and online payment has shown a large and beneficial influence on financial inclusion.

According to Aggarwal (2014), poor people's limited savings may be utilised to contribute a lump sum payment to an enterprise for working capital. Thus, more people might well have access to work chances attributable to the merged cash spent for productive activities (Khan, 2011). Digital transfers of public welfare, savings, as well as investments are made possible by financial inclusion to everyone. However, to critique the literature on the link between financial inclusion and innovation is imperative. Although a variety of studies identify a positive relation between the innovation and financial exclusion, there is limited information, in particular on SMEs, and in more specifically, the South African context.

2.6. Empirical Literature

In recent times, studies such as Alhassan and Yengeni (2022) revealed the relationship between FinTech and financial inclusion by demonstrating that FinTech enhances financial inclusion. The authors also emphasised that since individuals gain access to cellular mobile devices, they are now empowered to receive financial service and hence become involved in the financial system (Alhassan & Yengeni, 2022). Moreover, the authors noted that possessing accessibility to internet services enables individuals who currently have banking accounts to further strengthen their financial inclusion levels by enabling them to use such financial services on a regular basis rather than just accessing them (Alhassan & Yengeni, 2022). This has been substantiated by Ozili (2018) conclusion, concluding that a more widespread availability of mobile and digital finance can frequently be expected to have a beneficial impact on financial inclusion, and thus providing those who have been excluded possess a mobile phone as well as inexpensive internet access.

Elsewhere in literature, researchers, such as Ugwuanyi, Ugwuoke, Onyeanu, Eze, Prince, Anago and Ibe (2022) pointed out that the lack of financial inclusion is concerning given that it is possible to argue that financial inclusion may generate inclusive economic wealth. Among low-income families in developing nations, the emergence of digital banking has lessened the strain of transaction expenses and other difficulties related to obtaining a conventional bank account (Pazarbasioglu, Mora, Uttamchandani, Natarajan, Feyen, & Saal, 2020).

Digital financial services have made it simpler and less expensive for business organisations to obtain financial services. The services have also widened access to finance for individuals living in underdeveloped nations (Fouejieu, Sahay, Cihak, & Chen, 2020). Digital financial services within developing nations have been transformative with the aim of connecting those without bank accounts to the formal financial system, along with the conventional methods of financial services available to consumers in the banks (Yu, & Hassan, 2017).

As a feature of FinTech, Mobile money has changed the financial landscape in emerging nations, bypassing the established banking behemoths (Ugwuanyi *et al*., 2022). This implies that financial inclusion has been significantly increased by the chance of obtaining financial services through mobile phones (Blancher, Appendino, Bibolov, & Fouejieu, 2019), closing the existing financial infrastructure gap in poor countries (Chatterjee, 2020).

Moreover, the introduction of FinTech and its accompanying cutting-edge disruptive technology has given the conventional financial services industry an overhaul while also bringing with it a variety of possibilities and dangers for the operators of conventional financial services (Kyari & Akinwale, 2020; Haddad & Hornuf, 2019). This has effectively made it feasible for banking transactions to be completed utilising various electronic media away from the physical locations of a traditional financial services company (Usman, 2020). In other research, Li and Xu (2021) state that biometric technologies, blockchain alongside artificial intelligence, cloud computing, and the transfer of APIs (Application Programming Interfaces), mobile smart devices, teller machines that are automatic, big data, retail checkout systems, as well as the internet are the key technologies involved.

Despite the advantages of the work done by FinTechs, they cannot broaden their reach and gain vital mileage without establishing some kind of cooperative relationship with existing players in the financial services sector (Ogunode & Akintoye, 2023). Neelam and Bhattacharya (2022) adopt the term "digital financial inclusion" to give FinTech's relationship to financial inclusion significance and define it as the execution of formal financial services to serve excluded and undeserving people through digital channels. This is predicated on Neelam and Bhattacharya's (2022) belief that the facilitation of financial inclusion using digital technology has led to economic growth. Additionally, it is crucial to recognise in their study that the authors intended to point out that using financial services digitally is a crucial prerequisite for financial inclusion (Neelam & Bhattacharya, 2022). Therefore, the claim is made that FinTech can only assist with the use of financial services through financial literacy, thereby promoting financial inclusion and economic progress (Neelam & Bhattacharya, 2022). [p;-0lo ki9 nmFurthermore, financial technology significantly contributes to the accessibility of financial services to different social strata (Neelam & Bhattacharya, 2022).

While various approaches have been used by the various emerging economies, there are some commonalities regarding the value and significance of financial literacy, the innovative nature

of FinTech product offerings, options for accessibility, the implementation of by government agencies (McKinsey, 2020). Furthermore, the literature is showing that most financial institutions focus around personal/petty loans, transactions, transfers/remittances, money saved, and insurance when it comes to transaction profiles to achieve the goal of financial inclusion, McKinsey, (2020). Nevertheless, payments and loans have been the primary areas of concentration for FinTech products and services. These jointly make up a minimum of 57% of the overall FinTech service offerings in emerging nations (Murthy, 2019). This is because these two market categories continue to be the main barriers to traditional banking services for both people and SMEs. Considering the connection between FinTech and financial inclusion in the context of South Africa, there is a lack of information, alongside many knowledge gaps, particularly when it pertains the setting where there is no sufficient evidence of the FinTech models that FDIs currently apply, (Murthy, 2019).

Chapter summary

This chapter provided comprehensive empirical substantiation regarding the topic of this study. On the premise of South African based perspectives as well as viewpoints from the broader developed world, various concepts such as SMEs, financial inclusion and FinTech were explored. On the one hand, the empirical literature shown the relationship of FinTech and financial inclusion by stating a positive influence that FinTech has on enhancing financial inclusion. On the other hand, however, there is a gap where in the process of lack of knowledge among users in many disadvantaged areas regarding the advantage and availability of FinTech in their access to financial services. Moreover, the empirical literature revealed that financial institutions' use of FinTech only applies in areas of payments and loans mainly instead of widespread services. The context for South Africa is not sufficiently backed up with evidence as there is a lack of research in this area. Subsequently. The main point highlighted by the review of literature is that although there is a plethora of information on the impact that FinTech has as an instrument for financial inclusion of SMEs, there is limited information on the South African context. Mainly, the overview reflected upon very many such gaps that exist, and the motivation is to use the findings chapter for bridging of the mentioned gaps.

CHAPTER 3: RESEARCH METHODOLOGY

3.1. Introduction

This chapter outlines the research methodology, design, and process used to gather the data for this study, including the sample from which the data were drawn, as well as the strategy used to analyse the data. The study's chosen approach—among the quantitative, qualitative, or mixed method approaches is explained, justified, and made applicable in the first section. Prefacing the research approach is the definition of research methodology design. Secondly, the chapter elaborates on the sampling, sampling technique, and unit of analysis for the participant target population from whom the researcher gathered information. Thirdly, a description of the data gathering method is given, along with some of its benefits and potential drawbacks for the study. The analytical framework used to analyse the data is presented thereafter.

3.2. Research Philosophy and Approach

3.2.1. Research Philosophy

Research is a collection of assumptions about how knowledge about a situation must be acquired, reviewed, and utilised (Khaldi, 2017). As per Daniel and Harland (2017), there really are various categories of research philosophies which are applicable to a diverse range of domains. Although in modern business and economic studies research, mainly four critical research viewpoints, notably positivism, pragmatism, critical realism, as well as constructionism tend to continue receiving the largest share of scrutiny (Sekaran & Bougie, 2016). This research selects the constructionism world view.

3.2.1.1. Constructionism

There exists a connection between FinTech as a theory and its practical use in the South African financial sector as the researcher seeks to examine the impact of FinTech on SMEs' financial inclusion. As such the research focuses on the experiences of Financial Practitioners who are instrumental in the financial inclusion of SMEs in South Africa (Lincoln *et al*. 2011). Hence, the qualitative approach is more relevant to the study. Constructivists contend that when data is required using transmission patterns, it is frequently obtained and expressed just for formal research goals of producing insights and cannot always be properly integrated with past knowledge (Mogashoa, 2014). It represents significant concerns in qualitative research on the power relationships between researcher and participant, the participant's engagement in the investigation, and how research may provide insightful information about the subject area (Given, 2008). Constructivism, as a research philosophy, is pertinent to this study because the

findings it underpins will qualitatively offer information about how DFIs can better help SMEs who struggle to obtain the capital they need to launch and expand their enterprises.

3.2.1.2. Qualitative Research

The researcher chose a qualitative research approach for this investigation. Discovering how individuals experience occurrences, settings, and procedures is the mission of the qualitative research approach. Rather than just reflecting on "how many" nor "how much," which are commonly addressed using the quantitative approach, this qualitative research approach seeks to address the "what," the "how," as well as "why" of any phenomenon (McGuirk & O'Neill, 2016). According to Bryman (2016), a research approach is a standard structure as to how a study will be carried out. As an outcome, qualitative research may be described as a research procedure that prioritises the quality of variables in their naturalistic setting during the knowledge acquisition and examination procedures. Based on this interpretation, qualitative research is a way to conduct studies that concentrate on phrases rather than statistics (Bryman, 2016).

3.3. Research Strategy

A research strategy is an approach for reaching the goals of the study (Sileyew, 2019). This strategy pertains to how a researcher intends to tackle the questions which have been stated/ presented in addition to how the study has best adopted the procedure which has been adopted (Sileyew, 2019). A research strategy, as referred to by Sekaran and Bougies (2016), may also be characterised as the process being used to accomplish study objectives and react to research issues. By identifying a procedure which might enable the research aim and objectives to all be addressed, the research strategy for the present investigation was designed. The study aims and objectives, as well as practical considerations on what would comprise “quality” research in this specific circumstance, were thought of when determining the research strategy. Case study has been selected in this study as a research strategy.

3.3.1. Case study

Case studies: start providing in-depth detail on complex matters that are encountered in real-life scenarios within a defined period of time as well as multifaceted interpretations of those themes (Rashid et al., 2019). According to Rashid et al. (2019), a case study research strategy is split into four steps: the foundation step, pre-field step, field step, and reporting step. Case study certainly means that this study will refer to a specific scenario and context in its real-life

setting (Yin, 2014). For instance, the study financial inclusion of SMEs through FinTech as an enabling tool is being explored as a case study of the South African financial sector.

3.4. Research Design

3.4.1. Units of analysis and sampling

3.4.1.1. Unit of analysis

The unit of analysis will include various participants from the Development Finance Institutions (DFIs), government agencies and Banks. As already stated above, convenience sampling has been used. This was more specifically with the intention that the researcher is a finance professional working in the DFI environment. This means they would find it easy at reasonably fixed times to reach and contact participants, arrange, and interact with them as per the data collection method of the study.

3.4.1.2. Sampling

Sample is an activity of identifying a segment of a population to assess the features of the entire population. Researchers make a conscious effort to get sample data that are reflective of the population for whom the study is about (Taheerdost, 2016). In this case, sampling can be classified into probability as well as non-probability (Taheerdost, 2016), and for the non-probability category, quota, convenience, snowball, purposive or judgemental sampling.

Convenience sampling of 12 participants will be used in this study since it might be ideal to incorporate the overall population throughout each field of research, however most of the time that is not practical due to the population's relatively finite magnitude. Most scholars use convenience sampling and certain other sample methods for this reasoning (Etikan, Musa, Alkassim, 2016).

Convenience sampling (furthermore regarded to as Accidental or Haphazard Sampling) is a kind of nonprobability sampling within which individuals from the target group are chosen for the objective of the study if they match practical requirements, such as convenient access, geographical location, accessibility at a fixed time, or the desire to participate (Given, 2008).

It might also pertain to demographic research participants which are simple for a researcher to come across (Taheerdost, 2016).

The purpose is to interact with various professionals in DFIs, Banks and Government Departments as representative institutions for the financial sector chosen for this study. The total sample is twelve (12) participants, spilt into three categories. This means that across professionals such as bankers, technical staff, credit finance staff, as well as development

finance practitioners, four (4) participants are from banks, four (4) are from DFIs, and four (4) are from governments agencies.

Table 2: Sample Composition

Participants	**Financial Sector category**
• Absa • Standard Bank • Nedbank • FNB	*Banks*
• Industrial Development Corporation • Small Enterprise Development Agency • Development Banks of Southern Africa • National Economic Fund (NEF)	*Development Finance Institutions (DFIs)*
• The Department of Trade, Industry and Competition (the dtic) • Innovation Hub • Department of Small Businesses • Technology Innovation Agency (TIA)	*Government Agencies*
Total = 12	

These participants were selected with the expectation that they have deeper knowledge and experience of the current situation regarding financial inclusion of SMEs, particularly using FinTech. This is on the basis of the work performed by such participants in the facilitation of processes such as risk capital, lending, grants, loans, and other forms of financial assistance to businesses broadly, including SMEs. Consequently, the various existing challenges, and prospects in their operations serve as their point of departure in terms of being experienced on the topic of this study.

3.4.2. Data Collection and Ethical Clearance

3.4.2.1. Data Collection

Twelve (12) semi-structured in-depth interviews were undertaken involving financial sector professionals from banks and DFIs who directly work in relation to the topic of the study. Given the fact that they permit participants and researchers to use a constructive conversation, semi-structured in-depth interviews are most characterised as "communicative interviews" (Creswell, 2014). Alongside both structured and unstructured interviews are semi-structured in-depth interviews in the domain of conducting research (Hennink, Hutter & Bailey, 2011). Because they permit the researcher and respondent to participate equally in the research work, the researcher utilised semi-structured in-depth interviews (Howell Major & Savin-Baden, 2010). Participants are expected to meander, expanding many viewpoints on the study research topic, even while the researcher is aware of the precise themes to be explored in the research (Onwuegbuzie, 2012).

Moreover, the researcher applied prompt questions to redirect participants' attention back to the concepts under discussion. Effective in-depth interviews, according to Johnson and Christensen (2012), incorporate a two-way exchange occurring between participants and the researcher. Thus, another author, Maxwell (2012), proposes that researchers ought to be versatile while also retaining stability over the research procedure.

The Interview Protocol Refinement (IPR) framework, which is divided into four phases as described below, is introduced by Castillo-Montoya (2016). The creation of an inquiry-based dialogue; receiving feedback on interview procedures; ensuring that interview questions are aligned with research topics; finally piloting this same interview protocol (Castillo-Montoya, 2016).

The researcher initially created the interview questions in accordance with Siedman's (2013) understanding that the foundation of in-depth interviewing is an interest in grasping other people's encounters and the significance they assign to those experiences. In the second phase, the researcher made sure that the research questions for this study formulated what needed to be understood, and that those who took part in the research were interviewed to help with that understanding (Maxwell, 2013). In the third phase, the researcher conducted feedback gathering to increase its reliability as well as its trustworthiness as a qualitative research tool. This enabled grasping how well participants understood the interview questions but also whether their comprehension was significant to exactly what the researcher aimed or anticipated (Patton, 2015). The researcher performed pilot interviews as the final step in the interview question creation process to test the effectiveness of the question sequence (Castillo-Montoya, 2016).

Most importantly, the piloting assists in evaluating the feasibility and effectiveness of the full interview guide/schedule as a research tool (Castillo-Montoya, 2016).

3.4.2.2. Ethical Clearance

In this study the following ethical considerations were observed. Firstly, to ensure that sensitive information is protected, and participant anonymity is upheld, participant's personal detail such as name(s) and addresses were excluded, (Maguire & Delahunt, 2017). Participants were allocated codes during the interviews as way of reducing bias and protect the identity of participants. Moreover, during a briefing with participants, it was reinforced that data collected will solely be used for purposes of this research. This helps to reduce the risk of unauthorized use and or data breach, Mortensen (2020). To ensure that participants voluntarily participate in the research without being coerced or forced, they signed a consent form. Furthermore, to ensure integrity and a credible research process, there was need for the researcher to seek clearance from University of Cape Town research ethics board. The was also fair selection criteria were, participants from various age groups, gender and work experience were considered.

3.4.3. Data Analysis

The researcher in this study uses thematic analysis in the data analysis of the information gathered from the participants. A thematic analysis aims to find trends of themes throughout the interview data (Mortensen, 2020). The choice of thematic analysis was considered because of how versatile it is. According to Mortensen (2020), a thematic approach permits the use of a six-phase structure. First, the researcher immerses oneself with the content. Second, introduce the emergent themes by breaking down the information into smaller components of value and structuring it in a sensible and logical order. Thirdly, the researcher then looks at persistent similarities among many of the codes. Fourth, the researcher evaluates, amends, and deepens initial ideas. Fifth, the researcher addresses the importance of the themes by flagging out the central concept behind each theme. The researcher then summarises the patterns by outlining the data evaluation technique, this includes identifying participants who represent the themes, and inevitably by presenting but moreover analysing the results (Braun & Clarke, 2006). Upon transcribing the various audio-recordings of the interviews verbatim, the researcher manages in ensuring that thematic analysis is applied.

3.4.3.1. Elaboration of Key Findings' Theme Patterns

The overarching intention of any thematic analysis procedure, as described by Maguire and Delahunt (2017), should be to uncover, identify, as well as locate themes, which means that meaningful, critical, or appealing patterns across the data that has been collected. After the endeavour of locating compelling and intriguing themes, the task of applying those themes in order to analyse the study's discoveries and formulate an opinion or standpoint subsequently follows. Consequently, thematic analysis constitutes substantially more than purely and effectively putting collectively or arranging the subject matter coming from the findings surrounding the topic in question (Maguire & Delahunt, 2017).

Considering that they have been thoroughly outlined as they pertain to the numerous key concepts pointed out in the current scholarship, only themes illustrating the specific intent of tackling the research problem, study objectives, and the purpose of this research are used as the starting point of departure during this data analysis. In summary, this expresses the task of speaking to as well as bridging major gaps among existing literature. Subsequently, it may be practical to apply, integrate, set up, subdivide, or eliminate, do away with, or discard specific themes that would have emerged out of the data (Nowell, Norris, White, & Moules, 2017).

Data discordance, likewise, referred to as divergence, was outlined by Pluye, Grad, Nicolau, and Levine (2014) as an onset of incompatible proof that backs up and substantiate perceptions regarding multiple qualitative results or findings during all stages of the investigation. Dissonance, disparity, or variations throughout studies are usually characterised as an accumulation of evidence which differs from the standpoints of others with when it comes to a similar problem along with subject matter, caused by several varied points viewpoints as well as unique characteristics. Dissonance, variation, as well as the complexity of opposing points of view could be valued during studies for the way they reproduce unique concepts and notions, as opposed to interpreting them as a deviation that should be skipped or taken out (Freeman, 2017).

Another researcher, namely, Bezley (2017) draws attention to in other contexts of research that when performing any type of data taking care of analysis, a well-informed but deliberate inspection of contending and unfamiliar different points of view qualify as an essential prerequisite to discovering a starting point of legitimate conclusions across varied subject standpoints.

3.4.4. Validity

According to Gibbs (2018), validity inside of qualitative studies denotes the researcher's usage distinct processes to verify the credibility of the findings, whereas reliability implies the consistency of the study throughout several projects and researchers in case it is replicated or applied to other various settings. The researcher as Yin (2014) indicates, has the obligation to record as many aspects of the interviewing session as practicable. The researcher's review of transcripts is imperative in eliminating any arising errors to increase the study's legitimacy. Through collecting data about the codes and their categories, the researcher also periodically validates that the codes retained their exact interpretations.

The practise of triangulation, which is characterised by Neuman (2014) as the evaluation or assessment of data, using various ways in research, is imperative as well in this study. This is because through such a method, the researcher is able to compare the consistency of data from the findings with the literature, along with various themes that emerged out of the study's objectives. This in particular means to ascertain and understand the use of FinTech as a tool for financial inclusion of SMEs, the themes of the findings should be consistent with filling in the existing gaps in prior studies. This therefore means the data is transferrable and can be used for further research.

3.5. Conclusion

In this chapter, the research methodology, approaches, and design followed were all qualitative in nature, thus making this study a qualitative study. At the core of the chapter is an explanation of various concepts of the research process, including research design, research approach, research philosophy, data collection, data collection sampling, and validity. The chapter was able to show the importance of transcription of interviews with participants for further analyses. The chapter that follows covers the data discussion and analysis of this study.

CHAPTER 4: DISCUSSION OF FINDINGS

4.1. Introduction

This chapter discusses the findings of the data analysis described in the previous chapter. The chapter is divided into the following three main parts: Subsection 4.2 provides an overview of the participant's demographic profile in the first part of the document; Subsection 4.3 addresses the coding, labelling, and categorisation of themes in accordance with interview questions; The third and final part of provides a thematic analysis that elaborates on the key findings of the research.

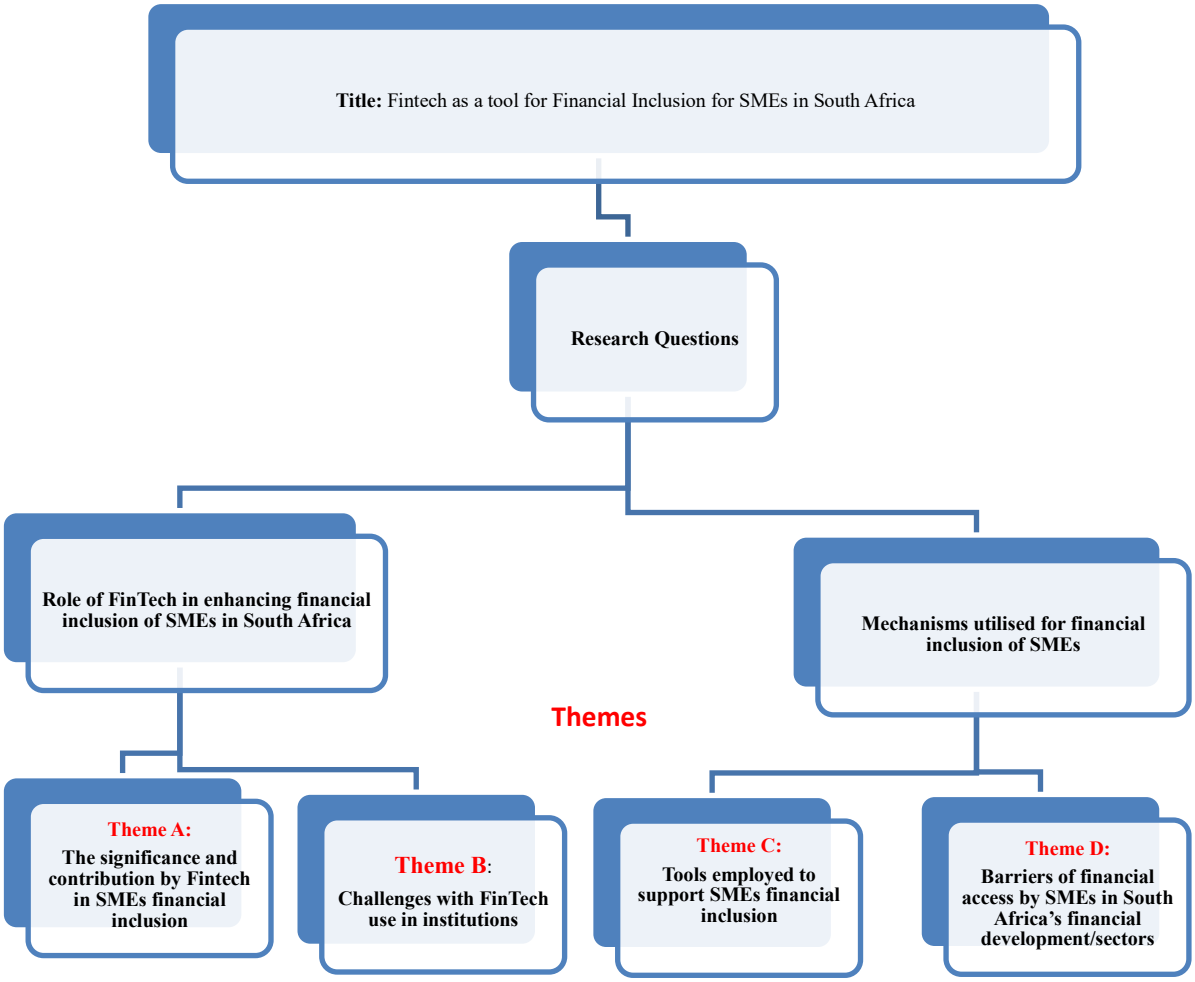
4.2. Profile of Participants' Demographic Information

Across the responses of participants to the interview schedule, as can also be seen in **Table 3** below, it was found that many of the professionals who were interviewed concerning FinTech's role in SMEs financial inclusion, the range of 18-34 years of age was less represented. This is in contrast to the age range of 35-44 years which was highly represented and followed by that of 45-54 years. The ethnic grouping in the entire sample indicates that the majority interviewed were black (10 of 12). There was an equal representation of all categories of institutions or agencies, as the sample showed four participants per category of: Banks, DFIs, and Government Agencies. In terms of the gender parity, it is evident from **Table 3** below that the sample of participants is male dominated. The data reflects that the participation rate in the research included two domineering categories in terms of years of experience of participants working with matters of SMEs financial inclusion i.e., 15+ years of experience and that of 5-10 years of experience. It was mostly convenient that the sample included people such as Investment Principals in terms of DFIs, Deputy Directors in terms of Government in majority. In contrast, the banking category showed a variety of positions, reflecting the complexity of roles that are involved in handling matters of financial inclusion by the private sector, in particular financial services institutions.

Table 3: Participants Demographic Information

Participants	*Age*	*Ethnicity*	*Institution*	*Gender*	*Experience*	*Position*	*Interview Date*	*Interview Duration*
P1	45-54	Black	Govt	Male	Department of Trade, Industry and Competition (the dtic)	Deputy Director	07-Jul-23	01:01:27
P2	35-44	Black	Govt	Male	Department of Small Business Development (DSBD)	Deputy Director	30-Aug-23	01:05:40
P3	18-34	Black	Govt	Male	Technology Innovation Agency (TIA)	Portfolio Manager	12-Sep-23	32:47:00
P4	45-54	Black	Govt	Male	Innovation Hub	Area Innovation Manager	03-Oct-23	01:15:05
P5	45-54	Other	DFI	Male	Industrial Development Corporation (IDC)	Senior Dealmaker	17-Aug-23	59:06:00
P6	35-44	Black	DFI	Male	National Empowerment Fund (NEF)	Investment Principal	08-Sep-23	52:52:00
P7	45-54	Black	DFI	Male	Development Banks of Southern Africa (DBSA)	Senior Deal Originator	09-Sep-23	58:00:00
P8	18-34	Black	DFI	Female	Small Enterprise Finance Agency (SEFA)	Investment Officer	27-Oct-23	39:15:00
P9	18-34	Black	Bank	Male	First National Bank (FNB)	Dealmaker	11-Sep-23	45:41:00
P10	35-44	Black	Bank	Female	Standard Bank	Banker, Relationship Enterprise Portfolio	04-Oct-23	47:20:00
P11	35-44	Indian	Bank	Female	Nedbank	Principal: Specialised Finance	10-Oct-23	52:12:00
P12	35-44	Black	Bank	Male	Absa	SME Relationship Executive Enterprise	16-Nov-23	54:47:00

Figure 2: Labelling, Categorisation of Themes in Line with Interview Questions



Source: Compilation by this Study's Researcher.

4.3. FinTech and financial inclusion of SMEs in South Africa

From the thematic analysis of the responses to the questions relating to the role of FinTech in enhancing SME inclusion, two themes were identified, namely contributions by fintech in SME's financial inclusion and challenges with FinTech. The two broad themes are discussed in the sub-sections below.

4.3.1. Contributions by Fintech in SME's financial inclusion

FinTech has been found to have immensely improved the way in which services are being delivered to SMEs to ensure their financial inclusion. *"The use of fintech ensures speed and efficiency of service delivery"* [P2]. This sentiment was shared by Participant 1: *"Fintech seeks to improve and automate the service delivery on the use of financial services"*. Several participants highlighted the speed with which information gets processed instead of going

through heaps of paperwork. Also, the saving of time as applications are done online therefore cutting on travel costs to and from branches where financial services are being sought. Participant 10*, "SMEs are able to save time and money used to commute to bank branches for services so they can redirect these funds to other operational costs".*

The thematic analysis of the responses to the questions about the role of fintech in financially including SMEs in South Africa yielded the following three points: full automation, collaboration with other institutions, and strategic parnerships.

4.3.1.1. Full automation

Other implications from the findings prove that indeed FinTech reduces the cost of delivering financial services; and in the context of SMEs, digital accounts are less expensive than traditional bank accounts, thus rendering it viable to offer accounts to low-income SMEs. Moreover, it can be inferred that FinTech is used to help SMEs simplify their financial operations and procedures through specialised software and has application scenarios.

"*Doing away with manual submissions of applications to fully automate them, and to improve turnaround times, for example, the SME should be able to check the application status online and not have to rely on an individual to give feedback.*" [P1].

Also, the results closed the research knowledge gap by demonstrating how FinTech has disrupted conventional banking. A younger generation of SME owners is constantly connected to the internet, enabling them to perform a wide range of tasks such as loan administration, handling assets, transfer of funds, asset management, as well as payment handling through mobile devices. This has led to the creation of new digital markets, employment opportunities, and services. "*The banking apps give customers variety of products which they require. Businesses are able to do budgets on the app, access different facilities, transact, at the comfort of one's home"* [P9]. This is a result of banks implementing FinTech initiatives to capitalise on this recent surge in financial innovation.

4.3.1.2. Collaborations with other institutions

The data further revealed that the incubation of SMEs by DFIs in partnership with the government comprises the use of FinTech means of processing SMEs' applications for obtaining finance. Due to the lack of funding for SMEs, DFIs and government collaborate where startups are given business space to incubate their businesses until such a time, they are ready for commercialisation of their products. Participant 1 indicated that "*SMEs are assisted by SEDA to prepare business plans for SMEs to apply for funding at the dtic, and to other DFIs"*. Another view from Participant 8 "*…the collaboration with other institutions assists*

SMEs to get funding for businesses being incubated…". This discovery's contribution to knowledge essentially suggests combining FinTech with business incubation to advance SMEs' financial inclusion, thereby displaying a variety of products and services brought about by the implementation of modern technological practises.

4.1.3.2. Strategic partnerships

It is important for businesses to consider other funding packages in the form of partnering with individuals or businesses that have financial muscle in exchange for a stake in the business. Participant 11 *"…it is important for businesses to also consider finding strategic partners to invest into their business to de-risk their businesses". "More partnerships with FinTechs to bring forth platforms that enable SMEs to access funding* [P10]. The likes of the South African Innovation Summit ("SAIS") makes this possible as SMEs gather around in person and through the SAIS online platforms.

4.3.2. Challenges with fintech use in institutions

Although fintech has been credited for transforming the financial sector some participants have indicated that they still encounter challenges due to the systems and procedures being used. Some have indicated that use of traditional methods of funding is still prevalent where SMEs still have to wait for longer periods to get assisted and to get feedback. Issues of the digital divide were raised were some parts of the country ie, rural areas don't really have access to the sophisticated network connections to enable them access to online platforms. Therefore, it becomes difficult to serve these geographic areas to access funding without them having the burden of commuting to the physical areas where financial services are available. In cases where institutions do roadshows across the country to market their financial products and services, there were some levels of expectation to educate the SME owners on how to access these financial services being offered. The following challenges emerged from most of the interviewed participants.

4.3.2.1. Compliance with regulation, systems and procedures

Over and above the financial industry regulations, financial institutions are guided by their standard operating systems and procedures on how to serve their customers, and in this case SMEs. Therefore, responses from various participants identified views across different institutions. Participant 1 "*…adhere to the financial regulation set by the PFMA which can be rigid and therefore making it difficult to adopt fintech*". These sentiments were echoed by Participant 2 who highlighted that *"the PFMA is viewed as the bible in financial services"*. Other participants have revealed that the systems being used in their institutions are outdated

and need enhancing. *"There seems to be a reluctance to implement changes and as such legacy systems prevails"* [P3]. From these findings it seems there are some institutions who seem to be limited by their systems, procedures and regulations to adopt fintech.

4.3.2.2. Business owner education

The results from the interviewed participants have revealed that some business owners are comfortable with visiting branches of funding institutions. This becomes a challenge as there are cost implications and the inconvenience of not being assisted due to not having all relevant documentation when arriving at these institutions. *"…many people still prefer human interaction, and this makes it difficult to assist them due to reduced bank branches"* [P10]. Also, from [P10] *"…communicating via online platforms is seen as impersonal by some of the customers".* It emerged strongly from banks that business owners need to be educated about the use of online platforms and how to engage them to suit their business requirements including obtaining funding. Another discovery which came from banks and DFIs is that business owners require funding but unfortunately it would be found that they don't have the requisite skills to run those businesses and therefore deemed risky investments.

"…most SMEs were unable to get funding from us because their business plans did not show economic merit" [P12]

4.3.2.3. 4IR and AI Readiness

The evolution of 4IR and AI has been topical in as far as technological change or advancement is concerned. FinTech is a result of such technological changes and therefore these had to be interrogated to establish the extent of readiness for the selected institutions. Banks seemed to be on track with these technological advancements, unfortunately DFIs and Government Agencies seemed to be lagging behind. *"…there are talks of 4IR in our institution but no real implementation since joining"* [P2]. *"at the IDC the state of readiness is a matter of measure and adapt"* P[5]. *"At the NEF there are standardised systems however there is more work to be done to enhance and improve the readiness of the systems for 4IR" [*P6].

4.4. Mechanisms utilised in the financial inclusion of SMEs

In the thematic analysis of the questions posed around FinTech mechanisms used by various institutions, i) tools employed to support SME financial inclusion as well as ii) the barriers of financial access for SMEs were identified to give more perspective on the theme. The tools were identified as the enablers of financial inclusion but on the other hand were barriers identified to be making it difficult to access funding.

4.4.1. Tools employed to support SMEs financial inclusion

Some tools being utilised to financially include SMEs have been identified across the various institutions. Banks have indicated that banking apps are used to give the quickest access to their customers due to the services being provided at the comfort of their own homes. Whilst DFIs and government agencies have advised on various systems which they credit to financially including the SMEs. Some of these online systems are accessible remotely and SMEs can search for themselves online to see the availability of funds, their requirements and any other useful information which can assist with applications for these financial services.

4.4.1.1. Banking Apps

Banking apps have been identified by the banks as being tools used to assist with financial inclusion. The finding that the availability of mobile banking apps is indicative of FinTech's role in SMEs' financial inclusion corresponds with this research's reviewed literature such as Blancher et al. (2019) and Chatterjee (2020), who pointed out that the ability to access financial services through mobile phones has substantially improved financial inclusion by closing the gap within financial infrastructure that is currently present in less developed countries. "*…assisting clients with the use of banking apps, business plan assessments, and analysis of financials*" [P11]. And "*…the use of the banking app that enables customers to transact online using their technological devices like laptops and cell phones*" [P12].

Contrarily, such a finding across participants' responses points to a gap in the South African context in which, despite the fact that banks and other financial service providers are able to accelerate FinTech technologies for the benefit of SMEs, the feasibility of implementing such FinTech technologies in remote and rural regions remains a concern. This is because those who own SMEs and reside in rural areas are said to be disadvantaged and lack the luxury of owning Smart mobile devices.

4.4.1.2. Various Systems / Innovation Bridge Portal**,** SimplyBiz; One ID, and FinFinder

Institutions have elaborated on various mechanisms that exist, and which are used to assist in the inclusion of SMEs.

a) Innovation Bridge Portal

This is an automated platform which resides in the Department of Science and Technology and was developed by the Council for Scientific and Industrial Research ("CSIR") to be a "one stop shop" for SMEs to access financial services in government. The SME is enabled by this e-platform to access information on partners like the CSIR, the IDC, NEF, Sefa etc. on how they can get assisted with financial products and services.

"*…. the DSBD plays an enabling role for SMEs to come up with FinTech solutions, … is mandated to support these FinTech's in commercialising their technological solutions"* [P6].

b) <u>SimplyBiz</u>

This is a Nedbank online platform that assists small businesses to access financial support at various stages of the business starting from business templates, skills development, marketing of these businesses to scaling them.

c) <u>One ID</u>

This is an FNB banking app used by customers to find offers on financial products to apply for. Also, there are improvements of access to information from customers to determine banking behaviour by the bank. SMEs are able to draw financial statements and do budgets on the app to see what they can afford online which eliminates them having to go to the branches. "*…scoring models on businesses transacting with the bank. For example, the business can be graded based on its historic performance (minimum 6 months). The scoring model is integrated with ITC, home affairs and banking behaviour.*" [P5].

d) <u>FinFinder and SefaLas, SAP and CRM system</u>

These are systems used by DFIs to automate applications as well as maintenance of SME information. The FinFinder and SefaLas systems are used by Sefa whilst SAP and CRM are used by IDC, NEF and DBSA as operating systems where they engage with SME information for funding.

4.4.2. Barriers of financial access by SMEs in South Africa's financial development/sectors

The study revealed that the barriers experienced in accessing funding by SME were across the board as all three institutions have identified collateral and lack of business skills as common barriers. The bureaucracy was however not so prevalent from banks but DFIs and government agencies highlighted it as an issue. Stringent requirements when applying for funding also came out strongly across the interviewees as they spoke about bankability, economic merit and commercial viability. *"SMEs should be able to show commercial viability to be considered"* [P6]. Participant 6 also alluded to the fact that there is a misalignment between the funder and what the SME requires. An example made was that an institution will be offering the SME funds to set up a manufacturing site to promote localisation whilst the SME wants to outsource the manufacturing to more established businesses. This then makes it difficult for these funds to be accessible due to not being aligned.

4.4.2.1. *Bureaucracy*

Almost all DFIs have mentioned that the bureaucracy in the assessments of applications of SMEs is in the heart of so many SMEs not accessing funding. There are heaps of paperwork required. Many small businesses are found to not be in possession of financials, SARS compliance, and in some instances no proper business plans to assess the economic merit of the business. As a result, it takes longer to assess their applications due to the back and forth of information requests and submission of wrong documents makes it even more difficult to grant funding and the SMEs end up giving up on the said application.

"*There is a misalignment between the funder and the SMEs in terms of what the funder is funding and what the SME requires"* [P6]

"*…. the business must be operational and in good standing with their tax compliance*" [P12].

"Most programmes …. require business to be in operation for at least 1 year, funds must be spent by the SME before accessing funding and be reimbursed afterwards, meaning that the businesses must have some contribution to the business" [P1].

4.4.2.2. *Collateral*

The findings also revealed that SMEs struggle to get funding due to banks requiring collateral to safeguard their investments should the businesses not be profitable. DFIs also indicated that even though they are known as the "the borrower of the last resort" they too require collateral from SMEs, however they are risk lenders who do give funding to SMEs by taking soft security like shareholder guarantees and cession of shares.

> "*…it is difficult to fund businesses that don't show financial viability because the risk of non-payment is high.* [P10].

4.4.2.3. Lack of Business Skills

It has been found that although many business owners show enthusiasm to effectively run their businesses, they are found to not be in possession of the requisite skills to run their businesses. As a result, where there is economic merit, some DFIs do give business support grants to upskill these businesses so that they can run their businesses efficiently. The additional support given to businesses will normally include, financial skills, marketing skills, and technological skills where they learn how to use accounting software to prepare financial reports for their businesses.

"…when SME requires capital to start their business but not having the requisite skills of running those businesses" [P10].

"*Total funding package given to SMEs includes funding for FinTech system. For example, when a fast food is being funded the automatic order system is part of the funding an SME will receive*" [P9].

4.5. Discussion of Findings

4.5.1. The role of fintech in enhancing financial inclusion of SMEs in South Africa

The findings from the study have expounded on the *significance* of fintech in the financial inclusion of SMEs and the *challenges* of fintech use in the institutions. Fintech was found to have brought about some improvements in systems used to process information efficiently with speed and accuracy. Therefore, it is not surprising that South Africa was reported to have a world-class financial system which ranked 18 out of 140 markets in efficiency, trustworthiness and confidence (World Bank, 2017). This is being made possible by fintech as there is automation of systems to enable digitisation of financial products to be accessible by SMEs. Hence, there are collaborations among the suppliers of funding which in this case are banks, DFIs and government agencies to co-fund, and incubate small businesses. These collaborations then lead to strategic partnerships among SMEs as they share common goals of seeking funding to start and/or scale their businesses. The SA Innovation Summit's mission is to catalyse economic growth on the African continent by connecting entrepreneurs to capital, skills and markets, and fintech makes this possible (SAIS, 2024).

Despite its benefits fintech is not being fully adopted by Government Agencies and some DFIs due to not being at the required readiness levels for 4IR and AI. The PFMA which regulates the financial systems of government departments was sighted to be a hinderance as it is said to be rigid. This is because of challenges with complying with the PFMA like regarding under-expenditure and over-expenditure as financial misconduct, which consequently lead to millions being returned to the National Treasury (Madue, 2007). However, through collaborations with other financial institutions the government does catch up with the technological advancements. This is witnessed when they co-sponsor events and conferences of SAIS's magnitude because they bring together SMEs under one roof to market their innovations/products and present their funding requests to potential investors. Other challenges found included the digital connectivity for people in the rural arears, and the levels of digital savvy for small business owners to independently access financial products online. The Organisation for Economic Co-operation and Development ("OECD") has reported that the level of financial literacy in South Africa is low (OECD, 2023). Nonetheless efforts are being made by Government agencies and DFIs to train entrepreneurs on how to access financial services during roadshows.

4.5.2. Mechanisms utilised in the financial inclusion of SMEs

The findings from the study indicates that strides have been made by fintech evidenced by the tools being utilized to support SMEs in accessing financial inclusion. Also, the study had delved deeper into understanding the barriers for SMEs to access financial access in South Africa's financial sector. The tools specifically used by the institutions in the study included banking apps used by the banks to process SME information swiftly and conveniently as well as other various systems ie, (*Innovation Bridge Portal, FinFinder, SefaLas; SAP and CRM*) used by DFIs and Government Agencies. Banking Apps are found to be more accessible due to the advanced fintech platforms they use as it was previously discussed that banks are on track with the 4IR and AI applications. However, studies have found that the banking sector is better set up to serve the financing needs of more established businesses compared to start-ups and smaller scale firms (The Swiss State Secretariat for Economic Affairs (SECO), The World Bank, Intergovernmental Fintech Working Group (IFWG), Genesis, 2019). Hence, it is important for DFIs and Government Agencies to improve their systems to better cater for the financing needs of SMEs.

The barriers of financial access by SMEs were identified as i) bureaucracy; ii) collateral and iii) lack of business skills. Although DFIs are dubbed the "lender of last resort", funding from them was found to not be easily accessible due to the bureaucracy involved in turning over applications to approval of funding. (Blancher et al., 2019) have uncovered that a misalignment between the demand and supply of funding has a greater impact on the financial inclusion of SMEs and as a result it becomes time consuming to process SMEs application for funding due to back and forth information requests between the funder and the SME. Also, the lack of business skills of the business owners was found to be a contributor to the barriers to financial access, but to counter this challenge DFIs provide small businesses with business support funding to acquire the necessary skills required to effectively run their businesses. These business support interventions were found to be helpful in improving business performance and create jobs (World Bank, 2016). It was also found that banks require collateral to fund businesses and because small businesses especially start-ups don't have it, it therefore makes it difficult to get funding from banks (Rasheed et. al., 2019). It is therefore important that Government and DFIs fully adopt fintech to improve financial access to SMEs by improving the mechanisms to financial inclusion of these SMEs.

CHAPTER 5: CONCLUSION, AND RECOMMENDATIONS

5.1. Introduction

This section provides a summary of the study on FinTech as a tool for financial inclusion for SMEs in South Africa. The chapter was organised as follows: The findings are summarised in sub-section 5.2, recommendations have been described in sub-section 5.3 for a number of key stakeholders, limitations of findings have been addressed in sub-section 5.4, lessons that can be drawn for purposes of future research are covered in sub-section 5.5, which constitutes the final part of the paper. The primary purpose of this chapter is to provide an overview of the findings and demonstrate how the study was able to close existing gaps within the body of knowledge and research while also offering fresh insights.

5.2. Summary of Findings and Conclusions

The primary conclusions first showed that FinTech is used by DFIs in collaboration with the government to process SMEs' loan applications as part of their incubation of SMEs. Stated differently, FinTech and business incubation combined can promote SMEs' financial inclusion and showcase a range of goods and services resulting from the application of contemporary technology practises. The process of funding SMEs to achieve financial inclusion is accelerated and automated by doing away with manual funding applications. Finally, and perhaps most importantly, it was discovered that the existence of applications for mobile banking signifies FinTech’s role in SMEs' financial inclusion.

Secondly, it can be concluded that DFIs applies web-based tools to track the status of applications and submit applications for funding for SMEs. Furthermore, it had been found that DFI processes funding applications for SMEs using automated systems. Another finding pointed out that computerised innovation platforms are used by government agencies, (although to a lesser extent) to provide financial assistance to SMEs. Additionally, the research's findings revealed that banks grade SMEs' eligibility requirements using rating and scoring systems. The research also showed that by leveraging the mechanisms that have been identified, funding applications from SMEs can be handled with greater efficiency and their progress tracked by government agencies, banks, and DFIs. This could eventually help those SMEs become more financially included.

Thirdly, among the study's key conclusions was that DFIs use online platforms to track the status of applications and submit funding applications for SMEs. The study also found that banks seem to be more 4IR and AI ready than Government Agencies and DFIs and therefore their level of FinTech use is more advanced. Another noteworthy point was that government

agencies believe FinTech procedures help SMEs by saving time when submitting funding applications. For the purpose of gaining more and deeper insights, it became evident from findings that DFIs support the use of FinTech due to its potential benefit of securely storing documentation in an appropriate manner in comparison to traditional methods of preserving and processing data. The survey further demonstrated that SMEs view FinTech's simplicity of use as beneficial for rapid and precise data processing during the application procedures for funding, products, as well as offerings.

Fourthly, yet possibly the most significant, the researcher documented the comprehension that COVID-19 required remote work, which equipped certain government agencies to support SMEs in achieving financial inclusion through the use of 4IR and AI technologies. The claim that some banks are prepared to modify their practises and services for SMEs in response to 4IR and AI technologies was then made, as evidenced by the emergence of mobile applications. Likewise, the study identified a crucial finding: that a number of DFIs and government organisations currently run education and training programmes to help staff members become up to date on emerging technologies. It also emerged that banks have already started conducting business virtually in an attempt to reduce human contact and shift in favour of digital currency.

In accordance with the study's findings, another significant obstacle to SMEs' access to finance in South Africa's financial development and sectors is the FinTech space. Funding for SMEs is processed slowly because of human error brought on by system modifications. This changed to realise that SME start-ups in South Africa do not have sufficient documentation of their financial and business acumen. The researcher also found that stringent requirements set by government agencies and DFIs for SMEs seeking funding serve as a barrier to SMEs' financial access from financial development sectors.

5.3. Recommendations to Various Key Stakeholders

It is imperative to emphasise that key parties and or stakeholders may be many who are interested in this topic, however, only Banks, Government Agencies, and DFIs in South Africa have been selected as those who should take the following recommendations into account:

5.3.1. Recommendations to SMEs

- SMEs ought to pursue learning how to use FinTech capabilities, tools and services provided by various institutions to grant them funding.

- SME owners ought to improve their business acumen and skills to be able to get financial access.
- SME owners ought to take into account the importance of investing their time improving their credit status, so that they can be able to obtain funding.

5.3.2. Recommendations to Banks

- Banks must begin workshops and initiatives to teach clients, in particular SME owners about the significance and knowledge of FinTech in the process of obtaining financial assistance.
- Banks must improve their employee's knowledge about the role of FinTech in providing SMEs with ease of access to offerings and products.
- Banks must remove a restriction on funding SME start-ups that even though their owners are not experienced but show the ability to learn through various incubation initiatives.

5.3.3. Recommendations to government

- The government ought to invest financial resources in the use of FinTech for quickening processes of funding start-ups, especially SMEs that are based in rural and remote areas.
- Government ought to provide adequate training for older employees that are not technologically savvy but are involved in the activity of providing funding and assistance to SMEs with short courses and practical experience of using FinTech and other 4IR and AI technologies.
- Stricter requirements for SMEs seeking to obtain credit (loans) and capital for start-up must be relaxed to allow for SMEs financial inclusion.
- Laws must be strengthened to regulate the FinTech industry better to protect SMEs prone to fraudulent activities.

5.3.4. Recommendations to DFIs

- DFIs ought to begin taking the initiative to invest in FinTech operations across all their activities to ensure that when SMEs apply for funding, they encounter simplicity and ease of access.
- At the core of DFIs' provision of financial assistance to SMEs, FinTech ought to be made a priority.
- DFIs ought to equip SMEs from remote areas with key technological knowledge once-off yearly to ensure they are able to track their business funding applications. This refers

to SME owners who may be considered to be from very faraway places in the periphery to the urban areas where technological competence is broader.

5.4. Limitations of Findings

The findings of this research were limited in that the sample of participants that were interviewed was less, and it did not include the interviewing of SME owners who the study's discussion covered the most. In the same context, it could be argued that the many professionals from DFIs, government agencies, and banks that were interviewed although there were four (4) each, would have provided even greater and extensive knowledge if they were many. The other limitation is that although the study speaks of South Africa, it is mostly confined to a point where participants were not all from the entire country. Therefore, the scope of the study limited the findings in that regard. Another limitation is that some of the participants' responses to questions showed a lack of deeper knowledge of FinTech and its role but only provided answers with an articulation based on their experience of working with SMEs.

5.5. Lessons for Future Research

A mixed research method study where both qualitative and quantitative research is taken is what other researchers focusing on a related topic of SMEs financial inclusion and FinTech ought to consider in future. A longitudinal study may be much more relevant for a study that will be conducted by any future researcher on a related topic to the topic of this research. A broadened sample, along with a different sampling technique to the one utilised in this study should be considered. A future study focused on a related topic of FinTech as a tool for financial inclusion may have to include private donors/corporations other than banks such as private venture capitalists.

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Appendices

Appendix A: Interview Guide and Informed Consent

Master of Commerce in Development Finance
INTERVIEW CONSENT FORM:

Participant name: …….

I volunteer to participate to participate in a research project conducted by Thapelo Mokwena as partial fulfilment of the requirements for the **MCom Development Degree** at the Graduate School of Business. I understand that the research is designed to gather information about ***Fintech as a tool for financial inclusion of SMEs in South Africa*** and that I will be one (1) of approximately twelve (12) people being interviewed for this research.

Objective(s) of the research
The objectives of the research are: To explore the role of fintech as a tool to be used for the financial inclusion of SMEs in South Africa. In addition, to discover the mechanisms utilized in financial inclusion of SMEs.

Ethics approval
Ethical consent for the study has been approved by the UCT Commerce Faculty Ethics in Research Committee on 23 June 2023.

Participation and confidentiality
I understand that my participation in this research is voluntary, that I will not be compensated and that I may withdraw at any time. The interview will take approximately 45 - 60 minutes to complete and will be audio recorded **via teams**.

I understand that I will not be identified by name in any reports using information obtained from this interview and that my confidentiality as a participant in this study will remain secure. Subsequent uses of records and data will be subject to standard data use policies which protect the anonymity of individuals and institutions.

Should you have any questions or concerns please contact me, Ms Thapelo Mokwena thapzamo@gmail.com or my Supervisor Prof. Latif Alhassan Latif.alhassan@uct.ac.za

Consent
I consent to participate in this interview, based on the terms outlined above and subject to the following additional condition of my own (if any).

----------	**----------**
Signed by interviewee	**Date**
----------	**----------**
Signed by Student	**Date**

Section B: Demographic composition

1. Which age category do you classify yourself?

O 18-34
O 35-44
O 45-54
O 55+

2. What is your ethnic group?

O Black
O Coloured
O Indian
O White
O Other

3. Which gender do you describe yourself?

O Female
O Male
O Other

Section C: Experience related details

4. Which one of the following groups of institutions do you work in?

O Banks
O Development Finance Institutions (DFIs)
O Government Agencies

5. How long have you been working within the institution selected above?

O Less than a year
O 1 year
O 2 -5 years
O 5 -10 years
O 10 -15 years
O 15+ years

6. What is your position/rank within the institution you work in?

Section D: In-depth

7. What is your understanding of the concept of financial inclusion within a contextual reference to SMEs?
8. What is your knowledge of the term fintech?
9. Can you share your experience on a Fintech mechanism/model you have used for SMEs to access finance from your institution?
10. Which indications of fintech in practice within your operations have you seen over the years?
11. Which pre-conditions in terms of policy/financial regularities for SMEs' financial inclusion are set by your institution?
12. What is the scope of your knowledge and skills of working with fintech in the processing of funding/lending/other financial initiatives to ensure the financial inclusion of SMEs?
13. In your view, and based on your experience, what are the challenges of fintech in your institution regarding associated products and offerings for SMEs?
14. What is the extent of readiness/preparedness your institution has for the Fourth Industrial revolution (4IR) and Artificial Intelligence (AI) as technologies are evolving with the rise of more automation thus changing the way financial services and practices?
15. In your years of working in the institution you selected in Section C (Q4), have there been interventions to enhance the skills of development finance professionals internally in the institution to match with the rapid changes brought on to financial services by the gradual integration of the 4IR as well as its features?
16. What in your view are the benefits of fintech in your institution which you work in as selected in Section C (Q4) regarding associated products and offerings for SMEs?
17. Which initiatives/models/strategies/approaches of fintech are available in your institution's financial services and offerings for start-ups in South Africa?
18. What in your opinion can government change to ensure that institutions such as the one you work in are viable in terms of fintech associated products and offerings for SMEs?
19. Which areas of improvement do you think should be focused on by the financial development/financial sectors in the provision of associated products and offerings to SMEs under the realm of fintech?
20. As a representative of your institution, which aspects do you think are impediments of financial access by SMEs in South Africa's financial development/sectors?
21. What other additional aspects that you would like to mention about the use of fintech as a tool for SMEs' financial inclusion that could assist this research in better grasping it