

Determinants of a Digital Work System for Financing SMMEs in South Africa

Name: Stella Tembisa Ndabeni-Abrahams

Student number: 605336

Student email: 605336@students.wits.ac.za

Supervisor: Prof. Nixon Muganda Ochara

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

Johannesburg, 2024

Candidate's declaration

I, **Stella Tembisa Ndabeni-Abrahams**, declare that this Research Report titled '**Determinants of a Digital Work System for Financing SMMEs in South Africa**' is my own unaided work. It is submitted for the degree of Master of Management in the field of Digital Business in Wits Business School at the University of the Witwatersrand, Johannesburg, South Africa. This work has not been submitted for any other degree at any other university.



.....

Stella Tembisa Ndabeni-Abrahams

Student number: 605336

20 September 2024

Date

ACKNOWLEDGEMENT

I would like to acknowledge the support I received from my family throughout this journey, for their words of encouragement every time I had to wake up and focus on this work, when I had to balance between my demanding work and my academics.

Secondly, to also appreciate the colleagues and comrades who always encouraged me to pursue my Masters and persevere throughout the journey, it is their words that could carry me during tough times in the journey.

Let me express my appreciation of the work of my Supervisor Professor Nixon Muganda Ochara for his patience, academic guidance and support throughout this journey. The ability to constantly offer constructive criticism on my work while through the process teaching me different forms of exploring the ideas that came out in the research process, though the process was painful, but it has contributed immensely to my own academic development.

Importantly, I would like to thank the participants who are mostly SMMEs and represent the challenges of many with accessing finance from development finance institutions – I appreciate their patience throughout the interviews and different conversations we've had while I was completing this work. I hope this work contributes in improving access to financial support for SMMEs across country.

I would also like to thank the Lord Almighty for carrying me through, giving me strength and courage throughout this journey.

Lastly to extend my word of appreciation again to everyone who supported me in this journey, particularly my friends who were always there until completion of this work.

ABSTRACT

The purpose of this qualitative study is to explore the determinants of the digital work system for the fintech or digital financing ecosystem for South Africa. In digital financing, there is an expectation that digitalization would make access to finance easier, yet this has not happened as expected in developing countries such as South Africa. Some reasons are related to policy and regulation that remains unclear in many countries constraining the development of fintech solutions and broadly, digital financing. Therefore, this study sought to address the following primary research question: *what are the determinants of the digital financing system of South Africa?* Three secondary research questions were then asked to help in addressing the primary research question.

A case study approach using critical realism as the research paradigm. South Africa was used as a case study, with data being collected from SEDA and SEFA representatives, with additional secondary data collected from the Enterprise Supplier Development forum, a community-of-practice group of SMMES and other partners in the small business sector. Face-to-face interviews were conducted with additional document analysis. Work Systems Theory (WST) was used as the analytical framework for understanding the digital work system for the fintech system in South Africa.

The results of the analysis allowed three conclusions to be stated as follows: Government and other stakeholders and relevant SOEs such as SEFA and SEDA should foster financial innovation while maintaining financial system integrity. A multi-collaborative process for policymakers to rethink established policies of Fintech to recognize that recent trends in digital transformation requires a fresh look at policies. Secondly, investments in both physical and digital infrastructure is essential to enable comprehensive strategic initiatives that support small business sector growth. Third, insights from the analysis and discussions emphasize the pivotal role of stakeholders in shaping the digital financing landscape.

While sometimes there is 'conflicts' in service provision, the themes of external collaboration, financial product innovation and market expansion are important determinants for collaboration interactions among stakeholders in a digital financing system.

Keywords: Digital Work System, Digital Finance, Digital Transformation, Work Systems Theory, Socio-Technical Systems.

TABLE OF CONTENTS

Contents

CANDIDATE’S DECLARATION	II
ACKNOWLEDGEMENT	III
ABSTRACT	IV
TABLE OF CONTENTS	VI
LIST OF TABLES	IX
LIST OF FIGURES	X
LIST OF ACRONYMS	XI
CHAPTER 1: INTRODUCTION.....	1
1.1 STATEMENT OF PURPOSE	1
1.2 BACKGROUND OF THE STUDY	1
1.3 RESEARCH PROBLEM.....	4
1.4 RESEARCH QUESTIONS.....	5
1.5 RATIONALE	6
1.6 DELIMITATIONS OF THE STUDY AND ASSUMPTIONS	7
1.7 DEFINITION OF TERMS.....	7
1.8 STRUCTURE OF THE DISSERTATION.....	8
CHAPTER 2: LITERATURE REVIEW AND THEORETICAL FRAMEWORK	10
2.1 INTRODUCTION.....	10
2.2 BACKGROUND DISCUSSION.....	10
2.3 TECHNOLOGY ADOPTION AND INNOVATION IN FINANCIAL SERVICES	11
2.4 WORK SYSTEMS FOR DIGITAL FINANCE	12
2.4.1 <i>Challenges and opportunities for digital finance</i>	13
2.4.2 <i>Socio-Technical Factors for Digital Work Systems</i>	14
2.4.3 <i>Potential Risks in Implementing Digital Work Systems</i>	15
2.5 RESEARCH GAPS IN THE LITERATURE	16
2.6 ANALYTICAL FRAMEWORK	17
2.6.1 <i>Work Systems Theory</i>	20
2.6.2 <i>Conceptual Framework</i>	22
2.7 SUMMARY	25
CHAPTER 3: RESEARCH METHODOLOGY	27
3.1 RESEARCH APPROACH.....	27

3.2	RESEARCH DESIGN	28
3.3	DATA COLLECTION METHODS.....	29
3.4	POPULATION.....	29
3.4.1	<i>Population</i>	29
3.4.2	<i>Sampling method</i>	31
3.5	THE RESEARCH INSTRUMENT	32
3.6	PROCEDURE FOR DATA COLLECTION	33
3.7	DATA ANALYSIS STRATEGIES AND INTERPRETATION	33
3.8	QUALITY ASSURANCE.....	36
3.9	ETHICAL CONSIDERATIONS	37
3.9.1	Informed Consent.....	37
3.9.2	Voluntary Participation.....	37
3.9.3	Confidentiality and Anonymity.....	38
3.9.4	Management of Data.....	38
3.10	SUMMARY	38
CHAPTER 4: PRESENTATION OF FINDINGS		39
4.1	INTRODUCTION.....	39
4.2	DEMOGRAPHIC ANALYSIS.....	40
4.3	DETERMINANTS OF A DIGITAL FINANCING WORK SYSTEM.....	41
4.3.1	<i>Environmental Factors for Digital Financing</i>	41
4.3.2	<i>Strategies for Digital Financing Ecosystem in South Africa</i>	45
4.3.3	<i>Infrastructure for Digital Financing in South Africa</i>	48
4.3.4	<i>Processes and Activities for the Digital Financing Ecosystem</i>	50
4.3.5	<i>Participants in Digital Financing in South Africa</i>	53
4.3.6	<i>Information in Digital Financing Ecosystem</i>	54
4.3.7	<i>Technology in Digital Financing Systems</i>	57
4.3.8	<i>Products/Services in Digital Financing Systems</i>	58
4.3.9	<i>Customers in Digital Financing Systems</i>	60
4.4	SUMMARY OF THE FINDINGS.....	62
CHAPTER 5: DISCUSSION OF RESULTS, CONCLUSIONS, AND RECOMMENDATIONS		64
5.1	INTRODUCTION.....	64
5.2	DISCUSSION OF FINDINGS	64
5.2.1	<i>Economic and Regulatory Structures</i>	67

5.2.2 <i>Organizational Infrastructural Realities</i>	71
5.2.3 <i>“Technology” & Stakeholder Interactions</i>	72
5.3 CONCLUSIONS OF THE STUDY	73
5.3.1 <i>Conclusion for Research Question 1:</i>	73
5.3.2 <i>Conclusion for Research Question 2:</i>	74
5.3.3 <i>Conclusion for Research Question 3:</i>	75
5.4 IMPLICATIONS OF THE STUDY	75
5.4.1 <i>Policy Implications:</i>	75
5.4.2 <i>Practice Implications:</i>	76
5.4.3 <i>Academic Implications:</i>	76
5.5 SUGGESTIONS AND LIMITATIONS OF THE STUDY	77
REFERENCES	82
APPENDIX A (RESEARCH INSTRUMENT – INTERVIEW GUIDE)	91
APPENDIX B: PROPOSED SCHEDULE AND TIMELINES.....	92

LIST OF TABLES

Table 1	Typical artefacts of Work Systems Methodology	19
Table 2	Relevant respondents identified for the study	28
Table 3	Study data sources	31
Table 4	Work Systems Theory (WST) Components	36
Table 5	Study Respondents	37
Table 6	Environmental factors for digital financing	38
Table 7	Strategies for Digital Financing	40
Table 8	Infrastructural influence of the Work System for Digital Financing	42
Table 9	Nature of Digital Finance Operations	44
Table 10	Sample Digital Financing Participants in South Africa	46
Table 11	Digital Financing Systems	47
Table 12	Technology in Digital Financing Systems	49
Table 13	Products/Services in Digital Financing Systems	51
Table 14	Customers in Digital Financing Systems	52
Table 15	Consistency Table	67

LIST OF FIGURES

Figure 1	Nested systems view of socio-material practice within a Work System	16
Figure 2	Static view of Work System Method	18

LIST OF ACRONYMS

DFI	Development Finance Institutions
GDP	Gross Domestic Product
IDC	Independent Development Cooperation
NDP	National Development Plan
Samaf	South African Micro Apex Fund
Seda	Small Enterprise Development Agency
SEFA	Small Enterprise Finance Agency
SMME	Small, Micro and Medium Enterprises
SST	Socio-Technical Systems
TREP	Township and Rural Enterprise Programme
WSM	Work Systems Model
WST	Work System Theory
4IR	Fourth Industrial Revolution

CHAPTER 1: INTRODUCTION

1.1 Statement of purpose

The purpose of this qualitative study is to analyse the determinants for a work system for a digital financing ecosystem for Small, Medium, and Micro-sized (SMMEs) in South Africa. Alter (2010) interprets a “**Work System**” as a system in which human participants and/or machines perform work (processes and activities) using information, technology, and other resources to produce specific products/services for specific internal and/or external customers. Digital platforms have recently emerged as units of organizing the digital economy and how work is effectively organized online. These digital platforms or organizing units for work in online environments dictate how work is carried out, breaking down boundaries between companies, geographies, customers, and other stakeholders and participants, and determining who will benefit from advanced digital technologies (Winby & Mohrman, 2018).

As we transition to the Fourth Industrial Revolution (4IR) society, the existing forms of organizational designs that have emerged from the third industrial revolution may not adequately address newer realities of the digital economy, in which the social and the technical elements of an ecosystem need to be designed. Work is no longer bounded to a single organization, Winby & Mohrman (2018) continues, and individual organizations can no longer be the focus of design, but a digital sociotechnical systems approach that involves multiple stakeholders and participants in codesigning a digital system and the social system at the ecosystem level.

The study identifies the key components and processes involved in the digital financing of SMMEs and identify the determinants for a work system architecture that aligns with the unique characteristics of SMMEs in South Africa. Such an understanding can be useful in recommending policy guidelines for the digital financing ecosystem.

1.2 Background of the study

Digital finance serves as a crucial tool for enhancing financial inclusion among Small, Medium, and Micro Enterprises (SMMEs) in South Africa. Financial inclusion is the

provision of affordable financial products and services that are affordable in repayment terms within favourable conditions (Chitimira & Ncube, 2020). The use of digital platforms to access finance has become an important tool for financial institutions, this allows users to use their devices to facilitate transactions, payments, and investments. Digital financing remains a challenge for government institutions on various levels, with many institutions still using traditional forms of financing and transforming at a slower pace in embracing the new technologies. Secondly, the regulatory instruments for digital finance have not provided sufficient protections for government institutions on credit risk and these have had governments lagging in embracing digital finance. The existing digital divide in South Africa in relation to access to digital platforms and devices, access to affordable internet, and access to the means of communication has been a challenge. This makes government institutions delay in adopting new platforms to be able to provide access to those who have no access to the technologies.

Small Micro and Medium Enterprises (SMMEs) play a very important role in job creation for economies across the globe. According to the World Bank 90% of businesses across the world are SMMEs and account for 50% of people who are employed (World Bank Report, 2020), and in South Africa they contribute over 64% of the current labour force (Seda, SMME Quarterly update, 2021). It is the ability of SMMEs to create new products and services which always create opportunities for growth and sustainability in economies. The National Development Plan in South Africa envisages that by 2030 the country must create 11 million jobs and 90% of these should come through SMMEs (National Planning Commission, 2012). It is through investment in SMMEs that South Africa can deal with the rising unemployment. This places SMMEs as the key driver of economic growth in many economies. SMMEs in South Africa are confronted with many challenges which constrain their competitiveness. These challenges are either external challenge that relate to the environment in which they operate in within the economic structure of South Africa, and that could be highly concentrated markets that limit participation of SMMEs in the various sectors as highlighted by the Competition Commission Report (Competition Commission, 2021) and lack of access to land and infrastructure which are critical for SMMEs. The other challenges are internal within SMMEs in South Africa, and these relate to education and training or human capital challenges which would enable small businesses to run efficiently and lack of access to finance as highlighted by Smulders et, al (2021)

The state has established financial institutions like the Small Enterprise Finance Agency (SEFA) to deal with the challenge of lack of access to finance. These institutions are to make available credit for SMMEs at a lower and affordable cost to these SMMEs in a highly competitive environment. To inspire the necessary economic growth and creation of jobs and resolve the challenge of unemployment, these institutions should be accessible and easily offer the necessary finance to SMMEs.

Regulatory constraints have an impact on the ability for SMMEs to access available funding from funding institutions, this includes the need to comply with the companies act, tax laws, and various other regulations in municipalities. These standing regulations are in most cases a requirement for government funding which could lead to delays in the funding application processes. Digitalizing loan and grant funding originations present an opportunity for funding institutions to improve access to finance in a most equitable manner and within a reasonable time (Alsedrah, 2023). This includes the ability to assess applications, collect data on applicants and make immediate decisions on viability of business cases to be able to disburse funding as Li et, al (2023) argues on the value of digital finance. This present opportunity to also integrate systems across government institutions to deal with regulatory constraints. Government institutions should digitize to take advantage of these benefits and ensure that available funding reach SMMEs to deal with the challenge of access to finance.

Digital transformation has inspired some disruptions within financial services, this has opened an opportunity for providers to offer products and services through digital platforms. It is through the use of these digital technologies that development finance institutions can aid financial inclusion for SMMEs. Digital transformation is about enterprises serving customers through digital operations which offer interactive platforms based on Work System Models (Alter 2022). Institutions which are providing finance for SMMEs must develop a digital transformation vision that allow them to take advantage of digital technologies, also develop capabilities necessary for digital transformation. Identify appropriate work system models for their transformation vision.

Baloyi and Khanyile (2022) in exploring innovative mechanism that could improve access to funding made the point that institutions like Sefa are yet to make impact in the funding space particularly for Black owned SMMEs due to inefficient models that they employ.

Access to finance is one of the major challenges for SMMEs as highlighted and institutions like Seda with a mandate to drive entrepreneurship in the country through provision of non-financial support are critical specifically to ensure that businesses are funding ready with credible business plans (Saah and Musvoto, 2020).

In digitalising access to finance, it is critical that the role of institutions like Seda is redefined to ensure that they can assist SMMEs to take advantage of efficiency that comes through digital platforms.

This study will use the concept of the work system from the work system theory to analyse the existing policy framework within the Small Enterprise Finance Agency and the possibility for redesigns to address financial exclusion for SMMEs.

1.3 Research problem

The Department of Small Business Development (DSBD) in South Africa recently released and finalised consultation on an SMMEs and Cooperatives Funding Policy, which emphasized the growing utilization of digital financial services and platforms. The policy suggests a financial system that simplifies lending and loan automation to make the process more transparent and shorten the time for funding decisions on deals (SMMEs and Cooperatives Funding Policy, 2023). Fedder (2023), argues that while the expectation was that digital finance and digitization would make access to finance easier, this has not happened at the expected pace in Africa, and this is due to policy and regulation that remains unclear in many countries constraining the development of fintech solutions and broadly digital financing. The traditional manual forms of application and decision making in finance for SMME remains dominant stifling the development and expansion of lending to SMMEs to close the finance gap.

Li, et.al (2023) highlights the fact that digital finance is proven in eliminating financing constraints and solves the financial cost of SMME funding, and that with clear and robust financial regulation, digital finance has the potential to unveil its economic benefits. Digital

finance is an instrument to address the challenge of financial inclusion for Small Micro and Medium Enterprises (SMMEs). As Anakpo, Xhate and Mishi (2023) argue, digital finance can be a tool to address socioeconomic challenges in the marginalized sections of society where access to finance is a challenge. The context of the digital work system for SMMEs is considered in this research, given the contributions of this sector in the socio-economic development of developing nations. Diverse literature supports the critical role of SMMEs in the development of any economy, thus building a resilient digital financing ecosystems has become a priority. This school of thought emphasizes the role of nations and other global players in the development of sustainable national digital financing ecosystems. For instance, that such digital financing ecosystems should integrate Sustainable Development Goals (SDGs) with the governance and market development of digital financing ecosystems, according to a task force by the United Nations (Jabangwe et al., 2020). The United Nations SDGs 2030 seeks to eradicate poverty in all its forms, and development of a digital financing ecosystem can play a role in realizing the envisaged development outcomes. Prioritizing SDGs is urgent, as the digital divide persists in the developing economies of the world, with Suhrab et al., (2024) reporting that an estimated 1.3 billion people in the BRICS countries falling below the poverty line. But in developing economies where the digital divide remains a dilemma, the development processes linked to digital transformation remain a double-edged sword, in which changes that come with digital transformation can be key to enhancements in human development (Masiero, 2024; Qureshi, 2023); yet under the same social and historical circumstances, digital transformation can turn into a tool for oppression of the very same people that it promises to uplift (Qureshi, 2023), which exacerbates the digital divide, particularly in the context of digital finance ecosystems (Mpofu, 2024; Mpofu & Mhlanga, 2022). Understanding the nature of the digital financing work system can aid in designing interventions from a policy perspective that addressed the financial exclusion of SMMEs, using digital platforms.

1.4 Research questions.

The primary research question is as follows: ***What are the determinants of a digital financing work system for Small, Medium, and Micro Enterprises (SMMEs) in South Africa?***

The secondary or sub-questions are as follows:

1.4.1 What underlying economic and regulatory structures influencing the accessibility and effectiveness of digital financing systems for SMMEs in South Africa?

To address this research question in line with the WST, determinants under this question focused on trying to understand the underlying economic and regulatory structures influencing the accessibility and effectiveness of digital financing systems for SMMEs in South Africa.

1.4.2 What are the organizational determinants influencing the digital financing ecosystem for SMMEs in South Africa?

To address the above research question from the adopted theory, the emphasis will be on understanding of the organizational determinants influencing the digital financing ecosystem for SMMEs in South Africa.

1.4.3 What technological factors are critical for the digital financing ecosystems of South Africa?

Based on the WST, the nine components will guide in understanding the socio-technical that are critical for the digital financing ecosystems of South Africa.

1.5 Rationale

This study's interest in answering the research question emanates from an interest in unravelling what the researcher in her line of work, perceives to be a major challenge for many SMMEs – access to finance in connection with the findings of FinFind (2018) report. This report showed that SMMEs struggle to access finance from financial institutions, this is despite the resources being made available and the challenge of the funding gap. According to the FinFind (2018) report – a study conducted in 2016 shows that most start-ups are self-funded with only 1% of start-ups receiving funding from development finance institutions.

Development finance institutions are critical for governments in driving economic growth, in South Africa these are instruments to drive the transformation agenda. To achieve the vision of the National Development Plan of creating 11 million jobs by 2030 with 90% of those coming through SMMEs it is important that we have agile institutions, that are in sync with the realities of the market but also are adaptive to the digital technologies that are driving fintech in the SMME sector.

Serame (2020) addressed factors influencing access to finance for SMMEs in South Africa, but little has been done in studying ways in which access to finance could be addressed through digital finance. The experience of the pandemic where many SMMEs could not access finance, and development finance institutions could not reach SMMEs with traditional forms of funding application has made many DFIs to think about different ways in which they could digitalize their services. This study contributes to the development of knowledge in this aspect and it is done to assist DFIs in adopting new platforms for easy access to finance.

1.6 Delimitations of the study and Assumptions

The study will focus on analyzing documents related to digitalization and digital strategies within the agency, also interviews will be conducted with SMMEs that had applied for funding at the Small Enterprise Finance Agency (SEFA) using their existing platforms. The study will be relying on the understanding of digitalization of financial services by the executives at the agency. The assumption is that the agency has a digital strategy in place towards digitalization and digital platforms for funding application processes. From a theoretical perspective, the study will be delimited to the concepts linked to the Work Systems Theory (Alter, 2006). WST Provides nine components or concepts that are used for understanding the Work System for digital financing in South Africa.

1.7 Definition of terms

Work System: Alter (2013a) defines Work System as a system in which human participants and/or machines perform work (processes and activities) using information, technology, and other resources to produce specific products/services

for specific internal and/or external customers. This will be the definition used in the study as I interrogate digital systems for processes of applications within SEFA.

Digital Finance: Ozil (2018) defines Digital finance as the delivery of financial services through mobile phones, personal computers, the Internet or cards linked to a reliable digital payment system. This is the use of digital platforms for financial transactions, allowing for credit collection for easy lending, payment, and investments. In this study digital finance will be understood in that context, as a response to digitalisation within financial services making it easy for financial inclusion.

Digital Transformation: As a definition, we adopt the definition used by Vial (2020) in this study on understanding Digital Transformation as “a process that aims to improve an entity by triggering significant changes to its properties through combinations of information, computing, communication, and connectivity technologies”.

1.8 Structure of the Dissertation

Chapter One: Introduction: The introductory chapter outlines the background of the study, emphasises its importance, introducing the research problem being addressed in the study. The research questions and sub-questions have been outlined to give an understanding of what is to be explored. A justification for the study has been provided and a detailed explanation of keywords to be used in the study.

Chapter Two: Literature Review: This chapter is a literature review on Small Micro and Medium Enterprises as key in the economies of the developing world, also highlighting challenges facing SMMEs particularly access to finance. Introduce digital finance as an instrument for financial inclusion in SMME finances. The chapter also reviews literature of Digital Work Systems, Socio-Technical Factors in work systems, potential risks in implementing digital work systems. It introduces the digital work systems as the theoretical framework to explore the research question.

Chapter Three: Research Methodology: This chapter presents the research design and methodology to be used in the study, data collection methods and how findings

will be analysed. It will explain the rationale in the selection of SMMEs to be interviewed, the selection of the Small Finance Agency as the point of research, and ethical consideration in the research process.

Chapter Four: Results: This chapter presents the research results. This section will present the deductive thematic analysis process to analyze and present the results. The presentation of the results will be organized based on the research questions presented in the first chapter, while the deductive thematic analysis will be guided by the Work Systems Theory (WST) that is proposed as the theoretical framework for this study.

Chapter Five: Discussion of Findings and Conclusions: Following the presentation of findings in Chapter Four, Chapter Five will delve deeper into the discussion of findings by relating the results to additional literature. Further, a Digital Work System framework shall be evolved from the discussions. This will then be followed by a summary of the findings, conclusions and recommendations of the study.

CHAPTER 2: LITERATURE REVIEW AND THEORETICAL FRAMEWORK

2.1 Introduction

This chapter reviews extant literature of studies related to the themes of financial inclusion, challenges for SMME finance in the developing countries, and barriers to digital finance adoption. It further examines policy frameworks and regulations for digital finance in South Africa and reviews digitization and service delivery through digital platforms for SMME finance.

In 2020 the National Treasury in South Africa released a draft financial inclusion policy document for public input and comment. The draft policy document reflected on the evolution of financial inclusion, and technological innovation in financial services as critical in facilitating financial inclusion in South Africa.

In 2023 the department of Small Business Development released a draft South African SMMEs and Cooperatives funding policy. The policy identifies lack of access to funding as a key contributing factor in the slow growth of the SMME sector, with only 33 percent of business having access to credit. Access to finance remains a challenge in the country with the credit gap for funding SMMEs estimated around R350 billion.

This chapter provides a theoretical framework for accessing finance through digital platforms and review literature on digital work systems appropriate for digital finance. The chapter will conclude with a summary.

2.2 Background discussion

Small Micro and Medium Enterprises (SMMEs) are important for economic growth in the developing nations, and in developed economies they are the backbone of economies with high contribution in the GDP. The definition of SMMEs differ depending on the country and its criteria, and in many countries, it is largely based on the turnover of the particular private owned company. According to Nkansah-Sakyi (2023) SMMEs create employment opportunities and promote economic diversification through opportunities in the local value chains. Furthermore, in the African markets they are a source of

competitiveness particularly in sectors like agriculture, mining, and services as they stimulate economic activity. The development and expansion of the private sector in the developing world relies on the development of SMMEs, therefore, these organizations need financial instruments that can drive their development for economic growth (Nkansah-Sakyi, 2023). Notwithstanding, the challenge for SMMEs in Africa remains access to collateral for borrowing through banks, which limit access to credit. Further, limited access to credit information similarly hinders access to credit as most SMMEs lack the necessary credit history for borrowing and credit worthiness.

In South Africa, SMMEs are critical to the South African economy, contributing 40 percent towards the GDP (Rasheed, et al., 2019). This sector constitutes of informal, rural and township enterprises which present a huge opportunity for the future in terms of creation of jobs and economic growth. The financial services sector remains highly concentrated with the dominance of the four banks South Africa, this poses much constraints to the SMMEs as it is hard to access credit facilities from the traditional banks. SMMEs financing has a high risk-profile which makes it harder for traditional banks to finance (Nkansah-Sakyi, 2023).

Abraham and Schmukler (2017), citing the World Bank Enterprise survey, argue that SMMEs are less likely to receive formal bank loans or credit lines in comparison to larger firms. Financing start-ups particularly requires instruments that can de-risk SMMEs through credit guarantees, financing with lower interest rates but also committed to pay the developmental dividend that comes with investment in SMMEs.

2.3 Technology adoption and innovation in Financial Services

Digital Transformation is defined as ‘the disruptive digital technologies which create strategic responses from organisations in value creation’ (Vial, 2021). Digital transformation has become an unavoidable phenomenon for organisations in reforming or changing their forms of operation by taking advantage of the values that technology brings to improve efficiency. As stated by Albert et al., (2018) digital transformation’s focus is on the adoption of disruptive digital technologies to increase value creation, productivity, and social welfare.

Technology has changed the way financial institutions within the financial services sector operate as more firms begin adopting technology for efficiency. As Bansal (2014) argues, the era of technology has marked a shift for economies across the globe with more shifts towards digitization of services for rapid growth. The process of digital transformation and digitization has been aided by the growth in internet penetration globally making it easier for businesses to share information, facilitate financial transaction, and change daily operations to digital forms (Rasheed, et al., 2019).

Digital finance has emerged as a form for facilitation of financial inclusion through digitization of services which makes it easier for individuals and firms to access finances through financial institutions. The use of digital mediums like mobile phones, secure transactional payment systems allow SMMEs to overcome some constraints in accessing finance. As Madan (2020) reasons, digital financial services may be linked to an increase in SMMEs accessing finance, it helps with business intelligence as it facilitates easy decision making on credit profiles of individuals and firms.

An investment in financial technologies is considered as an appropriate strategy, as well as a progressive business model for financial institutions aimed at not only improving operational efficiency, but also to cater for financial inclusion. Digitization can lower the cost of delivering services to the poor in underserved areas, accelerating the reach with efficient means for loan disbursements. Digital finance lowers the transaction costs which arise from credit assessments, processing and monitoring of loans, and renders smaller loans more cost effective. It facilitates easy access to credit history for SMMEs making decisions on lending much more quick and easier for those that qualify for loans (Disse, Sabrina, Sommer and Christoph, 2020).

2.4 Work Systems for digital finance

Digital finance requires appropriate work systems that offer and support an interface between users - in this case SMMEs, and the financial institutions which offer finance to the SMMEs. A work system, as defined by Alter(2015), is a platform for humans to perform activities using technology, and in digital finance it is a platform that allows disbursement of funds to individuals and SMMEs through technology.

The design of the platform, or the work system, should consider the constraints for SMMEs, and easily align them through offering support services that are cost effective, easily accessible and user friendly to the users. In digital finance a work system is developed in form of a service system which involves automated services that are interactive with the consumers or participants. Ren, Li, Zhao and Zhou (2018) draw attention to financial exclusion in the development of digital finance. They suggest that while the intention for digital finance is partly to enhance financial inclusion through platforms that allow easy access to finance, these can also serve as forms of financial exclusion.

The social environment and knowledge of digital applications are key issues of significance when discussing financial exclusion through digital finance particularly for those in rural settings (Ren, et al., 2018). This means that the environment should have enough internet penetration and digital infrastructure to enable access to digital services. Also digital literacy is critical for interactivity with these platforms. A digital work system architecture for digital finance should be easy to interact with for users to easily address the digital literacy challenges. The cost of interaction should also be at an affordable rate for easy access and use across.

2.4.1 Challenges and opportunities for digital finance

Digital finance has introduced a shift in the financial sector, slowly forcing it to modernize, transform, and improve efficiency in the financial services sector. Access to credit information through easy breakdown and analysis of algorithms on credit information has improved the lending rates and the risks that come with lending for financial institutions.

The cost of financing SMMEs is often influenced by the process and lack of access to financial reports and information disclosure to enable financial institutions to make lending decisions, as well as the lack of collaterals to guarantee funds for financial institutions. These are termed as the information asymmetry problems confronting SMMEs in the financial sector (Li and Haung, 2023). Digital finance, as presented above, assists in dealing with information asymmetry challenges through easy means for data analysis.

Li and Haug (2023) detail three elements in which digital finance can facilitate financial

inclusion. Firstly, by resolving the challenge of information asymmetry, secondly, by the opening up of more channels for financing beyond just the traditional means of financing SMMEs, and thirdly, improving financing efficiency. Chiappini et al. (2022) argue that digital finance has great potential of improving entrepreneurship in a country. They postulate that while large firms may have access to finance or can easily self-finance, SMMEs still largely rely on easy access to external credit for finance. In this sense, digital finance facilitates this easy access, which subsequently may improve entrepreneurial activity within an economy.

Digital financial services improve the financial flexibility and the economic flexibility of a country. This presents new opportunities within an economy contributing to economic growth. As mentioned by Mingui Li et al. (2023), similar to other countries which are dominated by traditional financial services sector, for example China, South Africa's financial services sector has not been moving at the same pace of technological adoption like the Chinese financial services sector. This is both in effecting enabling policies for digital finance, and also in adoption of the use of digital finance by institutions.

Li and Haung (2023) recommend that governments create and build digital-driven financing platforms not only as a means to reduce financial asymmetry between traditional financing institution, but also as a means for penetration and improvement of financial infrastructure in the remote areas.

2.4.2 Socio-Technical Factors for Digital Work Systems

In most cases socio-technical factors in a digital work system will include the people involved as users, processes that are involved, procedures to be followed, goals that the system should be able to achieve, the culture within the society where the system is introduced, technology and the public digital infrastructure which will enable the use of the digital work system (Ali, Wood-Harper and Wood, 2022).

Digital work systems are designed as platforms. These are products, services or technologies similar in some ways, that offer an architecture for other firms to use as an interface, or frameworks across a variety of settings, from innovation and technology to new product development (Kapoor et al, 2023). Digital work systems are designed to

bring different actors together collaboratively, to build value within a system, or between multiple interdependent groups using dynamic frameworks.

Platform ecosystems in the context of socio-technical systems have four interconnected independent dimensions – the technical aspects which is more about its architecture, infrastructure, functional scope, and the interaction between these (Kapoor et al, 2023). Its tasks relate more to what the organization seeks to achieve in interaction with its stakeholders and the environment. The actors in the platform's ecosystem, are its key stakeholders – the members who influence the system or benefit from the system. Lastly, the structure of the platform ecosystem which includes its decision making, authority, workflow and levels of its decentralization.

Therefore, the design of any digital work system should take into consideration all these elements of the entire platform ecosystem. Platform ecosystems are forms systems that allow organisations to move away from traditional systems through changes in internal operational control that are designed to extract value from external sources.

2.4.3 Potential Risks in Implementing Digital Work Systems

Digital technologies have transformed society and its institutions - from the way individuals communicate, to how they do business, and extensively to all parts of our lives. The introduction of digital work systems in the financial services may have both risks as well as opportunities. The major risk of digital work system is the replacement of human beings with digital work systems in societies, especially in the developing world, where there are high rates of unemployment. The radical change in the world of work means that the existing workers might not be able to adapt or may lack the required skills that would enable them to work with the new technologies (Paker and Grote, 2020).

Adoption of digital technology does not always lead to success for institutions, different risks that are associated with digital transformation. Yang et al. (2021) argues that inappropriate adoption of digital technologies may result in disruptive changes that pose high risk and uncertainty in the institution undergoing transformation. The analysis of the organisational and environmental factors before technology adoption is critical to understand what would be the effect of the system that is introduced to the organisation and the clients or stakeholders who are to use the system.

Cybersecurity risks has been the major challenge for digital finance, where platforms or work systems are constantly under threat from information assault, damage, and illegal access to the platforms. Verma et.al (2021) define cybersecurity as high tech, procedures and usage that is intended to disrupt and assault information through illegal means. Therefore, to enjoy or exploit opportunities presented by digital work systems in financial services it is important that there are policies and regulations that enable adoption but also ensures that the designs of digital work system protect information from assault in the form of cybersecurity threats.

2.5 Research Gaps in the Literature

Digital finance needs an enabling policy and regulation. Further study on understanding the policy instruments that are necessary for digital finance in the developing countries are necessary, to understand the essential boundaries for financial innovation and to protect information from the systemic risks inherent in digital financial platforms. Li et al., (2023) reveals that a knowledge gap still exists in understanding the role of digital finance for companies or SMMEs with high financing constraints and how digital financial finance can be used to facilitate financial inclusion. Our understanding of socio-technical factors is mostly based on understanding derived from theoretical work, and less literature on the application of the theory for much richer analysis of the interplays in the complexities of socio-technical factors, the understanding of four S-T dimensions within platforms need further research as highlighted by Kapoor et al, (2021).

This research builds on literature on socio-technical systems that sheds light on determinants of innovations and the emergence of nascent sectors as the result of interactions between the production, diffusion, and uses of technology (Geels et al., 2004); and emphasizes inter-organisational community as a critical unit of analysis in understanding ecosystems, where digital interactions between groups such as users, societal groups, regulators, technology venders, research institutes, as well as firms and industries, become critical determinants of the way the system develops. The socio-technical systems elements such as technology, infrastructure, supply network, user practice, markets and regulations interact to specific societal functions, such as transportation, communication, and digital financing ecosystems (Balboa et al., 2024; Geels et al., 2004; Jabangwe et al., 2020). This research focused on the digital financing

ecosystem, given that literature points to evidence that digital financing holds promise for addressing the financial exclusion dilemma of SMMEs particularly in the developing economies of the Global South. Balboa et al., (2024) identifies that digital financing holds immense promise for SMMEs in navigating the challenges and opportunities of the digital economy era.

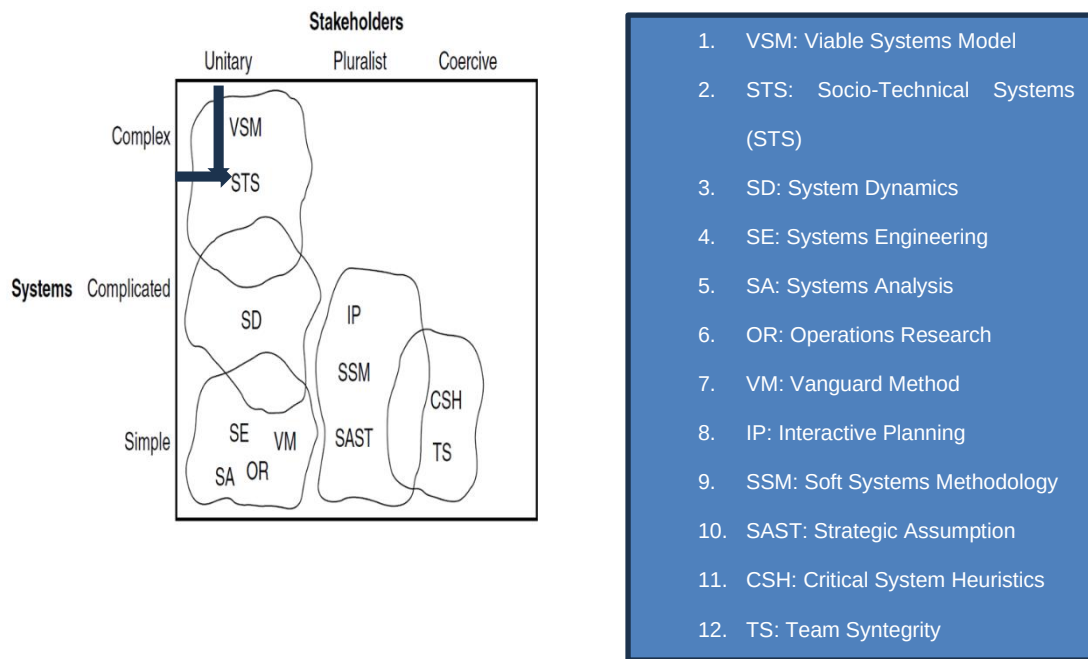
2.6 Analytical Framework

In this section the study provides the analytical framework used, explains the socio-technical system and its philosophy within systems thinking. In the next section the study explains Work Systems Theoretical framework as a product of socio-technical systems. The Work Systems theory will be used in the study as the conceptual framework to understand the systems within the Small Enterprise Agency. Hughes et.al (2017) describes socio-technical factors or systems as theories that are centered on the idea that the design and performance of an organization or system can be understood when the social and technical aspects of that system are treated as interdependent elements of a complex system. The interdependence is emphasized because changes in one aspect easily necessitate changes in the other parts of it or has an influence on the other parts.

Socio-technical systems are derived on the logic that all designs in the system are a product of choices which are consciously or unconsciously made, the socio-technical systems make explicit the choices which inform the system that has been developed (Hughes et al., 2017). It shows how the different stakeholders in the system interact and the parameters of interactions within the system. The socio-technical system was developed to create an understanding of, and to capture the complex interaction between humans, machines, and organizational environments. Socio-technical systems allow this interaction in an autonomous and discretionary automated form, there is a constant interaction between the different actors, structures and the tasks to be achieved through the system (Kapoor et. Al, 2021). A Work System's theory is a product of socio-technical systems, and in the theoretical framework I will be describing and motivating for the Work Systems Theory.

The motivation for the use of Work Systems Theory, as the deductive theoretical framework of this research, is derived from the first principles of its conceptualization by Alter (2014). The conceptualization is restated to link the concept to the nature of the theory that is relevant for understanding work systems. Alter (2014) defines a work system as follows: “A work system is a system in which people and/or machines perform processes and activities using information, technology, and other resources to produce product/services for internal and/or external customers” (pg. 1).

The socio-technical linkage is explicit in the above if the hybrid of ‘people and/or machines’ is considered, for the performance of “processes and activities”, while the digital nature of work systems is also clear in the last part: “using information, technology, and other resources to produce product/services”. This socio-material nature of digital work systems embeds the dilemmas associated with it to be understood from a systems perspective, which elevates a processual approach. This allows for approaching the understanding of digital work systems from a socio-technical lens, from a systems perspective underscored in the conceptualization of work systems. The systems view emphasizes the complexity of the determinants of digital work systems, which requires some form of modeling the digital work system using a theoretical framework with clearly defined concepts and variables. Systems theories for understanding the socio-technical nature of reality are diverse and complex, but Jackson (2020) provides a characterization that is useful for understanding the complex nature of work systems. This characterization is shown in the figure above and provides a snapshot of key systems and process theories that aligns with the object of this study: determinants of digital work systems.



• *Figure 1: Systems Theories (Adapted from Jackson, 2020)*

From the above, there are least twelve possible theoretical approaches for understanding complexity. Jackson (2020) emphasizes complexity of systems from two perspectives: a stakeholder perspective that focuses on the intentions and power of the stakeholders during design and development of systems; and a systems view that focuses on knowledge about the interdependencies in systems. The ‘systems’ axis increases in complexity from ‘simple’ to ‘complex’ systems. The perspective of complexity that can aid in understanding the digital work system of South Africa aligns to Jackson’s characterization of ‘complexity’ that is ‘*Complex - Unitary*’, in which it is clear, from a stakeholder perspective, that they have a common intent, as is typical in organizational setups. The organizational entity also seeks clarity in terms of her purpose, mission, values, and how to meet those goals using an inter-dependency of elements. In the context of South Africa, two organizational entities have been established by the South African Government: SEFA and SEDA. These two organizational entities have clearly defined mandates and thus from a ‘stakeholder’ view of complexity, there is a unitary perspective. The perspective of ‘complexity’ in the ‘*Complex - Unitary*’ brings to the fore that, with increasing involvement of human beings in systems, organizational systems become more and more complex and uncertain. From the systems theories as summarized by Jackson (2020), this leaves two main theoretical models relevant under the “Complex-Unitary” characterization: the Viable System Model (VSM) and the Socio-

Technical Systems (STS) theories. These two process theories can be used to understand socio-technical systems, but they have different foci. VSM is focused on understanding viability of systems, an aim unrelated to the purpose of this study; while the STS is designed to enhance understanding of determinants, in socio-technical systems. Thus, the theoretical underpinning of this study is a theoretical framework from the STS school.

2.6.1 Work Systems Theory

The Work System Theory (WST) that underpins this research is based on the "general systems" worldview, which perceives a system as a collection of interconnected elements that work together in the service of the whole and believes that any system is both a part of a larger system and contains sub-systems (Daellenbach et al., 2012). The translation is based on Steven Alter's accumulated works on the Work Systems metamodel, whose seminal contributions to the work system concept stem from the sociotechnical systems (STS) approach, which has its roots in Great Britain's post-World War II Tavistock Institute for industrial research.

Winter et al., (2014) proposes reviving a neo-sociotechnical systems (Neo-STs) framework that can be used in tandem with prior IS work to provide a stronger foundation for a new generation of research addressing emerging 21st century phenomena related to work, work systems, and infrastructure that transcend organizational boundaries. The research program's focus on UIL necessitates an approach that is aligned with New-STs thinking, and the Work Systems framework fits very well as a methodological framework for the research program seeking to understand how SEFA's current work systems are exacerbating the financial exclusion of informal sector SMMEs, and how the cooperative approach can remedy the situation.

The work system metamodel, which is derived from the work system framework (Figure 1), includes the concept of a value constellation, which recognizes that work systems can span multiple enterprises. It also clarifies co-production and value co-creation, which address the collaborative aspects of work across organizations. Winter et al. (2014) defines "enterprise ecology" and "platform ecology" as new system boundaries where

"processes of mutual determination between organization, work, information, and technology play out." This necessitates a focus on how to organize for and around platforms from the perspectives of platform owners, producers, and users; questions that are intertwined with system architecture. According to the New-STS approach, organizational structures around platforms may change faster than the platforms themselves, implying a renewed emphasis on both organizational dynamics in non-firm organizations and the implications for IS management in organizational settings. (p. 262).

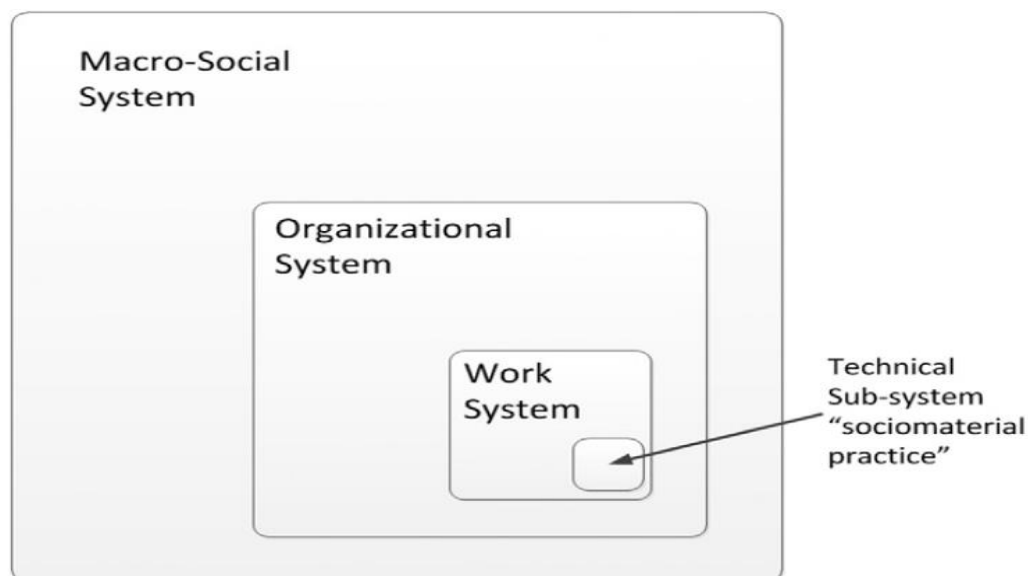


Figure 2: Nested systems view of socio-material practice within a work system (Winter et al, 2014)

As humanity transitions to a 4IR society, questions about the assumptions of how work is organized, which are based on scientific management principles, which, while useful in the automation of work, have not served the worker well. To address the future of work systems, a systems approach allows for the consideration of the firm's small unit, the work system. In this research, the work system is conceptualized in the same way as Winter et al. (2014) – as a general case for understanding systems within or across organizations. They recognize that work systems, such as information systems, supply chains, projects, self-service systems, and automated systems, can span multiple organizations.

The value constellation concept is included in the work system metamodel, capturing the idea that work systems can cross enterprises. Through the customer participant and

customer work system concepts, it also clarifies the concepts of co-production and value co-creation. This work system conceptualization recognizes that many resources exist outside of a single organization's boundaries and beyond its unilateral control, and are contained within digital platforms, shared infrastructures, or distributed resources and ecosystems managed by various collective actors (Davidson et al., 2023). A work system is defined as a system in which human participants and/or machines perform work by utilizing information, technology, and other resources to produce products and/or services for internal or external customers (Alter, 2010). Work systems in typical business organizations procure materials from suppliers, manufacture products, deliver products to customers, find customers, create financial reports, hire employees, coordinate work across departments, and perform a variety of other functions. The work system method is a set of ideas that uses the concept of "Work system" as the focal point for understanding, analyzing, and improving systems in organizations, whether information technology is involved.

2.6.2 Conceptual Framework

The work system method combines a static view of a current or proposed system in operation based on the work system framework (Figure 2 below) with a dynamic view of how a system evolves over time. This framework can help any organization to determine and structure user needs during the development of a work system. This study uses a static view only because it will assess SEFA's current challenges to meeting her mandate as a financial services provider of SMMEs in South Africa. These challenges are identified in the form of determinants guided by the three research questions outline. The WST and framework elements are described below.

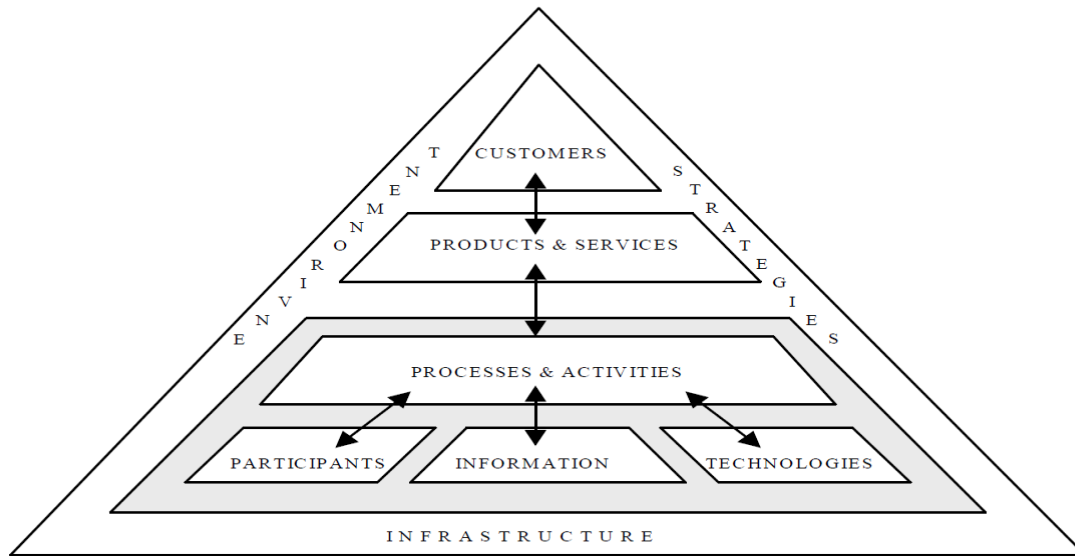


Figure 3: Static View of Work System Method (Source: Alter, 2010)

The work system framework's nine elements (Figure 2) serve as the foundation for describing and analyzing an IT-reliant work system in any organization. The framework defines a static view of a work system's form and function at a specific point in time, with an emphasis on business rather than IT concerns. It applies to situations that may or may not have a well-defined business process and may or may not be IT-intensive. Careful definitions of each term clarify details such as the fact that customers can also be participants and that processes and activities include both highly structured workflows and semi-structured routines. People appear in four different places in the framework of the work system. Customers and participants are both individuals. Customers may or may not be participants, for example, in many service situations and all self-service situations such as purchasing through ecommerce websites, they are work system participants. The environment includes people who carry organizational culture, practices, history, and conflicts that influence the effectiveness of the work system but are not considered part of the work system. Human, informational, and technological infrastructure are all examples of infrastructure.

Table 1: Typical artefacts of Work Systems Methodology

Element	Description of Elements	Design Artifacts
---------	-------------------------	------------------

Processes and Activities	Any work system comprises activities or process-steps (if activities are structured) which can be viewed and described from a performance perspective, i.e., how the activities are performed within the work system	• Characteristics of processes. • General rules of thumb that govern processes.
Participants	People who perform work within the work system—workforce who engage with IS development activities and those who manage development and also participate otherwise.	• Incentives, interaction style.
Information	Formal (e.g., data) or informal (e.g., verbal commitments) informational entities that are exchanged by participants as they perform activities or process-steps	• Characteristics of information entities (e.g., invoices, orders) and rules that govern those entities.
Technologies	Technologies include tools (hardware-software configurations) used by participants while performing different activities within the work system	• Basic affordances. • Characteristics and external appearance of technology. • Basic features of user interfaces.
Products/services	Comprise the products or services produced for the benefit and use of their customers	• Value that the customer receives.
Customers	Customers are the recipients of products/services produced by the work system. Analysis of any work system should consider who they are, what they want and how they are going to use the provided products/services	• Customer activities and responsibilities.
Environment	Environment includes 'organizational, cultural, competitive, technical, regulatory, and demographic' factors that affect work system performance	• System boundary and interactions.
Infrastructure	Resources (technical, informational, or human) that are managed outside the work system but are useful to the operation of work system	• System design and infrastructure.
Strategies	Work system embedded in an overarching organization depends on its own strategies and is influenced by the strategies of its parent department and the organization itself. Alignment of work system strategies with department and organizational strategies is important for the work system to function effectively	• Mission and vision. • Goals • Functional architecture.

Technology encompasses the hardware, software, and other tools and equipment used by participants and customers while performing their duties. A work system's technology is dedicated to that system, whereas technical infrastructure is technology shared with other work systems. Infrastructure refers to shared human, informational, and technical resources on which the work system relies, even though these resources exist and are

managed outside of the work system. Human infrastructure, such as support and training staff, information infrastructure, such as shared databases, and technical infrastructure, such as networks and programming technology, are all examples of infrastructure. The study aims to identify the determinants of a work system that can ensure the financial inclusion of South African SMMEs. A work system framework will be designed based on the determinants to address the challenges that the SEFA has faced. Prior research using work system concepts identified a variety of 'design' artifacts related to the nine central components of the WST, as depicted in the figure above.

An interview guide which covers each of the nine elements of the WST is provided as an appendix (Appendix A).

2.7 Summary

The development of Small Micro and Medium Enterprises is important for developing economies to deal with the persistent challenges of economic growth and job creation. The small enterprises have a huge potential for creating jobs as they grow than the larger enterprises that are slowly shrinking in terms of jobs and investing in machines in operations.

SMMEs currently face several challenges including lack of internal skills and training, access to markets and access to finance. Financing SMMEs is mostly a challenge and a credit risk for various financial institutions. Development finance institutions are important in this space to fund the start-ups and de-risk SMMEs for more funding to come through.

Digital transformation in the financial sector presents an opportunity to explore various instruments for funding SMMEs both by the public and private sector. Digital finance has emerged as one form of finance that could facilitate financial inclusion for SMMEs. It is therefore important for financial institutions to invest in technologies that enable digital finance.

Work systems theory offers ways in which digital architectures can be developed to fit the realities of SMMEs and make access to platforms easier. While digital finance has advanced in the developing world and the developing nations should invest and explore various ways of introducing platforms for digital finance.

In this literature review chapter, I have narrated the critical role that digital finance who enhance the development of SMMEs in South Africa. The chapter also highlights challenges for SMMEs in accessing finance. The focus is on the dominance of the banking sector which has no appetite for SMMEs financing which carries a huge risk, and also the lack of proper credit history for small enterprises. The chapter also examines the issue of policy and regulation in the facilitation of digital finance. It introduces socio-technical approaches in designing work systems for digital finance.

CHAPTER 3: RESEARCH METHODOLOGY

This chapter describes the research methodology and design applied for this study. It describes activities undertaken to explore the research problem and the rationale for the selection of participants in the study and forms of data analysis that was used to analyse data.

3.1 Research approach

For this study, a qualitative research approach was used. It included a combination of a case study and analysis of documentation. Qualitative research method is based on the understanding that meanings are socially constructed by individuals in their interaction with their world as explained by Merriam, (2002). For this study, interviews were conducted with the SMMEs to understand their experience in accessing finance at the Small Enterprise Finance Agency but also the use of digital platforms for applications using digital platforms for application.

Qualitative research approach is an inquiry approach it asks broad questions about a phenomenon towards the research participants and from this a researcher generates codes and themes interpreted the data in relation to the question (Creswell, 2002). In the study there will also be document analysis to understand digital strategies within SEFA and also how these inform the process for finance application. Document analysis involves a systematic review of the of documents and through this meaning is deducted after documents have been examined (Bowen, 2009).

A interpretive perspective was followed, since it allows for undertake in-depth studies, but from a subjective perspective of the participants. This deeper mechanism can aid in understanding the financial exclusion of SMMEs as it relates to digital financing. Unless these deeper generative mechanisms are understood, ICT-based initiatives may have limited success in delivering true financial exclusion (Agyepong et al., 2018).

3.2 Research design

This is the case study design with documentary analysis to explore the questions through interactions with the Small Enterprise Finance Agency (SEFA) and analyse documentation in relation to digital finance in South Africa. The combination of a case study and documentary analysis enriched the study through deep analysis of the developments in digital finance beyond the experience with SEFA. Case study research is an explorative study that provides a better understanding of a phenomenon using context-dependent knowledge (Rider, 2017). The classical case studies provided an in-depth single case studies that looked at the case in the analysis, to carefully understand it and use it to explain a phenomenon as argued by Eisenhardt (1991).

In this study a classical case study method will be used in combination with documentary analysis on the broader phenomenon in South Africa. Document analysis is critical in case study research, and these are used in the interpretive paradigm in research, it gives a chance to compare the responses from participants with the existing knowledge sources in documentation (Bowen, 2009). An action research approach according Muganda, N., Joubert Jr, P., Toit, J. D., & Johnson, R. (2012) was followed. According to their approach, action research is regarded as participatory, emancipatory, and contextual (O'Brien, 2001). It is participatory since the researcher in the study is involved at policy level. The study is emancipatory since the researcher and the participants are interested in solving the dilemmas of financial exclusion in South Africa. Context is also important as the focus of this study will on the emerging digital financing ecosystem in South Africa.

While disadvantages of document analysis in research include biased selectivity, however document analysis is critical in countering critiques to qualitative research as lacking reflexivity, it allows the researcher to properly locate the contribution in the construction of meaning within data as presented from participants (Bowen, 2009). Qualitative research broadly provides a systematic approach in research, the use of various forms of data collection and analysis allows for an in-depth understanding of the case.

3.3 Data collection methods

In this study data collection was done through interviews with selected participants for the study, using semi-structured and structured interviews. The participants in the study included SMME owners who have been through the funding process with development finance institutions including SEFA. The study also interviewed internal staff at SEFA to further understand the development of the funding application processes, the importance of digital finance and how the organisation is reading itself for digital finance as an instrument for financial inclusion.

The method of conducting interviews in qualitative research took different formats including focus group discussions (FGDs), one-on-one interviews with Key Informants (Alshenqeeti, 2014). The conversational form of interviews allowed the researcher to get an in-depth understanding of the phenomenon that was being explored. The interviews in the study consisted of open-ended interview questions allowing the participants to fully express themselves on the questions. As an advantage of interview Alshenqeeti (2014) mentions that interviews assist in building a holistic snapshot of the phenomenon.

3.4 Population

Asiamah, Mensah, & Oteng-Abayie (2017) define a target population as the group of individuals or participants with the specific attributes of interest and relevance. The group of individuals with the specific attributes of interest for this study are SMME owners who have either applied for finance in a development finance institution for funding or even received funding. Therefore, these will be executives responsible for applications' process for finance within SMMEs. As the study also included document analysis, documents from the financing institutions were also reviewed. Therefore, the documentary analysis helped in balancing the interview data that had been collected in the process.

3.4.1 Population

The research was a case study research with documentation analysis. The case study explored the Small Enterprise Finance Agency (SEFA) by interviewing the internal executives responsible for the financial/credit facility applications' process.

The setting of the research was the Small Enterprise Finance Agency (SEFA), a development finance institution in South Africa. SEFA was established in 2012 as an apex funding agency for Small Micro and Medium Enterprises (SMMEs). SEFA is a product of a merger between South African Micro Apex Fund and Khula Enterprise Finance.

The two institutions funded different segments of SMMEs in South Africa, with the South African Micro Apex Fund (Samaf) focusing on micro, small, and survivalist businesses growing their asset base, which is more a micro-finance focus. Khula Enterprise Finance Ltd as a wholesale finance institution facilitated credit to small, medium, and micro-enterprises (SMMEs), through commercial banks, retail financial intermediaries, micro-credit outlets, and private equity funds (Tipple and Coulson, 2007). The formation of SEFA became an integration of microfinance and wholesale finance, with a much broader mandate of fostering the establishment, survival, and growth of SMMEs and cooperatives in South Africa. SEFA streamlines the provision of access to finance for SMMEs.

It is a wholly owned subsidiary of the Independent Development Cooperation which derives its legislative mandate from the IDC Act No.22 of 1940. In 2014 the government established the Department of Small Business Development and SEFA reports to this department as it has a specific mandate of focusing on Small, Micro, and Medium Enterprises (SMMEs) and Cooperatives. The Small Enterprise Finance Agency has been critical for funding of SMMEs in South Africa, in the current administration disbursing over R7 billion to small enterprises and cooperatives. Much of this funding has been disbursed through wholesale funding and intermediaries that disburse to clients on behalf of the agency.

Though not much of reports have been published in terms of challenges internally for the agency in disbursing funds, but anecdotal evidence points towards the lack of internal capacity to disburse in quick turnaround times. During the recent roadshows by the agency with the Department a lot of criticism has been around turnaround times for funding applications. The flagship programme of the agency TREP has struggled to disburse funds in quick turnaround times, and the challenge is pointed to the amounts applied for and the ability to assess and make decision for these small amounts.

3.4.2 Sampling method

The sampling method in the study was a purposive theoretical sampling strategy, based on the selection of those that best gave the incisive information or data for the research. As explained by Eitken and Bala (2017), in a purposive sampling the researcher identifies those that will best suit the objectives of the study. The aim of adopting the purposive qualitative sampling procedure for this study was to select the participants or cases that are rich in information that is most relevant for the research questions and is aligned to the theoretical constructs of Work Systems Theory (WST) that has been adopted for this study (Table 2 below).

There are nine (9) theoretical constructs of the study, and for each, it was critical to identify who were the relevant respondents for providing the right information in terms of the interviews and the documents that are relevant for each of these constructs. Guidance in the identification of the relevant interviewees therefore was suggested by SEFA, not only in terms of the internal staff required, but also the relevant SMMEs that had made use of their financial/credit application facility through applications, without discriminating whether they qualified or did not qualify for funding.

The participants in the study are constituted of different backgrounds, from Sefa the selection constitute an investment officer that consistently deals with assisting SMMEs in the applications process, assessing the deals, and the executives at decision-making level in terms of digital financing strategy for Sefa. The SMMEs are from the urban centres of the country and the rural parts to capture the experiences from the different perspectives of the ecosystem in the experiences with digital finance. This allows for a broad understanding of accessing finance through digital finance in the context of a digital divide within the country.

Given the qualitative nature of the study, this purposive approach resulted in the identification of the relevant respondents for the study as summarized in Table 2. In this instance the internal staff at SEFA and SMMEs selected for the study will align with the actual objectives of the study.

Table 2: Relevant respondents identified for the study.

Theoretical Construct	Data Sources
Processes and Activities	SMMEs, Internal SEFA documents
Participants	SMMEs, SEFA Managers
Information	Internal Documents; SEFA Managers
Technologies	IT Staff
Products/services	SMMEs, SEFA Staff
Customers	SMMEs
Environment	Policy Documents
Infrastructure	SEFA Staff
Strategies	SEFA Managers

Given that in qualitative research, the recommended sample size is not fixed, the research was guided by the concept of “theoretical saturation” in relation to aspects of the research that require respondent interviews. However, it should be noted that a large portion of the research also depended on the use of documents that are reported on relevant events, incidents, artifacts, and other secondary data that have been selected (Miles & Huberman, 1994; Strauss & Corbin, 1990). Given the flexibility in sample size determination in qualitative research, this study was guided by recommendations that where interviews are concerned, most qualitative interviews use between 9 -17 interviews and 4 – 8 focus groups (Münch et al. 2022).

3.5 The research instrument

The research instrument used in the study was an interview schedule with specific questions that were designed and aligned with the research objectives of the study. The questions were unstructured or open ended (Appendix A), to allow participants to fully express themselves on the subject and for the researcher to get as much information as possible, in the process.

3.6 Procedure for data collection

The data collection procedure included communication with the Chief Executive Officer of the Small Enterprise Finance Agency (SEFA) to allow for staff to participate in the research. This entailed sharing the interview schedule with management, to enable them to understand the process and the sort of questions that the researcher would be asking during interviews. The protection of information of the interviewees has been maintained to protect their identity and to ensure confidentiality.

3.7 Data analysis strategies and interpretation

Data from interviews was first transcribed before being analysed thematically. Codes and themes will be developed, and a discussion will flow from the themes that come through from the data. Thematic analysis is a flexible form of data analysis which can be used in various research techniques. This flexibility will allow for the analysis of data in documents and also those coming through interviews. Thematic analysis can be seen as a bridge between positivist approaches and qualitative approaches as Terry, Hayfield and Clarke (2017) suggest. The type of thematic analysis that was used comprised in this study was deductive thematic analysis (Braun et al., 2014). This is a form of thematic analysis that which is guided by a theory. The theory that was used in this study that guided data analysis is the Work Systems Theory. Thematic analysis allows one to connect the numerous thoughts and opinions from the study and compare them to the facts obtained in different situations at different periods throughout a project (Ibrahim, 2012). According to Braun & Clarke (2006, p. 82), a theme “[...] captures something important about the data in relation to the research question, and represents some level of patterned response or meaning within the data set”. The key decision from a research perspective is, therefore, what should be considered as a pattern/theme or what size does a theme needs to be? However, there is no right way for determining the size of the theme and their advice is to remain flexible and consistent during a thematic analysis. Further, during thematic analysis, it is important to determine the type of analysis to be done and the claims to be made from the analysis.

Thematic analysis can identify themes in data through two principal approaches: inductively or deductively (Byrne, 2022). The inductive approach closely ties the

identified themes to the data itself , sharing some characteristics with grounded theory. This method often reveals themes that may not directly correspond to the initial inquiries posed to participants, particularly if the data comes from interviews or focus groups. Such themes are not shaped by the researcher's theoretical interests in the subject area. Instead, inductive analysis involves coding the data without attempting to conform to a pre-established coding framework or the researcher's analytical assumptions, making this approach fundamentally data driven.

In contrast, a theoretical thematic analysis is often shaped by the researcher's specific theoretical or analytical interests in the topic, making it more explicitly driven by the analyst (Braun & Clarke, 2006). This type of analysis generally offers a more detailed examination of certain aspects of the data rather than providing a comprehensive description of the data set as a whole. Moreover, the decision between using an inductive or theoretical approach depends on the coding strategy and the nature of the research question. For instance, coding may target a specific research question from the outset, aligning with the theoretical approach, or the research question may develop during the coding process, aligning with the inductive approach. As motivated earlier and in the literature review, theoretical thematic analysis was chosen because it allows for the targeted examination of the complex factors within the digital financing ecosystem in South Africa by using a specific framework, the Work Systems Framework. The following are the specific procedures that were followed during the theoretical thematic analysis process:

Both primary and secondary sources of data were used to help in addressing the key questions that guided the analysis are captured in the table below:

Table 3: Study Data Sources

WST Element	Exogenous or Endogenous	Description	Implications	Data Sources
-------------	-------------------------	-------------	--------------	--------------

Environment	Exogenous	Economic policies, legal frameworks, cultural aspects affecting digital finance	Regulatory environment shaping digital financing opportunities	Interview Data; ESD
Strategies	Exogenous	National strategies for economic development and digital transformation	Alignment of digital finance with national growth and inclusion goals	Interview Data; ESD
Infrastructure	Exogenous	Public digital and financial infrastructure, including internet and mobile network coverage	Infrastructure's role in enabling or limiting digital finance reach	Interview Data; ESD
Processes & Activities	Endogenous	Internal procedures and protocols for digital financing operations	Efficiency and compliance of digital finance workflows	Interview Data; ESD
Participants	Endogenous	The involvement of internal teams, management, and external partners	Staff capabilities and partnerships driving service quality	Interview Data; ESD
Information	Endogenous	Management and use of data within digital financing systems	Data-driven strategies for customer segmentation and risk assessment	Interview Data; ESD
Technologies	Endogenous	Adoption and integration of digital technologies within financing platforms	The role of tech in enhancing financing services and customer engagement	Interview Data; ESD
Products/Services	Endogenous	Range and innovation in financial products and services for SMMEs	Meeting diverse financial needs of SMMEs through digital solutions	Interview Data; ESD
Customers	Endogenous	Target users of digital financing platforms, including SMME owners and entrepreneurs	User experience and adoption rates of digital financing solutions	Interview Data; ESD

After the above data sources were collected, the interviews were transcribed and recorded using MS Teams' software, the transcribed data was downloaded and viewed using Microsoft Word. For validity, the researcher relistened to the recordings to verify the accuracy of the transcripts and ensure nothing of importance was left out.

The emergent themes were reviewed, and similar ones were combined once again to come up with a final list of themes as presented in the next chapter. Post coding and identifying initial themes, data was transferred to Excel, where codes that shared some characteristics or referred to related concepts were organized into final themes. Major themes emerged because of thorough and systematic reading and categorization of the transcripts, noting quotations that can be useful as evidence when presenting results. From this, data was displayed using different visualization methods which were then exported from Excel and stored in the local drive. Data visualization organizes data and aids in the organization of concepts and thoughts (Thomas, 2003). The code book and quotation manager reports were also exported to Microsoft Excel Workbook with the responses of all research participants to each question displayed side by side for further analysis and presentation of results. This was done to make it easier to compare participants' responses to specific questions and themes. The researcher also used methods such as Microsoft excel pivot tables and charts to group and analyse codes and themes. The output of the themes and extracts of connected quotations created by the analytical procedures outlined above will be in the following sections.

3.8 Quality Assurance

The validity of a qualitative study is based on information from participants and analysis of data as it emerges through themes. Its quality is the transferability and levels of dependability of the study. The study was based on the interpretive validity as explained by Maxwell (1992) and, it's generalizability. Though the issue of validity evolved as a positivist form of quality assurance, the different forms of confirming validity of the study have evolved in the qualitative research (Maxwell, 1992). However, given that the study was exploratory in nature, the relevance to the context of SMMEs in South Africa is emphasized, rather than seeking to generalize the findings.

3.9 Ethical considerations

Ethical considerations are critical in conducting research, it is important that the research participants are fully aware of the information collected and how this information is used. The participants gave full consent before participating in the data, as they also had an interest in resolving the dilemmas facing the digital financing ecosystem of South Africa.

In describing ethical dimensions, Guillemin and Gillam 2004 mention two forms of ethical considerations that a researcher should be aware of (1) procedural ethics and (2) ethics in practice. In terms of the procedural ethics, a letter written to Sefa seeking consent to do research (attached). Sefa then provided consent to conduct research. An ethics form that outlined different considerations for this research with the areas of research was sent to University of the Witwatersrand.

University of Witwatersrand then provided ethical clearance to conduct research. In terms of ethics in practice during the research process there was consideration of confidentiality of responses from participants and the names for participants were anonymised. All the necessary authorisations were obtained including by the Wits University Research Ethics Committee. The study was conducted in compliance with all regulations and protocols. The following details outline the ethical considerations.

3.9.1 Informed Consent

Participants provided informed consent after receiving detailed information about the study, its objectives, potential benefits and a right to withdraw at any given time was explained to the participants. A letter with the detailed information was shared with the participants. Participants were given space to ask questions and ensure that there was a complete understanding of the consent form before signing.

3.9.2 Voluntary Participation

Participants were assured that their participation in the study was voluntary, and no participant was put under pressure to participate in the study. Participants were aware

that they could withdraw from the study at any time without any fear of negative consequences from their decisions.

3.9.3 Confidentiality and Anonymity

In the study the privacy of participant was assured. Information was kept in confidential throughout the study. The names used throughout are pseudo names to protect confidentiality and assure anonymity. All information was kept in accordance with the Protection of Personal Information Act (POPIA). Data was secured in password protected files and only accessible to the me as a researcher.

3.9.4 Data Management

Throughout the study I implemented strict data management practices to ensure the security and accuracy of the gathered information. The practice ensure that I comply with all data protection regulations and guaranteed that data is only used for the study.

3.10 Summary

In this Chapter I have given a background on Small and Medium Enterprise access finance through development finance institutions particularly the Small Finance Agency. The study is the combination of the case study and document analysis which uses an interpretive perspective to explore experience of SMMEs and the staff at Sefa.

I have also explored the role of digital finance in South Africa's SMME eco-system and the challenges for financial inclusion. The chapter also explains the methodology used in the research which included a purposive sampling method and data analysed through thematic analysis. Lastly, the chapter outlined the ethical considerations for the research.

CHAPTER 4: PRESENTATION OF FINDINGS

4.1 Introduction

The aim of this study was to establish the determinants of a Digital Work System for Financing SMMEs in South Africa. The purpose of this chapter is to present the research results, following the theoretical thematic analysis procedure outlined in the previous chapter. Theoretical thematic analysis is a form of deductive reasoning, in which the analysis is theory driven. The nine Work Systems Theory (WST) components guided the development of the research propositions and the analysis presented below:

Table 4: Work Systems Theory (WST) components (Source: Researcher, 2024)

WST Element	Exogenous or Endogenous	Research Proposition
Environment	Exogenous	Greater regulatory clarity and supportive economic policies will significantly enhance the accessibility and effectiveness of digital financing systems for SMMEs in South Africa.
Strategies	Exogenous	Strategies that align digital financing with national growth and inclusion goals will lead to improved adoption and operational success of digital financing platforms among SMMEs.
Infrastructure	Exogenous	Robust digital and financial infrastructure will significantly enhance the reach and efficiency of digital finance services, facilitating broader economic participation among SMMEs.
Processes & Activities	Endogenous	Streamlining internal processes and enhancing compliance protocols within digital financing platforms will improve operational efficiency and regulatory adherence.
Participants	Endogenous	Effective collaboration and enhanced capabilities of internal teams and external partners will drive superior service quality and innovation in digital financing systems.
Information	Endogenous	Advanced data analytics and integration of real-time data will improve customer segmentation and risk assessment, leading to more personalized and secure digital financing services.
Technologies	Endogenous	The incorporation of emerging technologies (e.g., AI, blockchain) into digital financing platforms will enhance the quality and accessibility of financial services, thereby increasing user engagement and satisfaction.
Products/Services	Endogenous	Diversification and innovation in financial products and services tailored to the unique needs of SMMEs will lead to greater financial inclusion and support for business growth.
Customers	Endogenous	Enhancing user experience through user-friendly design, comprehensive support, and adaptive interfaces will significantly increase the adoption rates and satisfaction levels of SMMEs using digital financing platforms.

These research questions are designed to explore the complex layers of reality that affect digital financing in South Africa, aiming to provide insights that can inform more effective interventions and strategies within this sector.

4.2 Demographic analysis

The respondents who were interviewed and other secondary sources of data are summarized in the table below. There was a diversity of respondents that represents aspects of the digital financing ecosystem. There were representatives from SEFA and SEDA, two SOEs that is playing a critical role in the development of small business sector. There were also SMMEs representatives who have used services provided by either SEFA or SEDA, thus knowledgeable enough to provide perspectives that are useful for understanding the digital financing ecosystem. Additionally, participation in the Enterprise Supplier Development (ESD) forum allowed the researcher to tap into additional insights that are useful for informing this research. Where transcripts forum is used, it is identified in the excerpts as discussions represented from Respondent 9 to Respondent 15. Some of these responses were used to support data from the 8 primary respondents summarized below. Reviewing the data from the respondents and the ESD forum, in combination with analysis of policy documents were adequate in understanding the determinants of the digital work system for the digital finance ecosystem. The concept of saturation was used to determine the adequacy of information required to answer the research questions. Based on guidelines by our findings Guest et al., (2020) who indicate that typically after 6–7 interviews, a majority of themes in a qualitative research would already have been captured in a homogenous sample. In this research, saturation was reached after 8 interviews, with complementary additional secondary data used to enrich the analysis. South African scholar such as Irwin Brown (Brown, 2005) have also used interviews that reached at the 6 base interviews asper (Guest et al., 2020).

Table 5: Study Respondents (Source: Researcher, 2024)

Name	Data Collection	Province	Organization	Job Tittle	Years in the position	Type
Respondent 1	Individual Interview					SMME
Respondent 2	Individual Interview	Eastern Cape	SEFA	Investment Officer	10 years experience	Funding Institution

Respondent 3	Individual Interview	Gauteng	Maite Manufacturing	Chief Executive Officer	13 years experience	SMME
Respondent 4	Individual interview	Gauteng	SEFA	Executive Manager	15 years experience	Funding institution
Respondent 5	Individual Interview	Western Cape	Arion Power	Chief Executive Officer	6 years	SMME
Respondent 6	Individual Interview					SMME
Respondent 7	Individual Interview	Gauteng	SEDA	Acting CEO	17 year's experience	Funding Institution
Respondent 8	Individual Interview	Gauteng	22 On Sloane	Business and Partnerships	7 years experience	Funding Institution
Enterprise Supplier Development forum	Secondary Data (Additional 8 sources)	https://www.youtube.com/watch?v=pYjRHXqtX5E&t=787s				Community of Practice

4.3 Determinants of a Digital Financing Work System

The sections below focus on the main aim of the study, that is, to investigate and establish the determinants of the work system for digital financing in South Africa. Following the theory-driven approach motivated for in the previous chapter, the results of the analysis are presented under the Work Systems Theory (WST) elements as explained below:

4.3.1 Environmental Factors for Digital Financing

The exogenous environmental factors identified are summarized in Table 6 below and a description of the results follows. The interviews and focus group discussions presented indicate that in South Africa, the digital financing landscape is influenced by a complex interplay of economic policies, legal frameworks, and cultural factors, shaping regulatory environments and operational dynamics. The key research question that guided the analysis focused on the following: **What are the key environmental factors that shape the digital financing work system in South Africa?** In addressing this research question, it is important to bear in mind the current context of the digital financing ecosystem summarized in Ncube (2019). Ncube (2019) points out that the current South African regulations for financial inclusion in South Africa are not robust enough to combat financial exclusion of the poor and low-income earners. Ncube (2019) suggests various recommendations, such as establishing robust financial literacy programs to be initiated

by the government and relevant stakeholders, amendments of some acts, protection of the integrity of banking institutions, the government and other relevant stakeholders must encourage and formalise stokvels, the government and other relevant stakeholders must build more banking institutions for people residing in remote areas and that specific legislation that deals with financial inclusion must be enacted. As a follow-up, the research question posed seeks to delve deeper into the specific environmental factors that require to be considered in a digital financing ecosystem, since to address financial exclusion, the nature of the system needs to be understood.

Table 6 below presents excerpts of responses that we obtained from various respondents summarized under the demographics profile section.

Table 6: Environmental Factors for Digital Financing

Ref	Text: Excerpts	Theme
Respondent 1	[...] Rural areas and townships often face significant connectivity issues, which impede the ability of local SMMEs to access digital financial services efficiently.	Connectivity (-)
Respondent 2	[...] The regulatory environment is a significant barrier to entry for many SMMEs, particularly in the digital sector. Legislation and bureaucratic processes often slow down the potential growth of digital ventures.	Regulatory bottlenecks (-)
Respondent 3	[...] The DSBF provides frameworks to support the ecosystem around [...] financing, focusing on compliance with regulatory measures and enhancing the business environment.	Digital Financing Ecosystem (+)
Respondent 4	[...] To truly have an impact, the collaboration across public and private sectors is essential to address the gaps in policy and practical implementation for SMME development.	Cross-Sectoral Collaboration (+)
Respondent 5	[...] Most SMMEs are in rural and are in townships. That's the nature of the industry. Most of the time, there is a challenge when it comes to data, when it comes to a network. This has been worsened by the recurrent occurrences of load shedding. [...] So as an example, if you take businesses that are within, like, the rural markets or, you know, in townships, you'll have, like, the standard issues, which are access to connectivity to be able to access, you know, these digital services, right?	Rural-Urban Duality (-)

The analysis of responses from various stakeholders highlights critical themes shaping the digital financing landscape in South Africa. Firstly, according to Respondent 1,

connectivity emerges as a significant challenge, particularly in rural areas and townships, hindering local SMMEs' access to digital financial services efficiently. This response, expressed as a negative sentiment in relation to the context of the digital financing ecosystem, may point to the lack of reliable digital infrastructure in some rural areas, and given this situation, SMMEs in these underdeveloped areas would struggle to access digital financial services efficiently. This sentiment is supported by recent empirical data. For instance, suppose a deeper understanding of “**connectivity**” is considered as share of people within 2 km distance from Internet antennas (Mothobi & Kebotsamang, 2024). According to Mothobi & Kebotsamang, (2024), South Africa has an impressive share of individuals living within 2 km distance from an Internet antenna, with GSM being 74%, UMTS 71%, and LTE 47%. However, these statistics also imply that there will be those who are financially excluded if digital platforms are used as the basis of a digital financial ecosystem. Hence, the Respondent 1 perception points to “connectivity” as a persistent dilemma that needs to be addressed for financial inclusion of SMMEs to be realized.

Secondly, according to Respondent 2, “**regulatory bottlenecks**” pose barriers to entry for SMMEs, especially in the digital sector, with legislation and bureaucratic processes impeding the potential growth of digital ventures. Respondent 2 identifies the regulatory environment as a significant barrier to entry for many SMMEs, particularly in the digital sector. According to Respondent 2, legislation and bureaucratic processes often slow down the potential growth of digital ventures. This response, expressed as a negative sentiment within the context of the digital financing ecosystem, may point to the complexity and rigidity of existing regulatory frameworks. This sentiment is supported by the 2022 Annual Report of SEFA, which identified “regulatory compliance complexity in relation to the standards set out by the financial sector authority”. This is not unique to only South Africa, with Ansong & Boateng (2019) indicating that governments need to realize that there is an “increasing rise in digital enterprises in the developing economies and these enterprises are creating jobs and providing business solutions locally that would hitherto be sought from developed economies”. Given this situation, SMMEs attempting to navigate the digital financial landscape would face substantial delays and hurdles in achieving compliance and securing necessary approvals. This sentiment is supported by recent empirical data. Hence, Respondent 2's perception points to

"regulatory bottlenecks" as a persistent dilemma that needs to be addressed for the financial inclusion and growth of SMMEs in the digital sector to be realized.

Thirdly, the Department of Small Business Development (DSBD) plays a pivotal role in fostering the **"digital financing ecosystem"** by providing frameworks that prioritize regulatory compliance and enhance the business environment. Respondent 3 highlights this view to indicate the positive agency played by the DSBD in the digital financing ecosystem. Frameworks such as the Township and Rural Entrepreneurship Programme (TREP) are critical programmes for enhancing inclusive access to funding mechanisms (Oppong, 2024); but when these funding mechanisms are placed over digital platforms, challenges still remain. However, the positive aspect is that SMMEs benefiting from these frameworks are likely to experience fewer regulatory hurdles and a more conducive business climate for digital ventures. Anchoring the **"digital financing ecosystem"** under DSBD is appropriate, as evidence suggests that by 2030, 90% of jobs will be created by SMMEs (Chetty & Govender, 2024). Hence, Respondent 3's perception highlights the DSBD's role as a crucial enabler of a thriving digital financing ecosystem, essential for the financial inclusion and growth of SMMEs in South Africa.

Fourthly, **"cross-sectoral collaboration"** between the public and private sectors is deemed essential for addressing policy gaps and facilitating practical implementation for SMME development. Respondent 4 underscores the importance of collaboration across public and private sectors to effectively address the gaps in policy and practical implementation for SMME development. According to Respondent 4, such collaboration is essential to create a cohesive and supportive environment that fosters SMME growth and development. This response, expressed as a positive sentiment within the context of cross-sectoral collaboration, suggests that bridging the efforts of public and private entities can significantly enhance policy effectiveness and practical outcomes for SMMEs. Given this situation, joint initiatives and partnerships between governmental bodies and private enterprises are likely to streamline policy implementation and provide comprehensive support to SMMEs. For instance, in South Africa initiatives such as the Enterprise Supplier Development can result in financial leapfrogging and innovation that can address various forms of financial exclusion (Ruiters & Mathibe, 2023). That in regions where there is deep "cross-sectoral collaboration", with strong public-private collaborations, there have been a 25% increase in SMME success rates and a 30%

improvement in access to digital financial services. These statistics imply that coordinated efforts between public and private sectors are crucial for addressing policy gaps and enhancing practical support mechanisms. Hence, Respondent 4's perception highlights cross-sectoral collaboration as a pivotal strategy for achieving impactful SMME development and fostering a robust digital financing ecosystem in South Africa.

Lastly, Respondent 5 underscores the “**rural-urban duality**” challenges faced by SMMEs located in rural markets or townships, including limited access to data and network infrastructure, exacerbated by recurrent load shedding incidents. According to Respondent 5, the majority of SMMEs operate in these underdeveloped areas, where connectivity and network issues are prevalent, thus possibly also linked to the “**connectivity**” theme. These challenges are further exacerbated by recurrent load shedding, which disrupts access to essential digital services. This response, expressed as a negative sentiment regarding the digital financing ecosystem, suggests that the infrastructural disparities between rural and urban areas are a major barrier to the equitable access to digital financial services for SMMEs. This negative sentiment is supported by recent empirical data. For instance, Siphugu & Moloi (2024) emphasizes how in rural areas administered by traditional authorities, various challenges related to limited digital infrastructure, lack of digital skills, and resistance to change, are prevalent. These statistics imply that the rural-urban divide significantly hampers the ability of SMMEs in rural and township areas to access and utilize digital financial services. Hence, Respondent 5's perception highlights the persistent issue of rural-urban duality as a critical challenge that needs to be addressed to ensure equitable financial inclusion and support for SMMEs across South Africa.

4.3.2 Strategies for Digital Financing Ecosystem in South Africa

The strategies influencing the work system for digital financing in South Africa encompass a blend of national initiatives aimed at economic development and digital transformation. These exogenous factors are pivotal in aligning digital finance practices with overarching goals of national growth and inclusion. Through the interviews that were conducted in addition to use of transcripts from the Department of Small Business Development supported conference on “*Re-booting Enterprise & Supplier Development*”. The analysis links the implementation of **strategic frameworks targeting economic advancement and technological modernization**. The research inquiry delves into

understanding the precise strategies shaping this landscape, but from a Work Systems perspective of an enterprise such as SEFA.

Table 7: Strategies in Digital Financing Ecosystems

Ref	Text: Excerpts	Theme
Respondent 2	[...] You need to curate a journey for an SMME. So as an example, you need to curate a journey where you're actually narrating exactly what they want.	SMME Curation Journey (-)
Respondent 6	[...] We need a digital platform that is going to communicate. When one is engaging on the digital platform, it should be in a position to say, Hey, this information is missing. Please add this. Please complement this with that. [...] A digital platform should be easy to use. It must be as easy as though you are engaging a homebody across the desk	Communicative Digital Platforms (-)
Respondent 7	[...] There's a pressing need for strategic alignment within procurement teams to ensure transformational goals are met, supporting the supply chain's responsiveness to SMME needs. [...] We are implementing strategies to align digital financing with our national economic goals. National and local government strategies should focus on creating a supportive environment for digital finance	Strategic Alignment (-)
Respondent 8	[...]Strategic initiatives such as the integration of digital solutions into the small business sector are crucial for enhancing access to financing.	Digital Technology Integration (+)
Respondent 9	[...]strategies include aligning procurement teams with company's transformation goals.	Procurement Transformation
Respondent 10	[...] "Implementing targeted strategies that bridge the digital divide can propel the effective use of digital finance tools in underserved regions	Digital Divide (-)

The analysis of responses from various stakeholders' sheds light on critical themes shaping the digital financing landscape in South Africa. Firstly, the concept of **"SMME curation journey"** emerges to emphasize the need to tailor digital financial services to meet the specific needs and preferences of small, micro, and medium-sized enterprises. Respondent 2 emphasizes the importance of curating a personalized journey for SMMEs to effectively meet their unique needs. According to Respondent 2, creating a curated journey involves narrating and addressing the specific requirements and challenges faced by SMMEs, thereby enhancing their experience and satisfaction with digital financial services. This approach is supported by Cosenz & Bivona (2021), who reminds us that strategy design in SMMEs is predominantly an informal and unstructured process, often based on an entrepreneur's individual experience and 'gut-feeling'. Yet, it is from their experience and gut feeling that they create successful enterprises. "Curating", these mentals models can be useful in determining the exact requirements, from the

perspective of SEFA. These are mental models in the minds of the entrepreneurs (Cosenz & Bivona, 2021). As digital platforms now allow for scale, SEFA should now tailor a curated ‘customer journey’ work system specific to SMMEs to address their specific financial needs. Hence, Respondent 2’s perception highlights the critical role of personalized curation in enhancing the digital financing experience for SMMEs, thereby promoting their growth and development within the digital economy.

Following from the above, stakeholders advocate for the development of “**communicative digital platforms**” that facilitate seamless interaction and feedback, ensuring user-friendly experiences in accessing a digital financing ecosystem. The idea behind “communicative” touches on the trust on digital platforms as the basis of realizing seamless interaction and feedback in a system. For large scale systems such as those run under the DSBD, through SOEs such as SEFA, trust in feedback systems need to be enhanced, and the idea behind “*communicative*” can be pointing to the aspect of trust and user empowerment, particularly where there is a public value interest. Digital platforms have now become “essential social infrastructure for user interaction and communication” and is being “entangled with the strategic market-driven approach of designing and extending the corporate-computational infrastructure” (Pierson, 2021). The dominance of digital platforms such as Facebook, have been used as a basis of providing public services, such as in security. However, there should be caution when allowing complete power to the “corporate-computational infrastructure” of companies such as Facebook, as public value requires some form of government, thus the role of enterprises such as SEFA and SEDA. Because trust is fundamental to a communicative platform, Star and Bowker (2002) say that users foremost need to be to become aware of the “social and political work that infrastructures are doing, and then look for ways to change that as need be” (p. 160). They introduce the concept of “*Infrastructural inversion*” that can be used to understand and reveal opaque and hidden properties of these corporate-computational infrastructure of digital platforms that have become a social infrastructure, and makes them negotiable (Pierson, 2021). Such an awareness can be important when designing similar digital platforms for digital financing ecosystems, where public value interest is expressed through enterprises such as SEFA and SEDA.

The following respondent (Respondent 7) points to the theme of “**Strategic Alignment**”, which, from the macro-perspective is positive, as there are initiatives to implement and

align digital financing with national priorities. But at the enterprise level such as SEFA, there is a “pressing need for strategic alignment within procurement teams to ensure transformational goals are met, supporting the supply chain's responsiveness to SMME needs”. This may point to how internal digitization efforts need to be aligned to the broader ecosystem needs. This theme of “**strategic alignment**” is complementary to the earlier theme of “**communicative digital platforms**”. From the response, procurement and supply-chain management functions are internal to an enterprise, with an internal focus of digitization. But as functionality is extended beyond the enterprise to SMMEs, inter-organizational alignment through digitalization is important (Ross et al., 2006), thus the naming of the theme as “**strategic alignment**”. There should be awareness that the efficiency focus of digitization has to be balanced by the unique needs of the SMMEs sector, as certain investments may not be driven purely by market forces, but consider the role of public values of enterprises such as SEFA. The strategic alignment theme is also connected to the theme of “**Digital Technology Integration**”, established through Respondent 8 excerpt on “[...] Strategic initiatives such as the integration of digital solutions into the small business sector are crucial for enhancing access to financing”. Additionally, Respondent 9, under the theme of “**Procurement Transformation**” also captures this internal view of digitization. Lastly, addressing the “**Digital Divide**” through targeted strategies is emphasized to promote the effective utilization of digital finance tools in underserved regions. These findings collectively depict the multifaceted strategies influencing the digital financing landscape in South Africa.

4.3.3 Infrastructure for Digital Financing in South Africa

The analysis delves into the pivotal role of infrastructure in shaping the landscape of digital financing within South Africa. Ascertaining the efficacy of digital finance hinges significantly on the robustness of the nation's public digital and financial infrastructure, encompassing factors such as internet and mobile network coverage. The extent and quality of infrastructure directly influence the accessibility and reach of digital financial services across diverse demographics and geographic regions within the country. This investigation draws upon a spectrum of data sources, including interview transcripts, statistical reports from authoritative entities like Stats SA, and comprehensive surveys conducted within the industry infrastructure domain. Through a comprehensive exploration of these sources, a nuanced understanding of how infrastructure acts as a

catalyst or constraint in facilitating digital finance operations within South Africa emerges, illuminating key avenues for strategic intervention and enhancement. The table below summarizes the results for addressing the following analytical question: **How does infrastructure influence the work system for digital financing in South Africa?**

Table 8: Infrastructural influence of the work system for digital financing

Ref	Text: Excerpts	Theme
Respondent 11	[...] Need robust digital platforms that integrate seamlessly with existing systems.	Systems Integration (-)
Respondent 12	[...] Our focus has shifted towards improving digital infrastructure... you ask any of them, you ask SEFA, SEDA, IDC, and any other entities. Their headache is, if I give you this money, am I getting it back?	Responsive Digital Infrastructure (-)
Respondent 3	[...] Most SMMEs are in rural and are in townships. That's the nature of the industry. Most of the time, there is a challenge when it comes to data, when it comes to a network. This has been worsened by the recurrent occurrences of load shedding.	Digital & Energy Network (-)
Respondent 15	[...] The improvement of digital infrastructure to support SMMEs includes upgrading connectivity and access to digital platforms essential for business operations.	
Respondent 16	[...]Infrastructure challenges, especially in remote areas, hinder the full adoption of digital financial platforms by limiting real-time data processing capabilities.	
Respondent 13	[...]I think on the system, there are those robot system, when you get the system like Siri, and iPhone, where you will be able to communicate with aid that is going to at least give you answers, talking, a voice answers. So that you will be able to hear while you already understand.	Systems Automation (-)
Respondent 14	[...]It's not interactive. But when they submit the application, and the information then becomes the documents and becomes accessible from our side, then there's really no interaction with them via the system, we just interact with the client directly via email, as well as calls.	
Respondent 15	[...]“The community of practice aims to foster the sharing of best practices and technological solutions to enhance the ESD framework comprehensively.	Community of Practice (+)

The synthesis of responses from various stakeholders underscores critical themes shaping the landscape of digital financing infrastructure in South Africa. Firstly, the imperative for robust digital platforms that seamlessly integrate (“**Systems Integration**”) with existing systems emerges as a cornerstone for efficient operations (Respondent 11). Systems integration has become crucial as SMMEs adopt new digital technologies such as Big Data, that are becoming part and parcel of the digital transformation landscape. However, it remains a challenge in the context of technology adoption (Bruitjies &

Njenga, 2024). Additionally, the focus on enhancing digital infrastructure, particularly in terms of responsiveness and user-friendliness (**“Responsive Digital Infrastructure”**), reflects a strategic shift aimed at addressing fundamental concerns surrounding loan disbursement and repayment (Respondent 12). However, challenges persist, particularly in rural and township areas, where inadequate connectivity and recurrent energy disruptions exacerbate the digital divide (**“Digital & Energy Network”**), impeding the full adoption of digital financial platforms (Respondent 3). Respondents also emphasized the need for upgrading connectivity and access to digital platforms crucial for SMMEs' business operations, recognizing the pivotal role of infrastructure improvement in fostering economic empowerment (Respondent 15). Furthermore, infrastructure constraints, especially in remote areas, are identified as a significant barrier limiting real-time data processing capabilities and hindering the comprehensive adoption of digital financial platforms (Respondent 16). The analysis extended to identification of **“Systems Automation”**, with stakeholders advocating for the integration of intelligent systems like Siri to streamline processes and enhance user experience (Respondent 13). However, challenges related to system interactivity persist, as highlighted by the limited interaction observed in the loan application submission process (Respondent 14). Lastly, the establishment of a **“Community of Practice”** (CoPs) underscores collaborative efforts aimed at sharing best practices and leveraging technological solutions to bolster the ESD framework comprehensively (Respondent 15). CoPs are critical knowledge sharing platform for stakeholders to address challenges affecting the SMMEs sector (Bonuedie & Fombad, 2024). The enterprise and supplier development initiative in South Africa is one key CoP that has becoming a crucial initiative and event that enhances knowledge sharing and also allows for the monitoring and evaluation of certain key interventions by the DSBD (<https://smesouthafrica.co.za/sme-guides/everything-you-need-to-know-about-enterprise-and-supplier-development/>). These findings collectively underscore the intricate interplay between digital infrastructure, technological innovation, and stakeholder collaboration in shaping the trajectory of digital financing within South Africa.

4.3.4 Processes and Activities for the Digital Financing Ecosystem

The table below focuses on processes and activities for digital financing in South Africa. The excerpts provided by respondents offer valuable insights into the critical processes and activities within a digital finance work system, particularly focusing on internal

procedures and protocols aimed at enhancing efficiency and ensuring compliance. Digitization emerges as a central theme, with respondents emphasizing its potential to significantly reduce processing times and improve overall operational efficiency (Respondent 1, 12). Streamlining processes, especially in procurement and supply chains, is highlighted as essential for effective service delivery and reducing administrative burdens on small and medium-sized enterprises (SMEs) (Respondent 3). Automation plays a pivotal role in operational efficiency, freeing up resources for strategic activities and enhancing responsiveness in transactions (Respondent 4, Respondent 7). Furthermore, integration of digital platforms and tools is seen as crucial for facilitating compliance, improving accuracy, and expanding market reach (Respondent 6, Respondent 11, Respondent 12). Access to markets without geographical constraints is identified as a significant factor in boosting operations and collaborations (Respondent 10). These findings underscore the multifaceted nature of digital finance operations, where efficiency, compliance, and strategic alignment are paramount for sustainable growth and innovation within the sector.

Table 9: Nature of digital finance operations

Ref	Text: Excerpts	Sub-Theme	Theme
Respondent 1	"Digitization of financial processes can drastically cut down on the time required to process transactions and improve overall operational efficiency."	Digital Process Optimization	Digital Process Efficiency (+)
Respondent 2	"Streamlining digital processes can facilitate quicker turnaround times and reduce the administrative burden on SMMEs."	Process Streamlining	
Respondent 6	"Integrating digital platforms with other services facilitates compliance and access to markets, enhancing operational synergy."	Systems Integration	
Respondent 10	"Access to different markets without geographical constraints significantly boosts our operations and collaborations."	Market Expansion	
Respondent 3	"Streamlining procurement and supply chains is essential for effective service delivery."	Supply Chain Efficiency	Operational Efficiency (+)
Respondent 4	"Adopting automated systems for routine financial transactions can free up resources to focus on more strategic activities."	Systems Automation	
Respondent 5	"Automation of supply chains can help in creating a competitive market economy."	Competitive Market Support	
Respondent 7	"Automating services reduces turnaround times and enhances responsiveness for transactions."	Process Automation	
Respondent 8	"A digital platform should guide the user as simply as if you were engaging with someone across the desk."	User-Friendly Systems	
Respondent 9	"Connectivity challenges, especially in rural areas, significantly hinder our digital services' effectiveness."	Digital Access Challenges	

Ref	Text: Excerpts	Sub-Theme	Theme
Respondent 11	"Integrating digital tools into procurement processes ensures compliance and efficiency."	Compliance and Efficiency	
Respondent 12	"The integration of advanced digital tools in daily activities can enhance the accuracy and reliability of financial operations."	Digital Tools Integration	
Respondent 13	"Innovative financial solutions are critical for the next level of entrepreneurs." (Tammy)	Innovative Financial Solutions	Strategic Innovation
Respondent 14	"The alignment of digital strategies with business goals is crucial for sustainable growth." (Mohale)	Strategic Alignment	
Respondent 15	"Efficient digital processes are key to supporting rapid scaling and expansion of SMMEs into new markets." (Thamsanqa)	Scaling and Expansion	

The synthesis of clustered themes underscores the dynamic interplay between optimization, innovation, and efficiency within digital financing operations. ***“Digital Process Efficiency”*** emerges as a cornerstone, emphasizing the optimization of digital processes to bolster operational efficiency and precision. This theme encompasses the digitization of financial processes and strategies for expanding market reach, reflecting a concerted effort to leverage digital tools for streamlined operations and enhanced service delivery. Complementing this focus is strategic innovation, which underscores the pivotal role of innovative solutions and strategic alignment in driving growth and market expansion. By embracing innovative financial solutions and aligning digital strategies with business objectives, organizations can navigate evolving landscapes with agility and foresight. ***“Operational Efficiency”*** takes center stage in ensuring seamless functionality, emphasizing automation, supply chain management, and compliance as essential pillars for optimizing workflows and enhancing service responsiveness. This theme encapsulates the adoption of automated systems and user-friendly interfaces, empowering stakeholders to navigate digital environments with efficiency and ease. Lastly, Competitive Market Support highlights the transformative influence of digital tools in fostering competitive advantages and supporting vibrant market economies. Through the automation of supply chains and strategic utilization of digital resources, organizations can thrive in dynamic market landscapes, driving sustainable growth and innovation. Together, these clustered themes illuminate the multifaceted nature of digital finance operations, offering strategic insights to enhance performance and drive meaningful impact in the digital era. Implementation of automation in SEFA is evident in various digital platforms that they have put in place in support of both digital and operational efficiency. However, while this is a positive sentiment, ***“Operational Efficiency”***, and as the FinTech sector continues to take hold, organizations such as

SEFA have to take note, to be viable in the digital economy. According to systems thinking, the re-organization of the '**processes and activities**' theme for SEFA poses additional questions as to future 'organizational viability', being the capacity for self-determination in a complex ecosystem in which there is variety for the customer (Lassl & Lassl, 2019).

4.3.5 Participants in Digital Financing in South Africa

The table below focuses on participants for digital financing in South Africa. In the framework of Work Systems Theory, "participants" are recognized as a critical endogenous factor, integral to the operational success of a system. This concept is particularly significant in digital work systems, where the involvement of internal teams, management, and external partners plays a pivotal role in driving service quality. These participants are not only executors but also crucial in enhancing system capabilities through effective partnerships and strategic collaborations, as highlighted by the insights from various stakeholders in the digital financing sector of South Africa.

Table 10 : Participants in Digital Financing in South Africa

Ref	Text: Excerpts	Sub-Theme	Theme
Respondent 1	"Internal teams collaborate with both public and private sectors to drive initiatives; it's a joint effort that enhances service delivery."	Collaboration and Joint Effort	Organizational Collaboration
Respondent 9	"Engaging with external partners through our platforms requires clear communication channels and understanding from both sides."	External Partnerships and Communication	
Respondent 2	"Digital platforms facilitate our access to new markets and finance, crucial for our expansion and operational flexibility."	Enhancing Market and Finance Access	Digital Accessibility
Respondent 10	"The design of digital platforms must consider the ease of use to ensure that all staff members can operate them without extensive training."	User-Friendly Design for Staff Operation	
Respondent 3	"Connectivity issues in rural areas significantly challenge our ability to effectively engage with digital platforms."	Addressing Infrastructure Challenges	Operational and Infrastructural Challenges
Respondent 5	"We face resistance to digital transformation; fostering an organizational culture that embraces change is crucial."	Organizational Resistance and Culture Change	
Respondent 4	"Our staff needs ongoing training in digital literacy to utilize digital platforms effectively, ensuring they can guide and support our clients appropriately."	Importance of Digital Literacy	Systems Training and Capability Enhancement
Respondent 6	"To handle increased demands, our systems must be scalable; staff should be equipped to manage these systems effectively."	System Scalability and Staff Management	
Respondent 7	"Our digital platforms need to interact seamlessly with existing systems to prevent disruptions in our workflow and service delivery."	System Integration	

Ref	Text: Excerpts	Sub-Theme	Theme
Respondent 8	"Effective digital platforms require feedback mechanisms that our staff can use to improve service delivery continuously."	Feedback Mechanisms for Improvement	Systems Efficiency and Improvement

The responses illustrate a sophisticated interplay of four overarching themes that are pivotal to advancing the digital financing ecosystem for participants in South Africa. These responses identify not only the needs, but also capabilities required of the digital financing ecosystem that can serve the participants effectively. The four themes identified are supported by the responses captured in Table 10. “**Organizational Collaboration**”, emphasized by Respondent 1 and 9 stresses the importance of cooperative efforts both internally and with external partners, facilitating clear communications and joint initiatives that enhance overall service delivery. Literature support for the need for organizational collaboration is available, with emphasizing the unique collaborative perspective of SMMEs in South Africa (Christian et al., 2024). Collaboration implies a co-operative view, which the DSBD seeks to strengthen through policy interventions such as the “*SMMEs and Co-operatives Funding Policy for South Africa*” (DEPARTMENT OF SMALL BUSINESS DEVELOPMENT, 2023). **Digital Accessibility** focuses on enhancing user-friendly interfaces and market expansion capabilities, crucial for operational flexibility and broader user engagement. The **Operational and Infrastructural Challenges** theme highlights significant barriers such as connectivity issues and resistance to digital change, presenting obstacles that must be navigated to realize digital transformation fully. Lastly, **Systems Training and Capability Enhancement** and **Systems Efficiency and Improvement** underscore the need for continuous staff training, scalable systems, and feedback-driven improvements, essential for maintaining system efficiency and adaptability. Collectively, these themes encapsulate a strategic approach that leverages participant capabilities and partnerships to optimize the quality and effectiveness of the digital financing work system, demonstrating a robust integration of technology, human resources, and strategic foresight.

4.3.6 Information in Digital Financing Ecosystem

In digital financing, “**Information**” represents a crucial endogenous component within Work Systems Theory, emphasizing the strategic management and utilization of data.

This component is pivotal for developing effective customer segmentation and risk assessment strategies. Efficient data management supports critical decision-making processes that enhance operational efficiency and customer engagement. This section synthesizes insights from participants interviewed outlining the strategies used for data-driven customer segmentation and risk assessment, using the concept of “Information” from the Work Systems Theory.

Table 11: Information Use in Digital Financing Systems

Ref	Text: Excerpts	Sub-Theme	Theme
Respondent 1	"We utilize customer data to enhance risk profiling and credit scoring, which helps us segment customers more effectively."	Data Utilization for Risk Profiling	Customer Segmentation (+)
Respondent 9	"Our data-driven approach has significantly lowered default rates by enabling more precise customer segmentation."	Effective Customer Segmentation	
Respondent 3	"We're leveraging big data to predict customer behavior and identify risk patterns that were previously undetected."	Big Data in Risk Prediction	
Respondent 11	"Digital platforms allow us to segment markets without geographical constraints, boosting our international reach."	Geographical Flexibility in Market Access	
Respondent 5	"We've implemented machine learning models that dynamically adjust to new data, improving our risk assessment capabilities."	Machine Learning for Dynamic Risk Assessment	Data Integration (+)
Respondent 7	"Integrating data from various channels has allowed us to gain a holistic view of our customers, enhancing both segmentation and risk management."	Holistic Data Integration	
Respondent 14	"The integration of automated systems is necessary for efficient data processing and real-time decision-making."	Automation in Data Processing	
Respondent 2	"Challenges include data silos that hinder our analysis, impacting our ability to make informed decisions regarding customer segmentation and risk."	Data Silos and Integration Issues	Data Integration (-)
Respondent 8	"The lack of timely data updates sometimes leads to outdated risk assessments, affecting our financial offerings."	Timeliness of Data Updates	
Respondent 15	"Resistance to digital transformation stems from a lack of understanding about its benefits and how it simplifies data management."	Cultural Resistance to Digitalization	
Respondent 12	"Connectivity issues impact our digital services' functionality, especially in remote areas, limiting our data collection and analysis capabilities."	Connectivity as a Barrier to Data Collection	
Respondent 4	"Regulatory compliance impacts how we manage and utilize data, posing challenges to our segmentation strategies."	Compliance in Data Management	Regulatory Compliance (-)
Respondent 10	"Privacy concerns and data protection laws require us to be meticulous in how we handle customer data, affecting our segmentation strategies."	Data Privacy and Protection	

The synthesis of responses from the digital financing sector reveals a complex landscape of data management challenges and strategies, each influencing customer experience and operational effectiveness in distinct ways. Four key themes emerged for

understanding the information component of the digital work system: “Customer Segmentation”, “Data Integration”, “Regulatory Compliance”, and “Training & Capacity Enhancement”. Responses from the participants reveals that “**Customer Segmentation**” leverages detailed data analytics to enable personalized service and refined risk management, enhancing both service precision and client engagement. Specifically in the case of SEFA, customer segmentation can be explained from the perspective of using information for *risk profiling* (Respondent 1), precision in customer segmentation, thus lowering loan default rates (Respondent 9) risk prediction (Respondent 3) and flexible access to diverse geographical markets (Respondent 11). The predominantly positive perceptions of the respondents provides an indication that SEFA is making strides in utilizing digitalization for understanding customer behavior, a fact supported by Mhlanga (2024) who claim that the use of big data analytics can enable detailed analysis of customer behavior, crucial for segmenting customers. But using big data analytics to realize customer segmentation requires some form of “Data Integration”, as highlighted from the sub-themes of “holistic data integration” using “machine learning” capabilities, as well as addressing issues arising from “data silos”. Customer segmentation can benefit greatly from **Data Integration**, such as issues with data silos, significantly impede effective data analysis, directly affecting decision-making processes. Advanced data utilization reflects the adoption of sophisticated analytics and machine learning technologies, boosting predictive capabilities and risk assessment accuracy. While data integration can be realized through various integration technologies such as Enterprise Resource Planning (ERP) and open source, the adoption of proprietary ERPs by SMMEs come at great cost (Coetzee, 2023). **Data Integration** efforts strive to consolidate data from diverse sources into a coherent framework, greatly enhancing overall insights and strategic decision-making. **Regulatory Compliance** underscores the constraints imposed by legal standards on data practices, which can limit flexibility but ensure safe data handling. The two sub-themes that was used to explain regulatory compliance focused attention on compliance in data management as well as data privacy and protections. These were negative perceptions, implying that in designing the eco-system for digital financing, these aspects need to be addressed.

4.3.7 Technology in Digital Financing Systems

The integration of digital technologies within financing platforms plays a transformative role in enhancing services and customer engagement in digital financing. This exploration delves into how technologies not only improve operational efficiency and expand market reach but also address specific challenges like connectivity and digital literacy. The insights gathered from research participants outline the nuanced impacts of these technologies, emphasizing their importance in the evolving landscape of digital financial services.

Table 12: Technology in Digital Financing Systems

Ref	Text: Excerpts	Sub-Theme	Theme
Respondent 1	"Big corporates... are slow to respond to technological shifts, which is where SMMEs can bring value and dynamism."	Technological Agility	System Efficiency and Compatibility (+)
Respondent 2	"The platforms and services must be easy to use and accessible, meeting people in their language and at their point of comfort."	User-Focused Design	
Respondent 3	"Integration of systems... where a digital platform communicates what information is missing is crucial for ease of use."	Integration and Communication	
Respondent 4	"Technological solutions must accommodate connectivity issues in rural areas."	Operational Effectiveness	
Respondent 5	"Automation in processing loan agreements to improve turnaround times is essential."	Automation of Services	
Respondent 9	"Online platforms must be flexible enough to accommodate the fast-paced nature and meet the compliance requirements of SMMEs."	Platform Governance	
Respondent 12	"Integration of APIs and seamless platform functionality is essential for supporting financing applications."	Advanced System Integration	
Respondent 6	"Training for digital literacy among SMMEs is crucial to leverage digital platforms effectively."	Digital Literacy Training	Training and Capability Enhancement (-)
Respondent 10	"Educating our clientele on the use of digital platforms is as crucial as the technology itself for effective adoption."	Education and Support in Digital Adoption	
Respondent 11	"Connectivity and digital literacy are significant barriers to fully leveraging digital platforms for financing."	Barriers to Digital Adoption	
Respondent 12	"Educational efforts must be increased to help SMMEs navigate digital platforms effectively."	Digital Education Needs	
Respondent 7	"The need to overhaul systems to support digital transformation and reduce resistance to change."	Change Management	Change Management
Respondent 8	"Digital age allows for market access without geographical limits, significantly expanding business opportunities."	Market Expansion and Accessibility	

From the responses above, 12 sub-themes clustered around three main themes for explaining technology as a component of the digital financing work system: "**System**

Efficiency and Compatibility"; **Training and Capacity Enhancement**", and **Change Management**". From the sub-themes derived from the responses, the theme of **"System Efficiency and Compatibility"** is interpreted to mean the capability of digital financing platforms and services to function optimally within the technology system of financing for SMMEs. Seven aspects or sub-themes can be identified as comprising the theme: first, **technological agility** of SMMEs is emphasized, showing how smaller enterprises can quickly adopt and innovate with new technologies compared to larger, less agile corporations. The idea of 'technological agility' is well, with Teece et al., (1997) noting that firms with strong dynamic capabilities exhibit strong technological agility are able to create new technologies, differentiate and maintain superior processes and modify their structures and business models in a way that ensures they stay ahead of the competition. Respondent 1 emphasizes that SMMEs are best placed to be technologically agile, thus impacting the systems efficiency and compatibility. Other sub-themes that loaded on the system efficiency and compatibility theme were the need to a user-focused design, technology integration and communication, enhancing operational effectiveness and automation of services, and platform governance. For instance, platform governance introduces the concept of algorithmic management in the digital financing ecosystem, as organizational networks extend beyond traditional boundaries to incorporate external customers such as SMMEs. Therefore, to leverage its position in the digital financing ecosystem, SEFA needs to consider issues of platform governance, as the range of actors involved in the digital financing ecosystem is diverse and is embedded in a larger socio-cultural system (Dedema & Rosenbaum, 2024). Following from the resource-based view of Teece et al., (1997), additional explanations were obtained from the theme of **"Training and Capacity Enhancement"**, to emphasize the need for digital literacy as an important factor in addressing technology resistance as pointed out by Respondents 6, 10 and 11. Lastly, **Change Management** addresses internal resistance to digital changes, highlighting the need for strategic initiatives to support digital transformation. Collectively, these themes underscore how digital technologies not only solve traditional problems but also create new opportunities in the digital financing landscape.

4.3.8 Products/Services in Digital Financing Systems

The "Products/Services" component is crucial in the digital financing ecosystem, especially for Small, Medium, and Micro-sized Enterprises (SMMEs). This segment of

Work Systems Theory explores the innovation and range of financial products designed to meet the diverse needs of SMMEs. Through digital solutions, these products and services aim to address various financial challenges, enhance operational efficiency, and promote business growth. This section synthesizes insights from the research participants to generate themes for understanding the component of “products/services” from a work systems perspective.

Table 13: Products/Services in Digital Financing Systems

Ref	Text: Excerpts	Sub-Theme	Theme
Respondent 1	"Innovative financial solutions like PO financing and invoice factoring help SMMEs manage cash flow effectively."	Innovative Financial Solutions	Financial Product Innovation
Respondent 2	"Our systems are adapted to be agile to the needs of SMMEs, offering tailored financial support at crucial stages."	Tailored Financial Support	
Respondent 7	"AI-driven analytics are crucial for personalizing financial products to meet diverse needs of SMMEs."	AI in Finance	
Respondent 8	"Hybrid financial products that combine features of multiple financial instruments are becoming essential."	Hybrid Financial Products	
Respondent 14	"Platforms must be designed for ease of use to ensure all SMMEs can access our financial products."	Usability of Digital Platforms	
Respondent 5	"Micro-insurance products are crucial for mitigating risks for SMMEs in volatile markets."	Risk Mitigation in Volatile Markets	External Collaboration
Respondent 9	"The partnership between financial institutions and tech companies is vital for developing next-gen financial solutions."	Strategic Partnerships	
Respondent 10	"Digital platforms allow us to offer services without geographical limits, increasing access to finance."	Market Expansion	

The diverse needs of SMMEs in the digital financing ecosystem are met through a combination of innovative financial products and external collaboration through various mechanisms. **Financial Product Innovation** captures the essence of adapting and creating FinTech innovations that are accessible, personalized, and effective in meeting the specific needs of SMMEs in the digital financing ecosystem. While noting that FinTech are powerful tools for financial inclusion and socioeconomic development, bringing unbanked segments of society into the formal financial system, questions still remain as to how the innovations should be contextualized to SMMEs in developing nations (Sant’Anna & Figueiredo, 2024). FinTech product innovations, from the

responses above, need to consider aspects such as: tailoring financial support to the SMMEs, explore the use of Artificial Intelligence (AI) in FinTech, provide hybrid products, where some are manual while others are digital products, and ensuring ease of use of the digital platforms where the products are being offered. For instance, to address some of the bottlenecks in loan processing, Vidya, CM and Rajaram (2024) point out that AI can be used in credit scoring to make the process more efficient. It also important to note that when considering “products/services” in an ecosystem, the respondents also consider that “**External Collaboration**” is important as a critical mechanism in value co-creation. Key aspects of external collaboration are to focus on how to address risk in volatile markets, strengthening partnerships between financial institutions and tech companies that provide the infrastructure for such digital financing ecosystems and how to realize market expansion, not only from s supply perspective, but also developing markets for SMMEs as customers of the digital financing ecosystem. Collectively, these themes demonstrate how tailored, innovative financial products and services within a supportive digital infrastructure can effectively meet the evolving financial needs of SMMEs, fostering growth and stability in the sector.

4.3.9 Customers in Digital Financing Systems

"Customers" as an endogenous component of digital financing platforms focus on enhancing the user experience and adoption rates, especially among SMME owners and entrepreneurs. This analysis delves into various aspects that influence how customers interact with digital financing platforms, emphasizing the need for intuitive designs, reliable systems, and comprehensive user support. This section synthesizes insights from the research participants to explore how digital financing platforms can optimize user experience and ensure broad and effective user adoption.

Table 14: Customers in Digital Financing Systems

Ref	Text: Excerpts	Sub-Theme	Theme
Respondent 1	"[...] we're struggling with this... I can go back and potentially come up with solutions." - Discussion on user feedback and platform improvements	Adoption Rates	Customer Engagement
Respondent 8	"We need language translators... so that you simplify your things." - Addressing the need for multi-lingual support to cater to diverse users	Multi-Lingual and Inclusive Design	

Ref	Text: Excerpts	Sub-Theme	Theme
Respondent 4	"Digital literacy is the main challenge... Communicating and converting documents can be difficult for some SMME owners."	Digital Literacy and Training	Data-Driven Decisioning
Respondent 6	"We've got the information... It's a collaborative effort to say this is what we see as a trend in the market." - Andile on using behavioral data to improve services	Behavioral Analytics	
Respondent 9	"Data must fall... We need to address the cost to communicate because it's too expensive." - Highlighting the high cost of data as a barrier to accessing digital services	Subsidized Data Plans	

The responses captured in the table above shows two main themes as the basis for understanding the component of “customer” in the context of a work system: **Customer Engagement** and **Data-Driven Decision Making**. Customer Engagement was captured by two responses: adoption rate and multi-lingual inclusive design. Customer adoption rates brought to the foreground the ‘struggle’ by many SMMEs to use the various digital platforms that have been established by SEFA to service customers. While some of these platforms are easy to use, the vast majority are challenging from a user perspective, thus it is important that an inclusive approach be used in the design of these digital platforms. The second respondent reinforces this negative perception when they highlight the role of language in platforms. For SMME owners, this can be a real challenge as most digital platforms use English in the provision of content, but large segments of the South African population may not really be comfortable with the English language. Yet research by Kodongo (2022) confirms that those who are proficient in the English language have a higher chance of financial inclusion. It is therefore important to consider that this is a constraining factor, as large segments of the South African population are likely to be financially excluded if the digital platforms that are developed for the digital financing ecosystem are only in English. Given that **Customer Engagement** strategies focus on retaining users through responsive and effective platform improvements based on direct feedback, language plays a role in provision of feedback. It is therefore critical to consider designing platforms that are multi-lingual to enhance customer engagement. The second theme that emerged for understanding ‘customers’ is the increasing need for “**Data-Driven Decisioning**” that was identified using three aspects: digital literacy and training, behavioural analytics, and data costs. The perceptions expressed were negative, as the respondents highlighted that in a digital financing ecosystem, data-driven decision making is much more elevated, given the reliance on digital platforms. However, the

respondents indicated that the current customers of the digital financing ecosystem may not have the capacity to effectively engage with these platforms due to challenges partly linked to the digital divide at different levels, as well as prohibitive data costs in South Africa. Data-driven decision making is therefore inevitable over digital financing platforms but requires behavioural change on the part of customers to use big data and analytics to make informed decisions, but digital illiteracy remains a perplexing aspect in realizing customer-centricity (Modiha, 2024). Collectively, these themes underscore a comprehensive approach to enhancing user experience, aiming to create a more accessible, reliable, and user-friendly digital financing ecosystem.

4.4 Summary of the findings

This chapter investigated the determinants of a digital financing work system in South Africa through a critical realist lens, using the Work Systems Theory (WST) to explore interactions within the digital financing sector. It focused on three key research questions that delved into the environment, infrastructure, and participants as primary components of WST, analyzing how these components influenced the operational dynamics for small, medium, and micro-sized enterprises (SMMEs).

Firstly, the study examined the environment—specifically, economic policies and regulatory frameworks—that shaped the accessibility and effectiveness of digital financing systems. These external factors significantly impacted the strategies and processes/activities within digital platforms, creating barriers or facilitators that affected how customers (SMMEs) engaged with these services. Regulatory complexities necessitated adaptive strategies that influenced compliance and operational execution, thereby affecting customer interaction with digital financing platforms.

Secondly, the chapter addressed the infrastructure component, emphasizing its crucial role in supporting the technological backbone of digital financing systems. Infrastructural limitations directly affected the technologies used and the effectiveness of digital services offered, thereby impacting the design and delivery of products/services. Enhanced infrastructure facilitated improved products/services, elevating the overall customer experience and adoption rates.

Lastly, the chapter explored participants' interactions among internal teams, management, and external partners, highlighting how these relationships influenced the entire digital financing ecosystem. Effective collaboration among these participants was essential for optimizing technologies and information management within the system. This directly shaped the processes/activities, enhancing service delivery efficiency and responsiveness to the needs of SMMEs.

In synthesis, the chapter provided insights into how environmental factors, infrastructure, and participant dynamics interacted within the digital financing system, influencing strategies, technologies, and information flow. These findings offered a comprehensive view of the system's complexities and suggested areas for strategic enhancements to improve the design and implementation of digital financial services, ultimately benefiting the growth and sustainability of SMMEs within South Africa. This analysis underscored the importance of a coordinated approach that considered all WST components to effectively support and advance the digital financing landscape. In the next chapter, a discussion of findings is undertaken, followed by the conclusions and recommendations of the study.

In summary, the chapter presents the findings for the research on determinants of a digital financing work system for SMMEs in South African. In the research the Work Systems Theory Framework (WST) which analysed the nine different components, which are the environment, strategies, infrastructure, processes, participants information, technologies, products and services, and customers were used for the analyses.

In the study emphasises the need for the digital infrastructure particularly in the rural areas which addresses the digital divide and expand access to digital financial services. Also, the need for innovative financial products and services tailored to the needs of SMMEs. In conclusion, it is the need for a coordinated approach that consider all components of the Work Systems theory to effectively support and advance the digital financing landscape in South Africa.

CHAPTER 5: DISCUSSION OF RESULTS, CONCLUSIONS, AND RECOMMENDATIONS

5.1 Introduction

In this chapter, a discussion of the findings is undertaken by relating the results to literature, the conclusions are then outlined, followed by recommendations for future research. The study sought to address the following primary research question: ***what are the determinants of a digital financing work system for South Africa?*** Using the Work Systems Theory, a deductive thematic analysis was undertaken guided, with the summary of findings discussed in the sections below.

5.2 Discussion of Findings

The Work Systems Theory (WST) nine core components provided the theoretical lenses for understanding the determinants of the digital financing ecosystem in South Africa. Chis et al., (2024) with Steven Alter, the original author of the Work Systems Theory, reminds us that it is a foundation theory that enables analysis of systems in organizations and can be extended to the analysis of ecosystems. They emphasize that, as part of the WST methodology, the “As - Is” situation of how systems need to be understood and in this exploratory study, the system in focus was the digital financing system of South Africa. In the context of developing or emerging economies, Ismael Kato et al., (2020) reminds readers that “Digital Financing is an “offshoot of wider technological development and innovation in the provision of inclusive finances to hitherto financially excluded people” (p. 8). The discussion of the findings of this study is aligned to this view above by approaching the South Africa digital financing system as being anchored on two critical organizations: Small Enterprise Finance Agency (SEFA) and Small Enterprise Development Agency. Additionally, to expand the application of the theory to an entire ecosystem, the findings involved additional stakeholders under the umbrella of Enterprise Supplier Development Community of Practice (CoP) and other SMMEs sector representatives. The findings presented in the previous chapter provides the “As-Is” situation of the current digital financing ecosystem in South Africa, but from an exploratory perspective, taking the views of the participants in this research.

A summary of the determinants from the previous chapter, presented under each of the components of the Work Systems Theory (WST) are captured in the two tables below, format which is adapted from Chis et al., (2024):

Table 2: Determinants of Digital Financing Ecosystem

Digital Financing Ecosystem Determinants for South Africa		
Customers: SMMEs • Data-Driven Decision Making • Customer Engagement	Product/Services: Digital Financing: • Financial Product Innovation • External Collaboration	
Processes/Activities: • Digital Process Efficiency • Operational Efficiency • Strategic Innovation		
Participants: • Organizational Collaboration • Digital Accessibility • Systems Training & Capacity • Systems Efficiency & Improvement	Information: • Customer Segmentation • Data Integration • Regulatory Compliance	Technology: • System Efficiency & Compatibility • Training & Capacity Enhancement • Change Management
Strategy Elements: • SMMEs Curation Journey • Communicative Digital Platforms • Strategic Alignment • Digital Technology Integration • Supply Chain Transformation • Digital Divide		
Infrastructure Elements: • Systems Integration • Responsive Digital Infrastructure • Digital & Energy Network • Systems Automation • Community of Practice		
Environment Elements: • Connectivity: • Regulatory Bottlenecks • Digital Financing Ecosystem • Cross-Sectoral Collaboration • Rural-Urban Duality		

Table 3: Summary of Findings

WST Element	Research Proposition	Summary of Findings
Environment	Greater regulatory clarity and supportive economic policies will significantly enhance the accessibility and effectiveness of digital financing systems for SMMEs in South Africa.	Environmental (WST) factors in South Africa's digital financing ecosystem reveal significant challenges: connectivity issues in rural areas hinder SMMEs' access to digital services, regulatory bottlenecks create barriers to entry, and rural-urban duality exacerbates access disparities. However, frameworks provided by the DSBD, and cross-sectoral collaboration are seen as essential enablers for fostering a supportive digital financing environment, enhancing regulatory compliance, and improving operational dynamics .
Strategies	Strategies that align digital financing with national growth	Determinants related to " Strategy " according to WST had factors revealed various requirements for a digital

	and inclusion goals will lead to improved adoption and operational success of digital financing platforms among SMMEs.	financing ecosystem, with SEFA playing a role. These findings related to customizing SMMEs journeys, need for communicative digital platforms, procurement transformation and addressing the effects of the digital divide for SMMEs.
Infrastructure	Robust digital and financial infrastructure will significantly enhance the reach and efficiency of digital finance services, facilitating broader economic participation among SMMEs.	From an “ Infrastructure ” perspective of WST, the findings revealed challenges and the need for a digital financing ecosystem that enables systems automation and integration, founded on a responsive digital infrastructure, with stable digital and energy networks.
Processes & Activities	Streamlining internal processes and enhancing compliance protocols within digital financing platforms will improve operational efficiency and regulatory adherence.	The findings related to the endogenous “ Processes & Activities ” of WST captured three critical themes with their various aspects under digital process efficiency (streamlining of processes, systems integration, market expansion, supply chain efficiency), operational efficiency (systems automation, competitive market support, process automation, user-friendly systems, digital tools integration,), and strategic innovation based on scale, with innovative financial solutions.
Participants	Effective collaboration and enhanced capabilities of internal teams and external partners will drive superior service quality and innovation in digital financing systems.	The construct of “ Participants ” as per WST, requires a work system that prioritizes organizational collaboration, digital accessibility, capacity development, and continuous systems improvement, while addressing operational and infrastructural challenges. While participants are predominantly human, the digital economy focus allows for incorporating systems that are identified by these themes.
Information	Advanced data analytics and integration of real-time data will improve customer segmentation and risk assessment, leading to more personalized and secure digital financing services.	The findings related to the “Information” concept of WST were revealed under the three themes of customer segmentation, data integration and regulatory compliance. Under customer segmentation, advanced analytics is key for risk prediction, market access, risk assessment and profiling. Though efforts are being made towards holistic data integration, it remains a challenge, with factors such as the existence of data silos. Data compliance and privacy should remain a priority from an information perspective.
Technologies	The incorporation of emerging technologies (e.g., AI, blockchain) into digital financing platforms will enhance the quality and accessibility of financial services, thereby increasing user engagement and satisfaction.	The findings related to “ Technology ” as per the WST captured the important role of factors related to the following three themes: under system efficiency & compatibility, the digital financing ecosystem should emphasize technological agility, user focused design, effective platform governance, automation of services, operational effectiveness and continuous digital literacy training and change management.
Products/Services	Diversification and innovation in financial products and services tailored to the unique needs of SMMEs will lead to greater financial inclusion and support for business growth.	Under “ Products/Services ” of WST, the findings revealed two main themes: financial product innovation and external collaboration. Financial product innovation captured different aspects and needs of a digital financing ecosystem: the use of A in finance, design of hybrid financial products, and tailoring usability of digital platforms. Given the ecosystem nature of digital financing, the theme of external collaboration emphasized strategic partnerships to enable market expansion.
Customers	Enhancing user experience through user-friendly design, comprehensive support, and adaptive interfaces will significantly increase the adoption rates and satisfaction levels of SMMEs using digital financing platforms.	Under “ Customers ” of WST, Customer engagement and data-driven decision making are crucial for optimizing user experience in digital financing platforms. Key challenges include low adoption rates due to complex platforms and the need for multi-lingual support to cater to non-English speakers. Digital literacy and high data costs further hinder effective use of these platforms. Addressing these issues through inclusive design, enhanced digital literacy programs, and affordable data plans can significantly improve customer engagement and decision-making in digital financing systems.

The primary research question is as follows: What are the determinants of a digital financing work system for Small, Medium, and Micro Enterprises (SMMEs) in South Africa? The primary research question is as follows: What are the determinants of a digital financing work system for Small, Medium, and Micro Enterprises (SMMEs) in South Africa? The discussion of findings is structured around the three themes '**economic and regulatory**' structures, '**organizational determinants**', and '**technological**' factors that were used to explain the secondary research questions in Chapter 1 as below:

- *What are the challenges and opportunities in implementing a digital work system architecture for financing SMMEs in South Africa?* To address this research question in line with the WST, determinants under this question focused on trying to understand the underlying economic and regulatory structures influencing the accessibility and effectiveness of digital financing systems for SMMEs in South Africa.
- *What are the potential risks and mitigation strategies associated with the implementation of a digital work system for financing SMMEs in South Africa?* To address the above research question from the adopted theory, the emphasis will be on understanding of the organizational determinants influencing the digital financing ecosystem for SMMEs in South Africa.
- *What are the socio-technical factors that need to be considered when implementing a digital work system architecture for financing SMMEs in South Africa?* Based on the WST, the nine components will guide in understanding the socio-technical that are critical for the digital financing ecosystems of South Africa.

5.2.1 Economic and Regulatory Structures

The first research question focused on: *What underlying economic and regulatory structures influencing the accessibility and effectiveness of digital financing systems for SMMEs in South Africa?* The study revealed that South Africa's regulatory environment significantly impacts SMMEs' ability to access and benefit from digital financial services. This ties directly into the:

5.2.1.1 Environment Proposition, which suggests that greater regulatory clarity and supportive economic policies will significantly enhance the accessibility and effectiveness

of these systems. The critical themes that emerged from the analysis focused on: **Regulatory Bottlenecks, Digital Financing Ecosystem, Connectivity, Cross-Sectoral Collaboration, Rural-Urban Duality**. Therefore, the “As-Is” situation can be explained using these five themes that emerged from the analysis of research data. Literature supports the findings linked to these themes. For instance, Lee (2024) reports on significant *regulatory bottlenecks* in digital financing, with stringent and often ambiguous or conflictual regulatory frameworks that hinder the accessibility and efficiency of digital finance services for SMMEs. They support their assertions by highlighting issues such as laxity in due diligence and insufficient Know-Your-Client (KYC) checks on alternative financial lending platforms. In jurisdictions lacking specific regulatory frameworks, this can lead to exploitation or money laundering and terrorism financing (Lee, 2024). Literature also highlights the complexity and slow adaptation of existing regulatory structures to the fast-evolving digital finance environment, which poses a continuous challenge for financing institutions and alternative lenders striving to innovate while remaining compliant (Lee, 2024). **Connectivity**, another critical theme from the findings, remains problematic to developing and emerging nations. In some of these regions, there are challenges related to network connectivity and internet access, which affects the reliability of FinTech services (Nalluri & Chen, 2024); while Razzaq (2024), emphasizes that the main obstacles of connectivity are expensive internet packages, high digital infrastructure costs, and low digital connectivity. Regarding the theme of establishment of *Digital Financing System*, Ololade *et al* (2024) links it to connectivity challenges such as unreliable internet connectivity and inadequate power supply, which severely limits the operational capacity of digital finance platforms, directly affecting their ability to serve remote or underserved populations effectively. Cross-sectoral collaboration also emerged as a key determinant in understanding the economic and regulatory structures of the digital financing ecosystem. Support from literature emphasizes the role of new FinTech ecosystem actors and cross-sectoral technology companies that are challenging financial incumbents to serve the modern financial needs of SMMEs. And according to Zhang-Zhang *et al.*, (2020), it is important to consider, whether the emerging digital financing ecosystem supports competence-enhancing versus competence-destroying innovation platform to current financial incumbents. The digital nature of FinTech also implies that the question of the digital divide, captured under the theme of “*Rural-Urban Duality*”, also emerged as a key determinant of the digital financing ecosystem (Odei-Appiah *et al.*, 2022). Thus, the five themes that

emerged from the analysis of results have support from literature as critical determinants for understanding how regulatory clarity is critical for ensuring a digital financing ecosystem that is inclusive. This scenario requires a delicate balance between fostering financial innovation and maintaining financial system integrity, urging policymakers to rethink established policies to accommodate the digital shift effectively.

5.2.1.2: Strategies Proposition: The emphasis of this proposition is that strategic frameworks for digital financing should support national economic goals. These strategic frameworks should facilitate a supportive environment that encourages the adoption and effective use of digital financial services among SMMEs. The strategic alignment with national growth and inclusion goals can enhance the operational success of digital financing platforms, which may contribute significantly to the broader economic development through SMMEs. Evidence from the findings of the “As-Is” situation revealed the following themes for understanding the **Strategies Proposition: SMME Curation Journey, Communicative Digital Platforms, Strategic Alignment, Digital Technology Integration, Procurement Transformation, and the Digital Divide**. From a strategic perspective, these themes capture how to understand the alignment of the digital finance ecosystem with national economic growth and inclusion goals, with a specific focus on SMMEs. For instance, having a clear template-like “*SMME Curation Journeys*” as a form of onboarding SMMEs into tailored digital financial models that can cater specifically to the needs of rural populations, aligning with broader national strategies aimed at economic inclusivity and development (Memela & Chindenga, 2023). Such template-like “*SMMEs Journeys*” for digital financing services can mitigate against information asymmetry, which adds a significant cost between lending institutions and SMMEs, in both the pre- and post-loan dimensions (Li, 2023). According to Thomas et al., (2024), such an approach can lead to a digital financing system that evolves into a platform ecosystem with horizontal and vertical complementarities. Realizing such a platform that supports SMMEs Curation Journeys is supported by the other themes (*Communicative Digital Platforms, Strategic Alignment, Digital Technology Integration, Procurement Transformation, Digital Divide*) and literature as well. For instance, Hu et al., (2024) concepts of digital infrastructure, digital industry development, digital innovation capacity and digital inclusivity align with all the remaining themes. These findings are consistent with literature, with Cenamor et al., (2019) linking the mechanisms associated with these themes to SMME performance as influenced by platform

capability, network capability, and organizational agility. The theme of *Strategic Alignment* links to the policy mechanisms for realizing digital industry development, digital innovation capacity and digital inclusivity to address the effects of the digital divide. Thus, the findings related to the *Strategies Proposition*, emphasizes a platform-based system that can leverage artificial intelligence systems to build SMMEs automation platforms to support “*SMMEs Curation Journeys*” for digital financial services. The horizontal and vertical complementarities of the platform can allow for SMMEs to be vertically specialized. This is supported by Jia, Xiaofang and Wang, (2024) who link digital finance to the level of vertical specialization of firms by reducing transaction costs and increasing the number of participants in a platform ecosystem. Such a strategic focus minimizes the required upfront expenditure to SMMEs that is linked to information asymmetry and provides flexible access to digital resources to promote the system’s adoption by the stakeholders.

5.2.1.3: Technologies Proposition: This proposition is supported by the study’s findings that emphasize the need for incorporating advanced technologies like AI and blockchain into digital financing platforms, which is often facilitated or hindered by the existing regulatory and economic frameworks. There is need to investigate further how the existing regulatory and economic frameworks are hindering the development of the SMMEs sector, transitioning to the digital economy. Evidence of the “*As-Is*” of the digital financing ecosystem of South Africa were captured through the following themes from the responses: *System Integration* (Respondent 11), *Responsive Digital Infrastructure* (Respondent 12), *Digital & Energy Network* (Respondent 3, 15, 16), *System Automation* (Respondent 13, 14) and *Community of Practice* (Respondent 15). These themes represent the determinants for a digital financing system, which are directly linked to these factors necessary for the development of a platform ecosystem. The mention of frequent load shedding and infrastructure challenges by Respondent 5 further illustrates the need for robust technological solutions that can operate reliably in less developed areas, thus bridging the digital divide and enhancing overall system effectiveness.

These themes found support in literature: for instance, the theme of Community of Practice (CoP), which suggests that when people share a common concern, they eventually learn how to do it better as they learn (Edmondson et al., 2024). It is in this context that initiatives such as the Enterprise Supplier Development forum acts as a CoP

for SMMEs in South Africa. The theme of “*Digital Infrastructure*” can be explained using literature from (Ololade, 2024) who emphasize that access to robust digital infrastructure is pivotal to digital financial inclusion in Africa. That a robust technological infrastructure can ensure dependable and accessible Internet connectivity through mobile networks, while integrating and streamlining of SMMEs into the digital financial ecosystem. The theme of “*System Integration*” from literature emphasizes how to integrate digital technologies with existing legacy systems, a challenge that calls for careful planning and investments in technology infrastructure (Shallik & Klaus, 2024). There are challenges that are evident and were highlighted by the respondents, as SEFA continue to modernise their systems. The theme of “*System Automation*” can be linked to attempts to modernise supply chain systems, partly linked to the uptake of new technologies and process automation (Türkeş et al., 2024).

5.2.2 Organizational Infrastructural Realities

Three propositions guided the investigation of determinants that helped in addressing the second research questions (*What are the organizational determinants influencing the digital financing ecosystem for SMMEs in South Africa?*). The three propositions of the Work System Theory: *Infrastructure, Information and Products/Services*. The propositions were as follows:

5.2.2.1 Infrastructure Proposition: Robust digital and financial infrastructure will significantly enhance the reach and efficiency of digital finance services, facilitating broader economic participation among SMMEs. The analysis of responses confirms that a robust digital and financial infrastructure significantly enhances the “*Operational Efficiency*” of digital finance services, which can expand economic participation among SMMEs. Evidence from the responses indicates that improvements in infrastructure, such as enhanced internet and mobile network coverage, directly facilitate greater access and usability of digital financial services for SMMEs (Respondent 11, 15). However, issues such as recurrent load shedding and connectivity challenges, especially in rural and township areas, persistently hamper the full utilization of these digital services (Respondent 3, 16). Literature support for “*Operational Efficiency*” is linked to the role that Fintech plays in process automation and the ability of financial institutions to optimize resource use using their workforce, infrastructure and technology (Harsono¹ et al., 2024).

5.2.2.2 Information Proposition: The focus of the information proposition on: Advanced data analytics and integration of real-time data will improve customer segmentation and risk assessment, leading to more personalized and secure digital financing services. The key themes that emerged to explain the information proposition was linked to *customer segmentation* (Respondent 1, 9), *advanced data utilization* (Respondent 3), *data integration* (Respondent 7), *system adaptability* (Respondent 5), and *market expansion* (Respondent 11). In the digital financing ecosystem, fintech customer segmentation is key, as consumers have different sets of needs and problems, and a one-size-fits-all approach may not work (Sengodan, 2021). But the antecedents of *customer segmentation* call for a digital financing system that uses *advanced data utilization* and *data integration*. In other words, it is difficult to understand customer segmentation in a digital financing ecosystem, without the utilization of advanced data analytics .

5.2.2.3 Products/Services Proposition: The research proposition related to the Products/Services component of the Work System Theory (WST) was stated as follows: *Diversification and innovation in financial products and services tailored to the unique needs of SMMEs will lead to greater financial inclusion and support for business growth.* This assumption is based on literature that emphasize how infrastructural developments enable product and service innovations. According to Xie et al., (2022) product or service innovation in SMEs have recently been linked to the development of digital platforms. The digital financing ecosystem can be a platform for transaction costs associated with SMMEs financial exclusion. But such platforms require stable electricity supply and adequate digital infrastructure. National government efforts are commendable in this regard, but the transition to the 4IR society requires cushioning SMMEs as digital platforms become adopted. Robust mobile network coverage continues to improve access to digital finance.

5.2.3 “Technology” & Stakeholder Interactions

The third research question focused on: *What technological factors are critical for the digital financing ecosystems of South Africa?* The research propositions that guided in understanding this research question were stated as follows: Addressing the participants or customers aspect of WST, this part explores the interactions among internal teams, management, and external partners, highlighting how these relationships influence the digital financing ecosystem. The critical themes that emerged from the analysis are

“Financial Product Innovation” (Respondent 1, 2, 7, 8), *“External collaboration”* (Respondent 9, etc), and *“Market Expansion”* (Respondent 10), etc. The findings from the responses as well as synthesis of presentations at the 2023 Enterprise Supplier Development Summit highlighted the need for both collaborative successes but sometimes, there are also conflicts among stakeholders, which impacts the efficiency of digital financing services. A key theme that was important in understanding the determinants related to participants was *“Financial Product Innovation”* which can be related to literature that say that the increasing dynamics of financial product innovations can be linked to the growth of SMMEs according to Siswantoro (2024). FinTech has elevated customer experience, and therefore, there is need to design technology-driven platforms that prioritize customer experience (SMMEs). The financial innovations require a customer-centric paradigm in financial services, employing the use of emerging technologies such as artificial intelligence, blockchain, and IoT (Bueno et al., 2024).

5.3 Conclusions of the Study

As per the findings of the study and the discussion above, the following conclusions are possible, even though the study was exploratory in nature:

5.3.1 Conclusion for Research Question 1:

What underlying economic and regulatory structures influencing the accessibility and effectiveness of digital financing systems for SMMEs in South Africa?

First, regulatory clarity and economic stability are crucial for fostering an environment of conducive growth of digital financing for SMMEs in South Africa. The determinants that were identified were linked to the themes of regulatory bottlenecks, the nature of digital financing ecosystems, cross-sectoral collaboration, and rural-urban differences, amongst other determinants as discussed in research proposition 1 above. From these discussions, three main conclusions can be stated as an answer to the first research question:

Government and other stakeholders and relevant SOEs such as SEFA and SEDA should foster financial innovation while maintaining financial system integrity. A multi-collaborative process for policymakers to rethink established policies of Fintech to

recognize that recent trends in digital transformation requires a fresh look at policies. For example, recent efforts to by the DBSD of South Africa to expand access to financial support to new and existing SMMEs and co-operatives in underserved areas speaks to attempts to bring regulatory clarity to the digital financing ecosystem (Du Plessis, M. D. 2022). For instance, through DBSD, South Africa seeks to develop a digital financing ecosystem under the MEL program that will allow for assessing the needs to in the small business sector which will be useful for empowering the SMMEs (Department Of Small Business Development, 2023). Strategic frameworks aligned with national economic goals facilitate a supportive environment for digital financial services. Themes like SMME curation journeys, communicative digital platforms, and strategic alignment underscore the importance of tailored strategies to promote broad adoption and effective use of digital financing systems among SMMEs. Incorporating advanced technologies like AI and blockchain is necessary for developing robust digital financing platforms. The need for reliable technological solutions, especially in underdeveloped areas, is highlighted by themes such as system integration, responsive digital infrastructure, and system automation, which are critical for bridging the digital divide and enhancing overall system effectiveness.

5.3.2 Conclusion for Research Question 2:

What are the organizational determinants influencing the digital financing ecosystem for SMMEs in South Africa?

Secondly, the second research question focused on how infrastructure can constrain or enable the operationalization of strategic initiatives within South Africa's digital financing ecosystem. The conclusion that can be linked to the findings is that investments in both physical and digital infrastructure is essential to enable comprehensive strategic initiatives that support small business sector growth. This is important as several themes demonstrated that an inadequate digital and physical infrastructure can constrain the development of the fintech ecosystem in South Africa. Therefore, infrastructure (such as digital and energy) is core to architecture of the digital financing ecosystem as was revealed through the theme of "*Operational Efficiency*". From a digital business perspective, operational efficiency can be linked to the concept of digitization and digitalization according to (Ross et al., 2006).

5.3.3 Conclusion for Research Question 3:

What technological factors are critical for the digital financing ecosystems of South Africa?

Thirdly, a focus on how ‘technology’ factors and stakeholder interactions are critical for the emerging digital financing ecosystem in South Africa. The insights from the analysis and discussions emphasize the pivotal role of stakeholders in shaping the digital financing landscape. While sometimes there is ‘conflicts’ in service provision as revealed in during the 2023 Enterprise Supplier development forum, the themes of external collaboration, financial product innovation and market expansion are important determinants for collaboration and interactions among stakeholders in a digital financing system. The role of market expansion through co-operation in product innovation is well explained by Podmetina, D., & Volchek, D. (2016), which therefore the determinants linked to these themes can be used for understanding how to resolve systemic challenges in a digital financing ecosystem. Determinants related to market expansion, external collaboration and financial products innovations are therefore important.

5.4 Implications of the Study

The study’s contributions are described below under the following sub-sections:

5.4.1 Policy Implications:

The deliberations with various stakeholders through this research allow for making the following statements related to the contributions of this study to policy.

- Policy makers should re-consider transforming existing regulations and legislations to reduce bottlenecks that currently hinder accessibility and efficiency of digital financial services. Such policy interventions should be founded on cross-sectoral collaboration to foster a conducive environment for fintech and encourage strategic investments for infrastructure development of the digital financing system of South Africa.

- Policy makers should consider collaboration with the different sectors, that is collaboration between government, financial institutions, and technology companies to support the growth of the digital financing ecosystem.
- The last component is ensuring alignment between stakeholders in the digital finance initiatives inline with the plans of government to support inclusive growth through SMMEs.

5.4.2 Practice Implications:

In this study, practice implies implementation of policy for instance by SOEs, FSPs and SMMEs. Three possible policy implications are possible from the findings of this study:

- **Adoption of Innovative Financial Products:** In the design of work systems for digital financing, practitioners should focus on continuous development and improvement of digital financial products to cater for the varying needs of SMMEs. However, to reduce transaction costs for SMMEs, common digital platforms can be designed based on the principles of the co-operative approach.
- **Strategic Alignment with National Goals:** Fintech platforms should align operational strategies with national economic inclusion goals. The emphasis should therefore be on how SMMEs can innovate their business models to fit with the requirements of the digital economy and national goals of South Africa.
- **Stakeholder Engagement:** Practitioners and policy makers should continue to prioritize building and maintaining strong relationships as was evidenced with themes such as Community of Practice and its determinants.

5.4.3 Academic Implications:

The application of the Work System Theory to understanding the dynamics of the digital financing ecosystem has significant contributions to academics:

- **Application of Work Systems Theory (WST) to digital financing ecosystems:** The WST was used as a theoretical lens to understand the dynamics and determinants of the digital financing work system. WST provides a systems perspective to understanding dilemmas. The application of the theory in the

context of the South Africa SMMEs sector contributes to the understanding of the theory beyond traditional business systems to more dynamic, technology-driven ecosystems. Through the use of deductive thematic analysis according to Braun & Clarke (2006), the Work Systems Theory (WST) provided a lens for understanding the complex ecosystem of digital financing using its nine components. Therefore, from a conceptual modeling perspective, WST provided a 'parsimonious' lens to understand the complex socio-technical phenomena.

- ***Understanding of Digital Finance Dynamics:*** The study reported in this dissertation enriches the perspective of fintech ecosystem from a systems perspective. The systems approach has allowed for delving deeper into the various factors or determinants of the digital financing ecosystem if the system is anchored on an SOE such as SEFA. use of critical realism paradigm allowed for an understanding of the interactions between the exogenous and endogenous determinants and how they interact with each other. SEFA, as a leverage point from a systems perspective would therefore consider how to position themselves in the increasingly important digital economy. The WST and the approach adopted in this research has revealed several variables and factors guided by the nine components of the theory.

5.5 Suggestions and Limitations of the Study

Given the exploratory nature of this study, the following suggestions can be considered useful for future research. For instance, future studies could explore the impact of specific regulatory changes on the growth trajectories of digital financial services. Comparative studies between provinces and districts within South Africa could provide deeper insights into localized infrastructural impacts on digital finance. It may also be useful to understand, from a historical context, how the digital finance ecosystem is evolving in South Africa. This may be useful in identifying the key events and stakeholder dynamics that significantly impact the evolution of the digital finance ecosystem. The case study approach is limiting, as the researcher is constrained in making 'sweeping' generalizations. However, the themes that have emerged from this study can be a foundation for a deeper understanding of the digital financing ecosystem, which is a critical role played by a qualitative study such as this one. The research propositions

need to be investigated both intensively, through case studies, and extensively, using surveys.

This was an exploratory study, which relied on case study research design with data collected through interviews, as well as reliance on secondary transcribed data from the Enterprise Supplier Development (ESD) forums. While the conclusions in this study are useful, the limitations of a case study also apply in this case. Therefore, future studies can emphasize doing a survey to allow for much more extensive generalizations.

Future studies should also consider broadening research to include other regions through a comparative analysis on application of digital financing systems across the globe for a comprehensive understanding of the digital financing eco-system. However, the findings of this study are useful to begin understanding the nature of the determinants that are useful for a digital financing ecosystem for South Africa.

Table 15. Consistency table: research questions, propositions, data collection and data analysis

RQ #	State Research Question or Objective	Prop/hyp #	State Proposition or Hypothesis	Data collection detail	Data analysis method
1	What are the challenges and opportunities in implementing a digital work system architecture for financing SMMEs in South Africa?	1	The transition to 4IR technologies provides an opportunity for SEFA to address the challenges of financial inclusion	As an SMME what do you think the digital age brings as value to your business? What challenges do you think SMMEs would experience in accessing funds through online applications? What should a digital platform be able to for an SMME in the application process? What is your experience of the current manual application process in the financial institutions? What would you do to make it better for you?	
1.1	What are the organizational determinants influencing the digital	1.1	Digital Work Systems have the capability to provide the right	Is the challenge of access to digital infrastructure in terms of access to internet and devices a huge challenge for	

RQ #	State Research Question or Objective	Prop/hyp #	State Proposition or Hypothesis	Data collection detail	Data analysis method
	financing ecosystem for SMMEs in South Africa?		architecture for digital finance particularly when socio technical factors are well considered	SMMEs or something that SMME are slowly overcoming? Is digital literacy a challenge for many SMMEs or you think that many can be able to use digital platforms with ease?	
3	What technological factors are critical for the digital financing ecosystems of South Africa?	1.2	Cyber security crimes have been on the rise and data privacy is a cause for concern for many in using digital platforms work systems must address challenges of data protection.	How are you addressing challenges of cyber security threats within SEFA? Is the organisation having a policy that addresses concerns in the POPIACT? What would be the biggest obstacle for SEFA in transitioning into digital financing where applications are online?	

RQ #	State Research Question or Objective	Prop/hyp #	State Proposition or Hypothesis	Data collection detail	Data analysis method
				Is your clientele as SEFA digital survey to be able to access products digitally? Is there a digital strategy within the organisation? What are plans that in place to move into digital applications? Do you think they are being implemented with the necessary urgency? What are turnaround times for applications and disbursement of funds within SEFA ? do you think this can BE IMPROVED?	

REFERENCES

- Agyepong, S., Philosophy, D. O. F., & Science, C. (2018). *TOWARDS AN ICT ARTEFACT FOR FINANCIAL INCLUSION IN GHANA: A CRITICAL REALIST PERSPECTIVE*. February.
- Alsedrah, I. (2023). Digitalization and small & medium enterprise performance: a research to improve business practices. *Business Review of Digital Revolution*, 3(1), 20-29.
- Alter, S. (2006). *The work system method: connecting people, processes, and IT for business results*. Work System Method.
- Alter, S. (2010). Work systems as the core of the design space for organisational design and engineering. *International Journal of Organisational Design and Engineering*, 1(1–2), 5–28.
- Anakpo, G., Xhate, Z., & Mishi, S. (2023). The policies, practices, and challenges of digital financial inclusion for sustainable development: the case of the developing economy. *FinTech*, 2(2), 327-343.
- Ansong, E., & Boateng, R. (2019). Surviving in the digital era – business models of digital enterprises in a developing economy. *Digital Policy, Regulation and Governance* , 21(2), 164–178. <https://doi.org/10.1108/DPRG-08-2018-0046>
- Balboa, E., Ladesma, M., & Nicolai, A. (2024). *Digital Financing Innovations and Their Impact on the Financial Performance of SMEs in the Digital Economy Era*. 11(01), 88–98.
- Baloyi, Foster, & Khanyile, Moses B.. (2022). Innovative mechanisms to improve access to funding for the black-owned small and medium enterprises in South Africa. *Southern African Journal of Entrepreneurship and Small Business Management*, 14(1), 1-14. <https://dx.doi.org/10.4102/sajesbm.v14i1.578>
- Bonuedie, B. M., & Fombad, M. C. (2024). Knowledge-Sharing Strategies for Poverty Eradication Among Rural Women. *Libri*, 74(1), 55–70. <https://doi.org/10.1515/libri-2023-0021>

- Botha, A., Smulders, S. A., Combrink, H. A., & Meiring, J. (2021). Challenges, barriers and policy development for South African SMMEs—does size matter?. *Development Southern Africa*, 38(2), 153-174.
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77–101. <https://doi.org/10.1191/1478088706qp0630a>
- Braun, V., Clarke, V., & Terry, G. (2014). Thematic analysis. *Qual Res Clin Health Psychol*, 95–114.
- Brown, I. T. J. (2005). *Espoused theory versus theory in use: The case of strategic information systems planning*.
- Bruintjies, A. N., & Njenga, J. (2024). Factors affecting Big Data adoption in a government organisation in the Western Cape. *South African Journal of Information Management*, 26(1), 1–11. <https://doi.org/10.4102/sajim.v26i1.1690>
- Bueno, L. A., Sigahi, T. F. A. C., Rampasso, I. S., Leal Filho, W., & Anholon, R. (2024). Impacts of digitization on operational efficiency in the banking sector: Thematic analysis and research agenda proposal. *International Journal of Information Management Data Insights*, 4(1), 100230. <https://doi.org/10.1016/j.jjime.2024.100230>
- Byrne, D. (2022). A worked example of Braun and Clarke's approach to reflexive thematic analysis. *Quality and Quantity*, 56(3), 1391–1412. <https://doi.org/10.1007/s11135-021-01182-y>
- Cenamor, J., Parida, V., & Wincent, J. (2019). How entrepreneurial SMEs compete through digital platforms: The roles of digital platform capability, network capability and ambidexterity. *Journal of Business Research*, 100(April), 196–206. <https://doi.org/10.1016/j.jbusres.2019.03.035>
- Chetty, S. R., & Govender, K. K. (2024). Operational Efficiency and Small and Medium Enterprise Growth in South Africa. *Acta Universitatis Danubius: Œconomica*, 20(1).
- Chis, A., Ghiran, A. M., & Alter, S. (2024). Informing Enterprise Knowledge Graphs with

- a Work System Perspective. *Enterprise Modelling and Information Systems Architectures*, 19(7), 1–21. <https://doi.org/10.18417/emisa.19.7>
- Chitimira, H., & Ncube, M. (2020). The role of regulatory bodies and other role-players in the promotion of financial inclusion in South Africa. *Acta Universitatis Danubius. Juridica*, 16(1).
- Christian, M., Obi, A., Zantsi, S., Mdoda, L., & Jiba, P. (2024). The Role of Cooperatives in Improving Smallholder Participation in Agri-Food Value Chains: A Case Study of One Local Municipality in Eastern Cape, South Africa. *Sustainability (Switzerland)* , 16(6). <https://doi.org/10.3390/su16062241>
- Cosenz, F., & Bivona, E. (2021). Fostering growth patterns of SMEs through business model innovation. A tailored dynamic business modelling approach. *Journal of Business Research*, 130(March 2020), 658–669. <https://doi.org/10.1016/j.jbusres.2020.03.003>
- Daellenbach, H., McNickle, D., & Dye, S. (2012). *Management science: decision-making through systems thinking*. Palgrave macmillan.
- Davidson, E., Wessel, L., Winter, J. S., & Winter, S. (2023). Future directions for scholarship on data governance, digital innovation, and grand challenges. *Information and Organization*, 33(1), 100454.
- Dedema, M., & Rosenbaum, H. (2024). Socio-technical issues in the platform-mediated gig economy: A systematic literature review: An Annual Review of Information Science and Technology (ARIST) paper. *Journal of the Association for Information Science and Technology*, 75(3), 344–374. <https://doi.org/10.1002/asi.24868>
- DEPARTMENT OF SMALL BUSINESS DEVELOPMENT. (2023). *Request for Public Comments on the draft South African SMMES and Co-operatives Funding Policy*. 48483, 655–695. [https://www.dsbd.gov.za/sites/default/files/Final Gazetted SMMES and Co-operatives Funding Policy.pdf](https://www.dsbd.gov.za/sites/default/files/Final%20Gazetted%20SMMES%20and%20Co-operatives%20Funding%20Policy.pdf)
- Edmondson, V. C., Zebal, M. A., Jackson, F. H., Bhuiyan, M. A., & Crumbly, J. (2024). The promise of entrepreneurship ecosystems: a conceptual model for black American entrepreneurs. *Journal of Research in Marketing and Entrepreneurship*,

26(2), 388–414. <https://doi.org/10.1108/JRME-06-2022-0081>

Geels, F. W., Elzen, B., & Green, K. (2004). General introduction: system innovation and transitions to sustainability. *System Innovation and the Transition to Sustainability*, 1–16.

Guest, G., Namey, E., & Chen, M. (2020). A simple method to assess and report thematic saturation in qualitative research. *PLoS ONE*, 15(5), 1–17. <https://doi.org/10.1371/journal.pone.0232076>

Harsono¹, I., Ayu, I., & Suprapti², P. (2024). The Role of Fintech in Transforming Traditional Financial Services Peran Fintech dalam Transformasi Layanan Keuangan Tradisional. *Accounting Studies and Tax Journal (COUNT)*, 1(1), 81–91. <https://journal.ppipbr.com/index.php/count/index>

Hu, J., Huo, D., & Wu, D. (2024). Digital economy development and venture capital networks: Empirical evidence from China. *Technological Forecasting and Social Change*, 203(August 2023), 123338. <https://doi.org/10.1016/j.techfore.2024.123338>

Ismael Kato, Samali V. Mlay, Zuhra Nantege, Albert Miwanda, & Ruqqaiya Naluwooza. (2020). Mobile Technologies, Digital Financing and Access to Solar Energy in Uganda. *International Journal of Technology and Management*, 5(II), 1–23. <https://utamu.ac.ug/ijotm/index.php/ijotm/article/view/66/68>

Jabangwe, N., Xiandong Jing, E., Katsuyama, B., Kimis, P., Zhenmin, L., Mlambo-Ngcuka, P., Musa, A., Njoroge, P., Pazarbasioglu, C., Samans, R., Adam Soule Zoumarou, A., Edon, C., Jagueneau, A., Lam, G., Larsen, M., Latimer, L., Lome-Ileremia, L., Molinier, H., Mugo, M., ... Singh, A. (n.d.). *About the Task Force About the Report*.

Jia, Xiaofang and Wang, X. (2024). The impact of digital finance development on vertical specialization: evidence from A-share listed companies in China. *Kybernetes*, 53(1), 384–409. <https://www.ingentaconnect.com/content/mcb/067/2022/00000053/00000001/art00017>

Kodongo, O. (2022). *Pr ep rin t n ot pe er r Pr ep er ed*. December, 15–16.

- Lassl, W., & Lassl, W. (2019). Life, Viability, and the Art of Keeping One's Balance. *The Viability of Organizations Vol. 1: Decoding the "DNA" of Organizations*, 1–20.
- Lee, L. (2016). *Enhancing Financial Inclusion and Regulatory Challenges: A Critical Analysis of Digital Banks and Alternative Lenders Through Digital Platforms, Machine Learning, and Large Language Models Integration*. 1–23.
- Li, M., Hu, J., Liu, P., & Chen, J. (2023). How can digital finance boost enterprises' high-quality development?: evidence from China. *Environmental Science and Pollution Research*, 1-15.
- Li, X. (2023). A Study of the Impact of Central Bank Digital Currency on the Financing Constraints of Small and Medium-sized Enterprises. *Academic Journal of Business & Management*, 5(26), 184–189. <https://doi.org/10.25236/ajbm.2023.052628>
- Masiero, S. (2024). The shape of ICT4D to come. *Information Technology for Development*, 30(1), 1–9. <https://doi.org/10.1080/02681102.2024.2313395>
- Memela, C., & Chindenga, E. (2023). Emerging FinTech Models in Mobile Payments for Digital Finance in Rural Areas. *2023 IST-Africa Conference, IST-Africa 2023*, 1–9. <https://doi.org/10.23919/IST-Africa60249.2023.10187800>
- Mhlanga, D. (2024). Big Data and Financial Technology (Fintech) Towards Financial Inclusion. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.4697365>
- Modiha, P. (2024). Digital Transformation in the Finance and Banking Sector. In *Digital Transformation in South Africa: Perspectives from an Emerging Economy* (pp. 95–117). Springer.
- Mothobi, O., & Kebotsamang, K. (2024). The impact of network coverage on adoption of Fintech and financial inclusion in sub-Saharan Africa. *Journal of Economic Structures*, 13(1). <https://doi.org/10.1186/s40008-023-00326-7>
- Mpofu, F. Y. (2024). Industry 4.0 in Finance, Digital Financial Services and Digital Financial Inclusion in Developing Countries: Opportunities, Challenges, and Possible Policy Responses. *International Journal of Economics and Financial Issues*, 14(2), 120–135. <https://doi.org/10.32479/ijefi.15081>

- Mpofu, F. Y., & Mhlanga, D. (2022). Digital financial inclusion, digital financial services tax and financial inclusion in the fourth industrial revolution era in africa. *Economies*, 10(8), 184.
- Mr JC Coetzee. (2023). *Investigating the point of readiness for manufacturing SMEs to implement an Enterprise Resource Planning system*. June.
- Nalluri, V., & Chen, L. S. (2024). Modelling the FinTech adoption barriers in the context of emerging economies—An integrated Fuzzy hybrid approach. *Technological Forecasting and Social Change*, 199(December 2021), 123049. <https://doi.org/10.1016/j.techfore.2023.123049>
- Ncube, M. (2019). *A statutory regulatory analysis of financial inclusion for the poor and low-income earners in South Africa*. April. http://repository.nwu.ac.za/handle/10394/35398%0Ahttp://repository.nwu.ac.za/bitstream/handle/10394/35398/Ncube_M.pdf?sequence=1
- Nkansah-Sakyi, E. A. (2023). Financing of Small and Medium Manufacturing Entities (SMMEs) in the Sub-Region (Africa): A Contribution to Economic growth. *Central European Management Journal*, 31(2), 294-303.
- Odei-Appiah, S., Wiredu, G., & Adjei, J. K. (2022). Fintech use, digital divide and financial inclusion. *Digital Policy, Regulation and Governance*, 24(5), 435–448. <https://doi.org/10.1108/DPRG-09-2021-0111>
- Ololade, Y. J., & Researcher, I. (2024). *CONCEPTUALIZING FINTECH INNOVATIONS AND FINANCIAL INCLUSION: COMPARATIVE ANALYSIS OF AFRICAN AND U . S . INITIATIVES*. 6(4), 546–555. <https://doi.org/10.51594/farj.v6i4.1012>
- Oppong, C. (2024). *Township entrepreneurship , Unemployment and Economic Development: Myth or Reality in Sub-Saharan African Countries Township entrepreneurship , Unemployment and Economic Development: Myth or Reality in Sub-Saharan African Countries*. May. <https://doi.org/10.24052/IJBED/V012N01/ART-04>
- Pierson, J. (2021). Digital platforms as entangled infrastructures: Addressing public values and trust in messaging apps. *European Journal of Communication*, 36(4),

349–361.

Qureshi, S. (2023). Digital transformation for development: a human capital key or system of oppression? *Information Technology for Development*, 29(4), 423–434. <https://doi.org/10.1080/02681102.2023.2282269>

Rasheed, R., Siddiqui, S. H., Mahmood, I., & Khan, S. N. (2019). Financial inclusion for SMEs: Role of digital micro-financial services. *Review of Economics and Development Studies*, 5(3), 571-580.

Razzaq, A. (2024). Impact of fintech readiness, natural resources, and business freedom on economic growth in the CAREC region. *Resources Policy*, 90(September 2023), 104846. <https://doi.org/10.1016/j.resourpol.2024.104846>

Ross, J. W., Weill, P., & Robertson, D. (2006). *Enterprise architecture as strategy: Creating a foundation for business execution*. Harvard Business Press.

Ruiters, M., & Mathibe, M. (2023). Financial leapfrogging and innovative financing in sub-Saharan Africa: gender-lens investments for gender equality. *Technological Leapfrogging and Innovation in Africa: Digital Transformation and Opportunity for the Next Growth Continent*, 112.

Saah, P., & Musvoto, W. S. (2020). Hindrance to Benefit from the Potential Sources of Finance to Enhance the Growth of Small and Medium Size Enterprises in South Africa. *Journal of Reviews on Global Economics*, 9, 413-422.

Sant'Anna, D. A. L. M., & Figueiredo, P. N. (2024). Fintech innovation: Is it beneficial or detrimental to financial inclusion and financial stability? A systematic literature review and research directions. *Emerging Markets Review*, 60(October 2023). <https://doi.org/10.1016/j.ememar.2024.101140>

Sengodan, G. (2021). Customer Segmentation Using Mobile Phone Usage Data to Reveal Finance Application User's Behavior. *Proceedings - 2021 IEEE International Conference on Big Data, Big Data 2021*, 4578–4583. <https://doi.org/10.1109/BigData52589.2021.9672051>

Shallik, N. A., & Klaus, H. (2024). *Future Trends and Opportunities : Opportunities for*

innovation and disruption in the financial industry . January.

Siphugu, S., & Moloi, T. (2024). Digital Transformation in Areas Administered by Traditional Authorities. In *Digital Transformation in South Africa: Perspectives from an Emerging Economy* (pp. 39–48). Springer.

Small Enterprise Development Agency (SEDA) (2021) SMME Quarterly Update 1st Quarter 2021.

Suhrab, M., Chen, P., & Ullah, A. (2024). Digital financial inclusion and income inequality nexus: Can technology innovation and infrastructure development help in achieving sustainable development goals? *Technology in Society*, 76(November 2023), 102411. <https://doi.org/10.1016/j.techsoc.2023.102411>

Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic Management Journal*, 18(7), 509–533.

Thomas, L. D. W., Ritala, P., Karhu, K., & Heiskala, M. (2024). Vertical and horizontal complementarities in platform ecosystems. *Innovation: Organization and Management*, 00(00), 1–25. <https://doi.org/10.1080/14479338.2024.2303593>

Türkeş, M. C., Bănac, C. S., & Stoenică, L. (2024). The Effect of Supply Chain Sustainability Practices on Romanian SME Performance. *Sustainability (Switzerland)* , 16(7). <https://doi.org/10.3390/su16072887>

Vidya, CM and Rajaram, G. (2024). *Application of AI in Credit Analysis for SME Financing*. 14(1), 634–645.

Vial, G. (2021). Understanding digital transformation: A review and a research agenda. *Managing digital transformation*, 13-66.

Winby, S., & Mohrman, S. A. (2018). Digital sociotechnical system design. *The Journal of Applied Behavioral Science*, 54(4), 399–423.

Winter, S., Berente, N., Howison, J., & Butler, B. (2014). Beyond the organizational “container”: Conceptualizing 21st century sociotechnical work. *Information and Organization*, 24(4), 250–269. <https://doi.org/10.1016/j.infoandorg.2014.10.003>

- Xie, X., Han, Y., Anderson, A., & Ribeiro-Navarrete, S. (2022). Digital platforms and SMEs' business model innovation: Exploring the mediating mechanisms of capability reconfiguration. *International Journal of Information Management*, 65(March), 102513. <https://doi.org/10.1016/j.ijinfomgt.2022.102513>
- Zhang-Zhang, Y., Rohlfer, S., & Rajasekera, J. (2020). An eco-systematic view of cross-sector fintech: The case of Alibaba and Tencent. *Sustainability (Switzerland)*, 12(21), 1–25. <https://doi.org/10.3390/su12218907>

APPENDIX A (Research Instrument – Interview Guide)

Questions for SMME owners

- a) As an SMME what do you think the digital age brings as value to your business?
- b) What challenges do you think SMMEs would experience in accessing funds through online applications?
- c) What should a digital platform be able to for an SMME in the application process?
- d) What is your experience of the current manual application process in the financial institutions?
- e) What would you do to make it better for you?
- f) Is the challenge of access to digital infrastructure in terms of access to internet and devices a huge challenge for SMMEs or something that SMME are slowly overcoming?
- g) Is digital literacy a challenge for many SMMEs or you think that many can be able to use digital platforms with ease?

Questions for Small Enterprise finance Agency

- a) How are you addressing challenges of cyber security threats within SEFA?
- b) Is the organisation having a policy that addresses concerns in the POPIACT?
- c) What would be the biggest obstacle for SEFA in transitioning into digital financing where applications are online?
- d) Is your clientele as SEFA digital survey to be able to access products digitally?
- e) Is there a digital strategy within the organisation?
- f) What are plans that in place to move into digital applications?
- g) Do you think they are being implemented with the necessary urgency?
- h) What are turnaround times for applications and disbursement of funds within SEFA ? do you think this can BE IMPROVED?

APPENDIX B: Proposed schedule and timelines

Period	Activity
September – October 2023	Negotiating access to the sites – Identifying different SMMEs for interviews Aligning interview schedules for different participants in the study
October 2023	Data Collection – Interviews with the different participants and also collection of different documents for documentary analysis
November 2023	Data Analysis
December 2023 and May 2024	Writing up of the Dissertation after the analysis And first submission for examination
September 2024	Final Submission of the dissertation after corrections