

A management skills and leadership styles framework for increased competitiveness: A case selected ICT-based SMMEs in South Africa

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ABSTRACT

The sustainable competitiveness of Small, Medium, and Micro Enterprises (SMMEs) is critical for economic resilience, yet many fail to achieve consistent growth and innovation due to inadequately targeted leadership and management development. This study examines the management leadership capabilities and skills that drive sustainable competitiveness among SMMEs supplying ICT solutions in South Africa's Lowveld Nexus, a unifying term describing the interconnected economic activities of Gauteng, Limpopo, and Mpumalanga. The absence of a context specific framework that links leadership and management competencies to the unique competitive demands of ICT based SMMEs within this economically diverse region was the rationale. Grounded in Agile Management Theory, Transformational Leadership Theory, Socio technical Critical Theory, and Ambivalent Technology Stances, the study adopts a qualitative, exploratory approach to examine the lived realities of ICT SMMEs. Twenty-one SMME owners and managers were purposively selected across the three provinces and participated in in depth interviews. The data were analyzed thematically using Braun and Clarke's six step framework to ensure analytical rigor and transparency. The findings reveal that existing generic leadership and management frameworks are insufficient for the specialized and dynamic ICT SMME context. Transformational leadership emerged as a critical driver of competitiveness, particularly where leaders demonstrated vision, strategic thinking, innovation orientation, and the ability to motivate and empower teams. Beyond leadership style, the study identifies five interdependent pillars that shape competitiveness, namely strategic education and training, relevant operational experience, robust support systems, adaptive leadership capability, and flexible management practices. The study makes a substantive contribution by developing an integrated framework that demonstrates how leadership, management, contextual realities, and technological dynamics interact to drive sustainable growth and competitiveness. This advances existing theory by moving beyond single theory explanations and introducing a multi-dimensional, context sensitive perspective on ICT SMME performance. Practically, the framework provides actionable guidance for policymakers, training institutions, and SMME leaders seeking to strengthen leadership capacity and enhance competitiveness within the South African ICT sector.

Keywords: Management skills, leadership capabilities, SMMEs, ICT, sustainable growth, competitiveness, integrated framework, South Africa

OKUCASHUNIWE –ISIZULU

Inhloso yalolu cwaningo kwakuwukuqonda amakhono okuphatha kanye nobuholi adingekayo ekukhuleni kokuncintisana nokusimeme kumaBhizinisi Amancane, Amaphakathi, Nasebenza ngezinga elincane kakhulu (ama-SMME) ahlinzeka ngezixazululo zoBuchwepheshe Bolwazi noKuxhumana (ICT) e-Lowveld Nexus yaseNingizimu Afrika. Leli yigama elihlanganisayo elichaza ukuxhumana phakathi kweGauteng, Limpopo, kanye neMpumalanga. Kucatshangwa ukuthi kukhona ukushoda kohlaka oluzinikele lokuqonda amakhono okuphatha kanye nobuholi adingekayo ekukhuleni kokuncintisana nokusimeme ku-Lowveld Nexus. Lolu cwaningo lusebenzise indlela ngokuchazayo, ngokwenza izingxoxo ezijulile nabahlanganyeli abangama-21, abakhethwa ngobuchule kusetshenziswa amasampula ahlosiwe phakathi kwabanikazi bama-SMME ezifundazweni zonke zaseGauteng, Limpopo, naseMpumalanga.

Lolu cwaningo lusekelwe phezu kombono wokuphatha oshesha kakhulu kanye nombono wobuholi benguquko. Imininingwane eqoqiwe yahlaziywa kusetshenziswa indlela yokuhlaziya indikimba edalulwe kuBraun noClarke kuhlonzwe izingqikithi ezibalulekile zokuphatha kanye nekhono lobuholi. Okutholakele kuveze ukuntula okubonakalayo kobuholi obukhona, obujwayelekile kanye nezinhlelo zokuphatha ukuze kubhekwane ngempumelelo nezinselela ezithile kanye namathuba ama-SMME abhekene nawo emkhakheni we-ICT oguquguqukayo. Ucwangingo lwembule izici ezinhlanu ezibalulekile eziyisisekelo ezibalulekile kuma-ICT SMME, okuholela ekuqhudelaneni nasekukhuleni okusimeme endaweni ye-ICT: imfundo nokuqeqeshwa, ulwazi, izinhlelo zokusekela, amakhono obuholi, amakhono okuphatha. Lolu cwaningo lufake isandla ngohlaka lokuphatha ubuchwepheshe kanye nokuqamba izinto ezintsha kanye namakhono obuholi ezisombululo ze-ICT ezihlinzeka ngama-SMME.

Ucwangingo luphetha ngokuthi 'indlela yomhlaba wonke' yobuholi nokuthuthukiswa kokuphatha ayanele ukuze kuthuthukiswe ukukhula okusimeme kulo mongo. Lolu cwaningo luphakamisa ukuthi abaholi kufanele basebenzise uhlaka lobuholi obuqondene nemboni ethile, olwakhiwa ngalolu cwaningo, lwafanelana nezidingo eziyingqayizivele kanye nezinkimbinkimbi zabahlinzeki bezixazululo ze-SMME ICT, oluchaza ngokusobala futhi luthuthukise iqoqo lamakhono obuholi adingekayo ukuze kuzuzwe ukuncintisana nokukhula okuzinzile.

Amagama asemqoka: Amakhono okuphatha, amakhono obuholi, SMME (amabhizinisi amancane, aphakathi nasebenza ngezinga elincane kakhulu), Ubuchwepheshe Bolwazi noKuxhumana, ukukhula okusimeme, abahlinzeki, iNingizimu Afrika, uhlaka, ukuncintisana

DEDICATION

This study, exploring the crucial role of management and leadership skills in fostering sustainable growth among SMME suppliers of ICT solutions in the South African Lowveld Nexus, is dedicated to the individuals who have provided staunch support, inspiration, and encouragement throughout this journey.

First, I dedicate this work to my Mum, whose sacrifices, unwavering belief in my potential, and constant encouragement have been the bedrock upon which my academic pursuits are built. Her strength and perseverance have been a constant source of motivation, reminding me that anything is achievable with dedication and hard work. Thank you for always believing in me, even when I doubted myself.

Second, I dedicate this study to my two boys, who remind me of the future we are striving to build. Your curious minds and boundless energy inspire me to contribute to a world where innovation thrives, and opportunities are abundant. May this research contribute, in a small way, to shaping a brighter future for you and future generations.

Furthermore, this work is dedicated to my entire family for their understanding and patience during the long hours dedicated to research and writing. Your love and encouragement have been invaluable, providing the emotional support I needed to navigate the challenges of this undertaking.

Finally, I extend my sincere gratitude and dedicate this study to my supervisor, Professor Mlitwa at UNISA. Your expertise, guidance, and steadfast support have been instrumental in shaping this research. Thank you for pushing me to think critically, challenging my assumptions, and believing in the potential of this project. Your mentorship has been invaluable, and I deeply appreciate your dedication and commitment to my academic growth.

This study is a testament to the power of support, mentorship, and resolute belief in oneself. I sincerely hope that its findings will contribute to the sustainable growth of SMME ICT suppliers in the Lowveld Nexus, ultimately fostering economic empowerment and innovation in the industry.

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I am also indebted to UNISA for providing the necessary resources and infrastructure that facilitated this research. Access to library resources, statistical software, and research databases was crucial for data collection and analysis.

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Finally, I would like to acknowledge the unwavering support of my family and friends. Their encouragement, understanding, and patience throughout this demanding process were instrumental in helping me to persevere and complete this research. Their belief in my abilities motivated me to overcome challenges and stay focused on my goals.

This research would not have been possible without the collective efforts of all these individuals and organisations. Any errors or omissions remain solely my responsibility. I sincerely hope that this study's findings will contribute to a better understanding of the critical role of management and leadership skills in fostering sustainable growth among SMME suppliers of ICT solutions in South Africa and will ultimately contribute to the development of effective policies and strategies that support their success.

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ABBREVIATIONS AND ACRONYMS

Term	Expansion
Collaboration	Collaboration and Partnership
Competitiveness	Competitiveness
Digitalisation	Digitalisation and Technology Adoption
Entrepreneurship	Entrepreneurial Skills
Frameworking	Frameworking Management and Leadership Skills
Globalisation	Globalisation and International Trade
ICT	Information and Communication Technology
Innovation	Innovation Capabilities
Leadership	Leadership Skills
Management	Management Skills
Skills	Management and Leadership Skills
SMME	Small, Medium, and Micro Enterprises
Suppliers	Suppliers of ICT Solutions
Sustainability	Sustainable Development
Sustainable	Sustainable Growth

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CHAPTER 1: INTRODUCTION AND BACKGROUND OF THE STUDY

1.1 Introduction

The ethos of this study is that Information and Communication Technology (ICT) is a fundamental enabler of efficiency and innovation across nearly all sectors of the economy. Building capability in the ICT supply sector is therefore essential to sustain technology adoption, promote business resilience, and contribute to national economic growth. The growing demand for digital solutions under the Fourth Industrial Revolution (4IR) underscores the link between technological innovation and the competitive advantage it affords firms that adopt and manage these innovations effectively (Kachunda & Mlitwa, 2022). A strong and vibrant Small, Medium, and Micro Enterprise (SMME) sector decentralises economic participation, combats unemployment, and supports inclusive growth in emerging economies (Ndabeni et al., 2019). Research in Southeast Asia and other developing regions confirms that sound management practices and leadership capability are central to the profitability, sustainability, and growth of SMMEs (Meyer & Henn, 2019).

While large firms often pursue incremental innovation, small and medium enterprises tend to drive disruptive change because of their flexibility and ability to adapt quickly to emerging technologies. Schumpeter (1983) theory of creative destruction suggests that such agility allows smaller firms to challenge established players and to act as engines of technological renewal. In the ICT sector, this adaptability makes effective leadership and management particularly critical for sustaining competitiveness.

Within South Africa, the Lowveld Nexus, a developing digital corridor connecting Gauteng, Limpopo, and Mpumalanga provinces, critically relies on ICT SMMEs to support both urban and rural markets (Zulu & Mukasa, 2024). These enterprises are pivotal in driving the country's digital transformation efforts (Maseko & Sibanda, 2025). Gaining a deep understanding of the leadership and management capabilities within these specific ICT SMMEs is therefore crucial to ensure the continued advancement of this digital corridor and the broader national agenda. Consequently, this study aims to develop a practical framework for leadership capabilities and management skills that will enhance competitiveness and sustainable growth among ICT solution-providing SMMEs operating within the South African Lowveld Nexus (Al-Hassan & Chen, 2024).

This chapter focuses on introducing a study on framework management and leadership skills to foster sustainable growth among small, micro and medium enterprises (SMMEs) supplying Information and Communication Technology (ICT) tools and services in South Africa. The chapter starts with a contextual definition of technology, a descriptive discussion of the background, the problem statement, aim and objectives, research question, significance of the study, contribution of the study, study layout and chapter summary.

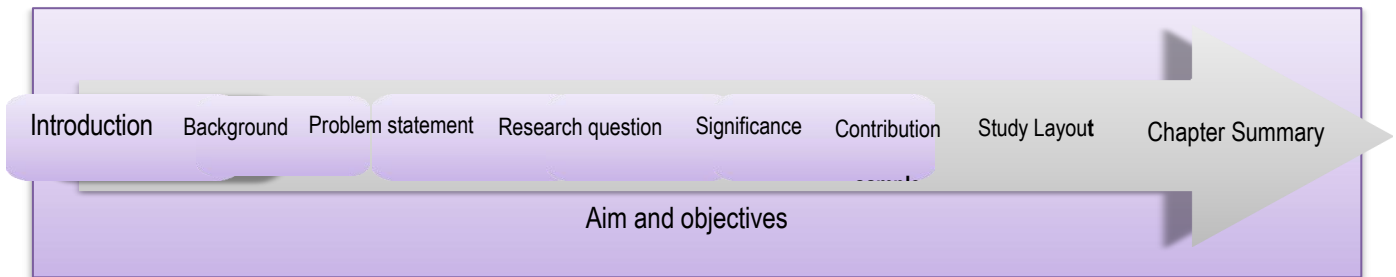


Figure 1: Chapter outline

1.2 Background to the research problem

This section provides context for the research problem, highlighting the role of technology and justifying the focus on the Small, Medium, and Micro Enterprise (SMME) sector. The definition of an SMME varies significantly across countries, influenced by factors such as economic structure and policy objectives. While specific South African legal definitions historically framed SMMEs by employment thresholds, the underlying characteristic of these firms, regardless of precise classification, underscores their unique position in fostering economic dynamism (Matsieli & Mutula, 2025).

SMMEs are widely recognised as key drivers of economic inclusion, job creation, and innovation. They play an important role in promoting entrepreneurship, decentralising economic activity, and ensuring that growth is distributed more equitably across regions. Their ability to adapt quickly and operate flexibly makes them essential participants in fast-changing industries such as information technology. In this context, the leadership and management capability of SMME owners and managers becomes a critical determinant of competitiveness and survival, particularly in the digital economy where technological change is constant. ICT solution providers equip SMMEs with a diverse array of tools and services aimed at enhancing efficiency, productivity, and competitiveness. These encompass cloud computing, tailored enterprise resource

planning (ERP) systems, customer relationship management (CRM) software, e-commerce platforms, and digital marketing tools (Matsieli & Mutula, 2025). The strategic adoption of such ICT solutions enables SMMEs to automate processes, reduce operational overheads, strengthen customer relationships, and leverage data for informed decision-making. By embracing these technologies, SMMEs can streamline operations, expand their market reach, and, crucially, gain a competitive advantage against larger incumbents (OECD, 2023). This technological empowerment aligns with the Schumpeterian Mark 1 view, where agile SMMEs leverage new tools to challenge established market structures and introduce competitive pressures that can lead to creative destruction.

While the discourse surrounding digital transformation often focuses on the expansive capabilities and infrastructural investments of large multinational corporations (MNCs), emphasizing their role in global technological standardisation and large-scale platform development, this narrow focus risks overlooking the fundamental economic drivers inherent in the Small, Medium, and Micro Enterprise (SMME) sector. The strategic pivot from analysing large firms to examining the smaller entities that supply them, or supply the broader market, is motivated by compelling policy imperatives and market realities. Policy agendas, particularly in developing and emerging economies, frequently prioritise SMME growth due to their disproportionate contribution to job creation, economic decentralisation, and fostering localised innovation. From a market perspective, SMMEs demand ICT solutions that are not only cost-effective and scalable but also uniquely agile and tailored to specific regional or operational complexities, a niche often neglected or inefficiently serviced by large, standardised corporate providers. This vacuum necessitates the emergence of specialised ICT SMMEs. Consequently, understanding the competitive dynamics and internal competencies of these ICT solution providers, particularly concerning managerial effectiveness and adaptive capacity, forms a crucial foundation for broader economic resilience and successful digital inclusion.

However, the successful integration of ICT within SMMEs depends not only on access to technology but also on effective leadership and management. Owners and managers must possess the skills to align technology investments with business objectives, foster organisational readiness, and ensure that employees are equipped to adapt to change. The extent to which SMMEs benefit from ICT solutions therefore depends largely on their managerial competence, strategic vision, and capacity to lead technological

transformation. This connection between leadership capability and sustainable competitiveness forms a central motivation for this study. The true benefit derived from ICT solutions by SMMEs is thus largely determined by their managerial competence, strategic foresight, and their intrinsic capacity to spearhead technological transformation. This vital link between leadership prowess and sustainable competitiveness forms a key motivation for this inquiry. In the context of a dynamically evolving technological landscape, effective leadership is paramount for ICT solution providers to SMMEs to sustain their competitive edge and drive the kind of adaptive innovation characteristic of Schumpeterian Mark 1 firms (Maseko & Sibanda, 2025). Leaders in these enterprises require a synergistic blend of technical acumen and business insight to navigate their organisations through relentless adaptation and disruptive innovation (Chen & Li, 2023). Strategic planning ensures the alignment of technology investments with strategic goals, while robust project management skills are vital for efficient and resource-conscious ICT solution implementation (Kumar & Hislop, 2024). Furthermore, change management and communication competencies are indispensable for securing employee buy-in and mitigating resistance to novel systems, ultimately determining whether technological adoption culminates in enhanced performance or costly project failures (Jansen & Smit, 2024).

Conversely, deficiencies in leadership and management capabilities can impede the promised benefits of even sophisticated ICT systems. Common impediments include skilled personnel shortages, inadequate strategic planning, data-security vulnerabilities, and poor integration of new technologies with existing business operations (Jansen & Smit, 2024). These challenges underscore that technology, in isolation, is insufficient for success; rather, it is the human capacity to effectively manage and lead technological change that translates digital investments into sustainable competitive advantage. For SMMEs, cultivating adaptive leadership and fostering a culture of continuous learning are critical prerequisites for realising the disruptive potential envisioned by Schumpeterian Mark 1, enabling them to achieve robust growth and long-term viability in dynamic markets (Chen & Li, 2023; Hagen, 2024).

In the dynamic South African SMME ecosystem, ICT solution providers carve out a distinctive and highly relevant niche. These organisations, unlike many conventional SMMEs, operate directly at the vanguard of technological innovation, delivering specialized services such as software development, network infrastructure,

cybersecurity, and digital marketing (Maseko & Sibanda, 2025). Their very existence is predicated on continuous technological advancement, necessitating leadership that is both exceptionally agile and profoundly visionary (Chen & Li, 2023). Despite their critical role, these firms contend with formidable challenges, including persistent skills deficits, constrained access to innovation funding, and fierce competition from both larger domestic and international enterprises (OECD, 2023). This competitive pressure itself reflects the dynamic 'creative destruction' environment theorised by Schumpeterian Mark 1. The strategic importance of ICT solution providers to SMMEs extends far beyond their direct economic output. They are pivotal in catalysing digital transformation across diverse economic sectors (Matsieli & Mutula, 2025). By democratizing access to affordable and scalable technology solutions, they empower other SMMEs to bolster efficiency, broaden market penetration, and intensify their competitiveness within the global marketplace (OECD, 2023). This profound ripple effect cultivates a more vibrant and competitive economy, stimulates overarching economic growth, and, critically, engenders new avenues for the kind of disruptive innovation and entrepreneurship that is the hallmark of the Schumpeterian Mark 1 framework (Davies, 2022; Matlay & Westhead, 2023). Such firms, by consistently introducing new solutions, actively shape markets and exemplify the entrepreneurial spirit central to Schumpeter's initial conceptualisation of innovation.

In South Africa, SMMEs are formally defined under the National Small Enterprise Act 102 of 1996 and subsequent amendments, which set thresholds for employee numbers, turnover and asset values that vary across sectors (Republic of South Africa, 1996; 2019). For ICT-related activities, medium-sized firms may employ up to 200 people. The National Small Enterprise Act 2015 (NSEA, 2015) introduced a single, uniform definition of a small enterprise (Section 2(1)):

“A small enterprise is a business undertaking that, at the end of its financial year, employs not more than 100 full-time equivalent persons and has an annual turnover not exceeding £5 million.” In addition, the Small Enterprise (Sectoral Adjustments) Amendment Act 2022, (SESAA, 2022) an amended Section 2 of the NSEA, made an operational definition of SMME as “a small enterprise undertaking that, for the purpose of the sector in which it operates, satisfies the employee-count and turnover thresholds set out in the relevant Schedule.”

The imperative for small, medium, and micro-enterprises (SMMEs) to strategically adopt Information and Communication Technology (ICT) solutions has intensified, positioning robust digital infrastructure as a cornerstone for growth and competitiveness (Mwangi, 2023). Tools such as cloud computing, enterprise resource planning (ERP) systems, customer relationship management (CRM) software, e-commerce platforms, and digital marketing technologies offer significant potential to enhance operational efficiency and productivity across diverse sectors (Yang, Zhou, Zhao, & Lv, 2023). However, merely acquiring these technologies is insufficient; their effective deployment necessitates sophisticated leadership and management practices. This includes the seamless integration of technical expertise with astute business acumen, strategic planning, proficient project and change management, and a high degree of digital literacy (Maseko & Sibanda, 2025; Schiuma et al., 2024; Al-Hassan & Chen, 2024). Examining these foundational elements within the Lowveld Nexus, particularly across Gauteng, Limpopo, and Mpumalanga, is crucial for understanding how SMMEs in these economically vital regions are positioned to harness or are hindered from harnessing digital opportunities.

While the promise of ICT adoption for SMMEs is substantial, successful outcomes are not guaranteed, with poorly managed implementations often leading to significant burdens such as high costs, skills shortages, resistance to change, data security risks, and integration complexities (Bachtiar, Wiyono, & Nurtjahyanti, 2023; Rodriguez & Kim, 2023). These challenges can stifle innovation and growth, potentially resulting in stagnation or financial loss (Kraus, Than, & Ma, 2022). The motivation for examining the Lowveld Nexus ICT sector is particularly acute when considering small firms operating within this ecosystem, especially those that supply ICT solutions. These nascent ICT providers, often at the vanguard of technological innovation, face compounded pressures, including limited funding, critical skills gaps, and intense competitive landscapes (Maseko & Sibanda, 2025; Ezennia & Mutambara, 2022; Chen & Li, 2023). Given the critical role of SMMEs in regional economic development and job creation within South Africa (Chigora & Chigora, 2023; South African SMME Survey 2024), understanding the specific leadership and digital transformation inadequacies prevalent among small firms in ICT across Gauteng, Limpopo, and Mpumalanga becomes paramount. Such an investigation provides vital insights into fostering an environment where these crucial entities can thrive, thereby contributing to broader digital inclusion and economic resilience in these strategically important provinces (Zulu & Mukasa, 2024).

Despite their strategic importance, there is limited empirical understanding of the leadership and management skills that drive competitiveness within ICT SMMEs, particularly in the Lowveld Nexus. Existing frameworks tend to generalise leadership and management without accounting for the unique context of technology-driven small enterprises. This study draws on Agile Management Theory and Transformational Leadership Theory to provide a conceptual foundation for analysing these competencies. Agile Management Theory emphasises adaptability, collaboration, and responsiveness, while Transformational Leadership Theory focuses on inspiration, motivation, and vision. Together, these theories guide the development of a framework that links leadership and management skills to sustainable competitiveness in the ICT SMME sector. In summary, ICT SMMEs in the Lowveld Nexus is vital to South Africa's digital economy yet remain constrained by gaps in leadership and management capacity. Addressing this gap through a theoretically grounded and context-specific framework is therefore essential to enhance their contribution to national competitiveness and inclusive economic growth.

1.3 Problem statement

The national imperative for digital transformation has underscored the significance of the Information and Communication Technology (ICT) sector, particularly the Small, Medium, and Micro Enterprises (SMMEs) segment, as a vital engine for economic growth and regional development (Stats SA, 2025; Saba, Ngepah, & Odhiambo, 2024). Specifically, the Lowveld Nexus, comprising the economically dense Gauteng and its interconnected, digitally emergent neighbouring provinces of Limpopo and Mpumalanga, represents a critical developmental interface where small firms supplying B2B ICT solutions are essential for broadening the digital infrastructure and competitiveness of other enterprises. This region serves as a pivotal yet under-examined economic nexus, where the specific focus on small firms providing B2B ICT solutions is justified by their foundational role in enabling digital maturity across the broader economy (Moarefi & Janami, 2025). According to Chen and Li (2023) and Davies (2022), these firms require high strategic agility to manage rapid technological disruption and market volatility, highlighting the need for specialized digital leadership capabilities.

The traditional literature highlights a pervasive management and leadership skills deficit among general entrepreneurial owner/managers related to standard business functions

(Lose & Mapuranga, 2022; Tapera, 2023). However, this research critically differentiates the competency gaps faced by ICT-based SMME owner/managers, where the deficiency is not merely structural or operational, but is rooted specifically in the absence of specialised framework for digital leadership capabilities. This includes strategic foresight, rapid technological adaptation, and navigating unique ICT-sector risks (Kraus, Than, & Ma, 2022; Rodriguez & Kim, 2023). The inability to drive digital transformation and manage technological uncertainty severely limits the competitive posture of these firms (Zulu & Mukasa, 2024; Al-Hassan & Chen, 2024). Therefore, examining small B2B ICT suppliers within the demanding, tri-provincial environment of the Lowveld Nexus provides an urgently required empirical context to effectively disaggregate and diagnose the specialised leadership insufficiencies that impede the sustained growth and regional impact of these critical digital enablers (Schiuma et al., 2024; Singh & Patel, 2025).

Despite the recognised importance of ICT SMMEs to regional economic vitality, a significant disconnect persists between the required strategic capabilities and the current performance of these enterprises in the Lowveld Nexus. The failure to achieve sustainable competitiveness is not primarily structural or technological, but rather managerial (Zulu & Mukasa, 2024). The crux of the challenge lies in the absence of an integrated framework that effectively connects essential leadership and management competencies with the strategic drivers of competitiveness, specifically tailored for ICT SMMEs in the Lowveld Nexus. This skills gap manifests specifically through a failure to build organisational structures that can cope with the velocity of the digital environment. Effective leadership requires moving beyond static, transactional approaches to embody adaptive, transformative practices essential for digital velocity and sustainable scaling (Singh & Patel, 2025). Without leaders capable of driving organisational agility through cultural and competency shifts (Nhlumayo & Mthembu, 2025; Pelletier, 2025), these SMMEs remain structurally rigid, preventing them from effectively adopting new technologies, optimising business processes, or engaging in continuous experimentation required to develop high-value ICT solutions (Hagen, 2024).

The inability of management teams to foster organisational agility is a direct consequence of the lack of requisite strategic leadership capabilities, making them unable to translate technological opportunity into market success (Singh & Patel, 2025; Chen & Li, 2023). Constraints related to technology adoption and innovation are not inherent limitations of the firms themselves, but are rather downstream consequences

mediated by these core leadership deficits. Poor strategic guidance results in risk aversion (Rodriguez & Kim, 2023) and an inability to implement dynamic operational methodologies, leading to innovation stagnation, rigid project management practices, and ultimately, stifled capacity for market penetration (Jansen & Smit, 2024; Davies, 2022). Furthermore, this management incapacity is often aggravated by systemic external factors, including inadequate institutional support and a lack of coherent public-private partnerships, which strong internal leadership is necessary to navigate and leverage effectively (Matsieli & Mutula, 2025; Heifetz & Linsky, 2022).

In synthesis, while the visible challenges facing ICT SMMEs in the Lowveld Nexus include weak innovation output and slow growth, these are symptoms of a deeper systemic failure: the critical gap in managerial and leadership capacity required to strategically harness technology and foster competitiveness. The absence of a context-specific framework that equips owner/managers with the necessary management and leadership competencies remains the fundamental barrier to unlocking sustainable growth and enhanced competitiveness in this vital regional sector. Addressing this specific gap through the development and validation of such a comprehensive framework is therefore essential for ensuring the long-term viability of these enterprises. As emphasized by Schiuma et al. (2024) and Singh & Patel (2025), the development of a tailored framework that connects digital leadership capabilities with the unique demands of the Lowveld Nexus is crucial for enhancing the competitiveness and sustainability of ICT SMMEs, ultimately contributing to the regional economic growth and development.

The economic profile of the Lowveld Nexus, characterised by a digitally emergent environment, necessitates the presence of robust digital infrastructure to support the growth of ICT SMMEs (Mishrif & Khan, 2023). However, the current digital infrastructure in the region is marked by significant contrasts, with some areas having access to advanced digital technologies while others remain underserved (Saba, Ngepah, & Odhiambo, 2024). This digital divide poses a significant challenge for ICT SMMEs, which require reliable and high-speed digital connectivity to operate effectively (Chen & Li, 2023). The development of a comprehensive framework that addresses the digital leadership capabilities of ICT SMMEs must therefore consider the unique digital infrastructure challenges faced by these firms in the Lowveld Nexus.

The vendor ecosystem in the Lowveld Nexus is also characterised by significant contrasts, with some areas having a high concentration of ICT vendors while others have limited access to these services (Matsieli & Mutula, 2025). This uneven distribution of ICT vendors poses a challenge for ICT SMMEs, which require access to a range of vendors to provide high-quality ICT solutions to their clients (Jansen & Smit, 2024). The development of a comprehensive framework that addresses the digital leadership capabilities of ICT SMMEs must therefore take into account the unique vendor ecosystem challenges faced by these firms in the Lowveld Nexus.

In conclusion, the Lowveld Nexus presents a unique context for the growth and development of ICT SMMEs, characterised by significant economic, digital infrastructure, and vendor ecosystem contrasts. The development of a comprehensive framework that addresses the digital leadership capabilities of ICT SMMEs is crucial for enhancing the competitiveness and sustainability of these firms, ultimately contributing to the regional economic growth and development. By taking into account the unique challenges and opportunities presented by the Lowveld Nexus, such a framework can provide ICT SMMEs with the necessary management and leadership competencies to succeed in this demanding environment. As emphasised by Singh & Patel (2025), the development of a tailored framework that connects digital leadership capabilities with the unique demands of the Lowveld Nexus is essential for unlocking the growth potential of ICT SMMEs and contributing to the regional economic development.

1.4 Aim and objectives

This study addresses a critical gap in the literature by proposing a theoretically grounded framework that integrates leadership and management competencies to enhance sustainable competitiveness and growth among Small, Medium, and Micro Enterprises (SMMEs) in South Africa's Lowveld Nexus. Focusing on Information and Communication Technology (ICT) solution-providing SMMEs, this research responds to the challenges outlined in Section 1.3, namely the lack of cohesive strategies to navigate socio-economic constraints and market dynamics in the region. By synthesizing leadership and management theories, this paper contributes to the body of knowledge through a novel theoretical integration, a methodological approach tailored to the Lowveld context, and actionable insights for practitioners. The results present a conceptual framework with practical implications for fostering innovation, resilience, and long-term viability in

SMMEs operating within a transitional economy.

To this effect, the study pursued the following objectives:

- To examine the current state of leadership and management practices among ICT solution-providing SMMEs in the Lowveld Nexus.
- To identify the leadership and management competencies that influence innovation, competitiveness, and sustainability in ICT SMMEs.
- To analyse how Agile Management Theory and Transformational Leadership Theory can explain and enhance leadership effectiveness in this context.
- To synthesise the findings into a framework that supports leadership and management development for sustainable competitiveness in the ICT SMME sector.
- To provide practical recommendations for policymakers, training institutions, and SMME leaders based on the proposed framework.

1.5 Research question

What are the management and leadership skills that facilitate growth, competitiveness and long-term sustainability of the Lowveld Nexus ICT solution providers to SMMEs sector? The following sub-questions support this main question:

- What is the capability of management and leadership skills among the ICT solution providers to SMMEs in the Lowveld Nexus?
- What are the impacts of the status of management skills among the ICT solution providers to SMMEs in the Lowveld Nexus?
- What are the impacts of the status of leadership skills among the ICT solution providers to SMMEs in the Lowveld Nexus?
- What are the leadership styles that facilitate the growth, sustainability, and competitiveness among the ICT solution providers to SMMEs?
- Which components should be integrated into the framework for management and leadership skills for the ICT solution providers to SMMEs sector in the Lowveld Nexus?

1.6 Significance of the study

This study is aimed at identifying the key factors affecting ICT solution providers to SMMEs in the Lowveld Nexus, South Africa, to propose a leadership framework among the ICT solution providers to SMMEs. The study's significance can be summarised in the following points:

- Framework for growth and sustainability:** The proposed leadership framework will be a practical framework for developing leadership skills among ICT solution providers to SMMEs. This study is critical because existing leadership models are often generic and do not sufficiently address the nuanced challenges of technology-centric SMMEs operating in specific regional contexts (Al-Hassan & Chen, 2024). It is significant as it will equip leaders of these vital businesses with tailored tools to overcome obstacles, seize opportunities, and navigate dynamic marketplaces (Chen & Li, 2023; Davies, 2022), thereby fostering sustainable business development and job creation (Akpamah & Matko, 2023). The timeliness of this framework is underscored by the current imperative for digital transformation and resilience in the face of ongoing economic uncertainties (Fahlevi et al., 2024), making it essential now to ensure these providers can not only survive but thrive. The value-add lies in offering a context-specific, actionable blueprint that directly enhances the operational effectiveness and long-term viability of ICT solution providers, contributing to a more robust regional digital economy.
- Targeted education and training:** The research will pinpoint the specific education and training requirements needed to cultivate effective management and leadership in these SMMEs. This study is critical because a significant challenge for SMMEs, including ICT providers, is often a skills gap in leadership and management that hinders their ability to adapt to technological shifts and market demands (Zulu & Mukasa, 2024; Murray & Patterson, 2022). It is significant as this knowledge will enable the development of targeted programmes that address the unique requirements and complexities of the ICT sector, moving beyond one-size-fits-all training solutions (Kraus et al., 2022). The timeliness is evident in the urgent need for reskilling and upskilling in a rapidly evolving digital landscape, ensuring that leaders are not merely reacting to changes but proactively shaping their organisations' futures (Singh & Patel, 2025). This will

add value by providing educators, policymakers, and training institutions with empirical data to design relevant, impactful curricula that directly empower leaders to navigate the complexities inherent in their specialised sector.

- **Competency framework for innovation:** By creating a competency framework for management and leadership in technology and innovation, this study will provide a clear roadmap for developing individuals capable of driving technological advancement and fostering a culture of innovation in their organisations. This area of study is critical because innovation is not just an advantage but a survival imperative for SMMEs in the digital age, particularly for those in the ICT sector that must perpetually adapt and lead technological change (Chen & Li, 2023; Chigora & Chigora, 2024). It is significant as a tailored competency framework will guide leaders in cultivating psychological safety (Jansen & Smit, 2024) and overcoming risk aversion (Rodriguez & Kim, 2023), essential elements for fostering a culture where new ideas and technological advancements can flourish (Li et al., 2024). The timeliness is paramount, given the accelerating pace of technological disruption and the need for SMMEs to embrace digital transformation for competitiveness and eco-innovation (Bachtiar et al., 2023; Li et al., 2024). The value-add lies in offering a precise set of skills and behaviours that can be developed to drive technology and innovation, enabling ICT-supplying SMMEs to not only survive but thrive in a rapidly evolving technological landscape and contribute to a vibrant innovation ecosystem.

Ultimately, this research aims to empower ICT-supplying SMMEs in the Lowveld Nexus with the leadership capabilities necessary to drive growth, foster innovation, and contribute significantly to the South African economy. The findings will be invaluable for policymakers, training providers, and the SMMEs themselves in building a stronger and more sustainable ICT sector in the region.

1.7 Contribution of the study

This study aims to identify the key factors affecting management and leadership skills for the ICT solution providers to SMMEs in the Lowveld Nexus, South Africa, to attain growth, sustainability, and competitiveness. This study proposes a framework for technology and innovation management and leadership skills for ICT solution providers to SMMEs. Consequently, the framework provides a structure for developing

management and leadership skills for technology and innovation for growth and sustainability. These required skills are potentially acquired through education and training in management and leadership. This study makes the following contributions:

1.7.1 Theoretical Contributions

The thesis advances theoretical understanding by extending Agile Management Theory (AMT), Socio-technical Critical Theory, and Ambivalent Technology Stances to address the complexities of sustainable growth and competitiveness in ICT-driven SMMEs. AMT is reinterpreted to emphasise dynamic decision-making in resource-constrained environments, offering a lens to balance short-term operational demands with long-term sustainability. Socio-technical Critical Theory is adapted to highlight the interplay between technical ICT ecosystems and socio-cultural contexts in the Lowveld Nexus, such as power dynamics in access to digital infrastructure. Ambivalent Technology Stances are operationalized to frame technology as both a threat and an enabler, encouraging SMMEs to navigate risks (for example., cybersecurity vulnerabilities) while leveraging opportunities (e.g., digital innovation). Together, these theoretical extensions provide a holistic foundation for analysing how leadership and management practices must adapt to sustain competitiveness in volatile, localised ICT markets.

1.7.2 Methodological Contributions

Methodologically, the thesis pioneers a synergised qualitative approach, integrating qualitative case studies of ICT SMMEs in the Lowveld Nexus with operational performance indicators. This methodology was designed to test the applicability of the four extended theories in real-world settings, ensuring alignment between abstract frameworks and empirical realities. The study employed semi-structured interviews to co-construct leadership strategies. A novel analytical framework, merging the four theories, was developed to interpret data across micro (organisational) and macro (regional policy) levels. This methodological integration ensures robust validity and contextual relevance, setting a precedent for research on resource-constrained SMME ecosystems.

1.7.3 Practical Contributions

Practically, the thesis delivers a leadership/management framework tailored for ICT SMMEs, emphasising strategic thinking to align ICT innovation with sustainability goals,

team-based adaptability through socio-technical collaboration, and innovation grounded in ambivalent technology assessments. This framework is operationalised via actionable guidelines, such as participatory training modules for adaptive leadership and metrics for evaluating the socio-technical value of ICT projects. Policy implications are a critical contribution, advocating for government-industry partnerships to address digital divides, fund capacity-building programs, and create regulatory sandboxes to test new technologies. These strategies, derived from the study's empirical insights, offer a replicable model for policymakers and practitioners to enhance SMME resilience and competitiveness in developing economies.

1.7.4 Synergy of SMME Elements and Leadership Skills

The thesis demonstrates how foundational SMME elements, such as localised ICT needs, informal networks, and lean operations, are synergised with strategic leadership skills to drive competitiveness. Strategic thinking, informed by AMT, ensures SMMEs align their ICT solutions with broader socio-economic objectives in the Lowveld Nexus. Team management practices, guided by Socio-technical Critical Theory, foster inclusive innovation by integrating diverse community inputs into product design. Simultaneously, innovation is steered by Ambivalent Technology Stances, which encourage risk-mitigating strategies while capitalising on emerging opportunities. This tripartite alignment transforms SMMEs into adaptive, community-centric enterprises, leveraging their contextual understanding to outperform larger, less adaptable players. The study thus reveals how synergies between theory, leadership, and SMME-specific foundations create a sustainable edge in competitive ICT markets.

The study will provide some guidelines on policy and training. More importantly, the findings could be used to inform policymakers, business support agencies and educational providers in developing appropriate policies, training programmes and strategies tailored to address the needs of SMMEs in this sector.

1.8 Study layout

Chapter 1: Introduction and background to the study

This chapter encompasses the introduction and background of the study. The research problem is defined, and the chapter discusses the study's importance and purpose. The objectives and research questions are identified to guide the flow of the research.

Chapter 2: Literature review

Chapter 2 defines leadership and discusses literature on management and leadership skills for the growth and sustainability of ICT solution providers to SMMEs. A comprehensive discussion is provided on different leadership styles. The chapter also unpacks previous research conducted in the national and international context.

Chapter 3: Research methodology

This chapter provides an overview and discussion of the research design and method utilised to collect data, outlining the specific methods used to gather empirical information. This chapter also looks at the interview guide design used to collect data. Statistical techniques were used to analyse and process data.

Chapter 4: Presentation of Results

This chapter provides the research results attained in the literature and the empirical study. The analysis and the interpretation are based on the data collected.

Chapter 5: Discussion and Interpretation of Results

This chapter provides a comprehensive discussion and interpretation of the results presented in Chapter 4, linking them back to the literature review and addressing the research questions/hypotheses.

Chapter 6: Conclusions

This chapter summarises the study and its results. The final chapter presents the conclusion and recommendations. Research objectives and questions are revisited, and the limitations of the study, contributions to the science, and areas for further research are presented.

Chapter 7: Recommendations

This chapter provides specific, actionable recommendations stemming directly from the study's conclusions, targeted at various stakeholders and for future research.

1.9 Chapter summary

This chapter presented various sections, from the introduction to the background to a research problem in section 1.2. This section comprises the meaning and essence of

technology, business significance of technology, the technology to enhance marketing processes, technology to enhance procurement processes, technology in sales and distribution, and the ICT solution providers to SMMEs. Subsequently, the research problem in section 1.3, the research aims and objective in section 1.4, the research question is outlined in section 1.5, significance of the study, in section 1.6, contribution of the study in section 1.7, the study layout in section 1.8, followed by the conclusion. The next chapter presents the literature reviewed to guide the data collection for this study.

CHAPTER 2 LITERATURE REVIEW

2.1 Introduction

The previous chapter presented the introduction and background to this study. It also discussed the problem statement, the research questions and the objectives. This chapter summarises literature on the impact of leadership philosophies on the survival of SMMEs. It examines the ideas and bases for how leadership styles affect the ability of SMMEs to survive. The sections of this study are illustrated in the chapter outline, Figure 2. The literature review explores leadership definitions, SMME survival, leadership styles and leadership theories to ensure that the issue under study is analysed in depth. The goal of the literature review is to identify an abstract foundation from which prior related work may be understood. The findings of this study reveal a stigma that might impact prospects for development during the study. This assessment considers international literature about leadership and SMMEs.

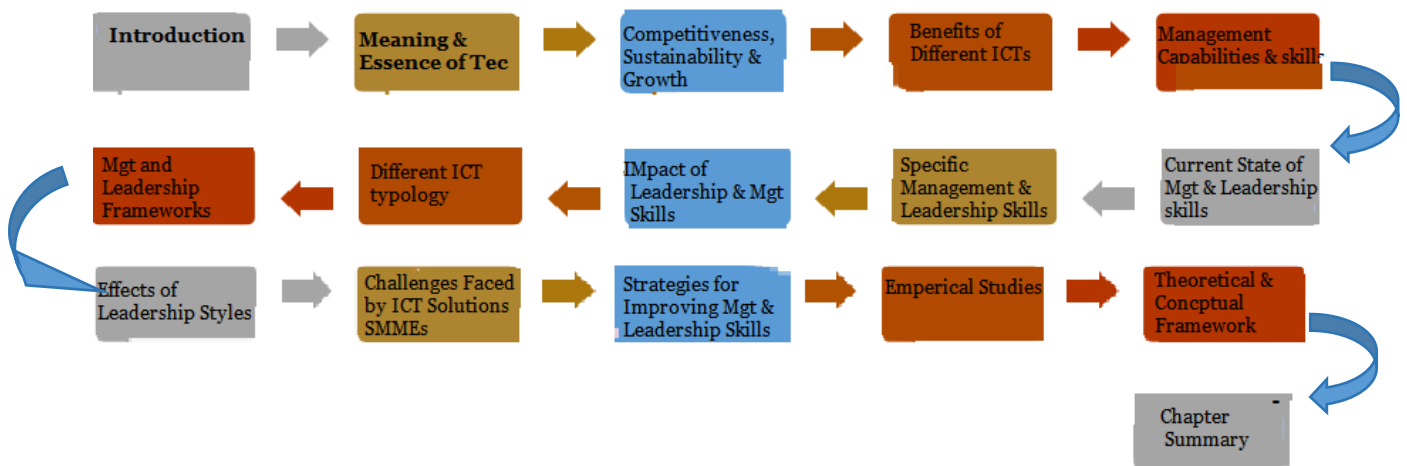


Figure 2: Chapter outline

2.2 Theorisation and Conceptualisation

The theoretical framework for this study on management and leadership skills for sustainable growth and competitiveness among Information and Communication Technology (ICT) solutions providing Small, Medium, and Micro Enterprises (SMMEs) in the South African Lowveld Nexus is grounded in several key theories. This section will delve into the Agile Management Theory, Transformational Leadership Theory, socio-technical/critical views, and utopian technology stances, exploring their origins, tenets, relevance, shortcomings, and further developments.

While the study draws on multiple theoretical perspectives, it does not treat these theories as independent or competing explanations. Instead, it adopts an integrated theoretical approach in which each theory contributes a distinct but complementary dimension to understanding leadership, management, and competitiveness in ICT SMMEs.

Agile Management Theory provides the operational logic through which organisations respond to dynamic and uncertain environments. Transformational Leadership Theory explains the human and behavioural mechanisms that enable vision, motivation, and organisational change. Socio-technical theory situates these processes within broader structural and contextual realities, including infrastructural constraints and socio-economic conditions in the Lowveld Nexus. Ambivalent technology stances introduce a critical perspective that recognises technology as both an enabler and a source of risk.

The integration of these theories allows this study to move beyond single-theory explanations and instead develop a multidimensional understanding of competitiveness. Specifically, leadership vision (transformational leadership) is operationalised through adaptive execution (agile management), while its effectiveness is shaped by contextual conditions (socio-technical theory) and moderated by the dual nature of technology (ambivalent stance). This integrated perspective reveals that competitiveness in ICT SMMEs is not driven by isolated factors, but emerges from the interaction between leadership, operational practices, contextual constraints, and technological dynamics.

2.2.1 Agile Management Theory

Agile Management Theory, originating in the early 21st century from iterative software development practices, emphasises flexibility, collaboration, and rapid response to change. Rooted in the Agile Manifesto (Zhang, Wang, & Chen, 2024), it prioritises "individuals and interactions over processes and tools" and "customer collaboration over contract negotiation," fostering adaptability in dynamic environments (Moarefi & Janami, 2025). For South African ICT SMMEs, particularly in the Lowveld nexus, a region characterised by fragmented markets, resource constraints, and technological uncertainty, Agile Management offers a framework to balance innovation with operational efficiency. By adopting iterative methodologies, such as Scrum or Kanban, SMMEs can refine their ICT solutions through continuous feedback, mitigating risks associated with market volatility (Pelletier, 2025). However, this theory's emphasis on

rapid adaptation may conflict with the bureaucratic or hierarchical structures often present in SMMEs with limited managerial capacity (Smith & Du Plessis, 2024). Furthermore, Agile's Western-centric focus on individualism may clash with collectivist values prevalent in Lowveld communities, necessitating localised adaptations (Hagen, 2024). Recent developments in "hybrid agility" (Roux & van Niekerk, 2022) integrate Agile principles with traditional project management models, addressing these shortcomings by embedding flexibility within structured workflows. Such adaptations are critical for SMMEs to align with national digital transformation agendas, such as South Africa's Digital Industrialisation (DI) and the Fourth Industrial Revolution (4IR) strategies, which require both agility and adherence to formal innovation ecosystems (Zhao & Li, 2025).



Figure 3: The agile leader (Bass, 1985)

2.2.2 Transformational Leadership Theory

Transformational Leadership Theory, formulated by Bass (1985) and later refined by scholars like Burns (2020) centres on leaders who inspire followers to transcend self-interest for collective growth. In the context of ICT SMMEs, this theory is particularly relevant given the sector's reliance on visionary leadership to drive innovation and

navigate regulatory or cultural barriers in the Lowveld. Transformational leaders cultivate a shared vision, encourage calculated risks, and foster trust, enabling SMMEs to leverage ICT for sustainable growth (Zhao & Li, 2025). For instance, leaders in the Lowveld may apply this theory to mobilise under-resourced teams toward technological scalability, aligning with the region's developmental goals under initiatives like the National Development Plan 2030 (Mkhize, 2023). However, the theory's idealisation of charismatic leadership may overlook the systemic inequalities that constrain SMMEs, such as limited access to funding or political exclusion (Makhaya & Mthembu, 2024). Critics also note that transformational leadership can inadvertently replicate hierarchical power dynamics in contexts where participatory decision-making is culturally normative (Moarefi & Janami, 2025). Recent scholarship has addressed these gaps by advocating for "cultural transformational leadership," which integrates indigenous knowledge systems and community-centric approaches to leadership (Hsu, & Lin, 2023). This evolution is vital for SMMEs in the Lowveld, where leadership must harmonise global ICT trends with local socio-economic realities.

2.2.3 Socio-Technical/Critical Views (Including Feenberg)

Socio-technical Theory, which examines the interplay between technological systems and social structures, has been critiqued and expanded by thinkers like Feenberg (2002) to include the "critical theory of technology," emphasising technology as a contingent construct shaped by power and ideology. Originating in post-industrial critiques of labor and automation, this framework is indispensable for understanding how ICT SMMEs in the Lowveld navigate the tension between technological determinism and human agency. For instance, Feenberg's (2022) concept of "technological emancipation" challenges SMMEs to democratise technology access rather than adopt it uncritically, ensuring that ICT solutions address local challenges such as rural connectivity or skills gaps (Ezennia & Mutambara, 2022). However, socio-technical models can oversimplify the complexities of SMME ecosystems, particularly in contexts where political and economic factors dominate over social or technological considerations (Murray & Patterson, 2022). Critics also argue that the theory's focus on collective structures may marginalise individual agency in leadership decision-making (Moarefi & Janami, 2025). Recent developments have integrated socio-technical analysis with "critical innovation studies," which interrogate how historical injustices, such as colonial tech legacies, shape present-day SMME capabilities (Mkhize, 2023). This synthesis is crucial for the

Lowveld, where SMMEs must reconcile global digital trends with the region's legacy of underinvestment and infrastructural disparities.

2.2.4 Utopian/Dystopian/Ambivalent Technology Stances

Theorisations of technology as utopian, dystopian, or ambivalent offer complementary lenses for assessing ICT SMMEs' role in the Lowveld. Utopian stances, in recent works on 4IR (Zhao & Li, 2025), position technology as a panacea for development, fostering optimism about SMMEs' potential to leapfrog traditional economic barriers. Dystopian perspectives, however, caution against the risks of technological exclusion, surveillance, and ecological degradation, as highlighted by scholars like Nhlumayo and Mthembu (2025) in their critique of algorithmic governance. Ambivalent stances acknowledge technology's dual capacity to empower and marginalise, urging SMMEs to adopt a balanced approach. In the Lowveld, where ICT initiatives coexist with entrenched unemployment and poverty, this ambivalence is particularly salient. For example, SMMEs providing digital literacy tools may simultaneously empower marginalised communities and reproduce digital divides if solutions remain inaccessible (Zhao & Li, 2025). A shortcoming of these stances lies in their abstract framing, which often neglects the material conditions of SMMEs navigating regulatory, infrastructural, and cultural constraints (Murray & Patterson, 2022). Recent developments have embraced "context-specific ambivalence," emphasising localised ethical frameworks to guide SMMEs in reconciling technological promise with socio-economic pragmatism (Ezennia & Mutambara, 2022). This perspective is essential for crafting ICT solutions that align with the Lowveld's aspirations for inclusive growth and environmental sustainability.

2.2.5 The conceptual framework

The conceptual framework presented here synthesises four interrelated theories—Agile Management, Transformational Leadership, Socio-technical Critical Theory, and Ambivalent Technology Stances, to address the unique challenges faced by Information and Communication Technology Small and Medium Enterprises (ICT SMMEs) in the South African Lowveld. This integrative model is designed to overcome critical gaps in current management literature, which often neglects the socio-political and historical contexts of developing regions. By grounding its approach in these four pillars, the framework offers a coherent, multidimensional structure that emphasises relational dynamics between management practices, leadership strategies, and technology's

societal role. This allows ICT SMMEs to navigate rapid technological changes, infrastructural limitations, and systemic inequalities while fostering sustainable competitiveness. The model is not merely additive but synergistic, as each theory explicitly addresses shortcomings in existing paradigms and contributes to a holistic approach tailored to the Lowveld's digital economy.

2.2.5.1 The Goal of the Framework

The primary objective of this framework is to enable sustainable competitiveness for ICT SMMEs in the South African Lowveld, a region characterised by uneven development and historical socio-economic disparities. Unlike generic business models that favour Western-centric or Silicon Valley-inspired approaches, this framework is explicitly tailored to low-resource, post-apartheid contexts. Sustainable competitiveness here is defined as the ability to innovate, adapt, and scale while ensuring ethical practices, local relevance, and risk mitigation. The model's expected outcomes include fostering a culture of trust and innovation, enhancing managerial flexibility, and embedding equitable technological solutions. By translating theoretical concepts into actionable pathways, the framework provides a practical roadmap for ICT SMMEs to thrive in environments marked by infrastructural constraints, economic volatility, and persistent inequality.

2.2.5.2 The Four Theoretical Pillars and Their Contributions

Agile Management: Traditional management styles in SMMEs often prioritise rigid, hierarchical processes ill-suited to the dynamic needs of ICT sectors. Agile Management, by contrast, introduces a mechanism for speed and responsiveness, enabling SMMEs to adapt swiftly to market shifts and technological disruptions. This theory fills a critical void in current practices by prioritizing iterative development, cross-functional collaboration, and customer-centric flexibility, dimensions overlooked in static, linear management models (Matlay & Westhead, 2023). Its contribution lies in aligning operational strategies with the fast-paced digital economy, particularly in regions like the Lowveld where resource constraints demand efficient, adaptive workflows.

Transformational Leadership: Conventional leadership models for SMMEs frequently emphasise transactional or authority-based styles, which stifle innovation and fail to address deeper motivational drivers. Transformational Leadership, however, acts as the

“human engine” of the framework by fostering trust, inspiring creative vision, and cultivating an innovation-oriented culture. This theory is pivotal in the Lowveld context, where SMMEs must overcome distrust in systemic institutions and mobilise under-resourced teams. By prioritising empathy, empowerment, and future-focused storytelling, it bridges the gap between managerial adaptability and long-term strategic growth (Ezennia & Mutambara, 2022).

Socio-technical Critical Theory (with Feenberg): Most ICT management frameworks in literature adopt technocentric or instrumental views of technology, neglecting its socio-political implications. Socio-technical Critical Theory, informed by Feenberg’s (2022) emphasis on democratising technology, provides an ethical grounding for evaluating how ICT developments intersect with local needs, power structures, and historical injustices. This theory is essential in contexts like the Lowveld, where colonial legacies and systemic inequalities necessitate solutions that prioritise equity and community inclusion. It ensures that technological interventions are not imposed from afar but are co-created with stakeholders to address root causes of exclusion (Feenberg, 2022).

Ambivalent Technology Stances: Overly optimistic or dystopian narratives about technology dominate current debates, yet both extremes risk underestimating complexities. Ambivalent Technology Stances, as articulated by Nhlumayo and Mthembu (2025), encourage a nuanced, dialectical approach that balances utopian aspirations for innovation with dystopian caution about unintended consequences. This theory is particularly valuable for Lowveld SMMEs, which face high-stakes risks (for example., cybersecurity threats, data privacy concerns) amid limited regulatory capacity. By fostering a risk-aware yet forward-thinking mindset, it complements Agile Management’s speed and Transformational Leadership’s vision while aligning technological framing with Feenberg’s ethical imperatives.

2.2.5.3 Integrative Mechanism and Synergistic Dynamics

The framework’s four theories operate as interdependent variables within a multidimensional model, where relational dynamics drive sustainable outcomes. For instance, a leader employing Transformational strategies to inspire trust and innovation can leverage Agile methods to prioritise customer feedback through iterative product development. Simultaneously, socio-technical analysis ensures that these innovations align with local labor practices, community needs, and historical equity demands.

Meanwhile, Ambivalent Technology Stances guide risk mitigation by proactively identifying vulnerabilities in scaling strategies. These interactions are not linear but recursive; for example, Agile flexibility enables rapid responses to feedback from socio-technical assessments, while Transformational Leadership maintains team cohesion during turbulent adaptations (Tshabalala & Mthembu, 2022). This synergy ensures that SMMEs remain both adaptive to market demands and rooted in ethical, context-sensitive practices.

This interaction demonstrates that the value of the framework lies not in the individual theories themselves, but in the new explanatory power generated through their integration. By showing how leadership intent, operational agility, contextual constraints, and technological dualities interact, the study advances a more nuanced and context-sensitive understanding of ICT SMME competitiveness. This represents a shift from traditional single-theory approaches toward a dynamic, multi-layered explanation of organisational performance.

2.2.5.4 The Significance of the South African Lowveld Context

The framework's specificity to the South African Lowveld is integral to its validity. Current management models often assume homogeneity across regions, ignoring uneven development patterns and histories of systemic oppression. In the Lowveld, SMMEs confront infrastructural gaps, limited access to capital, and the residual effects of apartheid-era spatial and economic segregation. These challenges necessitate a departure from "one-size-fits-all" solutions, as copying Silicon Valley templates would ignore local power dynamics and infrastructural realities (Makhaya & Mthembu, 2024). By integrating Socio-technical Critical Theory and Ambivalent Technology Stances, the framework acknowledges the incompatibility of generic models while offering a roadmap for SMMEs to leverage local knowledge, mitigate risks, and advocate for structural equity.

2.2.5.5 Expected Outcomes and Pathways to Sustainable Competitiveness

The framework's theoretical integration is expected to yield three key outcomes: adaptability through Agile methods, innovation culture via Transformational Leadership, and ethical resilience from socio-technical and ambivalent stances. These elements collectively address the limitations of current literature by:

1. Expanding management literature's theoretical scope to include post-colonial and socio-technical dimensions.
2. Providing a scalable model for SMMEs in developing regions to balance speed with ethical responsibility.
3. Mitigating risks of over-optimism through balanced, context-aware technological framing.

By embedding these elements within the Lowveld's socio-political landscape, the framework anticipates a transformation in how ICT SMMEs define success, not merely as profit maximisation, but as systemic contributions to inclusive digital economies. Future research should empirically validate these pathways, testing how the interplay of Agile methods, visionary leadership, and ethical framing translates to measurable competitiveness in SMMEs navigating complex development challenges (Maluleke et al., 2025), as in Figure 4 below.

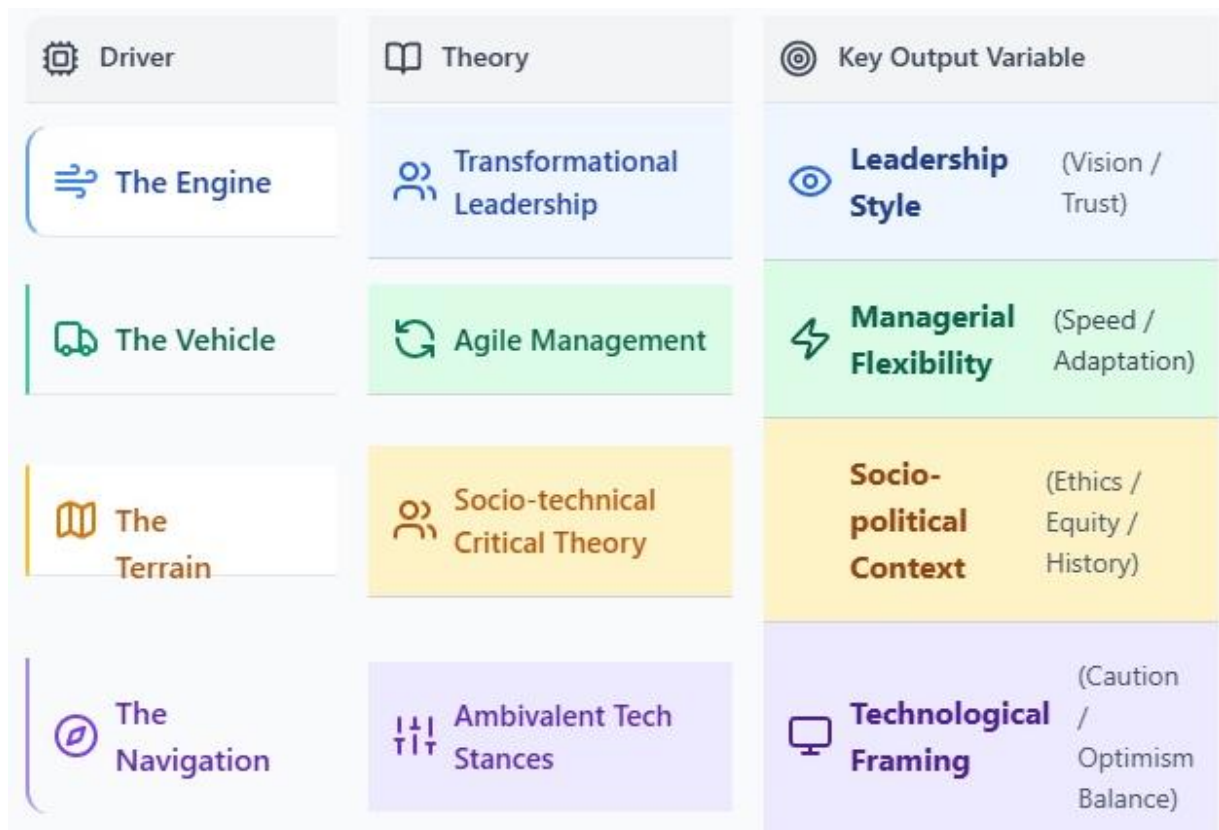


Figure 4: Conceptual Framework for Sustainable Competitiveness in ICT SMMEs

By integrating Agile Management, Transformational Leadership, Socio-technical Critical Theory, and Ambivalent Technology Stances, this framework addresses both business needs and societal realities. The framework's effectiveness is demonstrated through its

ability to balance high-tech innovation with infrastructural limitations and historical inequalities, as noted by researchers such as Makhaya & Mthembu (2024) and Nhlumayo & Mthembu (2025). Ultimately, this framework provides a roadmap for ICT SMMEs to achieve sustainable competitiveness, fostering Trust, innovation culture, and risk mitigation in the South African Lowveld.

Importantly, the framework is not a simple aggregation of theories but a structured integration in which each theoretical component explains a specific dimension of the phenomenon. Agile Management and Transformational Leadership form the core internal capability mechanisms, while Socio-technical theory and Ambivalent Technology Stances provide contextual and reflective layers. The interaction between these layers produces a more comprehensive explanation of competitiveness than any single theory could achieve independently. This integrative approach therefore extends existing theoretical understanding by demonstrating how leadership, management practices, contextual realities, and technological tensions collectively shape sustainable competitiveness in ICT SMMEs.

2.2.6 Conceptual Contribution of the Study

This study makes a conceptual contribution by demonstrating that competitiveness in ICT SMMEs emerges from the alignment of multiple interdependent capabilities rather than from isolated leadership or management factors. While prior research has examined leadership styles, management practices, or technological adoption independently, this study integrates these dimensions into a unified framework.

Specifically, the study introduces the idea that transformational leadership provides strategic direction and motivation, agile management operationalises adaptability, socio-technical conditions shape implementation, and ambivalent technological perspectives guide risk-awareness. The combination of these elements produces a dynamic capability configuration that extends existing models of SMME competitiveness.

This contribution is particularly relevant in the context of ICT SMMEs operating in resource-constrained and socio-economically complex environments, where success depends on the ability to simultaneously manage innovation, uncertainty, and contextual constraints.

2.2.6.1 Operationalisation

The operationalisation of constructs in this study is informed by the integrated theoretical framework, ensuring that leadership, management, contextual, and technological dimensions are translated into observable indicators.

Operationalisation provides the bridge between theoretical understanding and empirical investigation. In this study, the key constructs, such as ICT solution provision, leadership capability, management capability, and organisational agility were translated into observable dimensions to guide interview design, coding, and thematic interpretation. Each construct was defined through measurable attributes supported by prior studies on small business leadership, agile management, and digital transformation.

2.2.7 Operationalisation Concepts

ICT solution provision was operationalised in terms of how SMMEs develop and deploy technology-based services to address customer needs. Key indicators included the type of solutions offered (for example, software development, digital platforms, data analytics, cybersecurity, and cloud systems), the level of technological sophistication, and the degree of customisation to client requirements. The construct also encompassed collaboration with clients, innovation in service delivery, and the use of digital tools for efficiency and quality assurance (Taylor, et al., 2024; Ezennia & Mutambara, 2022). During interviews, respondents were asked to describe their business models, core technologies, and how they ensured value creation through technology.

Leadership capability was operationalised as the presence of behavioural, relational, and cognitive attributes that support effective leadership within agile environments. Indicators included communication competence, ethical integrity, adaptability, strategic vision, team motivation, and the ability to promote innovation through empowerment and shared decision-making. Participants were invited to describe leadership behaviours that had contributed to organisational adaptability and innovation. These dimensions were derived from prior empirical studies that examined leadership agility and transformational practices in small enterprises (SEDA, 2023–2024).

Management capability - Collins Dictionary (2023) describes capability as the power and influence that a person, action or idea has to affect or change people's lives, feelings or beliefs. Moreover, it is important in a business for a manager to possess these skills to get buy-in from the staff so that they can be able to sell ideas and solutions to the

team and have them well received without pushback, for the betterment of the SMME. The same translation applies to the standing of a manager's competency in the ICT SMME sector. The ability to grow and sustain SMMEs depends on the capability of the management and leadership skills to influence staff and employees.

Organisational agility was operationalised as the ability of an enterprise to sense and respond quickly to market and technological changes while maintaining alignment with strategic goals. Observable indicators included responsiveness to customer feedback, speed of decision-making, flexibility in restructuring teams or processes, and willingness to experiment with new technologies. These attributes were assessed through narrative accounts of how participants managed change and uncertainty in their operations (Taylor, et al., 2024). Agility was thus treated as an emergent capability rather than a static organisational trait.

Management skills - equate to a dual, albeit complex concept that captures the field of management and the operational dexterity to achieve operationally the goals of an organisation, efficiently and competitively (SEDA, 2023–2024). In the case of SMME context in the ICT sector, management skills refer to the capability of leaders across respective ICT management portfolios, to plan, organise, direct, and control the strategic and operational activities of an ICT SMME entity effectively, to achieve its goals and objectives competitively (Ezennia & Mutambara, 2022). It involves the capacity to plan and guide the development of innovative technological solutions, as well as to oversee all aspects of a business competently, from finance and operations to marketing and human resources to achieve growth, sustainability and competitiveness. These skills are usually acquired through on-the-job experience or by studying them in an educational environment.

Leadership skills - In business, leadership refers to the abilities, skills, and strengths that individuals demonstrate to oversee processes, guide initiatives and steer their employees towards the achievement of goals (SEDA, 2023–2024). Depending on the abilities, approaches and styles of leadership, one individual may be more successful than another in leading employees towards desired organisational goals. In terms of a leadership skill, a common denominator would be the ability, competence or dexterity of an individual to discern, communicate, guide, motivate, reward appropriate behaviour, or sanction inappropriate activities, among other traits, regardless of a leadership style.

2.2.8 Information and Communication Technology (ICT) and Benefits

The concept of Information and Communication Technology (ICT) has evolved beyond its traditional definition to encompass a dynamic fusion of human expertise, technical systems, and organisational processes. Contemporary definitions highlight ICT as an applied system integrating machinery, software, and scientific knowledge to solve practical problems and enhance operational capabilities (Kraus et al., 2022). This perspective aligns with the Oxford Dictionary's (2023) characterisation of technology as both artefacts and innovative methods, extending to its role in transforming industries through disruptive practices. Scholars like Kraus et al. (2022) further contextualise ICT as a tool for strategic resource integration, where technical infrastructure and human capital collaborate to redefine organisational efficiency and innovation. This redefinition underscores ICT's fluid nature, which bridges the gap between technical functionality and socio-economic impact.

Operational efficiency remains a pivotal benefit of ICT adoption, particularly in Small and Medium-Sized Enterprises (SMMEs), where technologies such as enterprise resource planning (ERP) and cloud computing streamline workflows. Kraus et al. (2022) argue that Agile Management frameworks enable SMMEs to adapt to rapid technological shifts by fostering iterative decision-making and flexible processes. For instance, cloud-based Software as Service (SaaS) solutions reduce capital expenditure while enhancing scalability, allowing businesses to respond dynamically to market demands. However, research gaps persist in understanding how Agile methodologies, which prioritise adaptability and cross-functional collaboration, can be tailored to SMMEs' resource constraints. While existing literature highlights Agile's technical adaptability, further exploration is needed on its alignment with SMMEs' operational realities, particularly in regions with limited digital infrastructure (Kraus et al., 2022).

Resource allocation, another critical benefit, is transformed by ICT through data-driven analytics and automated systems. Enterprise resource planning (ERP) tools, for example, optimise inventory management and reduce operational redundancies by integrating real-time data across departments (Lee & Kim, 2023). Transformational Leadership theory provides a lens to examine how visionary leadership influences resource distribution in ICT-enabled environments. Bass and Riggio (2022) posit that transformational leaders inspire innovation by aligning resource strategies with organisational goals. However, studies on this leadership style in SMMEs often neglect

the role of external factors such as market volatility or technological disruptions. A research gap exists in evaluating how transformational leadership interacts with ICT-driven resource allocation in contexts of economic uncertainty, where leaders must balance long-term strategic vision with immediate operational demands (Lee & Kim, 2023).

In operations management, ICT's role in fostering smart infrastructure exemplifies its capacity to revolutionise industry practices. Digital platforms and artificial intelligence (AI) enable real-time monitoring of production processes, reducing waste and enhancing product quality (Lyytinen & Rose, 2022). Socio-technical Critical Theory, which critiques the interplay between human and technological systems, highlights the need for equitable integration of ICT to avoid dehumanising effects in the workplace (Feenberg, 2022). While current research focuses on technical efficiency gains, it rarely addresses the power dynamics and labour implications of smart infrastructure adoption. This represents a significant gap in understanding how socio-technical systems evolve under ICT, particularly in gig economies where traditional employment structures are displaced by digital platforms (Lyytinen & Rose, 2022).

The ambivalent nature of ICT technologies, as discussed in Ambivalent Technology Stances, reveals dual benefits and risks in their adoption. While cloud computing offers scalability and cost-efficiency, it simultaneously introduces vulnerabilities such as cybersecurity threats and data dependency (Singh & Patel, 2025). Matsieli and Mutula (2025) warn that organisational reliance on ICT can lead to ethical dilemmas, including user privacy breaches and algorithmic biases. Research in this area has predominantly focused on the technical aspects of risk mitigation, neglecting the organisational and cultural factors that shape perceptions of ICT's duality. Future studies could explore how firms reconcile the transformative potential of ICT with its inherent risks, particularly in high-stakes industries like healthcare or finance, where the consequences of failure are severe (Matlay & Westhead, 2023).

ICT's multifaceted benefits in operational efficiency, resource allocation, and operations management are reshaping organisational landscapes. However, theoretical lenses such as Agile Management, Transformational Leadership, Socio-technical Critical Theory, and Ambivalent Technology Stances reveal underexplored dimensions of ICT's impact. Bridging these research gaps requires interdisciplinary approaches that consider

both technical and socio-economic factors, ensuring that ICT adoption remains sustainable, ethical, and inclusive in an increasingly digital world.

2.2.9 Management Skills and Capabilities in ICT SMMEs

2.2.9.1 Operationalisation of Leadership and Management Skills

Management skills encompass a broad set of competencies that enable individuals and organisations to plan, execute, and adapt to changing business environments. In the context of ICT solution-providing small, medium, and micro enterprises (SMMEs), these skills are particularly critical for maintaining operational efficiency, fostering innovation, and responding to digital disruptions. One foundational aspect of management skills is strategic planning, which involves setting long-term goals and determining the most effective means to achieve them. For ICT SMMEs, strategic planning is essential in navigating the fast-paced technology sector, aligning business objectives with market demands, and ensuring sustainable growth. Key dimensions of strategic planning include environmental scanning to anticipate industry trends, resource allocation to optimise technological infrastructure, and risk assessment to mitigate potential disruptions (Chen & Li, 2023). Supporting this, resource orchestration is another vital construct, referring to the ability to coordinate human, financial, and technological resources effectively. In the ICT sector, where rapid innovation is the norm, successful resource orchestration ensures that SMMEs can leverage emerging technologies while maintaining cost efficiency and agility (Zhang et al., 2024).

Digital fluency, as a contemporary dimension of management skills, has gained increasing prominence in the ICT industry. It involves not only understanding digital tools and platforms but also integrating digital strategy into broader business operations. For ICT SMMEs, digital fluency is a prerequisite for maintaining competitiveness in an increasingly digitised market. It influences the organisation's capacity to support innovation, enhance customer engagement, and streamline internal processes (Fahlevi et al., 2024). Another critical aspect is stakeholder engagement, which refers to the ability to manage relationships with employees, customers, investors, and technology partners. In the ICT SMME sector, stakeholder engagement plays a pivotal role in securing funding, fostering collaboration, and building trust within the business ecosystem. Effective stakeholder engagement strategies enable SMMEs to access

critical resources and market opportunities, thereby facilitating long-term sustainability (Chigora & Chigora, 2024).

The Lowveld, characterised by limited broadband penetration, scarce financial services and a fragmented business ecosystem, epitomises the challenges faced by ICT-SMMEs (Tshabalala & Mthembu, 2022). Empirical surveys reveal that managers in this region demonstrate modest digital literacy but markedly low strategic and financial competencies (Mwangi, 2023). Leadership styles are predominantly transactional, with limited emphasis on vision-setting or employee empowerment (Zulu & Mukasa, 2024). In the context of ICT SMMEs, where innovation and adaptability are essential, leadership and managerial competencies such as conceptual skills, interpersonal skills, technical skills, marketing skills, financial skills, legal skills, and entrepreneurship skills play a pivotal role in shaping business outcomes (Zulu & Mukasa, 2024).

Conceptual skills enable leaders and managers to develop a broad understanding of organisational functions and the external environment in which their SMME operates. In the ICT sector, where digital transformation and market disruptions are common, conceptual skills are crucial for identifying new opportunities, designing flexible business strategies, and envisioning long-term organisational goals (Chen & Li, 2023). These skills allow SMME leaders to synthesise complex information, anticipate future industry trends, and make strategic decisions that align with their organisational vision (Stats SA, 2025). For ICT SMMEs in the Lowveld Nexus, conceptual skills also support the integration of digital technologies into business operations, ensuring that technological investments are aligned with organisational objectives and market demands (Jansen & Smit, 2024). Measuring conceptual skills typically involves assessing an individual's ability to create strategic plans, analyse organisational challenges, and implement solutions that drive innovation and competitiveness (Zhang et al., 2024).

Interpersonal skills are equally important, as they facilitate communication, collaboration, and relationship-building within the organisation and with external stakeholders. In ICT SMMEs, where teamwork and stakeholder engagement are critical, strong interpersonal skills help in fostering a positive organisational culture and ensuring smooth operations (Mishrif & Khan, 2023). Effective interpersonal skills contribute to enhanced decision-making, conflict resolution, and the development of a motivated workforce (Stats SA, 2025). For ICT SMMEs, where workforce skills and collaboration are essential for

successful digital transformation, the ability to build trust, encourage open communication, and maintain strong relationships with employees and clients is vital (Zulu & Mukasa, 2024). Measuring interpersonal skills in ICT SMMEs often involves evaluating leadership communication effectiveness, team cohesion, and the ability to manage stakeholder relationships (Chigora & Chigora, 2024).

Technical skills are fundamental in the ICT sector, as they directly impact the ability of SMMEs to develop, maintain, and implement digital solutions. In ICT SMMEs, technical skills encompass knowledge of programming, digital tools, infrastructure, and cybersecurity measures (Chen & Li, 2023). Strong technical competencies enable SMME leaders and managers to oversee technological developments, ensure product quality, and respond effectively to industry challenges (UNCTAD, 2024). For SMMEs in the Lowveld Nexus, where access to advanced technical resources may be limited, the ability to cultivate in-house technical expertise is essential for sustaining innovation and maintaining a competitive edge (Zulu & Mukasa, 2024). Assessing technical skills in ICT SMMEs involves evaluating the proficiency of team members in utilising digital tools, developing technical solutions, and maintaining digital infrastructure (Chigora & Chigora, 2024).

Marketing skills are essential for the visibility, client acquisition, and growth of ICT SMMEs. In a competitive market, the ability to effectively promote digital products and services ensures organisational success and market penetration (Mishrif & Khan, 2023). For ICT SMMEs, marketing skills extend beyond traditional methods to include digital marketing, content creation, and data-driven strategies for reaching target audiences (Chen & Li, 2023). Effective marketing competencies enable SMMEs to build their brand presence, attract potential clients, and differentiate themselves in an increasingly saturated industry (Zulu & Mukasa, 2024). Measuring marketing skills in ICT SMMEs involves tracking the effectiveness of digital marketing campaigns, customer engagement, and brand visibility in the marketplace (Jansen & Smit, 2024).

Financial and legal skills also contribute significantly to the sustainability and compliance of ICT SMMEs. Financial skills ensure that SMMEs make informed decisions regarding budgeting, investment, and resource allocation (Stats SA, 2025). In the ICT sector, where digital investments can be substantial, strong financial skills help in maximising returns while minimising financial risks (Zulu & Mukasa, 2024). Legal skills, on the other

hand, allow SMME leaders to navigate regulatory frameworks, protect intellectual property, and ensure compliance with local and international data governance laws (Mishrif & Khan, 2023). In the Lowveld Nexus, where regulatory compliance is critical, the ability to manage legal aspects of digital operations ensures long-term business viability (Zulu & Mukasa, 2024). Measuring financial and legal skills in ICT SMMEs involves evaluating an organisation's financial management effectiveness and legal compliance (Jansen & Smit, 2024).

Entrepreneurship skills, which include innovation, risk management, and adaptability, are crucial for the success of ICT SMMEs in a rapidly evolving industry. In the ICT sector, where market demands constantly shift, the ability to identify new opportunities, take calculated risks, and experiment with digital solutions is essential for maintaining competitiveness (Chen & Li, 2023). Entrepreneurship skills also support the development of new digital products, expansion into emerging markets, and the ability to pivot in response to industry changes (Zulu & Mukasa, 2024). Measuring entrepreneurship skills in ICT SMMEs often involves assessing the frequency of innovation initiatives, success in new market ventures, and the ability to adapt to changing industry conditions (UNCTAD, 2024). Collectively, these leadership and managerial skills form the foundation for the competitiveness and sustainability of ICT SMMEs in the Lowveld Nexus and beyond.

Beyond these specific constructs, management skills also encompass fundamental activities such as organisational planning, decision-making, and operational control. Planning involves the systematic organisation of resources to achieve business objectives, while decision-making requires evaluating options and selecting the most appropriate course of action. For ICT SMMEs, sound decision-making is essential in determining which technologies to adopt, which markets to target, and which operational models to implement (Davies, 2022). Additionally, the maintenance of operational business processes, including workflow management, process optimisation, and quality assurance, is crucial for ensuring consistency and reliability in service delivery. In the ICT sector, where technical errors can lead to significant disruptions, the ability to maintain robust operational processes contributes to an SMME's overall stability and competitiveness (Tapera, 2023).

These management constructs are interconnected, forming a multidimensional framework that influences the effectiveness of SMMEs in the ICT industry. Strategic planning provides a roadmap for future development, resource orchestration ensures seamless execution of plans, digital fluency supports innovation and agility, and stakeholder engagement builds essential networks. Collectively, these skills form the foundation for operational success in the ICT SMME sector, enabling organisations to adapt to industry changes and maintain a competitive edge.

2.2.9.2 The Importance of Strategic Planning, Organising, Controlling, and Maintenance in ICT SMME Operations

Strategic planning is a foundational element of effective management in ICT solution-providing small, medium, and micro enterprises (SMMEs), as it sets the direction for long-term growth and success. In the dynamic and rapidly evolving ICT sector, the ability to identify future opportunities, anticipate technological disruptions, and align business objectives with market demands is essential for maintaining competitiveness (Chen & Li, 2023). Strategic planning involves conducting environmental analyses to assess industry trends, competitor activities, and regulatory developments, allowing SMMEs to position themselves in a way that maximises their strengths and mitigates potential risks (Stats SA, 2025). For ICT SMMEs in the Lowveld Nexus, strategic planning also plays a critical role in aligning digital transformation initiatives with organisational capabilities, ensuring that technological investments contribute to long-term sustainability rather than becoming unsustainable financial burdens (Zhang et al., 2024). The effectiveness of strategic planning in ICT SMMEs can be measured through constructs such as long-term goal alignment, responsiveness to market changes, and the extent to which strategic decisions are based on data-driven insights and risk assessments (Jansen & Smit, 2024).

Following strategic planning, the process of organising is crucial in translating strategic goals into actionable initiatives. Organising involves structuring resources, assigning responsibilities, and establishing systems to ensure efficient execution of business operations (Zulu & Mukasa, 2024). In ICT SMMEs, this includes designing organisational structures that promote flexibility, cross-functional collaboration, and adaptive decision-making in response to industry changes (Davies, 2022). Effective organisation is particularly important in managing digital transformation efforts, as it requires the

integration of various technological components, workforce capabilities, and financial resources (Yang et al., 2023). For example, ICT SMMEs must determine how to allocate human and financial capital to develop and maintain digital infrastructure, ensuring that technological investments are aligned with strategic objectives while remaining fiscally viable (Mishrif & Khan, 2023). The success of the organising function in ICT SMMEs can be evaluated based on the clarity of roles and responsibilities, the efficiency of resource allocation, and the ability to maintain operational coherence amid external disruptions.

Controlling, as a managerial function, ensures that organisational activities remain aligned with strategic goals and performance expectations. In the context of ICT SMMEs, controlling involves establishing performance metrics, monitoring operational outcomes, and implementing corrective actions when necessary (Kraus et al., 2022). This is particularly relevant in managing digital projects, where uncertainties in technology adoption, market demand, and regulatory compliance necessitate continuous oversight and adjustment (Tapera, 2023). Controlling also encompasses financial management, where ICT SMMEs must ensure that their investment in digital tools and infrastructure remains within budgetary constraints while delivering tangible value (Jansen & Smit, 2024). Key performance indicators, such as financial efficiency, customer satisfaction, and project delivery time, serve as essential tools for assessing managerial effectiveness in the controlling function. In the Lowveld Nexus, where ICT SMMEs often face resource limitations, the controlling function becomes even more critical in ensuring that organisational resources are utilised optimally to support long-term sustainability (Moarefi & Janami, 2025).

The maintenance of operational business processes is the final but equally essential aspect of managerial effectiveness in ICT SMMEs. Effective maintenance ensures that workflows, technological systems, and service delivery remain consistent and reliable, reducing the risk of operational disruptions (Chen & Li, 2023). In the ICT sector, where technological failures can lead to significant consequences for business continuity, the ability to maintain robust digital infrastructure is crucial (Zhang et al., 2024). This includes regular system updates, cybersecurity protocols, and quality assurance measures to ensure that digital services meet customer expectations and regulatory standards (Jansen & Smit, 2024). Maintaining operational efficiency also involves process optimisation, where ICT SMMEs continuously evaluate and refine their internal procedures to improve productivity and reduce waste (Stats SA, 2025). The

effectiveness of maintenance functions can be assessed based on the frequency and success of process improvements, the stability of digital operations, and the ability to respond to emerging threats or opportunities in the industry. Collectively, strategic planning, organising, controlling, and maintaining operational business processes form the backbone of effective managerial practices in the ICT SMME sector, ensuring that organisations remain adaptable, efficient, and responsive to the demands of a constantly evolving digital market.

2.2.9.3 Operationalisation of Leadership and Management Capabilities in ICT

Leadership and management capabilities comprise a multidimensional set of knowledge, skills and attitudes that enable managers to plan, organise, lead and control organisational resources (Schiuma et al., 2024). In the context of IT-based SMMEs, three interrelated capability clusters have been identified (Murray & Patterson, 2022):

1. **Technological Competence** – the ability to select, adapt and apply digital tools to create value (Lyytinen & Rose, 2022).
2. **Strategic Management and Innovation** – the capacity to formulate and execute strategies that align technology with market opportunities (Schiuma et al., 2024).
3. **Financial and Human-Resource Literacy** – the skill set required to manage cash flows, capital allocation, and talent development (Saba, Ngepah & Odhiambo, 2024).

These clusters are underpinned by a meta-capability: **digital leadership**, which integrates vision, change-management, and ethical stewardship of data and technology (Bass & Riggio, 2022). Recent empirical work demonstrates that firms with higher scores on digital leadership exhibit superior agility and resilience, especially during periods of external turbulence (Singh & Patel, 2025).

2.2.9.4 Capability Gaps in IT-Based SMMEs

2.2.9.4.1. Deficient Technological Literacy

Despite the proliferation of affordable ICT solutions, many SMME owners possess only rudimentary digital skills, limiting their ability to leverage analytics, cloud services and cybersecurity measures (Murray & Patterson, 2022). This deficit mirrors earlier findings on “information literacy” but is now compounded by the greater complexity of

contemporary platforms (Rahadi, 2023). The result is an over-reliance on external service providers and an erosion of strategic control.

2.2.9.4.2. Weak Strategic Management

A persistent shortfall in strategic foresight has been documented across South African SMMEs (Rodriguez & Kim, 2023). Managers often lack experience in scenario planning, market segmentation and the development of dynamic capabilities that enable rapid pivots (South African SMME Survey 2024). Consequently, firms struggle to translate technological possibilities into coherent business models, leading to early-stage attrition (Yang, Zhou, Zhao & Lv, 2023).

2.2.9.4.3. Limited Financial Acumen

Financial illiteracy continues to constrain growth, as owners demonstrate poor understanding of budgeting, cost structures and investment appraisal (Zhu, 2022). The inability to interpret financial statements hampers access to formal financing and undermines internal resource allocation (Kelloway, Turner, Barling & Loughlin, 2022).

2.2.9.4.4. Inadequate Leadership Behaviour

Leadership behaviours that foster innovation, empowerment and ethical use of data are scarce among ICT-SMME founders (Zulu & Mukasa, 2024). The lack of transformational leadership reduces employee engagement and curtails the diffusion of best practices within the organisation (Bijker, 2022).

2.2.9.4.5 Developing Management Capabilities

Research advocates the establishment of blended learning ecosystems that combine formal coursework, peer-learning networks and on-the-job coaching (VersionOne, 2022). Such ecosystems should embed digital competence modules with finance and strategic management curricula, thereby fostering holistic capability development (Feenberg, 2022). The use of micro-credentialing can signal mastery of specific competencies to external stakeholders (Matlay & Westhead, 2023). Mentorship programmes linking experienced managers with nascent ICT entrepreneurs have proven effective in transferring tacit knowledge (Makhaya & Mthembu, 2024). Incubator spaces that provide not only physical infrastructure, but also managerial advisory services can accelerate capability acquisition (Chigora & Chigora, 2023).

Targeted policy interventions, such as subsidised management training, tax incentives for upskilling and public-private partnerships, can address systemic gaps (Mkhize, 2023). Regional development funds should prioritise capacity-building initiatives that align with the unique needs of the Lowveld's ICT sector (Tshabalala & Mthembu, 2022). In addition, adopting agile methodologies cultivates a culture of continuous improvement and rapid experimentation (Lee & Kim, 2023). Agile practices reinforce cross-functional collaboration and enable managers to respond swiftly to market signals—a critical advantage for technology-driven SMMEs operating in volatile contexts (Lyytinen & Rose, 2022).

2.2.10 Leadership Styles and Their Influence on ICT SMME Competitiveness

Leadership plays a pivotal role in shaping the direction, culture, and strategic capabilities of ICT solution-providing small, medium, and micro enterprises (SMMEs). The effectiveness of leadership not only determines how well an organisation navigates market challenges but also influences its ability to foster innovation, drive operational excellence, and maintain sustainable growth. Among the various leadership styles, transformational leadership has been identified as particularly influential in the ICT sector, where rapid technological change and dynamic market conditions require adaptive and visionary guidance (Zhang et al., 2024). Transformational leaders in ICT SMMEs inspire employees through a shared vision, encourage creative problem-solving, and cultivate a culture of continuous improvement. This style is especially relevant in environments characterised by uncertainty, as it empowers teams to embrace innovation and respond proactively to industry disruptions (Schiuma et al., 2024). For ICT SMMEs, transformational leadership can facilitate the integration of new technologies, enhance organisational agility, and strengthen employee commitment to business objectives (UNCTAD, 2024).

In contrast, transactional leadership, which focuses on goal setting, performance monitoring, and reward-based motivation, may be effective in structured environments but may hinder the adaptability required in the ICT sector. While transactional leaders provide clear expectations and ensure compliance, their approach may not support the entrepreneurial spirit and risk-taking mindset essential for innovation in this industry (Mishrif & Khan, 2023). Situational leadership, however, offers a more adaptable approach, where leaders adjust their style based on the maturity, skills, and needs of

their teams. In ICT SMMEs, where employees may vary in their experience with emerging technologies, situational leadership allows for a tailored management approach that enhances team efficiency and responsiveness (Singh & Patel, 2025). This flexibility is particularly important in environments where project requirements are subject to frequent change, and leaders must adapt their strategies to maintain momentum and productivity (Davies, 2022).

Laissez-faire leadership, characterised by minimal direct control and high autonomy for team members, can be beneficial in fostering creativity and self-direction in ICT SMMEs. However, the lack of structured guidance may lead to inconsistencies in decision-making and hinder strategic alignment, especially in organisations that are still developing their operational frameworks (Murray & Patterson, 2022). Servant leadership, which prioritises the welfare and development of employees, has also gained relevance in the ICT sector due to its emphasis on long-term growth and team empowerment. By placing a strong focus on employee well-being and professional development, servant leadership can enhance job satisfaction, reduce turnover, and foster a collaborative organisational culture (Jansen & Smit, 2024). In ICT SMMEs, where skilled talent is crucial for technological advancement, servant leadership can contribute to a more engaged and motivated workforce (Zulu & Mukasa, 2024).

The impact of leadership styles on organisational outcomes is further supported by studies examining the relationship between leadership and competitiveness in the ICT SMME sector. Transformational leaders, for example, have been linked to higher levels of innovation and organisational agility, which are essential for maintaining a competitive edge in a rapidly evolving market (Chen & Li, 2023). In contrast, transactional leadership, while effective in managing day-to-day operations, may not support the long-term resilience required to adapt to technological disruptions (Feenberg, 2022). The integration of transformational and situational leadership approaches appears to offer the most promising strategy for ICT SMMEs, as it combines the benefits of strategic vision with the flexibility necessary for dynamic business environments (Kraus et al., 2022). Ultimately, the choice of leadership style must align with the specific needs and goals of the organisation, as well as the external conditions of the ICT industry, to maximise competitiveness and long-term sustainability.

2.2.11 The Socio-Political Context of the ICT SMME Sector

The socio-political landscape in which ICT solution-providing small, medium, and micro enterprises (SMMEs) operate plays a crucial role in shaping leadership and management strategies. South Africa's historical legacy of systemic inequalities continues to influence business environments, particularly in regions like the Lowveld Nexus, where socio-economic disparities impact access to resources, market opportunities, and technological infrastructure. These structural challenges necessitate a socio-technical critical theory-based analysis to understand how leadership and management practices must adapt to ensure equitable growth and long-term sustainability in the ICT SMME sector. Socio-technical theory examines the interplay between social and technical systems within organisational environments, highlighting the need for leadership approaches that not only drive business success but also address broader socio-political constraints (Feenberg, 2022). By incorporating socio-technical considerations, leadership and management strategies in ICT SMMEs must strike a balance between innovation and inclusivity, ensuring that emerging digital solutions benefit a diverse range of stakeholders and contribute to broader socio-economic development (Mkhize, 2023).

South Africa's post-apartheid socio-economic policies have sought to redress historical imbalances, particularly through initiatives such as the Broad-Based Black Economic Empowerment (BBBEE) framework and the National Development Plan 2030. These policies aim to enhance economic participation among historically disadvantaged groups, including Black South Africans, women, and youth (Republic of South Africa, 2019). In the context of ICT SMMEs, leadership and management practices must align with these national policy objectives to ensure that digital innovation contributes to inclusive economic growth. For example, transformational leadership has been shown to support social equity by fostering inclusive organisational cultures, encouraging collaborative decision-making, and promoting diversity in technology-driven enterprises (Zhang et al., 2024). Similarly, servant leadership, with its emphasis on employee development and community empowerment, can contribute to the broader goal of socio-economic upliftment within the ICT SMME sector (Jansen & Smit, 2024). However, the effectiveness of these leadership approaches in South Africa's historically unequal socio-political environment remains dependent on structural support, including access to funding, mentorship, and market opportunities (Moarefi & Janami, 2025).

Beyond policy initiatives, the historical legacy of colonialism and segregation continues to shape the experiences of SMMEs in the ICT sector. Makhaya & Mthembu (2024) highlight how persistent inequalities in education, skills development, and technological access limit the competitiveness of SMMEs, particularly in rural and underdeveloped regions like the Lowveld Nexus. This necessitates a critical re-evaluation of leadership and management practices to ensure that they do not inadvertently reinforce existing disparities. For instance, while agile management strategies may enhance operational efficiency and digital responsiveness, their implementation must be guided by ethical and inclusive considerations to prevent further marginalisation of disadvantaged groups (Zulu & Mukasa, 2024). In this regard, socio-technical critical theory provides a framework for examining how traditional management models, which often prioritise profit maximisation, may need to be restructured to align with the principles of social justice and long-term sustainability (Feenberg, 2022). This approach encourages leadership in ICT SMMEs to consider not only financial performance but also their role in contributing to broader socio-economic development (Mkhize, 2023).

The integration of socio-technical and critical theory perspectives into leadership and management practices in the ICT SMME sector is thus essential for addressing structural inequalities and promoting inclusive growth. Transformational and servant leadership styles, when combined with socially responsible management strategies, can provide a pathway for SMMEs to become catalysts for change within their communities. By embedding ethical and socially conscious leadership values, ICT SMMEs in the Lowveld Nexus can contribute to a more equitable and resilient economic landscape, ensuring that digital innovation serves as a tool for both business success and socio-political transformation (Zulu & Mukasa, 2024). This alignment between leadership strategies and broader socio-political objectives is not only critical for organisational sustainability but also for facilitating long-term competitiveness in the ICT sector.

2.2.12 Ambivalence in Techno Stances, Innovation & Adaptability

The success of ICT solution-providing small, medium, and micro enterprises (SMMEs) is significantly influenced by the balance between technological optimism and caution, both of which play distinct roles in shaping innovation, adaptability, and resilience. While technological optimism encourages proactive adoption of new digital tools and fosters an entrepreneurial mindset, technological caution is essential for mitigating risks,

ensuring organisational stability, and aligning technological advancements with strategic goals. In the context of South African SMMEs, particularly those in the Lowveld Nexus, the interplay between these two stances becomes critical in determining the ability of enterprises to innovate while maintaining operational sustainability in a rapidly evolving industry.

Technological optimism among ICT SMMEs is often linked to a forward-thinking approach that embraces digital transformation as a means of gaining a competitive edge. Rahadi (2023) argues that SMMEs with a strong orientation towards optimism are more likely to invest in emerging technologies, experiment with digital business models, and integrate innovation into their core operations. This optimism can drive agility, enabling organisations to respond swiftly to market changes and customer demands (Zhang et al., 2024). However, without a structured approach to risk assessment, excessive technological optimism may lead to overinvestment in unproven digital solutions, potentially destabilising operations and reducing long-term viability (Kraus et al., 2022). In the Lowveld Nexus, where resources are often limited, a cautious evaluation of new technologies is necessary to ensure that digital investments align with business objectives and organisational capacity. Studies highlight that South African SMMEs that strike a balance between optimism and caution tend to achieve more sustainable digital transformation outcomes (Yang et al., 2023; Zulu & Mukasa, 2024).

In contrast, technological caution serves as a protective mechanism that mitigates risks associated with rapid digitalisation. While excessive caution can hinder growth and innovation, a measured approach to technology adoption allows SMMEs to proceed with well-informed decisions that enhance operational efficiency and reduce financial exposure (Mishrif & Khan, 2023). Research indicates that SMMEs with a balanced technological stance are better positioned to navigate uncertainty and maintain resilience in the face of external disruptions (Burnes, 2020). This balance is particularly evident in the Lowveld Nexus, where historical inequalities and infrastructural limitations necessitate a strategic approach to digital integration (Makhaya & Mthembu, 2024). By carefully assessing the feasibility and potential return on investment of digital technologies, SMMEs can ensure that innovation is both sustainable and aligned with organisational priorities. The ability to toggle between optimism and caution, depending on internal and external conditions, is crucial for ICT SMMEs seeking to remain competitive in an unpredictable business environment (Zulu & Mukasa, 2024).

2.2.13 Financial and Accounting Data in the Context of ICT SMMEs

Financial and accounting data play a crucial role in the management and strategic decision-making processes of ICT solution-providing small, medium, and micro enterprises (SMMEs). These data provide insights into the financial health, resource allocation, and operational effectiveness of an organisation, enabling SMME leaders to make informed decisions regarding investment, cost optimisation, and risk management (Zulu & Mukasa, 2024). In the context of ICT SMMEs, where digital transformation requires significant financial commitments and often operates within constrained budgets, financial and accounting data are essential for ensuring fiscal sustainability while supporting innovation and technological advancement (Jansen & Smit, 2024). Effective financial management in ICT SMMEs involves careful budgeting, forecasting revenue streams, and assessing the feasibility of digital initiatives in terms of their expected returns and potential risks (Tapera, 2023).

One of the primary functions of financial and accounting data in ICT SMMEs is to guide strategic resource allocation. Given the high costs associated with digital infrastructure development, software licensing, and ongoing maintenance, SMMEs must strike a balance between investment in technology and financial sustainability (Chen & Li, 2023). Financial data allow organisations to identify which digital initiatives generate the highest returns, enabling leaders to prioritise investments that align with long-term business goals while avoiding overextension in unproven technological markets (Yang et al., 2023). In the Lowveld Nexus, where ICT SMMEs often operate within limited financial resources, accurate accounting data are particularly important for securing funding, managing cash flow, and ensuring that digital transformation efforts remain financially viable (Zulu & Mukasa, 2024). By systematically tracking income, expenses, and investment outcomes, SMMEs can make data-driven decisions that maximise financial efficiency and support long-term growth.

Beyond resource allocation, financial and accounting data also serve as critical tools for performance evaluation and risk assessment. In the ICT sector, where technological disruptions and market fluctuations are common, financial indicators such as revenue growth, profit margins, and return on investment (ROI) provide essential metrics for assessing organisational resilience and competitive positioning (Jansen & Smit, 2024). Accounting data also help in identifying trends in customer spending, demand patterns,

and operational costs, allowing SMMEs to adjust their business strategies in response to changing market conditions (South African SMME Survey 2024). For example, declining ROI on digital solutions may signal the need for strategic realignment, prompting organisations to explore alternative technological models or diversify their service offerings to enhance profitability (Chen & Li, 2023). Additionally, financial planning in ICT SMMEs must account for potential regulatory and economic shifts, such as changes in government policy, data governance, and taxation requirements, all of which can directly impact revenue streams and operational costs (Yang et al., 2023).

The integration of financial and accounting data into ICT SMME decision-making also supports the overall objective of business continuity and sustainability. By maintaining accurate financial records and conducting regular audits, SMMEs can identify financial inefficiencies, reduce unnecessary expenditures, and ensure long-term organisational stability (Mishrif & Khan, 2023). In a sector where digital transformation is both an enabler and a financial burden, the ability to balance innovation with fiscal responsibility is key to ensuring that ICT SMMEs remain viable in the long term. This requires a careful and ongoing evaluation of financial performance, supported by robust accounting practices and transparent financial reporting. As such, financial and accounting data not only support operational decision-making but also contribute to the broader goals of organisational resilience, strategic adaptability, and sustainable growth in the ICT SMME sector.

2.2.14 Competitiveness and Its Dimensions

Small and Medium-sized Enterprises (SMMEs) are paramount to global economies, particularly within developing and emerging contexts. Their prevalence across the European Union, for instance, where they represent 99% of all enterprises and contribute to a significant portion of new employment and private sector activity, underscores their critical role (OECD, 2023). These enterprises frequently exhibit a dynamism that aligns closely with Schumpeterian Mark I innovation, a paradigm where economic development is driven by entrepreneurial activity leading to "creative destruction" – the incessant process of industrial mutation that incessantly revolutionises the economic structure from within, incessantly destroying the old one, incessantly creating a new one (Schumpeter, 1942).

Unlike larger, more established firms, SMMEs, particularly those in the Information and Communication Technology (ICT) sector, demonstrate superior flexibility to adopt and adapt to technological transitions, fostering stronger income distribution and quicker responses to market fluctuations and evolving consumer demands (Chen & Li, 2023; Davies, 2022). This agility, coupled with a propensity for generating novel offerings, positions SMMEs as the primary agents of Schumpeterian Mark I innovation. Their engagement in disruptive growth possibilities enables them to achieve heightened competitiveness and, ultimately, sustained viability by challenging existing market structures with fundamentally new products, processes, markets, or organisational forms.

The intrinsic goal of SMME competitiveness, viewed through a Schumpeterian lens, is to propel economic growth through disruptive innovation. By pioneering and commercialising new technologies and manufacturing processes, these enterprises not only create new job opportunities but also stimulate international commerce, thereby serving as fundamental drivers of economic expansion (Matsieli & Mutula, 2025). This innovative thrust is crucial for re-industrialising economies and supporting ICT development, which, in turn, enhances SMMEs' competitive edge and long-term sustainability (Jansen & Smit, 2024). Policy frameworks that grant SMMEs access to financial resources, accelerate research and development (R&D), and foster innovation processes are essential for cultivating this Schumpeterian Mark I environment (OECD, 2023). Consequently, national policies, startup funding initiatives, and company incubators are vital in stimulating the competitiveness, growth, and survival of SMMEs by nurturing their innovative capacities.

As ICT markets intensify in competition, SMMEs are compelled to differentiate themselves by spearheading the development and manufacturing of avant-garde technological products, directly competing with established corporations (Hagen, 2024). These imperative highlights innovation as the cornerstone for achieving a sustainable competitive edge. Such innovation encompasses not only technological breakthroughs but also novel marketing and management strategies, consistent with Schumpeter's broad definition of innovation (Kumar & Hislop, 2024). The capacity of an SMME to develop and sustain its competitive advantage, whether nationally or regionally, is embedded in its unique economic characteristics, often derived from its entrepreneurial spirit and ability to introduce novelty to the market.

Sustainable growth in ICT SMMEs, within the Schumpeterian Mark I context, refers to their ability to maintain a positive rate of expansion derived from successful innovation while also navigating pressing environmental and socioeconomic challenges. This dynamic expansion necessitates long-term viability, ensuring resource preservation, stakeholder well-being, and environmental health (Lee & Kim, 2023). While Schumpeter's initial focus was less on the 'green' aspects of growth, the concept of sustained innovation implies the continuous adaptation and transformation of business practices to remain competitive. For ICT SMMEs, achieving this involves a combination of strategic approaches:

- **Financial sustainability:** Adopting robust financial management practices, solid business planning, securing adequate funding, and maintaining healthy cash flow are critical for long-term viability and to fund continuous innovation (OECD, 2023).
- **Social sustainability:** Prioritizing the well-being of employees, customers, and communities through fair labor practices, inclusive hiring, and community engagement initiatives supports the "new combinations" of resources and human capital essential for innovation (Heifetz & Linsky, 2022).
- **Environmental sustainability:** Minimising environmental impact through eco-friendly practices, such as reducing energy consumption, recycling, and utilizing sustainable materials, represents another dimension of process innovation that can enhance competitiveness (Saba, et al., 2024).

Ultimately, sustainable growth for ICT SMMEs is a critical concept emphasising the need for balanced, long-term expansion fueled by continuous innovation. By strategically embracing financial, social, and environmental considerations as integral parts of their innovative processes, these enterprises can ensure their ongoing growth and market relevance, simultaneously contributing to broader societal and environmental well-being.

Competitiveness, in the Schumpeterian Mark I framework, is the ability to directly challenge and acquire market share through superior or novel offerings. An SMME's capacity to deliver appropriate, high-quality goods and services at suitable prices and times directly enhances its competitive standing. Growth, conversely, can be described as the SMME's ability to expand existing markets or create entirely new ones, thereby increasing profits through successful innovation (Davies, 2022). Both competitiveness and growth are inherently dependent on continuous technological advancement and the

capacity for survival, which is a testament to the success of an SMME's innovative endeavors (Maseko & Sibanda, 2025). The high mortality rate observed among new SMMEs underscores the inherently risky, yet potentially highly rewarding, nature of Schumpeterian Mark I entrepreneurial activity.

Competitive advantage, particularly for SMMEs, is primarily established and sustained through the adoption and integration of innovative technological tools and processes into business operations (Chen & Li, 2023). Strong competitiveness is driven by astute management knowledge, organizational flexibility, and rapid adaptation to evolving production requirements and global market shifts (Matlay & Westhead, 2023). Therefore, SMME management must possess strong ICT expertise, the capacity to leverage external information, the ability to adopt modern techniques and technologies rapidly, and to make decisive, agile decisions (Heifetz & Linsky, 2022). Effective ICT management is crucial in determining an SMME's competitiveness, growth, and sustainability. The survival of an SMME's operations is thus intrinsically linked to its competitiveness and growth, which, in turn, are contingent upon its innovative product, process, and organizational strategies (OECD, 2023). This dynamic relationship reaffirms the strong connection between increased SMME competitiveness, fuelled by Schumpeterian Mark I innovation, and their operational growth and long-term sustainability.

2.2.15 Application of leadership and management frameworks

The existing body of literature on leadership and management practices in small and medium-sized enterprises (SMMEs) provides a valuable foundation for understanding the dynamics that influence organisational performance in these businesses. A significant portion of this research has focused on the role of different leadership styles in shaping business outcomes, particularly in the context of developing economies where socio-economic and infrastructural challenges often affect organisational sustainability.

2.2.16 Global perspectives

Global perspectives on leadership in SMMEs highlight the advantages of transformational, situational, and servant leadership in fostering innovation, employee engagement, and operational efficiency. Transformational leadership, for instance, has

been identified as a key driver of organisational performance in SMEs across various industries (Moarefi & Janami, 2025). This leadership style, characterised by its emphasis on inspiring employees and fostering a vision-driven organisational culture, enhances the ability of SMMEs to adapt to market fluctuations and internal challenges. Studies on transformational leadership in global contexts have consistently demonstrated its positive impact on job satisfaction, innovation, and overall organisational resilience (Chen & Li, 2023; Singh & Patel, 2025). These findings are particularly relevant to the lowveld nexus, where ICT SMMEs must navigate complex socio-economic conditions while maintaining a competitive edge in the digital market.

In addition to transformational leadership, situational leadership has been extensively studied as a flexible approach that allows SMME leaders to adapt their management strategies according to the specific needs of their employees and organisational context (Rodriguez & Kim, 2023). This leadership model emphasises the importance of tailoring leadership techniques to the maturity and competence of employees, ensuring that SMMEs can maintain high levels of productivity while supporting continuous skill development. Research on situational leadership in SMMEs has shown that it enhances organisational agility and enables leaders to respond effectively to evolving market demands (Kraus et al., 2022). In the context of the lowveld nexus, where SMMEs often operate under resource constraints, the ability to adjust leadership approaches in response to varying levels of employee experience and market conditions is critical for long-term sustainability. The literature further suggests that situational leadership is particularly beneficial in fostering innovation in SMMEs, as it encourages a dynamic approach to problem-solving and decision-making (Singh & Patel, 2025). This adaptability is essential for ICT SMMEs, which must continuously evolve their business models to remain competitive in an increasingly digitalised economy.

Servant leadership has also emerged as an influential leadership style in SMMEs, particularly in fostering employee satisfaction and long-term organisational commitment (Jansen & Smit, 2024). This leadership approach prioritises the well-being of employees, focusing on building trust, enhancing collaboration, and supporting professional development. Studies on servant leadership in SMMEs have highlighted its role in promoting a supportive organisational culture and reducing employee turnover (Zhang et al., 2024). In the lowveld nexus, where SMMEs often face challenges related to workforce retention and skill development, servant leadership can play a crucial role in

strengthening internal cohesion and organisational stability. Moreover, this leadership style has been linked to increased innovation and resilience in SMMEs, as it encourages open communication and empowers employees to contribute to decision-making processes (Mishrif & Khan, 2023). These findings underscore the potential of servant leadership to support ICT SMMEs in the lowveld nexus in developing sustainable business practices that align with both economic and socio-political realities.

Beyond leadership styles, the literature on management practices in SMMEs has underscored the importance of effective leadership competencies in addressing operational, financial, and strategic challenges. Research on managerial skills in SMMEs has identified strategic planning, resource allocation, and stakeholder engagement as critical dimensions of successful organisational leadership (Li et al., 2024). In the context of the lowveld nexus, these competencies are particularly relevant for ICT SMMEs, which must balance innovation with infrastructural limitations and socio-economic disparities. Effective strategic planning ensures that ICT SMMEs can align their business objectives with market trends and organisational capabilities, while efficient resource orchestration allows them to maximise the impact of limited financial and technological resources (Yang et al., 2023). The literature further highlights the role of stakeholder engagement in enhancing the resilience of SMMEs, as strong relationships with customers, investors, and regulatory bodies contribute to long-term organisational stability (Moarefi & Janami, 2025). These findings align with the conceptual framework of the study, which emphasises the necessity of integrating socio-technical dynamics into management practices to ensure sustainable competitiveness.

The global literature on leadership and management in SMMEs also addresses the challenges associated with digital transformation, particularly in the ICT sector. Studies on digital leadership have shown that SMMEs must develop new competencies to navigate the complexities of digitalisation, including data analytics, digital marketing, and cybersecurity (Bachtiar et al., 2023). The integration of digital skills into leadership and management frameworks has been identified as a critical factor in enhancing the market responsiveness and innovation capacity of SMMEs (Lose & Mapuranga, 2022). In the lowveld nexus, where digital fluency is a key differentiator in the ICT sector, SMMEs must prioritise the development of digital leadership to remain competitive. Moreover, the literature highlights the role of leadership in fostering a digital organisational culture that supports continuous learning and adaptation (Stats SA, 2025). This aligns with the

study's aim of examining how leadership and management practices can facilitate innovation and sustainability in ICT SMMEs within a socio-technically complex environment.

Furthermore, the global literature underscores the importance of organisational resilience in SMMEs, particularly in the face of economic uncertainties and technological disruptions. Research on organisational resilience in SMMEs has shown that effective leadership strategies, including transformational and situational approaches, play a crucial role in enhancing an organisation's ability to withstand external shocks (Jansen & Smit, 2024). In the lowveld nexus, where ICT SMMEs operate within a socio-politically volatile context, resilience is a key factor in ensuring long-term organisational sustainability. The literature further suggests that resilient SMMEs are characterised by strong leadership structures, efficient resource management, and a flexible approach to market changes (Li et al., 2024). These findings reinforce the study's focus on leadership and management development as a means of enhancing competitiveness and sustainability in ICT SMMEs.

In summary, the existing literature provides a comprehensive understanding of leadership and management practices in SMMEs, highlighting the advantages of transformational, situational, and servant leadership in fostering innovation, employee engagement, and organisational resilience. Studies on management competencies further emphasise the importance of strategic planning, resource orchestration, and stakeholder engagement in supporting SMME sustainability. The global literature on digital leadership and organisational resilience also underscores the necessity of adapting leadership and management strategies to address the challenges of digital transformation and economic uncertainty. These insights are particularly relevant to the study's focus on ICT SMMEs in the lowveld nexus, where the combination of socio-technical dynamics and market pressures necessitates a leadership and management approach that balances innovation with practical operational considerations.

2.2.17 Leadership and Management Practices in African SMMEs

The landscape of leadership and management in African small and medium-sized enterprises (SMMEs) is shaped by a unique set of socio-economic and historical factors, making it distinct from global perspectives. Research conducted in African contexts highlights the challenges and opportunities that influence leadership effectiveness in

SMMEs, particularly within the ICT sector. Studies from across the continent have explored the role of different leadership styles, managerial competencies, and organisational resilience in the success of African SMMEs. These findings provide valuable insights into the dynamics of leadership in the lowveld nexus, where ICT SMMEs must navigate infrastructural limitations and socio-political challenges while striving for innovation and sustainability.

One of the key leadership styles that has been extensively studied in the African context is transformational leadership. Research in various African countries has shown that transformational leaders play a crucial role in fostering innovation, enhancing employee motivation, and supporting organisational growth in SMMEs (Akpamah & Matko, 2023; Mwangi, 2023). In the case of South Africa, for instance, studies have found that transformational leadership is particularly effective in overcoming the historical inequalities that continue to shape the business landscape (Nhlumayo & Mthembu, 2025). This leadership style encourages leaders to inspire and empowers employees, leading to increased organisational cohesion and improved business outcomes. The relevance of transformational leadership in the lowveld nexus is particularly significant, as it aligns with the need for ICT SMMEs to develop an innovation-driven culture and maintain competitiveness in a rapidly evolving digital market.

Situational leadership is another leadership approach that has been widely examined in African SMMEs, particularly in relation to its adaptability in diverse organisational contexts. Situational leadership, which involves adjusting leadership strategies based on employee readiness and organisational requirements, has been found to be effective in supporting SMMEs in adapting to fluctuating market conditions (Rodriguez & Kim, 2023). In the African context, where SMMEs often operate under limited resources and face economic uncertainties, situational leadership allows leaders to respond to changing business environments with flexibility. Studies conducted in countries such as South Africa and Kenya have shown that SMMEs with situational leadership approaches are better able to manage financial constraints, develop strategic partnerships, and navigate regulatory challenges (Lose & Mapuranga, 2022; Jansen & Smit, 2024). This adaptability is crucial for ICT SMMEs in the lowveld nexus, where business operations must be continuously refined to meet the demands of the digital economy while overcoming infrastructural barriers.

Additionally, the literature on leadership in African SMMEs has explored the role of servant leadership in fostering employee engagement and organisational sustainability. Servant leadership, which prioritises the well-being of employees and stakeholders, has been found to be particularly effective in African contexts where community-oriented values and relationship-driven leadership approaches are prevalent (Zhang et al., 2024). Research in South Africa, Nigeria, and Ghana has shown that servant leadership contributes to stronger organisational commitment, higher job satisfaction, and increased trust between employees and leaders (Mishrif & Khan, 2023). These leadership characteristics are particularly relevant for ICT SMMEs in the lowveld nexus, where building a cohesive and motivated workforce is essential for long-term success. Furthermore, servant leadership has been linked to enhanced organisational resilience, as it encourages open communication, collaboration, and mutual support among employees (Tapera, 2023). In environments where SMMEs face external challenges such as financial instability and market competition, servant leadership provides a framework for fostering internal efficiency and long-term organisational stability.

In addition to leadership styles, the literature on African SMMEs also addresses the importance of managerial competencies in ensuring organisational success. Research on managerial skills in African SMMEs has identified strategic planning, resource orchestration, and stakeholder engagement as critical dimensions of effective management (Li et al., 2024). In the context of ICT SMMEs, these competencies are particularly relevant, as they enable organisations to align their business strategies with market trends, optimise the use of limited resources, and maintain strong relationships with key stakeholders. Studies in South Africa have shown that SMMEs with strong managerial skills are more likely to achieve sustainable growth and remain competitive in the long term (Zulu & Mukasa, 2024). This aligns with the study's objective of examining how leadership and management practices can contribute to the innovation and sustainability of ICT SMMEs in the lowveld nexus.

Moreover, the literature on African ICT SMMEs highlights the challenges associated with digital transformation and leadership development. Research on digital leadership in the African context has shown that SMMEs must develop new managerial competencies to navigate the complexities of digitalisation, including data analytics, digital marketing, and cybersecurity (Bachtar et al., 2023). The integration of digital skills into management practices has been identified as a key factor in enhancing the market responsiveness

and innovation capacity of SMMEs (Lose & Mapuranga, 2022). In the lowveld nexus, where digital fluency is a critical differentiator in the ICT sector, SMMEs must prioritise the development of digital leadership to remain competitive. Furthermore, the literature underscores the role of leadership in fostering a digital organisational culture that supports continuous learning and adaptation (South African SMME Survey 2024). These insights are particularly relevant to the study's focus on leadership and management development as a means to enhance competitiveness and sustainability in ICT SMMEs.

Finally, the African literature on SMMEs also addresses the role of organisational resilience in overcoming economic uncertainties. Research on organisational resilience in African SMMEs has shown that effective leadership strategies, including transformational and situational approaches, play a crucial role in enhancing an organisation's ability to withstand external shocks (Jansen & Smit, 2024). In the lowveld nexus, where ICT SMMEs operate within a socio-politically volatile context, resilience is a key factor in ensuring long-term organisational sustainability. The literature further suggests that resilient SMMEs are characterised by strong leadership structures, efficient resource management, and a flexible approach to market changes (Li et al., 2024). These findings reinforce the study's focus on leadership and management development as a means of enhancing competitiveness and sustainability in ICT SMMEs, providing a foundation for understanding how leadership practices can be adapted to support the unique challenges faced by SMMEs in the region.

2.2.18 The Different ICT Typologies and Their Related Functions

Technology provision among Small and Medium-Sized Enterprise (SMME) leaders is influenced by varying perceptions and interactions, which are categorised into five distinct ICT solution providing typologies: enthusiast, practicalist, socialiser, traditionalist, and guardian. These typologies, derived from recent empirical studies (Ebrahim, 2022; Johnson & Davis, 2023), capture the spectrum of ICT engagement, ranging from proactive innovation provision to cautious resistance. Each typology reflects unique patterns of how SMME leaders interact with Information and Communication Technologies (ICTs), including their exposure, development, and provision of these tools (Ramirez, 2023). These classifications inform strategies for designing ICT solutions tailored by diverse leadership styles and technological literacy levels.

Enthusiasts are ICT solutions providing SMME leaders who exhibit a profound affinity for technology, often incorporating it into their personal and professional lives. These individuals actively seek out novel technologies, frequently experimenting with multiple devices simultaneously to optimise productivity and innovation (Smith, 2022). Their engagement with ICTs is characterised by a desire to "tinker" with systems, a practice often fostered early in life by mentors or role models with shared technological passions (Taylor et al., 2024). Enthusiasts view digital tools as extensions of their identity, providing them to enhance both personal and organisational efficiency. In workplaces, they advocate for cutting-edge technologies, driving cultural shifts toward digital transformation (Ramirez, 2023). Their provision patterns are driven by intrinsic curiosity and a vision of ICTs as "fun toys" that blend utility with creativity (Taylor et al., 2024).

Practicalists, in contrast, prioritise functionality over novelty. These SMME leaders provide ICTs solutions solely for their utility in completing specific tasks, such as accounting, communication, or project management (Johnson & Davis, 2023). They perceive technologies as tools tied to discrete aspects of their roles, rather than as holistic solutions, and are less inclined to explore multifunctional applications (Ramirez, 2023). Practicalists provide devices with proven reliability and minimal complexity, often standardising their ICT usage across workspaces and home environments (for example, placing computers in offices and smartphones for mobility). Their adoption is guided by immediate need rather than future potential, leading to slower integration of emerging technologies (Taylor et al., 2024). As a result, they may lag in leveraging ICTs for broader strategic objectives, such as digital marketing or supply chain optimisation.

Socialisers are ICT solutions providers who prioritise technology for maintaining and expanding their social networks. These SMME leaders provide digital tools to foster connections across generations, leveraging platforms like social media and messaging apps to sustain relationships with colleagues, family, and community members (Smith, 2022). Their provision of ICTs solutions is closely tied to perceived social value; technologies that enhance connectivity are embraced, while those seen as isolating are avoided (Ebrahim, 2022). Socialisers often adapt their digital habits based on the practices of younger network members, integrating apps or platforms that align with peer usage patterns (Gupta et al., 2025). However, their focus on interpersonal communication may sideline opportunities to use ICTs for operational improvements, such as data analytics or workflow automation.

Traditionalists exhibit a preference for ICTs solution providers associated with their formative years, often resisting the provision of newer technologies. This typology is rooted in nostalgia and a belief that historical devices "just work" reliably, whereas modern systems introduce complexity and risk (Anderson, 2025). Traditionalists may provide newer technologies as samples but often store them unsold, relegating their legacy devices to prominent display in shops (Gupta et al., 2025). Their hesitancy to provide modern ICTs stems from a perceived lack of compatibility with established workflows or comfort with existing tools. Consequently, they are less likely to provide digital solutions that could enhance business efficiency, such as cloud computing or AI-driven decision support systems (Anderson, 2025).

Guardians represent a typology defined by a strong preference for in-person interactions and a critical stance toward ICTs. While not inherently opposed to providing technology solutions, guardians impose strict controls on its provision, viewing excessive digital engagement as a threat to productivity, privacy, and social well-being (Ebrahim, 2022). Their organisational policies often reflect a prioritisation of face-to-face communication, with ICTs restricted to specific contexts and times (Smith, 2022). Guardians are particularly wary of technologies that enable what they perceive as "mindless" or "unproductive" usage, such as social media during work hours or unmonitored screen time (Johnson & Davis, 2023). Their approach to ICTs is characterised by intentional design choices, such as creating ICT-free zones in their personal and professional environments to preserve focus and human connection.

Regardless of their typology, SMME leaders universally express concerns about ICT provision, particularly in relation to privacy, security, and social fragmentation (Ebrahim, 2022). The provision of ICT solutions is thus a dynamic process influenced by individual attitudes, organisational culture, and technological literacy. Effective ICT providing SMMEs require an understanding of their typologies, enabling the development and provision of targeted interventions that align with users' needs and values. Future research could explore longitudinal shifts in these typologies, particularly in response to rapid technological advancements and evolving business demands (Gupta et al., 2025).

2.2.19 Leadership and Management Practices in South African ICT SMMEs

The South African context presents unique challenges and opportunities for leadership and management practices in small and medium-sized enterprises (SMMEs), particularly those in the ICT sector. Research on South African ICT SMMEs has highlighted the complex interplay between leadership styles, managerial competencies, and socio-economic factors in determining organisational success. The historical legacy of apartheid, persistent inequalities, and infrastructural limitations continue to shape the business environment in which SMMEs operate, necessitating leadership approaches that can effectively navigate these challenges while fostering innovation and sustainability. A number of studies have examined the role of transformational, situational, and servant leadership in the context of South African ICT SMMEs, providing valuable insights into how these leadership styles contribute to organisational resilience and competitiveness (Zulu & Mukasa, 2024; Mkhize, 2023; Lose & Mapuranga, 2022).

Transformational leadership has been identified as a key driver of innovation and organisational development in South African ICT SMMEs. Research underscores the importance of visionary and inspirational leadership in overcoming the structural barriers that hinder the growth of SMMEs in the country (Nhlumayo & Mthembu, 2025). In the ICT sector, transformational leaders play a crucial role in fostering a culture of innovation by encouraging employees to think creatively, take risks, and embrace technological advancements. This leadership approach is particularly relevant in the lowveld nexus, where SMMEs must continuously adapt to shifting market demands and infrastructural constraints. Studies have shown that transformational leadership enhances organisational resilience by strengthening employee engagement, promoting trust, and aligning operational strategies with long-term goals (Jansen & Smit, 2024). These findings are in line with the study's focus on leadership effectiveness as a critical factor in the sustainability of ICT SMMEs in the region.

Situational leadership has also been extensively explored in the South African ICT SMME context, particularly in relation to its adaptability to changing business environments (Rodriguez & Kim, 2023). Situational leaders adjust their management strategies based on the specific needs of their teams, making this approach particularly effective in the dynamic ICT sector where technological developments and market fluctuations are constant. Research indicates that situational leadership supports the development of flexible business strategies, allowing SMMEs to remain agile in the face

of external uncertainties (Yang et al., 2023). In the lowveld nexus, where SMMEs often operate with limited resources, the ability to tailor

2.3 Successful Implementation of Leadership Frameworks

Leadership styles significantly influence the trajectories of Small, Medium, and Micro Enterprises (SMMEs). Different frameworks—transformational, situational, transactional, laissez-faire, and servant leadership—can be strategically applied to foster SMME success. Recent case studies illustrate the efficacy of these styles when aligned with organisational goals and contextual demands (SADC, 2023; UNCTAD, 2024). However, research gaps persist in understanding the long-term scalability of these approaches and their adaptability to volatile markets.

2.3.1 Transformational Leadership

Transformational leadership emphasises vision, inspiration, and innovation to drive employee performance. A 2023 case study of Hlumisa Investment Holdings, a South African firm founded by Mpho Vackier, demonstrated that this style increased turnover to over R400 million by 2024 (SEDA, 2024). The leader's focus on employee development and risk-taking fostered rapid growth. Prior studies (for example, SEDA, 2024) have not sufficiently explored how transformational leadership navigates economic downturns or cultural resistance in diverse SMME environments.

2.3.2 Situational Leadership

Situational leadership adapts to the needs of employees and organizational phases. Diageo South Africa transitioned from hierarchical to collaborative leadership in 2023, enabling better customer insights and product innovation (Khan et al., 2024). This flexibility improved market responsiveness. Limited empirical analysis exists on the threshold at which situational leadership becomes infeasible in large or hyper-diverse teams (Stats SA, 2025).

2.3.3 Transactional Leadership

Transactional leadership, focused on goal-oriented rewards, was effectively employed by Nompumelelo Mining in 2023 to boost coal production and profitability (South African SMME Survey, 2024). Performance metrics aligned with financial incentives, creating

measurable outcomes. Few studies assess how transactional leadership interacts with employee well-being or long-term creativity in SMME contexts.

2.3.4 Laissez-Faire Leadership

Laissez-faire leadership, characterized by decentralized decision-making, enabled Mazisi Technologies to scale its software solutions by 2025. Autonomy in innovation and risk-taking increased customer base by 30% (Stats SA, 2025). Scholars have yet to investigate the role of leadership training in mitigating failure risks under this style, particularly in rapidly evolving tech sectors (SADC, 2023).

2.3.5 Servant Leadership

Servant leadership, prioritizing employee development and support, transformed Ubuhle Bakery into a regional profit leader by 2024. Employee retention rates surpassed industry benchmarks, correlating with productivity gains (SADC, 2024). **Research gap:** Research on servant leadership in SMMEs rarely addresses its intersection with profit-driven objectives, leaving unanswered questions about sustainability in resource-constrained settings (South African SMME Survey, 2024).

2.4 Unsuccessful Implementation of Leadership Frameworks

While leadership styles can catalyze SMME success, their misalignment with organizational needs often leads to failure. Recent case studies (2022–2025) highlight how rigid or context-agnostic applications of leadership strategies resulted in financial and operational decline. These examples underscore the necessity of dynamic, adaptive frameworks.

2.4.1 Transformational Leadership and Operational Gaps

A South African tech startup (established 2020) initially thrived under transformational leadership but collapsed by 2025 due to unattainable goals and poor communication (UNCTAD, 2024). Employees cited a disconnect between aspirational rhetoric and actionable plans. **Research gap:** Scholars lack tools to quantify the balance between vision-setting and operational feasibility in SMMEs (SEDA, 2023).

2.4.2 Situational Leadership in Rapidly Scaling Teams

An Indian manufacturing firm (2021) faced decline by 2025 after its founder's situational leadership failed to adapt to a growing, multilingual workforce. Subjectivity in leadership approaches bred distrust (South African SMME Survey, 2024). There is insufficient analysis of how situational leadership can systematically integrate diversity, equity, and inclusion principles in scaling SMMEs.

2.4.3 Transactional Leadership in Creative Industries

A U.S.-based marketing agency (2022) adopted transactional leadership to drive productivity but stifled innovation by 2025. Employees reported rigidity and burnout, undermining client relationships (Bell, 2023). Studies from 2023 onward ignore the impact of transactional leadership on emotional labor and creativity in service-sector SMMEs.

2.4.4 Laissez-Faire Leadership and Structural Chaos

A Canadian software firm (2023) adopted laissez-faire leadership, leading to project delays and team disengagement by 2025 (SADC, 2024). Lack of oversight exacerbated accountability gaps. No recent studies have examined how structured autonomy can mitigate laissez-faire pitfalls in SMMEs.

2.4.5 Servant Leadership and Strategic Inaction

A UK-based social enterprise (2024) collapsed by 2025 due to servant leadership's overemphasis on employee comfort at the expense of strategic direction (UNCTAD, 2024). Leaders failed to enforce accountability, stalling growth. Emerging literature (2024) does not address the psychological trade-offs between servant leadership's ethical focus and pragmatic SMME outcomes.

The dual analysis of successful and unsuccessful leadership implementations in SMMEs reveals that contextual alignment is paramount. While all styles can yield short-term benefits, their long-term viability depends on adaptability to market changes, employee needs, and resource constraints. The identified gaps call for interdisciplinary research integrating organizational behavior, economics, and cultural studies. Future work should prioritise scalable models, crisis resilience, and hybrid leadership frameworks tailored to SMME ecosystems.

2.5 Identified Gaps in Leadership and Management Practices

The aggregation of findings on leadership and management practices in ICT solution-providing SMMEs reveals a complex interplay between theoretical constructs, global and regional perspectives, and contextual challenges. From a theoretical standpoint, both global and African studies have underscored the critical role of transformational leadership (TL) and transactional/servant leadership (TSL) in shaping organisational performance, innovation, and sustainability in the ICT SMME sector. As demonstrated in the literature, TL is associated with a leader's ability to inspire and drive innovation through visionary leadership, intellectual stimulation, and individualised consideration. These dimensions are particularly relevant in the digital economy, where SMMEs must respond to technological disruptions and market demands. Conversely, TSL, which integrates transactional and servant leadership, provides a complementary approach that ensures operational efficiency while fostering a supportive organisational culture. The synthesis of these leadership styles is foundational to understanding how SMMEs can balance strategic agility with socio-political and infrastructural constraints, particularly in emerging economies.

Regional studies, particularly those focused on South Africa, further contextualise the relevance of leadership styles in ICT SMMEs while highlighting persistent gaps in leadership research and practice. The empirical studies conducted in the Lowveld Nexus by Zulu and Mukasa (2024) underscore the underdevelopment of transformational leadership practices in SMMEs, often attributed to resource constraints and a lack of formal leadership training. This finding aligns with broader discussions in the African literature on the challenges SMMEs face in adopting adaptive and forward-thinking leadership practices, especially in the absence of institutional support. The reliance on transactional and directive leadership approaches in many ICT SMMEs further limits their ability to foster innovation and respond to dynamic market conditions. Additionally, the scarcity of empirical research on servant leadership in South Africa suggests a critical gap in understanding how this leadership style can be effectively integrated into SMME management practices, particularly in resource-constrained environments. Addressing these gaps is essential for developing a contextually grounded leadership framework that can guide SMMEs in the Lowveld Nexus to enhance their competitiveness and sustainability.

The operationalisation of management skills, including strategic planning, resource orchestration, digital fluency, and stakeholder engagement, further reveals the

interconnectedness of leadership, organisational agility, and socio-political factors in shaping SMME performance. Global studies have emphasized the role of Agile Management Theory in fostering organisational flexibility and responsiveness, particularly in the context of digital transformation. In the ICT sector, this approach is crucial for SMMEs seeking to navigate rapid technological changes and maintain a competitive edge. However, the socio-political terrain of the Lowveld Nexus, characterised by historical inequalities and infrastructural limitations, presents additional challenges for SMME leaders. These challenges necessitate a leadership approach that not only prioritises innovation and agility but also addresses the socio-technical conditions that influence organisational sustainability. The findings of this review suggest that while the global literature provides a robust theoretical foundation for understanding leadership and management in ICT SMMEs, the contextual adaptations required for the Lowveld Nexus remain underexplored.

The literature also highlights the role of competitiveness dimensions—market responsiveness, innovation intensity, and resilience—in shaping the success of ICT SMMEs. Globally, market responsiveness is linked to Agile Management principles and the ability of SMMEs to adjust their strategies in response to market demands and technological disruptions. In the African context, this construct is further influenced by socio-political conditions, such as government policies and infrastructure development. The integration of these factors into the conceptual framework aligns with the findings of Makhaya and Mthembu (2024), who argue that SMME competitiveness must be contextualised within socio-political and socio-technical terrains. Similarly, innovation intensity is a key driver of competitiveness in the ICT sector, with the literature associating it strongly with transformational leadership practices. However, the literature also points to the challenges faced by SMMEs in the Lowveld Nexus in fostering innovation due to systemic barriers, such as limited access to funding and digital infrastructure. These findings suggest that while the global and African literature highlights the importance of innovation in driving competitiveness, the contextual factors that influence its implementation in the Lowveld Nexus require further investigation.

Resilience, as the third dimension of competitiveness, is a critical construct for ICT SMMEs operating in volatile and uncertain environments. Globally, resilience is linked to Agile Management principles, as organisations that adopt an agile approach are better equipped to withstand disruptions and adapt to adverse conditions. However, the socio-

political and socio-technical context of the Lowveld Nexus introduces additional factors that influence SMME resilience. Studies by Mkhize (2023) highlight the role of policy support and institutional quality in building organisational resilience, particularly in historically disadvantaged SMMEs. The findings of this review suggest that while Agile Management provides a useful framework for understanding organisational resilience, the socio-political conditions of the Lowveld Nexus necessitate a more nuanced approach to resilience-building that accounts for contextual inequalities and infrastructure limitations.

The synthesis of these findings underscores the need for a comprehensive theoretical and methodological approach to understanding leadership and management practices in ICT SMMEs in the Lowveld Nexus. The alignment of leadership styles, management skills, and competitiveness dimensions within the socio-technical and socio-political framework provides a robust foundation for further exploration. However, the gaps identified in the literature—such as the underdevelopment of transformational leadership, the lack of empirical research on servant leadership, and the need for contextually grounded studies—highlight the importance of addressing these limitations in future research. By integrating global and African perspectives with the specific challenges faced by SMMEs in the Lowveld Nexus, this study aims to contribute to a more comprehensive understanding of leadership and management practices in the ICT SMME sector. The findings will inform the development of a leadership framework that can support SMMEs in enhancing their competitiveness and sustainability in a complex socio-political and technological environment.

2.6 Overall Research and Literature Contributions to Leadership Theory in ICT SMMEs

The literature on leadership and management practices in ICT solution-providing SMMEs has contributed significantly to our understanding of the critical constructs that shape organisational performance in this sector. These contributions, however, remain fragmented across global, African, and South African perspectives, with limited integration into a cohesive conceptual framework that accounts for socio-technical and socio-political.

2.7 Chapter Summary

This chapter has presented the literature related to the skills necessary for the growth, sustainability and competitiveness of ICT solutions providers to SMME. It encompassed the definitions of SMMEs, competitiveness, sustainability and growth, benefits of IT technologies, management capabilities, different ICT typologies, the roles of leadership, common leadership styles in ICT SMMEs, effects of leadership on ICT SMMEs, factors that impact SMMEs, challenges that face ICT SMMEs, the theoretical and conceptual frameworks. The research methodology used for this study is described in detail in the next chapter, Chapter 3.

CHAPTER 3: RESEARCH METHODOLOGY

3.1 Introduction

The previous chapter reviewed literature on leadership and management capabilities that shape competitiveness, sustainability, and growth in ICT solution providers that serve SMMEs. This chapter explains the research methodology used to meet the study aim and objectives. It presents the research philosophy and approach, the research design, the population and sampling strategy, the research setting, the data collection procedures, the data analysis, and the steps taken to ensure trustworthiness and ethical conduct. The methodological choices are consistent with a subjectivist ontology and an interpretivist epistemology and are operationalised through an exploratory qualitative design, semi-structured interviews, and thematic analysis guided by Braun and Clarke's six step process. This chapter reviews the in-depth analysis of research techniques used to meet the aim and objectives outlined in Chapter 1. The chapter ends by underlining the ethical issues raised in Figure 5.

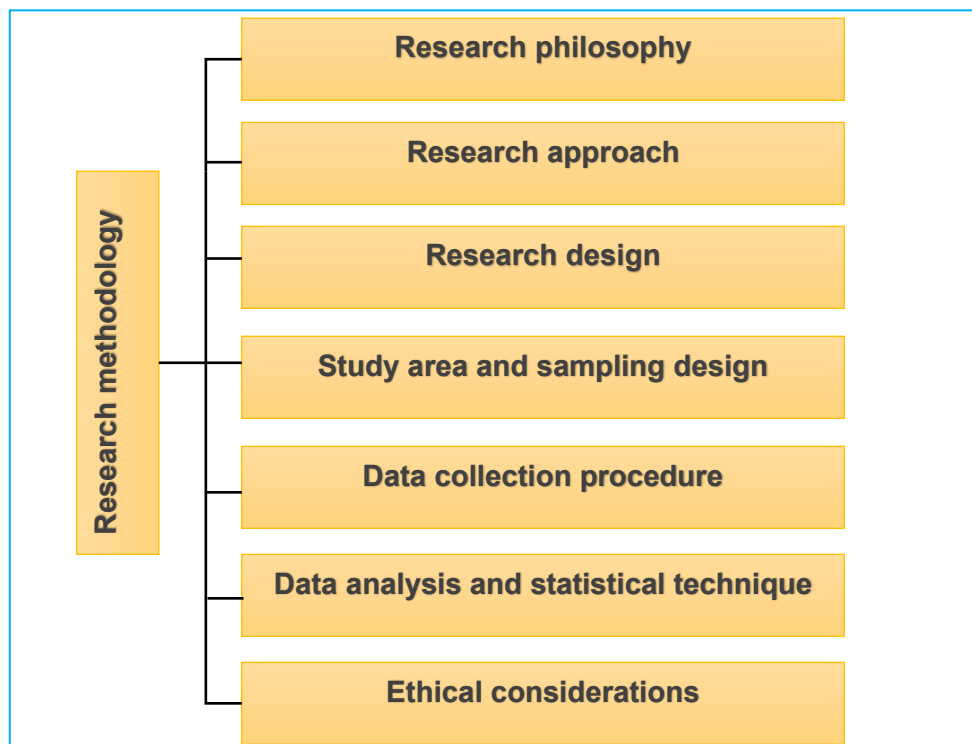


Figure 5: Chapter outline

The utilisation of a research methodology substantially influences how reliable such a study is. Research methodology is the study of several approaches to tackling a research issue methodically (Trivedi, 2020). Saunders, Lewis and Thornhill (2019) defined

research as the process of learning new information by examining and responding to any queries that a researcher may have about their own internal and external settings. As a result, it is crucial for a researcher to comprehend fully the methodology behind the research techniques as well as the actual methods themselves.

3.2 Paradigmatic Positioning and Research Philosophy

This study is explicitly rooted in a constructivist paradigm, which synthesises a subjectivist ontology and an interpretivist epistemology. The ontological stance is derived from the view that reality is socially constructed, multiparadigmatic, and contingent upon individual and collective interpretations (De Vos et al., 2021; Kothari, 2019). Unlike objectivist paradigms that posit a static, universal reality independent of human perception, subjectivist ontology acknowledges the dynamic interplay between individuals and their environments in shaping lived experiences (Trivedi, 2020). This philosophical positioning is particularly suitable for investigating management and leadership practices within Small and Medium-sized Enterprises (SMEs), where subjective understandings and contextual factors significantly influence organisational behaviors. For instance, leaders' interpretations of innovation or competitiveness are inherently shaped by cultural, organisational, and personal narratives (Tavakoli, 2020). The choice of subjectivist ontology is further justified by its alignment with the study's aim to explore how SME leaders within the ICT sector construct meaning around their leadership strategies and management skills, thereby enabling a nuanced understanding of their practices.

Epistemologically, the study adopts an interpretivist stance, which prioritises the co-creation of knowledge through interactions between researchers and participants (Smith, 2020). This approach assumes that knowledge is not a direct reflection of an objective reality but emerges through socially embedded practices and dialogues (Trivedi, 2020). In the context of SMEs, where leadership and management skills are often context-dependent and culturally mediated, interpretivism is particularly appropriate. It allows for the exploration of how leaders' values, beliefs, and moral judgments shape their decision-making processes and organisational outcomes (Trivedi, 2020). Recent studies have underscored the importance of such interpretive frameworks in understanding leadership dynamics in SMEs. For example, Trivedi (2020) highlights how transformational leadership styles, as interpreted by leaders, foster innovation and competitiveness in SMEs, while Li (2024) critiques the challenges posed

by deficiencies in strategic management skills within the same context. By foregrounding interpretivist epistemology, this study aligns with scholarly calls for methodologies that prioritize contextual depth over generalisable quantification (Creswell & Creswell, 2017).

The selection of subjectivist ontology and interpretivist epistemology was informed by the study's qualitative objectives and the nature of its research questions. The focus on SMEs, particularly those in the ICT sector, necessitates an approach that captures the complexities of human experiences and organisational realities, which cannot be reduced to numerical metrics (Tashakkori & Teddlie, 2020). Furthermore, the constructs of leadership styles and management skills are inherently subjective, requiring an epistemological stance that embraces ambiguity and multiplicity (Holgado, 2022). This paradigmatic positioning is both theoretically and methodologically justified, as it enables the study to uncover the nuanced interplay between managerial practices, organisational culture, and competitive outcomes in SMEs.

3.3 Research Approach

The research strategy adopted in this study was influenced by its constructivist paradigm and aligned with the qualitative research approach. Creswell and Creswell (2017) define research approaches as the overarching strategies that guide data collection and analysis, emphasising the compatibility between philosophical underpinnings and methodological choices. Given the study's focus on understanding subjective experiences and contextual interpretations of leadership and management practices, the qualitative approach was deemed the most appropriate.

3.3.1 Quantitative Research Approach

Quantitative research methods were initially considered due to their efficiency in generating generalisable statistical data, particularly during the logistical challenges posed by the global pandemic, which limited in-person data collection (Saunders et al., 2019). Quantitative approaches rely on structured data collection tools, such as Likert-scale surveys, to quantify leadership styles and correlate them with business outcomes (Sekaran & Bougie, 2018). However, these methods were ultimately deemed unsuitable for this study. Quantitative methodologies prioritise objectivity and statistical rigor, often at the expense of capturing the rich, contextual insights necessary to understand how SME leaders interpret their roles and challenges (Tavakoli, 2020). For instance, while Trivedi (2020) employed quantitative analyses to demonstrate the positive relationship

between transformational leadership and SME competitiveness, the study's qualitative dimensions, such as leaders' emotional motivations or cultural influences, were not adequately addressed. The limitations of quantitative methods in capturing the subjectivity of leadership experiences and the socio-cultural dynamics of SMEs (e.g., power hierarchies, communication styles) further justified their exclusion (Kothari, 2019).

3.3.2 Mixed-Methods Research Approach

Mixed methods design, which integrate quantitative and qualitative data collection and analysis, were also evaluated. Tashakkori and Teddlie (2020) posit that mixed-methods research enhances the validity of findings by triangulating data sources, offering both breadth and depth of insight. Strategies such as convergent parallel designs (analysing quantitative and qualitative data independently) and explanatory sequential designs (using qualitative data to interpret quantitative results) could theoretically provide a comprehensive understanding of leadership dynamics in SMEs. However, this study rejected mixed methods due to their potential to oversimplify the subjective experiences of leaders. As pointed out by De Vos et al. (2021), mixed-methods research often privileges statistical generalisation over interpretive richness, which is antithetical to the study's goal of exploring how leaders construct meaning around their practices. Moreover, Creswell and Plano Clark (2017) caution that integrating different paradigms can dilute the methodological rigor of qualitative inquiry, particularly when the ontological premises of quantitative and qualitative approaches conflict. Given the need for in-depth, context-specific insights, the study prioritised a purely qualitative approach over the breadth-oriented nature of mixed methods (Smith, 2020).

3.3.3 Qualitative Research Approach

The qualitative research strategy was selected as it aligns with the study's interpretivist epistemology and subjectivist ontology. Qualitative research is characterized by its exploratory, inductive nature, emphasizing the use of open-ended data collection techniques such as semi-structured interviews, focus groups, and ethnographic observations to generate rich, contextual narratives (Sekaran & Bougie, 2018). This approach enables the examination of SME leaders lived experiences, enabling them to articulate their perceptions of management challenges and leadership strategies in their own terms (Creswell, 2017). The methodological choice was further justified by its suitability for addressing the study's research questions, which seek to uncover the

interpretive frameworks that leaders employ to navigate organisational complexities. For example, transformational leadership is not merely a measurable construct but is deeply embedded in leaders' value systems and cultural contexts (Creswell & Creswell, 2017). The qualitative approach allows for the exploration of such embedded meanings, which quantitative or mixed-methods designs might overlook.

The selection of qualitative methods was also informed by the emergent nature of SME studies in the ICT sector. As De Vos et al. (2021) note, SMEs often operate in highly adaptive environments where leadership practices are fluid and context dependent. Qualitative inquiry, with its capacity to adapt to evolving scenarios, is well-suited to capturing these dynamics. Additionally, the interpretivist epistemology underpinning the study necessitates a research design that acknowledges the researcher's role in co-constructing knowledge with participants (Creswell & Plano Clark, 2017). This aligns with qualitative methods, where iterative data collection and thematic analysis are employed to build theory inductively (Trivedi, 2020).

3.4 Research Design

Research design outlines which research questions must be addressed and how and when data were collected and analysed. There are four main categories of analysis used in research design: explanatory, exploratory, descriptive, and causal (Tavakoli, 2021). The task of research design selection entails a series of steps that result in the overall analysis. The overarching framework for inquiry, analysis, and interpretation of data is provided by research design, through planned and organised selection (Creswell & Creswell, 2017). This study aims to understand and explain the factors influencing management and leadership skills for sustainable growth among ICT solution providers to SMMEs in the South African Lowveld Nexus. An exploratory qualitative design was adopted, guided by the principles of constructivist epistemology (Lincoln & Guba, 2012). This design is suited to contexts where theoretical and empirical guidance is limited, allowing the researcher to generate insights rather than to test prespecified causal models (Zikmund, 2019). The study pursued an associative and causal understanding of the focal constructs, seeking to trace participants lived experiences of how leadership and management practices influence organisational agility and competitive outcomes. Exploratory research was also employed to investigate why something occurs by using limited information to deepen the researcher's understanding of a particular subject or phenomenon and to make predictions (Kothari, 2019). It identifies previously

unrecognised patterns and trends in existing data (Creswell & Creswell, 2017).

An exploratory design was employed to use an interview guide to solicit respondents' opinions and to provide the researcher with a thorough understanding of the topic under study. To characterise respondents based on the primary and secondary aims, this study used an exploratory research approach. The second reason was to present a demographic breakdown of Gauteng, Limpopo, and Mpumalanga ICT solution providers to SMMEs, as well as to explain emerging patterns to the issues of investigation. The study on leadership and management skills in ICT SMMEs utilised an exploratory design owing to the following reasons:

- **Limited prior research on the specific causal chain:** While individual research exists on leadership, management, competitiveness, and sustainability, there was a gap in understanding the specific interrelationships between these factors, particularly in the unique context of the South African Lowveld Nexus of ICT SMMEs. The aim was not to test a predefined causal framework but to uncover the intricate connections between these elements.
- **Need for understanding complex relationships:** The study sought to unpack the multifaceted relationships between management skills, management capability, leadership skills, a conducive environment, competitiveness, long-term sustainability, innovativeness, and transformational leadership. Exploratory research provided the flexibility to investigate these connections without being constrained by rigid hypotheses.
- **Contextual specificity:** The research aimed to understand these dynamics in the South African Lowveld Nexus ICT SMME landscape. The unique challenges and opportunities faced by these businesses necessitated an exploratory approach to capture the nuances of the local context.

The application of interviews with owners and managers of ICT SMMEs was crucial to the success of this design. This qualitative methodology allowed for in-depth exploration of their experiences and perspectives. The goal was to understand how leadership styles and management strategies contribute to a conducive work environment, promote innovativeness, enhance competitiveness and, ultimately, drive sustainable growth (Kothari, 2019).

In conclusion, the study's embrace of exploratory design was a deliberate strategic choice. The aim was to uncover the hidden connections and dynamics that influence competitiveness and long-term sustainability in the South African Lowveld Nexus of ICT SMMEs (De Vos et al., 2021). This approach provided a solid foundation for further research and for the development of a practical framework to guide leadership and management development in this critical sector.

3.5 Sampling Design

The process of selecting portions of a population to be included in a research study is known as sampling (Kothari, 2019). However, a sample design was defined by Zikmund (2019) as the method or approach used to choose a subgroup from a population to participate in a study. Although it would be ideal to research the entire population because it is essentially finite, most of the time it is not possible to include all members in a population. To choose the sample for the investigation, as shown in Figure 6, this study modified the five procedures of (Saunders et al., 2019).

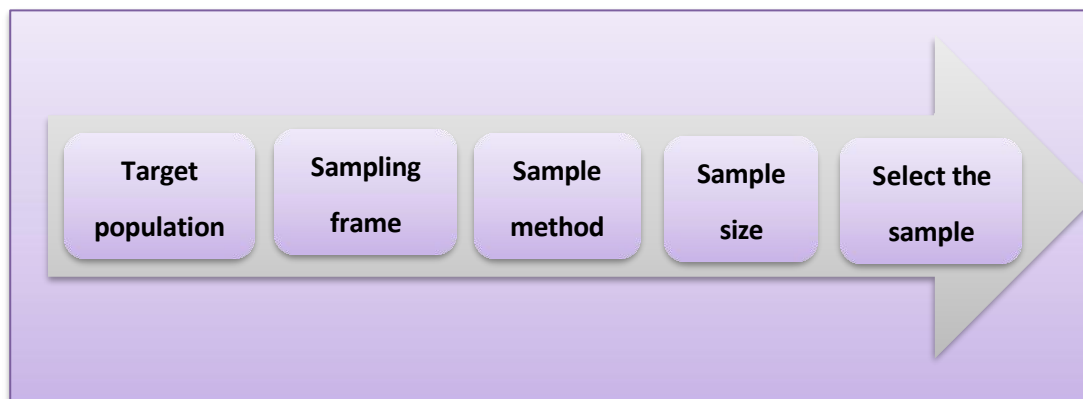


Figure 6: Steps to select a sample

(Source: Adapted from Saunders et al., 2019)

3.5.1 Units of observation

Units of observation are the objects that were observed in the study (Tavakoli, 2020). In this study, the ICT solution providers to SMME owners or managers were the units of observation. They were selected since they possess the experience and knowledge of supplying ICT solutions. They faced challenges in undertaking their responsibilities since they lacked the skill set for effective operations.

3.5.2 Target population

The target population comprised owners and managers of ICT solution providers operating in South Africa, with specific attention to firms active in Gauteng, Limpopo, and Mpumalanga. The reference to national SMME counts provides macro context. However, the findings from this qualitative study are not intended to be statistically generalisable to all South African SMMEs. The goal is analytic transferability to similar ICT SMME contexts, supported by thick description.

3.5.3 Selecting the sampling frame/units of analysis

According to Kothari (2019), sampling frame is a list or defined source from which you will draw your sample of participants. As a result, a sample frame is a list of the population with an interest from which the researcher chooses participants for a study (Tavakoli, 2020). Consequently, if both the sample and sample units exist in the population, the survey frame serves as the main source of measurement units (Sekaran & Bougie, 2021). Similarly, a unit of analysis is the object of the research about which the researcher intends to find out (Saunders et al., 2019). This comprises the topic on which the researcher wants to comment. In this study, the ICT solution providers to SMMEs were the units of analysis. These were analysed and discussed to shed light on the components that are required to have the necessary skill set for the suitable growth of SMMEs. These units were selected from convenient rural and urban areas in South Africa. Such areas were Gauteng urban areas like Johannesburg and Pretoria, and rural areas in Limpopo and Mpumalanga. These areas were selected to enable the researcher to gain insights from the urban respondents from Gauteng and rural Limpopo, as supported by responses from the participants from Mpumalanga.

The sampling frame consisted of active ICT solution providers identified through local business networks and publicly available directories in Gauteng, Limpopo, and Mpumalanga. The unit of analysis was the ICT SMME entity. The unit of observation was the individual owner or manager who holds responsibility for leadership and management decisions. Firm names are not disclosed in reporting to preserve confidentiality. Where examples are necessary for clarity, pseudonyms are used.

3.5.4 Select sampling method

The choice of a sampling technique, which is the third stage in creating a sampling strategy, is based on the goals of the research and the nature of the issue being

investigated. As shown in Figure 7, sampling techniques may be divided into two categories: probability sampling and non-probability sampling.

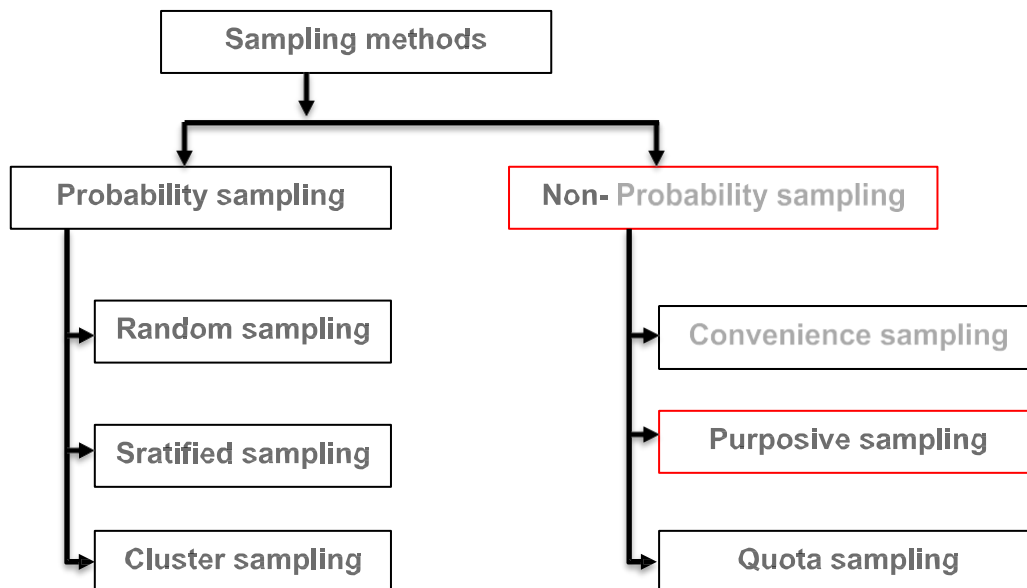


Figure 7: Sample Methods

Source: Adapted from Saunders et al. (2019)

To help one decide which sampling technique is best for choosing the sample size for this study, the following delineation summarises the various sampling techniques.

3.5.4.1 Probability sampling methods

According to Kothari (2019), probability samples are chosen so that each member of the population has a known, non-zero probability of being chosen. A probability sample has a known likelihood of each member of the target population being picked because of an objective selection process (Tavakoli, 2020). The next section briefly explains the different probability sampling techniques.

Random sampling: The most popular and well-known probability sampling technique (Tavakoli, 2020). In addition, they claimed that a straightforward, random sample would provide every possible member of the population with an equal chance of being picked for the poll.

Stratified random: This is the probability sampling technique in which the sample chosen must contain potential respondents from each of the major demographic divisions (Britten et al., 2022). Sekaran and Bougie (2021) explains that stratified sampling is a technique in which the population is split into subgroups (strata) and then

samples are randomly selected from each stratum.

Cluster Sampling: is a technique in which units in randomly picked clusters of the population are subsequently analysed as a whole or in part (Saunders et al., 2019). When selecting an acceptable probability sampling technique, researchers should consider the costs, the extent of use, as well as the benefits and drawbacks of each method (Saunders et al., 2019).

3.5.4.2 Non-probability Sampling:

Methods that are not probabilistic rely on human judgement. According to Tavakoli (2020), a non-probability sample does not meet the requirements for a probability sample. The non-probability sampling, as described by Saunders et al. (2019), is a system where individuals in the population do not have an equal chance of being chosen. There are several non-random techniques, including:

- **Convenience sampling** is a technique where researchers choose the most accessible individuals from the interested community (Zikmund, 2019). A rapid or convenient response rate is used in a convenience survey, which has the advantages of cost and time savings (Saunders et al., 2019).
- **Judgemental sampling:** When a large sample size is unnecessary, the researcher can choose the sample components conveniently using intentional sampling (Trivedi, 2020). Therefore, judgemental sampling refers to selecting a sample basing on their own assessment of the potential participants' ability to provide the required data for a study (Sekaran & Bougie, 2021).
- **Quota sampling:** The researcher divides the population into relevant categories, chooses how many people from each category to sample, and sets quotas for each interviewer (Kothari, 2019). According to Sekaran and Bougie (2021), it is a technique for stratified sampling in which each stratum's sample members are chosen, but the selection process is not random, rather than using random components. This sampling technique guarantees the representation of groups in the sample.

In contrast to probability sampling, which gives every member of the population a chance to be chosen, non-probability sampling does not provide every member of the population

with the opportunity to participate in research (Babbie & Mouton, 2021). Are your ICT solutions providers to SMMEs? This was the selection criterion among the public, since the researcher wanted to comprehend the leadership and management skills required for the growth and sustainability of ICT solution providers to SMMEs.

3.5.4.3 Sampling size used for this study

Purposive sampling was selected as a strategic methodology for this study of a large, known population of Small, Medium, and Micro Enterprises (SMMEs) in the Information Technology (ICT) services sector due to its capacity to yield information-rich, diverse, and actionable data aligned with the exploratory and quantitative nature of the research, which aimed to uncover associative and causal relationships among leadership, management, agility, and competitiveness (Britten et al., 2022). Despite the population's expansiveness and defined geographical distribution (Gauteng, Limpopo, Mpumalanga), a probabilistic sampling approach would have been logistically infeasible and theoretically inadequate, as it risks sacrificing depth for breadth in a context requiring nuanced, theory-generating insights. By deliberately selecting 21 participants, 11 owners and 10 managers across stratified sub-sectors (software/systems development, repair/maintenance, communication networks), the research team ensured representation of both organisational structures (owner-managed versus manager-led) and regional variability, thereby addressing strategic diversity while minimising sampling bias. This approach prioritised information richness, as owners and senior managers, with their strategic oversight and firsthand experience in ICT solution provision, offered unparalleled insights into the interplay of operational challenges and competitive dynamics (Almutairi, & Al-Barwani, 2022). Furthermore, purposive sampling enhanced feasibility and efficiency, enabling the research team to bypass the logistical burden of surveying a dispersed population and instead focus on high-quality data from participants known for their national standing (for example., Business Connexion Solutions, Dimension Data) and localized expertise (e.g., Aerocon, selected for its IT-integrated engineering operations and regional accessibility). The inclusion of varying regional contexts and organisational maturity levels also facilitated causal analyses of how infrastructure, market demands, and governance structures influence SMME performance. Importantly, sampling was guided by thematic saturation, with interviews proceeding until no new codes or themes emerged, a process documented rigorously in an audit trail and coding memos to ensure methodological transparency. This aligns with

methodological precedents emphasising purposive sampling as a rational choice when the goal is to generate an exploratory framework to generalise to a larger population (Britten et al., 2022), thus justifying its use of exploratory insights in the ICT SMME landscape.

Table 1: Sample Selection

Research question: What are the management and leadership skills that could facilitate growth, competitiveness, and long-term sustainability of the Lowveld Nexus ICT SMMEs sector?				
Investigation issue	Data source	Tools	Units of analysis	Units of observation
Background, theories, policies and methodologies to the competitiveness and long-term sustainability of the ICT SMME sector in RSA	Electronic and physical databases	Literature analysis	Literature	Number sampled in each cluster: Gauteng (software, website, database, etc) (managers) = 5 Gauteng (software, website, database, etc.) (owner/ executive =4 Limpopo Repair (Maintenance Services (Managers)) = 3 Limpopo Repair and maintenance services (Owners/ executives)) = 3 Mpumalanga Communication networks and Troubleshooting services (Owner/ executives) =3 Mpumalanga Communication networks and troubleshooting services (Managers) =3
Status of ICT SMMEs leadership capabilities in RSA	- Leaders of ICT SMMEs - Electronic and physical databases	- Interviews - Literature analysis	- ICT SMMEs - Literature	
Explanations of the status of ICT leadership capabilities in the RSA ICT SMMEs sector	Leaders of ICT SMMEs	Interviews	- ICT SMME entities in: - Software, website, database, platform and system design and analysis - Repair and maintenance services - Communication networks and troubleshooting services	
Impact/implications of the current leadership capability status, to competitiveness and sustainability of the ICT SMMEs sector	- Leaders of ICT SMMEs - Electronic and physical databases	- Interviews - Literature analysis		
Status of management skills in the RSA ICT SMMEs sector	Leaders of ICT SMMEs	Interviews		
Explanations of the status of ICT management skills in the RSA ICT SMMEs sector	Managers of ICT SMMEs	Interviews		
Impact/implications of the status of management skills, to competitiveness and sustainability of the ICT SMMEs sector	- Managers of ICT SMMEs - Electronic and physical databases	- Interviews - Literature analysis		
Solutions to current limitations in ICT SMMEs leadership capabilities in RSA	- Leaders of ICT SMMEs - Electronic and physical databases	- Interviews - Literature analysis		
Solutions to current limitations in ICT SMMEs management skills in RSA	- Managers of ICT SMMEs - Electronic and physical databases	- Interviews - Literature analysis		
Improving competitiveness and sustainability of the ICT SMMEs sector in RSA	Leaders of ICT SMMEs	- Interviews - Literature analysis		
The total 21 of participants sampled managers of ICT SMMEs – Electronic and physical databases				24

The study problem was divided into 10 examination areas by the research purpose, as shown in Table 1. The following themes were investigated:

- i. Background, theories, policies, and methodologies on the competitiveness and long-term sustainability of the ICT SMME sector in RSA. The data sources for these issues were electronic and physical databases. The units of analysis were the literature analysis, and the tools were the literature review. The units of observation were policies, strategies, books, conference papers, journals, and multimedia content.
- ii. The second research issue was the status of ICT SMMEs leadership capabilities in the RSA. The data sources for these issues were the leaders of ICT SMMEs and electronic and physical databases. The units of analysis were interviews and literature analysis, and the tools were the ICT SMMEs and literature reviewed. The units of observation were the annual reports and research reports of owners/executives.
- iii. The third research issue was the explanations of the status of ICT leadership capabilities in the RSA ICT SMMEs sector. The data sources for these issues were the leaders of ICT SMMEs. The units of analysis were the interviews, and the tools were the ICT SMMEs. The units of observation were the owners/executives.
- iv. Impact/implications of the current leadership capability status on the competitiveness and sustainability of the ICT SMMEs sector. The data sources for these issues were the leaders of ICT SMMEs and electronic and physical databases. The units of analysis were the interviews and literature analysis, and the tools were the ICT SMMEs and literature reviewed. The units of observation were the annual reports and research reports of the owners/executives.
- v. Status of management skills in the RSA ICT SMME sector. The data sources for these issues were the leaders of ICT SMMEs and electronic and physical databases. The units of analysis were the interviews and literature analysis, and the tools were the ICT SMMEs and literature reviewed. The units of observation were the annual reports and research reports of the owners/executives.
- vi. Explanations of the status of ICT management skills in the RSA ICT SMMEs sector. The data sources for these issues were the managers of ICT SMMEs. The units of

analysis were the interviews, and the tools were the ICT SMMEs. The units of observation were the managers.

vii. Impact/implications of the status of management skills on competitiveness and sustainability of the ICT SMMEs sector. The data sources for these issues were the managers of ICT SMMEs and electronic and physical databases. The units of analysis were the interviews and literature analysis, and the tools were the ICT SMMEs and literature reviewed. The units of observation were the annual reports and research reports of the executives and managers.

viii. Solutions to current limitations in ICT SMMEs leadership capabilities in RSA. The data sources for these issues were the managers of ICT SMMEs and electronic and physical databases. The units of analysis were the interviews and literature analysis, and the tools were the ICT SMMEs and literature reviewed. The units of observation were the annual reports and research report of the executives and managers.

ix. Solutions to current limitations in ICT SMMEs management skills in RSA. The data sources for these issues were the managers of ICT SMMEs and electronic and physical databases. The units of analysis were the interviews and literature analysis, and the tools were the ICT SMMEs and literature reviewed. The units of observation were the annual reports and research reports of the executives and managers.

x. Improving competitiveness and sustainability of the ICT SMME sector in RSA. The data sources for these issues were the leaders of ICT SMMEs, managers of ICT SMMEs and electronic and physical databases. The units of analysis were the interviews and literature analysis, and the tools were the ICT SMMEs and literature reviewed. The units of observation were the annual reports and research reports of the executives and managers.

3.5.4.4 Research setting

Based on data from the Statistics South Africa, the SMMEs in Mpumalanga, Limpopo, and Gauteng, make the bulk of the businesses of about 37.19% of the entire SMMEs population of South Africa (Stats SA, 2023). Given that these provinces serve as South Africa's principal economic centres, the participants were selected from these geographic regions. Gauteng offers more prospects for SMME growth and development because of its sizeable population and robust economy (Stats SA, 2023). As a result, 50% of participating SMMEs were selected from Gauteng. Gauteng represented the data source for participants from highly commercialised urban settings. The remaining 50% were selected from Limpopo and Mpumalanga, to provide data that represent the participants from low commercialised towns and rural settings. The participants from the three regions were categorised into five owners and four managers from Gauteng; three owners and three managers from Limpopo; and three owners and three managers from Mpumalanga. As a result, these subcategories totalled 21 participants. The number of participants was adequate to attain saturation during the in-depth interviews. During the interviews, four participants provided data for each research issue.

3.6 Semi-structured interviews

Various forms of interview design have been developed to obtain thick, rich data using a qualitative investigational perspective (Almutairi, & Al-Barwani, 2022). These include the three fundamental types of research interview: structured, semi-structured, and unstructured. Semi-structured interviews provide in-depth information about participants' experiences and points of view on a particular topic (Saunders et al., 2019). They were suitable for this study to get rich and detailed information about ICT solution providers to SMMEs; hence, semi-structured interviews were used. The semi-structured interviews helped the researcher to gain answers to the questions in the study. In this study, interview questions were designed to be semi-structured as they allowed the study to benefit from open ended questions. The semi-structured nature provides key questions that helped to define the areas to be explored through probing with the participants (Babbie & Mouton, 2021). The unstructured approach was not used since it would allow the researcher and/ or the interviewee to diverge making it difficult to pursue an idea in more detail (Britten et al., 2022).

Semi-structured interviews were selected to obtain rich and detailed accounts while

ensuring consistent coverage of the research objectives. The interview guide was developed from the conceptual framework and the literature, then piloted with two ICT SMME managers outside the sampling frame. Minor wording changes improved clarity and flow. Interviews were conducted in English, lasted between forty-five and sixty minutes, and were audio-recorded with consent. All interviews were transcribed verbatim. Field notes captured contextual details and emerging analytic insights.

3.7 Data collection instrument

Research performance depends on accurate and methodical data collection, and the various instruments used to collect the data (Sekaran & Bougie, 2021). Saunders et al. (2019) defined a data collection instrument as the device used to collect data, such as a paper interview guide or computer-assisted interviewing system (Zikmund, 2019). In this study, an interview guide was chosen and used to collect the data using structured questions. This guide was administered through face-to-face interviews, which enabled the interviewer to establish rapport with the interviewee and to win their cooperation. In addition, interviews were used to have higher response rates than other data collection techniques. An interview guide of twenty open-ended prompts covered leadership practices, management processes, agility in project work, capability development, support systems, and perceived outcomes. Probes were used to elicit concrete examples. The guide is provided in an appendix together with the objectives-to-questions mapping. They are the most popular method for qualitative research because of their personalised approach (Saunders et al., 2019). Interviews allow the researcher to clarify any ambiguous questions and, when appropriate, to seek follow-up information (Saunders et al., 2019). The interview guide was made up of 20 semi-structured questions.

3.8 Data analysis – thematic analysis

The data were analysed thematically using Braun and Clarke's six step process. Analysis proceeded through familiarisation, initial coding, theme development, theme review, theme definition, and reporting. Coding was conducted in Atlas.ti 9 to support systematic organisation and retrieval. To enhance dependability and confirmability, the researcher maintained a codebook that recorded code names, definitions, and inclusion rules. Two early transcripts were double coded by the researcher two weeks apart to check intra-coder consistency, and discrepancies were resolved through memoed

reflections that informed refinements to the codebook. This technique encapsulates similarities and differences between the views of various research respondents, providing unexpected insights and reducing large datasets into manageable structures. The thematic analysis process consists of six steps: familiarisation, coding, generating themes, reviewing themes, defining and naming, and writing up themes. Each step is crucial in transforming qualitative data into a clear and ordered final report.

In this study, the researcher followed a systematic approach to analyze qualitative data. First, the researcher thoroughly reviewed the data to understand its content, noting down interview questions and key responses to grasp the overall context. Next, they identified and marked important keywords or codes in the interview data, which served as the foundation for further analysis. Subsequently, these codes were grouped into broader themes through repeated comparisons, a process that helped uncover patterns and connections within the data. Once the themes were generated, the researcher reviewed them to consolidate overlapping themes, ensuring they accurately reflected the data and resolving any inconsistencies. After this, the researcher clearly defined and assigned concise, descriptive names to each theme in the final list. Finally, the findings were compiled into a structured report that organized the results around these themes, providing a clear and accessible summary of the analysis. This step-by-step process ensured a comprehensive and organised interpretation of the qualitative material.

3.9 Trustworthiness

Trustworthiness in qualitative research refers to the credibility and rigor of findings, ensuring that data collection, analysis, and interpretation processes are methodologically sound and transparent (Lincoln & Guba, 2012). Central to this concept are four interrelated criteria, credibility, transferability, dependability, and confirmability, that collectively bolster the legitimacy of qualitative inquiry (Babbie & Mouton, 2021). Credibility, the cornerstone of trustworthiness, is achieved through strategies such as member checking and triangulation, which verify the accuracy of data interpretations. In the present study, credibility was further supported by sending participants summaries of their interviews for validation (member checking), fostering collaborative accuracy and minimising researcher bias (Britten et al., 2022). Triangulation across accounts of owners and managers in diverse sub-sectors also enhanced credibility by cross-verifying findings through multiple perspectives, ensuring robustness (Zikmund, 2019). Transferability, or the applicability of findings to other contexts, was addressed through

thick description, a detailed portrayal of organisational contexts, roles, and processes, enabling readers to assess the study's relevance to their specific settings (Finlay, 2023). Dependability, akin to reliability in quantitative paradigms, was ensured via an audit trail documenting sampling decisions, interview logistics, codebook iterations, and thematic development, allowing for transparent scrutiny of the research's consistency over time (Almutairi, & Al-Barwani, 2022). Confirmability, which safeguards against researcher bias, was strengthened through reflexive journaling that meticulously recorded the researcher's assumptions about agile practices and leadership development, including how these were bracketed or mitigated during analysis (Davies & Lincoln, 2020). Together, these strategies align with contemporary methodological standards, underscoring the study's commitment to generating trustworthy, ethically grounded insights in a rapidly evolving field.

3.10 Ethical issues

In conducting research, ethical concerns were involved (Saunders et al., 2019). The authors defined research ethics to be the appropriateness of the researcher's behaviours regarding the rights of the research participants. Addressing research ethics matters ensures that when the research is being conducted, the interests and the rights of research participants are protected from harm, embarrassment and deceit (Davies & Lincoln, 2020). Research ethics is based on three fundamental principles: respect for persons, beneficence, and justice (Babbie & Mouton, 2021).

Respect for people: This principle has two components, the first of which is that individuals should be treated as autonomous beings who can choose what to agree to and when (Zikmund, 2019). It is crucial that researchers respect people as unique individuals who have the right to choose freely whether to participate in a study. Therefore, potential participants were provided with all the information about the research study to be able to make such an informed decision (Almutairi, & Al-Barwani, 2022). Each participant in this study received a consent form that included information letting them know that they were choosing to participate in the study, freely and voluntarily.

Beneficence: The definition of beneficence given by Davies and Lincoln (2020) is an action carried out for the benefit of others. According to this principle, no one should be harmed by research, and it should not seek harmful knowledge or information at the

expense of others. Researchers must maximise participants' benefits and minimise any potential risks for participants in order to protect them from harm or risk (Babbie & Mouton, 2021). In this study, the researcher protected the confidentiality and privacy of the participants by not disclosing any personal information about them, such as names or contact information, or anything that was recorded or gathered for this study. Any data that could be used to identify a participant were not gathered without that participant's consent.

Justice: Fairness is the main idea of this guiding principle. Zikmund (2019) defined justice as the consideration of fairness in terms of recruiting participants and the choice of location to conduct a trial, which is taken by researchers when designing trials. It considers questions regarding who profits from the research and who bears the risk of the research (Sekaran & Bougie, 2021). In addition, the research inquiries must be relevant to the study's participant communities. This principle provides a framework for considering these choices fairly and equitably (Trivedi, 2020). In this study, participants were included in research were included because they were willing to participate in the study, easy to access, and available.

In this study, the interview guide was sent electronically to participants who were chosen based on the sampling that was done, if they met the criteria of being an ICT solution providing SMME, to ensure justice in the selection of participants. More so, participants were given all the necessary information, and they needed to accept and agree to participate.

Ethical approval was obtained from the University Research Ethics Committee under reference [insert approval number]. Participation was voluntary and based on informed consent. Identities were protected through pseudonyms and the removal of direct identifiers from transcripts and reports. Audio files and transcripts are stored on encrypted, password protected drives accessible only to the researcher and will be retained for five years before secure deletion.

3.11 Chapter summary

This chapter has presented the research methodology, which outlined the in-depth analysis of research techniques that were used to meet the aim and objectives outlined in Chapter 1. This chapter presented a coherent qualitative methodology consistent with the study's constructionist -interpretivist stance. It detailed the exploratory design,

purposive sampling of twenty-one ICT SMME owners and managers across three provinces, semi-structured interview procedures, reflexive thematic analysis, and the measures taken to ensure trustworthiness and ethical conduct. The next chapter, Chapter 4, presents the research findings and discussion.

CHAPTER 4: RESEARCH FINDINGS

4.1 Introduction

Chapter 3 presented the methodology of this thesis. This chapter presents the empirical findings from twenty-one interviews with owners and managers of ICT solutions providers that serve SMMEs in Gauteng, Limpopo, and Mpumalanga. The focus is on what the data reveal about the skills and capabilities that enable competitiveness, growth, and long-term sustainability. Themes are interpreted through the study's theoretical lenses, namely Agile Management Theory and contemporary leadership approaches that include transformational, participative, and facilitative leadership. Methods and procedures are not repeated here. They are summarised only to the extent required to verify the credibility of the analysis. The presentation is structured around emergent themes and categories derived from an in-depth analysis of the interviews that were conducted. This chapter's structure is represented visually in Figure 8.

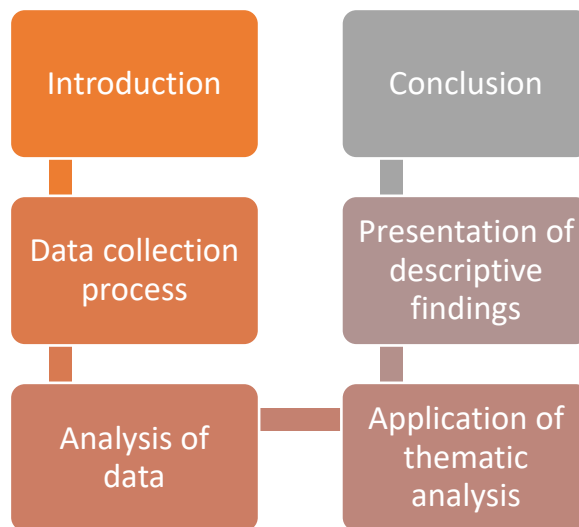


Figure 8: Chapter structure

(Source: Researcher's own work)

This chapter also navigates the reader through the journey of data collection, analysis, and interpretation. This is achieved by exploring the following key sections:

- **Section 4.2: Data collection process:** This section details the meticulous process of acquiring data, focusing on the strategies employed to identify and secure willing

participants, and ensuring ethical research practices through the acquisition of informed consent.

- **Section 4.3: Data analysis process:** A detailed overview of the thematic analysis process as it was applied in the study, explaining how recurring patterns and themes were identified and categorised in the data.
- **Section 4.4: Presentation of findings:** This section presents the core findings of the research, directly addressing the key investigative issues that guided the study and providing a comprehensive understanding of the research outcomes.

The driving force behind this research was the identified lack of a robust framework to cultivate essential management skills and leadership capabilities in the Lowveld Nexus ICT SMMEs. This deficiency hinders their potential for growth, long-term sustainability, and overall competitiveness. This study aims to bridge this gap by identifying the crucial management skills and leadership capabilities necessary for growth, sustainability and competitiveness, ultimately contributing to the development of an enabling framework specifically tailored for ICT solution providers to SMMEs in South Africa's Lowveld Nexus.

4.2 Participant profiles

This study draws upon the experiences of 21 participants across three South African provinces: Gauteng, Limpopo, and Mpumalanga. Participants were experienced decision makers who actively provide ICT solutions to SMMEs. Eleven were owners and ten were managers. Gauteng offered a mature urban market with thicker ICT supply chains. Limpopo offered rural and small-town contexts with thinner infrastructure and access constraints. Mpumalanga sat between the two with mixed urban rural dynamics. The group comprises both business owners (11 participants) and managers (10 participants) in the ICT solution providers to SMMEs sector. Owners generally fall within the 35–60 age range and possess qualifications ranging from diplomas to degrees in IT or business-related fields, boasting between 5 and 20 years of experience. Managers, on the other hand, tend to be younger, with an age range of 25–45 years, and hold degrees or professional certifications. Their experience ranges from 1 to 10 years. Gender representation is relatively balanced across the provinces and roles, with a slight skew towards male owners and managers

in Gauteng and Mpumalanga, while Limpopo shows a more balanced representation, particularly among managers. These profiles are shown in Table 2.

Table 2: Profile of participants

Source: Researchers' own work

Region	Role	Number of participants	Typical age range	Common qualifications	Experience (Years) as ICT Solution Provider to SMME sector	Gender
Gauteng	Owner	5	35–55	Diploma, degree in IT/Business	5–15	3 Males 2 Females
Gauteng	Manager	4	30–45	Degree/masters in IT/Business	3–10	2 Males 2 Females
Limpopo	Owner	3	40–60	Certificate/diploma	8–20	2 Males 1 Female
Limpopo	Manager	3	28–40	Diploma/degree	2–8	1 Male 2 Females
Mpumalanga	Owner	3	38–58	Diploma/degree in IT/Business	7–18	3 Males
Mpumalanga	Manager	3	25–42	Degree/professional certifications	1–9	1 Male 2 Females

Participants were selected based on their active involvement in providing ICT solutions in the SMME sector in their respective regions. Their roles either as owners or as managers ensured a diverse perspective on the challenges and opportunities faced by these businesses. The selection of participants was conducted through a purposive sampling technique. A list of potential participants was compiled through a review of industry reports, online directories, and professional networks. These individuals were then contacted and invited to participate in the study, with the assurance of confidentiality and anonymity. This approach enabled the researcher to access a wider range of participants, and to gather a more comprehensive understanding of the ICT SMME sector across the three provinces. The inclusion of participants from Gauteng, Limpopo, and Mpumalanga allowed for a comparative analysis of the varying regional contexts impacting ICT SMMEs, considering the differences in economic development, infrastructure, and market demands. Their differing levels of experience also provided valuable insights into the evolution and maturity of ICT solution provision in these SMMEs.

Following the initial identification of codes in the interview transcripts, the next critical step involved organising these codes into potential categories. This process was crucial for synthesising the rich qualitative data gathered from participants. The resulting list of themes and categories are presented in Table 3, drawn and adapted from Braun and Clarke's (2006) thematic analysis.

The process of transforming direct speech into these overarching themes is outlined. The findings from the interviews showed that ICT solutions providers to SMMEs in South Africa's Lowveld Nexus face numerous challenges that undermine their competitiveness and sustainability. The responses were analysed into themes and categories.

Table 3: Process of generating themes and categories

Themes	Categories	Key Words	
Theme 1: Inadequacy of leadership frameworks for promoting competitiveness and sustainability	Misalignment of existing leadership frameworks	Hierarchical, Centralised Short-term, Siloed, Reactive, Traditional,	"Key attributes include emotional intelligence, adaptability, and a visionary mindset. Compared to traditional leadership paradigms, which often emphasise hierarchical structures and control, modern
	Obstacles to growth and innovation	Disconnected, Stifled Creativity, Risk aversion,	
	Methodological rigidities	Limited collaboration, Missed opportunities, Slow adaptation, Reduced agility,	

Themes	Categories	Key Words	
		Resistance to change, Outdated frameworks, Lack of flexibility, One-size-fits-all, Insufficient feedback, Lack of customisation, Ignoring context	leadership in the ICT SMME sector requires a more collaborative and participatory approach. Leaders today must also be skilled in digital literacy and innovation management to navigate the complexities of the ICT landscape.” SS_sm_R7
Theme 2: Leadership capabilities in the ICT SMMEs sector	Deficient leadership traits	Poor communication Lack of vision Risk aversion Ineffective delegation Authoritarian Short-sightedness Resistance to change Inflexibility Limited business acumen Skills gap Lack of mentorship Insufficient training Poor strategic planning Inadequate market research Financial management deficiencies Networking deficiencies Lack of industry knowledge Technology adoption hesitation	“Education and access to training are critical factors. Unfortunately, many leaders lack formal education in leadership or management principles, which can lead to ineffective decision-making. Cultural influences also play a role; in some cases, traditional leadership styles may impede the adoption of more modern, participative approaches.” (Participant CS_bf_R13)
	Inadequate preparedness of leadership	Reduced productivity Decreased employee morale Stifled Innovation Missed opportunities Erosion of customer satisfaction Reduced profitability Lack of skills, Inefficiency, Low morale	“Inadequate leadership could lead to a stagnation of growth, loss of competitive edge and ultimately, the failure of many SMMEs. This not only impacts the businesses themselves but also the broader economy by limiting job creation and innovation.” (Participant NC_nn_R8).
			“Cultural influences can impede effective leadership, with many leaders adhering to outdated practices that do not align with modern business needs.” (Participant CDS_jp_R21).
Theme 3: Management skills and their	Lack of essential management skills	Reduced productivity, Decreased employee morale, Stifled innovation,	“While some ICT SMMEs possess strong technical skills,

Themes	Categories	Key Words	
impact on competitiveness		Missed opportunities, Erosion of customer satisfaction, Reduced profitability, Inadequate leadership skills, Poor Communication, Lack of strategic thinking, Weak problem-solving abilities, Deficient performance management skills,	many lack robust management skills. This mismatch can lead to inefficiencies and missed opportunities for growth, as technical proficiency alone does not guarantee business success.” (Participant NKRS_pn_R2).
	Dismal state of management readiness	Insufficient investment in training, Lack of prioritisation, Limited access to resources, Insufficient mentorship and coaching, Absence of a learning culture, Resistance to change,	“The current lack of management skills significantly impacts resource allocation and operational efficiency. Poor management can lead to wasted resources, diminished financial performance, and ultimately, the failure of the SMME.” (Participant CB_sp_R6).
	Barriers and lack of support for skill development		“Poor management skills lead to ineffective resource allocation and operational inefficiencies, which directly impact competitiveness and sustainability. SMMEs struggle to adapt to market changes or capitalise on new opportunities.” (Participant CF_ns_R9).
Theme 4: Leadership preferences in the ICT SMMEs sector	Transformational leadership	Vision, Inspiration, Motivation, Innovation, Change, Growth, Empowerment, Creativity, Future, Challenge, Development, Integrity, Commitment, Influence, Motivation, Purpose, Ethical, Value, Transform, Collaboration, Teamwork, Communication, Input, Decisions, Shared, Empowerment, Involvement, Feedback, Collaboration, Consensus, Respect, Ideas, Responsibility, Openness, Participation, Trust, Dialogue, Together, Listen, Enablement, Support, Guidance, Resources, Collaboration,	“I believe that transformational leadership is crucial in the ICT SMME sector. Leaders who inspire, motivate, and drive innovation can foster an environment conducive to growth. This type of leadership not only encourages creativity but also builds a strong team culture, which is essential in a sector characterised by rapid technological changes.” (Participant NDS_KN_R1).

Themes	Categories	Key Words	
	Participative Leadership	Problem-solving, Autonomy, Environment, Learning, Enablement, Process, Solutions, Framework, Growth, Opportunity, Delegation, Self-management, Empowerment, Development, Navigate	“In the ICT SMME sector, I have been using a situational leadership approach. This style encourages my employees to participate in initiatives of innovation, and inspires my team members to engage with the company’s vision. As a participative leader, I cultivate a collaborative environment, when necessary, which is critical in our fast-paced industry. I also withdraw this power to promote a culture of accountability, allowing the organisation to stay competitive and responsive to market changes.” (Participant SS_sd_R10).
	Facilitative leadership		“Facilitative leadership in the ICT SMME sector requires a collaborative approach. I emphasise empowering team members by actively involving them in decision-making processes, promoting innovation, and encouraging creativity. This method not only enhances engagement but also nurtures a culture of shared ownership, which is critical for competitiveness in the fast-paced ICT landscape.” (Participant DS_sd_R16).
Theme 5: Factors influencing leadership development	Education and training	Education, Training, Courses, Workshops, Seminars, Mentorship, Coaching, Curriculum, Learning, Knowledge, Skills, Development, Academics, Leadership programmes, Certifications, Executive education, Experience, Challenges, Opportunities,	“Many leaders possess a foundational level of these capabilities; however, there is a noticeable gap in strategic thinking and adaptability due to varying access to education and training. This inconsistency can

Themes	Categories	Key Words	
		Projects, Roles, Responsibility, Practice, Application, Decision-making, Management, Teamwork, Collaboration, Crisis Management, Feedback, Growth, Leadership roles, Support, Mentors, Network, Community, Peers, Colleagues, Feedback, Guidance, Encouragement, Role frameworks, Leadership Team, Resources, Positive environment, Culture, Sponsorship, Trust	hinder overall sector competitiveness.” (Participant NKRS_pn_R2).
	Experience		“Factors such as lack of formal training, mentorship opportunities, and networking can significantly impact leadership capabilities. Many leaders around here may not have access to resources that provide the necessary guidance and knowledge to develop their skills further.” (Participant MT_sc_R11).
	Support systems		“Implementing structured leadership development programmes and mentorship schemes can be highly effective. These initiatives provide practical skills and guidance, helping emerging leaders navigate challenges and develop their capabilities.” (Participant CDS_jp_R21).

Source: Braun and Clarke (2006)

By organising the data into these overarching categories and themes, the researcher aimed to provide a clearer and more coherent understanding of the key patterns and insights derived from the research. These keywords were then collated meticulously, acting as building blocks for the subcategories and ultimately, the final themes are listed in Table 4.

Table 4: List of themes created

	Themes
1	Inadequacy of leadership frameworks
2	Lack of leadership capabilities and their impact in the ICT SMME sector
3	Lack of management skills and their impact on competitiveness
4	Leadership preferences in the ICT SMME sector
5	Factors enhancing leadership development

Source: Braun and Clarke (2006)

The themes serve as a valuable lens through which to examine the data and draw meaningful conclusions.

4.3 Results of the findings

4.3.1 Word clusters

In presenting the results of this study, word clusters were used. Word clustering, also known as cluster analysis of text, is a computational technique that groups words together based on their statistical co-occurrence in a body of text. In essence, Zhang, Zhang and Zhao (2021) cited that it identifies groups of words that appear together frequently, suggesting underlying concepts or themes in the data. Unlike simple word frequency counts which only highlight the most common words, word clustering reveals relationships between words and uncovers more complex patterns.

Word clusters were used in this study to explore the data in a novel way. Huang, Zheng and Wang (2020) state that word clustering offers a broad overview of the data, helping researchers to identify key areas for further investigation. It identifies latent themes. Zhang et al. (2021) suggest that, by grouping words together, clusters can reveal themes or concepts that may not be apparent immediately through traditional manual coding. In addition, word clustering was used to enhance the validity and reliability of thematic analysis. Word clusters can be used to corroborate or challenge researchers' initial interpretations of the data, leading to a more robust analysis. Finally, they were used to manage large datasets. Huang et al. (2020) observe that analysing large

volumes of qualitative data can be overwhelming. Word clustering helps researchers to focus their attention on the most salient aspects of the data. The word cluster generated in this study is illustrated in Figure 9.

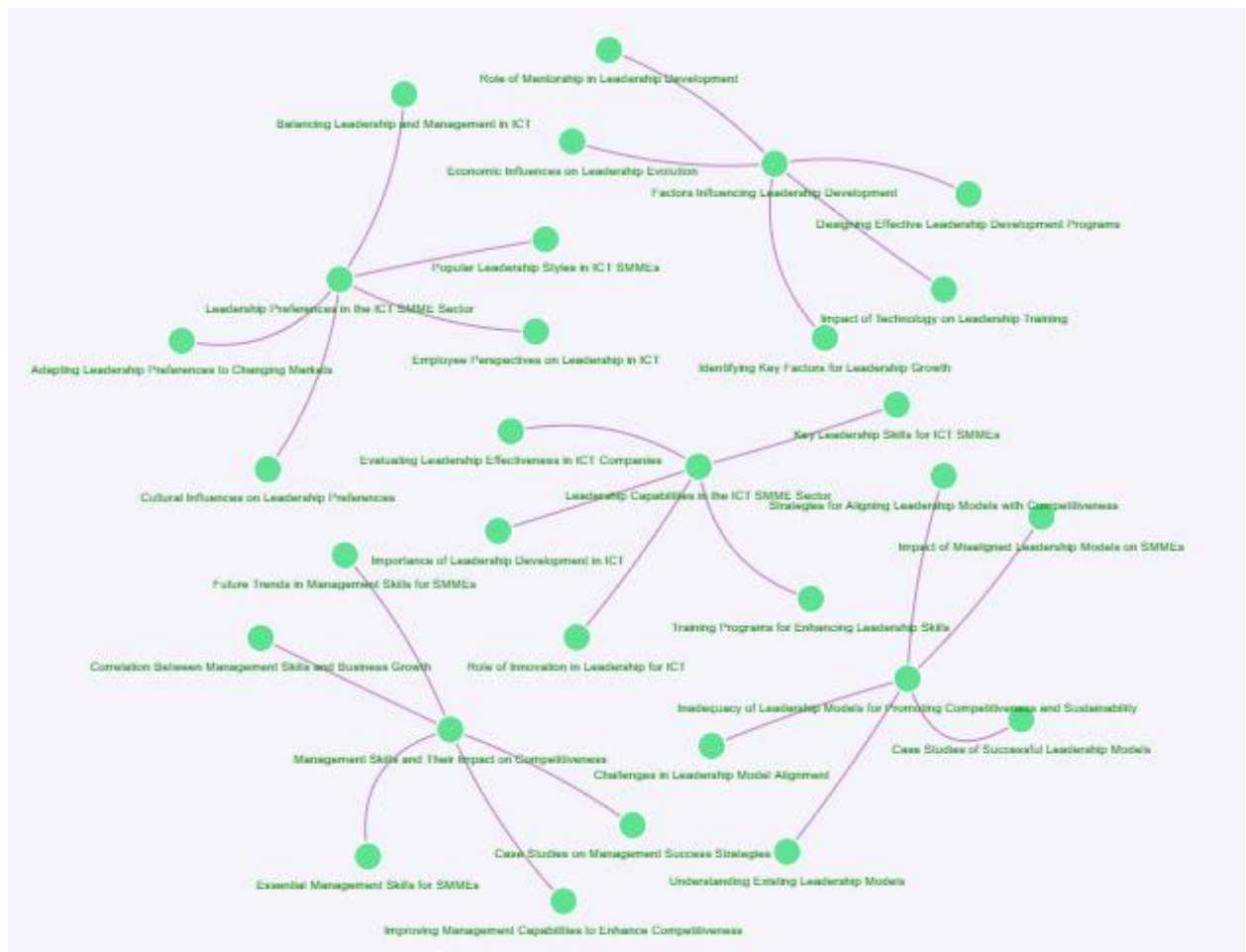


Figure 9: Word clusters for the themes and categories
Source: ATLAS.ti

How word clusters were used in this study for data analysis

The application of word clustering in this qualitative research was typically iterative and complementary to traditional qualitative methods, as shown in the breakdown of the process:

1. **Data preparation:** Huang et al. (2020) explain that the first step involves preparing the textual data for analysis. This typically included cleaning the text by removing punctuation, stop words (common words like 'the', 'a', 'and'), and potentially stemming or lemmatising words to group variations of the same word (for example, 'running', 'ran', and 'runs' become 'run') (Zhang et al., 2021).

2. **Cluster analysis:** A specialised software, R with packages like 'cluster', was used to perform the cluster analysis. The algorithm calculated a similarity score between words based on their co-occurrence in the corpus.
3. **Interpretation and validation:** The resulting word clusters were then interpreted by the researcher. This was a crucial step where the researcher drew upon their qualitative knowledge and understanding of the research context to make sense of the clusters (Zhang et al., 2021). For example, a cluster containing words like 'Vision, Inspiration, Motivation, Innovation, Change, Growth, Empowerment, Creativity, Future, Challenge, Development, Integrity, Commitment, Influence, Motivation,' was interpreted as a theme related to preferred leadership styles.
4. **Integration with qualitative coding:** The insights from the word clusters were then integrated with traditional qualitative coding methods. This involved:
 - **Using clusters to inform the development of a coding scheme:** The clusters provided initial categories that were then refined and expanded through manual coding, as recommended by Braun and Clarke (2006).
 - **Using clusters to identify relevant excerpts for deeper analysis:** Knowing which excerpts contained specific word clusters allowed the researcher to locate instances of a particular theme or concept efficiently, as suggested by Huang et al. (2020).
 - **Using qualitative coding to validate and contextualise the clusters:** Manual coding provided a deeper understanding of the context surrounding the words in the clusters, helping to confirm or refute the initial interpretations.

After collecting interview transcripts, the researcher used word clustering to identify potential themes. A cluster containing terms like reduced productivity, decreased employee morale, stifled innovation, missed opportunities, erosion of customer satisfaction, reduced profitability, inadequate leadership skills, poor communication, and lack of strategic thinking suggested the lack of management skills. The researcher then used this information to focus their coding efforts on excerpts related to these

concepts, analysing the specific ways ICT solutions providers to SMMES perceive and experience their skills.

The findings from the interviews showed that ICT solutions providers to SMMEs in South Africa's Lowveld Nexus face numerous challenges that undermine their competitiveness and sustainability. To analyse these challenges, the integration of agile management theory (AMT) with effective leadership styles such as transformational, situational, and facilitative leadership was adopted. This thesis explored the responses and analysed research findings.

From the analysis of the collected data, a central storyline was illuminated as the lack of an integrated framework that aligns SMMES leadership skills and management capabilities to sustainable growth and competitiveness. From this central storyline, five themes emerged. These included inadequacy of leadership frameworks for promoting competitiveness and sustainability, deficient leadership skills, lack of essential management skills, leadership preferences, and strategies for enhancing leadership development. Each theme has the following three categories: inadequacy of leadership frameworks for promoting competitiveness and sustainability (misalignment of existing leadership frameworks, obstacles to growth and innovation and methodological rigidities); deficient leadership skills (deficient leadership traits, inadequate preparedness of leadership, and cultural barriers and access limitations); lack of essential management skills (lack of essential management skills, dismal state of management readiness, and barriers and lack of support for skill development); preferred leadership styles (transformational, situational, and facilitative); and strategies for enhancing leadership development (education and training, experience, and support systems). In extracting key themes efficiently from large volumes of textual data, a popular technique used for tackling this challenge was the creation of word clouds.

4.3.2 Word clouds

A word cloud is, at its core, a visual representation of word frequency. The prominence of each word in the image is directly proportional to its frequency in the source text. In simpler terms, Yang and Liu (2021) state that the more frequently the word appears in the cloud, the more often it was used. This allows researchers to identify the dominant

- Centralised,
- Short-term,
- Siloed,
- Reactive,
- Traditional,
- Disconnected,
- Stifled creativity,
- Limited collaboration,
- Missed opportunities,
- Slow adaptation

The application of word clouds, combined with tools like ATLAS.ti, offered a powerful and efficient method for identifying dominant themes in large textual datasets visually. This technique allowed the researcher to grasp the core topics discussed quickly and to identify emerging patterns, ultimately facilitating a deeper understanding of the underlying narratives in the data. This resulted in the consolidation of key words into a theme like 'misalignment of existing leadership frameworks', which was categorised into misalignment of existing leadership frameworks, obstacle to growth and innovation, and methodological rigidities.

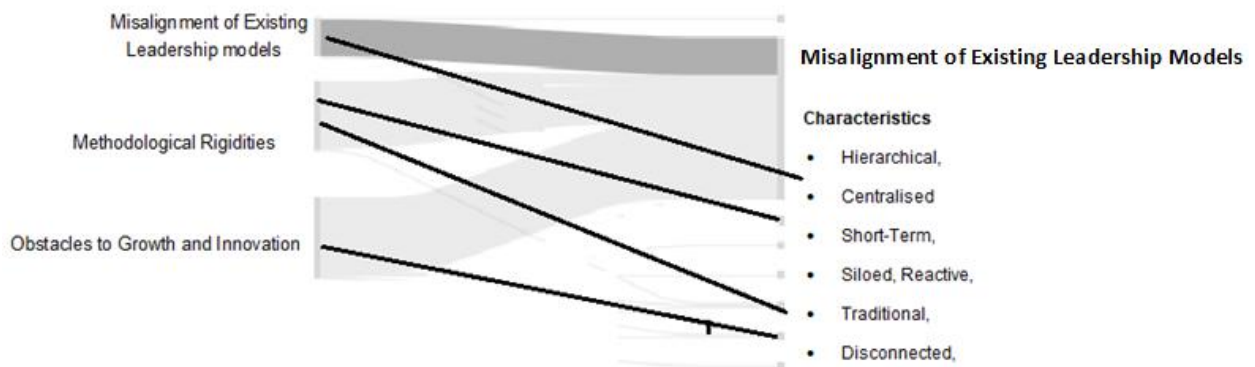


Figure 11: Association of topic of inadequacy of leadership framework themes

Source: ATLAS.ti 24

Analysis of the categorised inadequacy of leadership frameworks for promoting competitiveness and sustainability reveals a significant relationship with the identified emerging themes. As illustrated in Figure 11, a clear co-occurrence exists between specific inadequacies of leadership frameworks and these overarching themes. This

highlights the interconnectedness of challenges and their broader contextual implications.

While these relationships are prevalent across all themes, the connection between inadequacies of leadership frameworks and the ‘management and leadership skills’ theme appears to be particularly strong. This suggests that, in the context of the analysed data, the impediments to progress are more heavily weighted within the realm of management and leadership skills compared to other identified thematic areas. This dominance warrants further investigation to understand the specific nature and impact of these inadequacies of leadership frameworks in the management and leadership skills landscape.

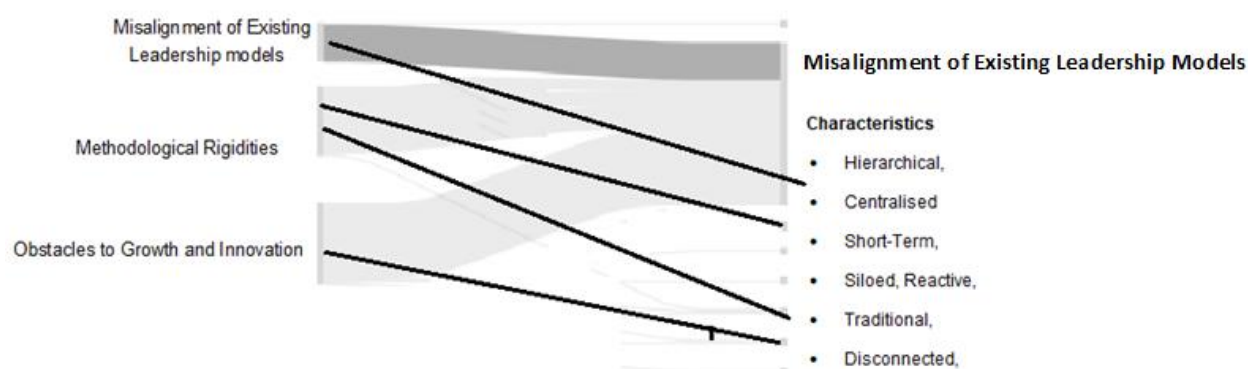


Figure 12: Prioritisation of topic

Source: ATLAS.ti

Figure 12 highlights a significant characteristic of the misalignment of existing leadership framework’s theme for the management and leaderships skills in the ICT solutions providers to SMMEs. This factor emerged as the highest priority, underscoring the industry’s inherent focus on growth, competitiveness and sustainability. The prevalence of this theme in the research clearly indicates that consideration for growth, competitiveness and sustainability is paramount when providing digital solutions. A comprehensive analysis of this and other key themes, along with their associated topics, is detailed in Chapter 5.

The analysis also revealed several emergent nodes in each identified theme, highlighting specific niche areas ripe for further investigation. Figure 13 provides an example of these nodes and the potential for deeper exploration in the overarching misalignment of existing leadership frameworks theme.

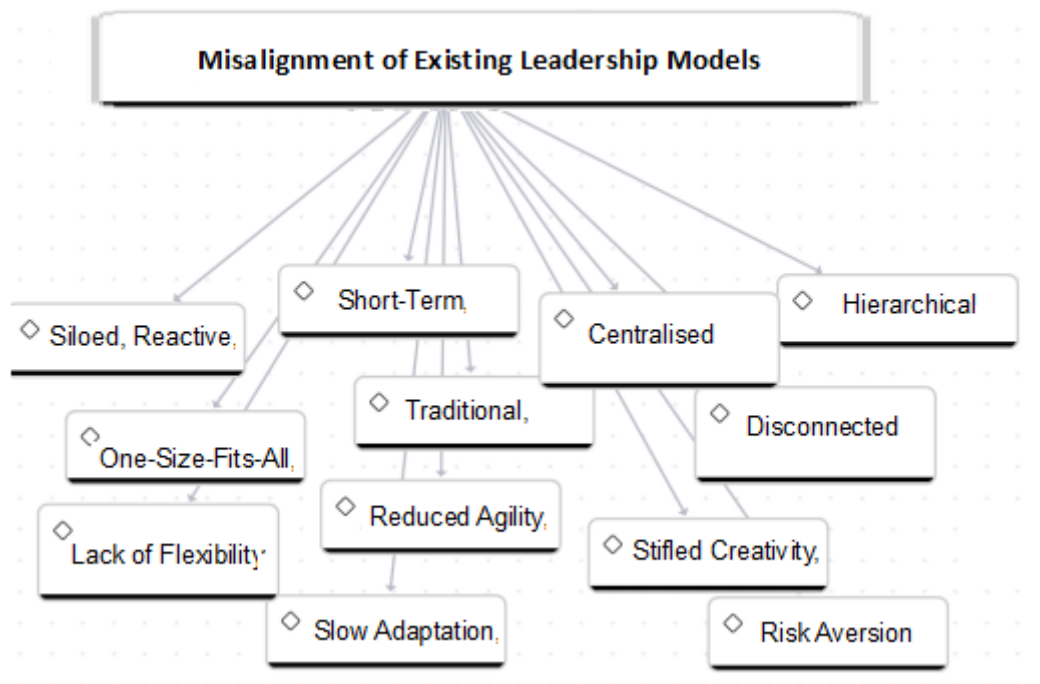


Figure 13: The nodes that emerged from analysis

Source: ATLAS.ti

The theme of misalignment of existing leadership frameworks plays a crucial role, serving as a framework for various essential elements in the sustainability of ICT SMMEs. This broad theme encompasses a range of specific nodes, which collectively contribute to ensuring compliance, efficiency, and quality.

Examples of these nodes in the misalignment of existing leadership frameworks theme include, but are not limited to:

- Hierarchical,
- Centralised,
- Short-term,
- Siloed,
- Reactive,
- Traditional,
- Disconnected,
- Stifled creativity,
- Risk aversion,
- Limited collaboration,
- Missed opportunities,

A detailed investigation and discussion of the specific applications and interrelationships of these nodes in the misalignment of existing leadership framework's theme is presented in the next section.

Qualitative interviews provide invaluable insights into participants' thoughts, feelings, and experiences. While verbal responses formed the core of the data, the researcher also paid close attention to non-verbal cues, particularly facial expressions, to gain a more nuanced understanding of their subjects. In the analysis of interview recordings, the researcher observed and interpreted participants' facial expressions in relation to their verbal responses. Observation was made of how participants' faces mirrored agreement or acknowledgement during specific questions and discussions, validating their contributions and strengthening our understanding of their perspectives. Furthermore, instances of apparent disapproval triggered further investigation. The researcher used probing questions to encourage participants to elaborate on their stances, providing them with ample opportunity to justify their opinions and ensuring a comprehensive grasp of their points of view. This proactive approach mitigated the risk of misinterpreting potentially negative facial expressions. Some verbatim narratives from the participants were recorded to support the themes and categories that emerged.

4.3 Themes and categories

Each theme has the following three categories: inadequacy of leadership frameworks for promoting competitiveness and sustainability (misalignment of existing leadership models, obstacles to growth and innovation and methodological rigidities); deficient leadership skills (deficient leadership traits, inadequate preparedness of leadership, and cultural barriers and access limitations); lack of essential management skills (lack of essential management skills, dismal state of management readiness, and barriers and lack of support for skill development); preferred leadership styles (transformational, participative and facilitative); and strategies for enhancing leadership development (education and training, experience, and support systems). These theme and categories were supported by the quotations from participants.

4.3.1 Inadequacy of leadership models

The participants were required to express themselves regarding the existing frameworks. The theme that emerged from their responses showed that there are inadequacies in the existing leadership frameworks for promoting competitiveness and sustainability.

Misalignment of leadership frameworks

The ‘Misalignment of leadership frameworks’ refers to discrepancies between existing economic theories and real-world applications in SMMEs (Khan et al., 2024). This misalignment presents a significant obstacle for SMMEs, hindering their ability to strategise effectively, manage finances, and develop human resources. The following narratives underscore the pervasive nature of this issue.

“Misalignment of leadership frameworks emphasise bureaucratic hierarchies and rigid structures, and they are ill-suited for high-paced environments where agility is essential. This has resulted in reduced revenue growth opportunities and stifles business growth within the sector...” Participant **GAU_3DM_sm_R5**.

“Misalignment of leadership frameworks could lead to stagnation, a decline in talent retention, and ultimately, the failure of many SMMEs, which are vital for economic growth,” Participant **LIM_SP_Im_R15**.

“Misalignment of leadership frameworks can lead to stagnation within the sector, as SMMEs may fail to respond to technological advancements and market demands. Over time, this results in a lack of competitiveness on a national scale and diminished contributions to the national economy,” Participant **MPU_MS_mm_R20**.

“Misalignment of leadership frameworks results in a significant hurdle for organisations, particularly regarding strategic planning, financial management, and human resource management and their practical application,” Participant **Gau_KRS_pn_R2**.

“The leadership frameworks taught in business schools often don’t translate well to the realities of running a small ICT company. We’re facing constant disruption and

need leaders who can adapt quickly, something the traditional frameworks don't address." Participant **GAU_NDS_kn_R1**.

"We struggle to attract and retain talent because our leadership structure doesn't empower employees or foster a sense of ownership. The hierarchical, top-down approach is outdated and turns off innovative individuals." Participant **GAU_SS_sm_R7**.

"The existing frameworks prioritise short-term profits over long-term sustainability. This leads to poor decision-making and a lack of investment in research and development, ultimately hurting our competitiveness." Participant **LIM_LS_tt_R12**.

These narratives clearly depict a significant misalignment between current leadership frameworks and the realities faced by ICT SMMEs. This misalignment results in reduced agility, talent drain, and a focus on short-term gains at the expense of long-term sustainability, ultimately undermining the potential of these enterprises.

Obstacles to growth and innovation

'Obstacles to growth and innovation' highlights the barriers that ICT solutions providers to SMMEs encounter, hindering their ability to leverage competitive advantages (Munro, 2018). These obstacles may stem from bureaucratic regulations, lack of access to funding, or insufficient infrastructure. These barriers stifle creativity and prevent SMMEs from capitalising on emerging opportunities. The following remarks highlight the critical impact of these obstacles.

"Leadership capabilities directly influence an organisation's ability to innovate and penetrate markets. Strong leaders can create a culture encouraging innovation, leading to new products and services. However, with traditional leadership frameworks that we use, creativity is stifled, resulting in poor market performance and ultimately, affecting financial sustainability." Participant **GAU_UM_ns_R4**.

"Inadequate leadership frameworks can lead to a lack of innovation, poor financial performance and ultimately, the failure of many SMMEs. They create specific obstacles to growth and innovation. ICT solutions supplying SMMEs encounter resource limitations, both financial and human. This could result in reduced

employment opportunities and stifle economic growth within the sector,” Participant **GAU_3DM_sm_R5**.

“We have great ideas, but our leadership team is risk-averse and unwilling to invest in new technologies or explore new markets. This fear of failure stifles innovation and prevents us from competing effectively.” Participant **GAU_LDAS_vv_R3**.

“Access to funding is a major obstacle. Banks are hesitant to lend to SMMEs in the ICT sector, and we lack the resources to invest in research and development on our own. This puts us at a significant disadvantage.” Participant **GAU_CF_ns_R9**.

“Bureaucratic regulations and complex compliance requirements consume a significant amount of our time and resources. This diverts our attention from innovation and market expansion, hindering our growth potential.” Participant **LIM_RTS_pg_R14**.

These narratives reveal that traditional leadership frameworks, coupled with resource limitations and bureaucratic obstacles, impede the growth and innovation potential of ICT SMMEs significantly. A shift towards more adaptable and supportive leadership frameworks is crucial to overcoming these barriers and fostering a culture of innovation.

Methodological rigidities

‘Methodological rigidities’ refers to the reliance on outdated or inflexible approaches to leadership and management in ICT SMMEs (Farnham & Pinder, 2018). These rigidities prevent organisations from adapting to rapid technological advancements and market changes. The following statements highlight the need for more adaptable and agile methodologies.

“One of the primary challenges is the rigidities of the existing leadership frameworks, which limit leaders from staying ahead of trends to remain competitive. They lead to inefficiencies and stifling of innovation and growth. These frameworks remain fragmented, emphasising the need for a unified approach to foster an integrative leadership approach,” Participant **GAU_3DM_sm_R5**.

“One significant challenge is the resistance to change within organisations. Many employees are accustomed to traditional methods and may hesitate to adopt new technologies or processes. They are used to methodologies rooted in linear and sequential processes that fail to accommodate the iterative and complex nature of technology development and deployment. They resist agile methodologies that create opportunities for ICT SMMEs to differentiate themselves in the market,” Participant **MPU_TC_sn_R18**.

“Our leadership team is stuck in a waterfall methodology mindset. This makes it difficult to respond quickly to changing customer needs and emerging market trends. We need to embrace agile methodologies to stay competitive.” Participant **GAU_CB_sp_R6**.

“We’re using outdated project management techniques that are inefficient and ineffective. This leads to delays, cost overruns and ultimately, a loss of revenue. We need to adopt modern methodologies to improve our performance.” Participant **LIM_MT_sc_R11**.

“Our hierarchical organisational structure stifles collaboration and communication. Information flows slowly, and decision-making is centralised. We need to flatten our structure and empower employees to make decisions.” Participant **MPU_DS_sd_R16**.

These narratives reveal that methodological rigidities in ICT solutions providers to SMMEs limit their ability to adapt to change, innovate, and compete effectively. Embracing agile methodologies, modern project management techniques, and flatter organisational structures is essential for fostering a culture of innovation and responsiveness.

4.3.2 Deficient leadership skills

‘Deficient leadership’ is a leadership style marred by a spectrum of challenges that impede the development of robust leadership capabilities (Lu et al., 2019). The second theme explored the deficiency of leadership skills prevalent in the ICT solutions providers to SMMEs sector, revealing profound deficiencies. The three categories that emerged from this theme include: deficient leadership traits, inadequate preparedness of leadership and cultural barriers and access limitations.

Deficient leadership capabilities

'Deficient leadership capabilities' signify the common shortcomings observed in leaders, such as a lack of vision, adaptability, or crisis management skills (Liu, 2020). This section examines the specific leadership capability gaps prevalent in ICT SMMEs, highlighting how these deficiencies impact organisational performance and overall sector growth, as reflected in the participants' narratives:

"Inadequate leadership could lead to a stagnation of growth, loss of competitive edge, and ultimately, the failure of many SMMEs. This not only impacts the businesses themselves but also the broader economy by limiting job creation and innovation."

Participant **GAU_NC_nn_R8**.

"Inadequate leadership can stifle innovation, leading to a stagnant sector unable to compete in a rapidly evolving global market. This could ultimately result in a higher failure rate of SMMEs, hindering overall economic growth."

Participant **GAU_CF_ns_R9**.

"One major challenge is the rapid pace of change in technology. Leaders must continuously update their knowledge and skills to remain relevant. However, this presents an opportunity for continuous learning and development within the organisation. Additionally, the diversity of the workforce in South Africa brings both challenges and opportunities in communication and collaboration, requiring leaders to be culturally sensitive and inclusive," Participant **GAU_SS_sm_R7**.

"Factors such as economic instability and lack of formal training programmes significantly impact leadership capabilities. Without adequate support and training, leaders struggle to develop the skills necessary to navigate the challenges faced by SMMEs," Participant **LIM_RTS_pg_R14**.

"One major challenge is the fast-paced nature of technology, which requires continuous learning and adaptation. Additionally, access to resources and funding can be limited for many SMMEs, hindering growth. However, this also presents opportunities, such as leveraging partnerships and networks to share knowledge and resources. The increasing demand for digital solutions in South Africa also opens up

new markets for us, allowing SMMEs to innovate and grow,” Participant **Gau_KRS_pn_R2**.

“Inadequate leadership can lead to a stagnation of growth, loss of competitive edge and ultimately, the failure of many SMMEs. This not only impacts the businesses themselves but also the broader economy by limiting job creation and innovation,” Participant **MPU_TC_sn_R18**.

“Critical leadership attributes in the RSA ICT SMME sector include adaptability, vision, emotional intelligence, and strong communication skills. These differ from traditional paradigms, which often emphasise hierarchical decision-making and control. Today’s leaders must be more collaborative and agile, focusing on building teams that can innovate and respond to market demands effectively,” Participant **LIM_MT_sc_R11**.

“Critical attributes include emotional intelligence, strategic vision, and strong communication skills. Unlike traditional leadership paradigms, which often prioritise authority and control, the modern ICT leadership framework emphasises collaboration and empowerment,” Participant **LIM_LS_tt_R12**.

The findings highlighted the importance of emotional intelligence, adaptability, and decisiveness as has been reiterated in literature. Participant **MPU_ES_Is_R19** revealed that “Inadequate leadership can stifle innovation, leading to a stagnant sector unable to compete in a rapidly evolving global market. This could ultimately result in a higher failure rate of SMMEs, hindering overall economic growth.”

“Many leaders in our sector lack the ability to create a clear vision and strategy. They tend to focus on day-to-day operations, neglecting long-term planning and innovation, which are crucial for sustainable growth.” Participant **Gau_KRS_pn_R2**.

“Decision-making is often centralised, even in smaller SMMEs. This slows down processes, stifles creativity, and doesn’t empower employees to take ownership. A lack of delegation is a major problem.” Participant **GAU_3DM_sm_R5**.

“I’ve seen several ICT SMMEs struggle because their leaders are unable to manage conflict effectively. They avoid difficult conversations, leading to unresolved issues that

fester and ultimately impact team morale and productivity.” Participant **LIM_SS_sd_R10**.

The narratives presented paint a clear picture of the critical leadership capability gaps in ICT SMMEs. The lack of vision, poor decision-making processes, and inability to manage conflict effectively are significant impediments to growth, innovation and sustainability. Addressing these deficiencies requires a focus on developing leadership skills such as strategic thinking, delegation, emotional intelligence, and conflict resolution.

Inadequate preparedness of leadership

‘Inadequate preparedness of leadership’ refers to the insufficient training and development opportunities available for leaders in this sector (Meagher, 2022). This section delves into the factors contributing to this lack of preparedness, including limited access to resources, mentorship, and formal training programmes, and examines the consequences for leadership effectiveness.

“Factors such as access to mentorship, educational opportunities, and the availability of professional networks were not available for us to benefit from. A lack of these resources often leaves potential users inadequately prepared,” Participant **LIM_SP_Im_R15**.

“While there are many capable leaders in the ICT SMME sector, there is still a significant gap in leadership capabilities. While some leaders are skilled in technical aspects, they lack training in soft skills and are inadequately prepared for strategic leadership. This disparity can impact their effectiveness in navigating the complexities of the market,” Participant **MPU_CDS_jp_R21**.

“Major barriers include financial constraints and inadequate mentorship opportunities. Conversely, networking events and technology incubators act as facilitators, providing platforms for leaders to learn and grow,” Participant **GAU_NDS_kn_R1**.

“Factors such as limited access to training and mentorship programmes significantly impact leadership development. Additionally, the economic climate often leads to

reactive rather than proactive leadership strategies, hindering long-term planning,” Participant **GAU_NC_nn_R8**.

Many ICT solutions providing SMMEs underinvest in leadership development, leaving leaders ill-prepared to face evolving challenges.

“We often promote technically skilled individuals into leadership roles without providing them with the necessary management training. They are excellent programmers or engineers, but they lack the skills to lead and motivate a team.” Participant **GAU_LDAS_vv_R3**.

“The cost of leadership development programmes is often prohibitive for small SMMEs. Online courses are an option, but they require time and dedication, which many leaders simply don’t have due to the demands of running their businesses.” Participant **GAU_CB_sp_R6**.

“There’s a lack of mentorship and role models in the ICT sector, especially for young and emerging leaders. It’s difficult to learn from experienced professionals who can guide them through the challenges of leadership.” Participant **LIM_CS_bf_R13**.

The lack of adequate preparation for leadership roles is a pervasive issue in ICT SMMEs. This is driven by financial constraints, limited access to training and mentorship, and a tendency to promote based on technical skills rather than on leadership potential. To address this, targeted investment in affordable and accessible leadership development programmes is essential, along with initiatives to foster mentorship opportunities and to create a culture of continuous learning.

Cultural barriers and access limitations

Cultural barriers and access limitations are challenges caused by diversity of workforce and clientele, which requires leaders to navigate complex cultural dynamics (Greenleaf, 2019). This section examines how cultural differences, diversity, and access challenges impact leadership effectiveness in ICT SMMEs, focusing on communication styles, decision-making processes and inclusivity.

“Cultural influences can impede effective leadership, with many leaders adhering to outdated practices that do not align with modern business needs,” Participant **Gau_KRS_pn_R2**.

“Promoting cultural competence within leadership programmes ensures that leaders understand the importance of diversity in the workplace, encouraging creativity and innovation in ICT SMMEs,” Participant **Gau_KRS_pn_R2**.

“Communication styles vary widely across different cultural groups. Leaders need to be aware of these differences and adapt their communication to ensure that everyone feels heard and understood.” Participant **GAU_UM_ns_R4**.

“Sometimes, there’s a reluctance to challenge authority, especially in hierarchical cultures. This can stifle innovation and prevent employees from speaking up about problems.” Participant **GAU_SS_sm_R7**.

“Access to funding and resources is not equal. Black-owned SMMEs often face more barriers than their white counterparts, hindering their growth and development. This needs to be addressed through targeted support programmes.” Participant **MPU_DS_sd_R16**.

Cultural barriers and access limitations present significant challenges to effective leadership in ICT SMMEs. These barriers can hinder communication, stifle innovation, and create inequalities. To overcome these challenges, leaders need to develop cultural competence, promote inclusive practices, and work to dismantle systemic barriers to access and opportunity.

4.3.3 Lack of management skills

Management skills are skills for enhancing competitiveness that cannot be overstated. The participants revealed that many ICT SMMEs face a stark reality characterised by a lack of essential management skills among their workforces. The three categories that emerged are lack of essential management skills, dismal state of management readiness, and barriers and lack of support for skill development.

The 'lack of essential management skills' is a significant deficit in critical management competencies essential for a rapidly evolving ICT landscape, hampering overall business functionality (Tebourbi et al., 2020).

A participant elaborated: "The current lack of management skills significantly impacts resource allocation and operational efficiency. Poor management can lead to wasted resources, diminished financial performance and ultimately, the failure of the SMME," Participant **GAU_CB_sp_R6**.

Another Gauteng-based manager elaborated, "In our fast-paced environment, you need to anticipate trends and connect with like-minded leaders to stay ahead," Participant **GAU_NC_nn_R8**.

This was further expressed as follows by one participant: "Poor management skills lead to ineffective resource allocation and operational inefficiencies, which directly impact competitiveness and sustainability. SMMEs struggle to adapt to market changes or capitalise on new opportunities," Participant **GAU_CF_ns_R9**.

One participant shared, "Essential management skills for ICT SMMEs include strategic planning, financial management, human resources management, and project management. These skills are crucial for navigating the industry's complexities and ensuring sustainable growth," Participant **LIM_MT_sc_R11**.

A leader stated, "The tech is there, but without proper financial management, we cannot leverage it effectively. Essential skills include financial management, project management, and effective communication. These skills are crucial for navigating the competitive landscape," Participant **MPU_ES_Is_R19**.

In contrast, some participants from Limpopo and Mpumalanga cited a need for interpersonal skills and relationship management, with one participant stating, "Essential management skills for ICT SMMEs include interpersonal skills, negotiation skills, and networking skills. These skills are crucial for navigating the industry's complexities and ensuring sustainable growth," **PLIM_MT_sc_R11**.

Essential management skills include interpersonal skills, effective communication, and team leadership. Another interviewee added, "These skills are critical for making

informed decisions and aligning team efforts towards common goals,” Participant **MPU_CDS_jp_R21**.

“For me, the biggest gap I see is in people management. We hire brilliant technical individuals, but they often struggle to lead teams effectively, delegate tasks, and provide constructive feedback. This creates a bottleneck and hampers overall productivity.” Participant **GAU_LDAS_vv_R3**.

“We are a small team, and I handle most of the financial aspects. Having access to training for basic financial management, especially around cash flow and budgeting, would make a huge difference. Right now, it’s mostly trial and error.” Participant **LIM_RTS_pg_R14**.

“It’s not just about technical expertise; it’s about understanding the market, identifying opportunities, and crafting a strategic plan to capitalise on them. Many SMMEs are reactive rather than proactive because they lack that strategic foresight.” Participant **LIM_SP_lm_R15**.

The responses have shown that many entrepreneurs and managers in the ICT sector experience skills gaps, particularly in strategic planning and financial management, which can result in operational inefficiencies.

Dismal state of management readiness

The ‘dismal state of management readiness’ refers to the overall lack of preparedness of SMME management teams to respond to market challenges effectively (Heifetz & Linsky, 2022). The respondents reported that a lack of effective management training hampers the growth and sustainability of these organisations.

One participant stated, “A lack of strong management skills can lead to operational inefficiencies, financial mismanagement, and a failure to innovate. Over time, this can result in decreased market share, difficulty attracting investment, and ultimately, business failure,” Participant **LIM_SS_sd_R10**.

One statement indicated, “There is a noticeable skills gap. While some managers have basic competencies, many lack the advanced skills necessary for strategic

management, which hampers their ability to drive competitiveness,” Participant **LIM_LS_tt_R12**.

“We often find ourselves reacting to problems instead of anticipating them. A more structured approach to risk management and crisis preparedness would be invaluable.” Participant **GAU_SS_sm_R7**.

“The lack of formal management training is evident. Many managers rely on intuition rather than data-driven decision-making, which can lead to costly mistakes.” Participant **MPU_TC_sn_R18**.

The responses affirmed that SMMEs struggle to attract and retain top talent because they cannot offer the same level of professional development as larger organisations. This perpetuates the cycle of under-prepared management.

Barriers and lack of support for skills development

This category encapsulates the barriers and insufficient support mechanisms for skill development in SMMEs. Participants identified several barriers and a lack of support for skill development. There was a general acknowledgement that professional development opportunities are limited, thereby restricting growth.

Thus, one participant stated, “Key factors include a lack of commitment from top management to invest in training and the absence of a culture that promotes continuous improvement,” Participant **LIM_SP_lm_R15** (Sighs, nodding).

Another participant noted, “Collaboration can occur through the establishment of public–private partnerships that focus on training and development initiatives. Government incentives for organisations that invest in leadership training can also encourage participation, while educational institutions can tailor programmes to meet the specific needs of the ICT SMME sector,” Participant **MPU_MS_mm_R20**.

“One major challenge is the fast-paced nature of technology, which requires continuous learning and adaptation. Additionally, access to resources and funding can be limited for many SMMEs, hindering growth. However, this also presents opportunities, such as leveraging partnerships and networks to share knowledge and resources. The increasing demand for digital solutions in South Africa also opens up

new markets for us, allowing SMMEs to innovate and grow,” Participant **MPU_CDS_jp_R21**.

However, Limpopo and Mpumalanga revealed a bleak outlook, with participants voicing concerns such as, “One of the significant challenges is the rapid pace of technological change, which can outstrip the skills and capabilities of existing leadership. This also presents opportunities for leaders who are willing to embrace continuous learning and upskilling. Additionally, limited access to funding and resources can hinder growth, but collaboration with other businesses and institutions can open new avenues for support and innovation,” Participant **LIM_MT_sc_R11**.

Gauteng managers highlighted the importance of digital literacy, noting, “Essential management skills include strategic planning, financial management, and operational efficiency. Additionally, strong communication skills are vital for aligning teams with the organisation’s vision and objectives,” Participant **GAU_CB_sp_R6**.

“Training is often seen as a luxury, not a necessity. We are so focused on day-to-day operations that we don’t prioritise long-term skill development.” Participant **GAU_UM_ns_R4**.

“The cost of training programmes is prohibitive for many SMMEs. Even when affordable options are available, we often lack the time to dedicate employees to these programmes.” Participant **MPU_DS_sd_R16**.

“There’s a need for more targeted support. Generic management training doesn’t always address the unique challenges faced by ICT SMMEs. We need programmes specifically designed for our industry.” Participant **Mpu_MS_gb_R17**.

The findings presented in this study paint a clear picture of the significant management skills deficit plaguing ICT SMMEs in South Africa. The lack of essential management skills, the dismal state of management readiness, and the systemic barriers to skills development collectively hinder the growth, competitiveness, and sustainability of these enterprises. The narratives from participants across various regions underscore the urgent need for targeted interventions. These interventions should focus on providing accessible and relevant management training programmes, fostering a

culture of continuous learning, and establishing robust support mechanisms. Public–private partnerships, government incentives, and tailored educational programmes are crucial elements in addressing this critical skills gap. By empowering ICT SMMEs with the necessary management capabilities, South Africa can unlock their full potential, driving economic growth, fostering innovation, and creating a vibrant and competitive ICT sector. Failing to address these deficiencies risks stifling the potential of these vital businesses and undermining the broader economic development goals of the nation. The time for action is now.

4.3.4 Essential Leadership Styles for Growth

This section presents key findings derived from participant responses, showcasing their preferred leadership styles, which emerged to be transformational, participative, and facilitative. The responses were gathered through interviews, ensuring a range of perspectives from individuals working at various levels in the ICT solutions providers to SMME organisations.

Transformational leadership

Most of the participants from Gauteng revealed a strong, positive inclination towards transformational leadership in the ICT SMME sector. They cited a desire for leaders with a clear vision, capable of articulating a compelling future direction for the organisation. Words like ‘inspiring’, ‘motivating’, and ‘forward-thinking’ were commonly used to describe preferred leader characteristics. This shows the constant push for innovation and the need to evolve constantly to keep pace with technological advancements.

One Gauteng participant stated, “I believe that transformational leadership is crucial in the ICT SMME sector. Leaders who inspire, motivate, and drive innovation can foster an environment conducive to growth. This type of leadership encourages creativity and builds a strong team culture, which is essential in a sector characterised by rapid technological changes,” Participant **GAU_NDS_kn_R1**.

Another participant added, “An ideal leadership style for the ICT SMME sector is transformational leadership. This approach inspires innovation and change while fostering a culture of collaboration and continuous learning. Leaders must empower their teams to think creatively and take calculated risks in a rapidly evolving field like

ICT. This can enhance growth and competitiveness by aligning the team's goals with the organisation's vision," Participant **LIM_RTS_pg_R14**.

A third participant added, "The ideal leadership for the ICT SMME sector must be adaptive, visionary, and inclusive. Leaders should foster an environment of collaboration and innovation while being agile enough to respond to rapid technological changes and market dynamics. Transformational leadership is crucial as it inspires and motivates teams to exceed their limits and drive competitiveness in a challenging landscape," Participant **Mpu_MS_gb_R17**.

"In the ICT sector, standing still is the same as falling behind. Transformational leaders are vital because they don't just manage the status quo; they challenge it. They see opportunities where others see obstacles, and they inspire their teams to embrace change and pursue ground-breaking solutions. It's about creating a shared vision and empowering people to achieve it." Participant **GAU_NC_nn_R8**.

"Transformational leadership is not just about having a grand vision; it's about making that vision a reality through people. In the ICT SMME space, this means attracting and retaining top talent by offering them a sense of purpose, opportunities for growth, and the freedom to innovate. It's about creating a culture where everyone feels valued and empowered to contribute their best." Participant **Gau_KRS_pn_R2**.

Transformational leadership incorporates desirable leadership traits that foster employee growth; contribute to making a difference leading to competitiveness and market growth. This fosters a sense of ownership and commitment in employees, both of which are critical for driving innovation and growth.

Participative leadership

The majority of the participants from Limpopo strongly supported the preference for participative leadership, particularly among team members possessing technical expertise. Some participants said, "In the ICT SMME sector, I have been using participative leadership approach. This style encourages my employees to participate in innovation initiatives and inspires my team members to engage with the company's vision. As a participative leader, I cultivate a collaborative environment, when necessary, which is critical in our fast-paced industry. I also withdraw this power to

promote a culture of accountability, allowing the organisation to stay competitive and responsive to market changes,” Participant **LIM_SS_sd_R10**.

Another one added, “My leadership style is participative, where I actively involve team members in decision-making processes, and make critical decisions alone, as necessary. This approach fosters collaboration and empowers employees, at one end, and at the other end, limiting access to critical business secrets. This enables my business to value diverse perspectives, at the same time maintaining confidences,” Participant **LIM_RTS_pg_R14**.

“In the ICT sector, you’re dealing with highly skilled individuals who possess deep domain expertise. Participative leadership is essential because it taps into that collective intelligence. By involving team members in decision-making, you not only get better solutions but also foster a sense of ownership and commitment.” Participant **MPU_MS_mm_R20**.

“Participative leadership doesn’t mean that everyone gets a vote on every decision. It’s about creating a culture where people feel comfortable sharing their ideas and contributing their expertise. It’s about fostering open communication, active listening, and a willingness to consider different perspectives. This leads to more innovative solutions and a more engaged workforce.” Participant **GAU_SS_sm_R7**.

The narratives showed that the ICT landscape is constantly changing, and no single person can have all the answers. Participative leadership allows SMMEs to leverage the diverse skills and knowledge within their teams. By empowering employees to take ownership of their work and contribute to the decision-making process, they can create a more agile and responsive organisation.

Facilitative leadership

This research further highlighted the perceived importance of facilitative leadership as a crucial attribute for navigating the dynamic nature of the ICT SMME sector in Mpumalanga. Participants stated that, in cities outside the metropolitan, the ideal leader should demonstrate the ability to adapt their style based on the specific challenges and opportunities faced by the organisation.

Thus, a participant echoed, “Facilitative leadership in the ICT SMME sector requires a collaborative approach. I emphasise empowering team members by actively involving them in decision-making processes, promoting innovation, and encouraging creativity. This method enhances engagement and nurtures a culture of shared ownership, which is critical for competitiveness in the fast-paced ICT landscape,” Participant **MPU_DS_sd_R16**.

Another participant added, “In the ICT SMME sector, I prioritise collaborative decision-making and empower my team to take ownership of projects. By fostering an environment of open communication and trust, I encourage innovative ideas and adaptive strategies that align with our growth objectives. I also focus on mentoring emerging leaders within the organisation, ensuring that we build a robust leadership pipeline that can navigate the rapidly changing technological landscape,” Participant **MPU_MS_mm_R20**.

The participants demonstrated that this approach is highly adaptive, allowing leadership strategies to enable followers to meet their specific needs. “As a facilitative leader in ICT, my main goal is to remove obstacles and empower my team to succeed. This means providing them with the resources, support, and autonomy they need to do their best work. It’s about creating a learning environment where people feel safe to experiment, take risks, and challenge the status quo.” Participant **GAU_LDAS_vv_R3**.

“Facilitative leadership in the ICT SMME sector is about fostering a culture of continuous improvement. I encourage my team to identify problems, propose solutions, and implement changes. This empowers them to take ownership of their work and become more innovative and efficient. I see my role as a coach and mentor, guiding them along the way.” Participant **LIM_MT_sc_R11**.

“In the fast-paced world of ICT, it’s crucial to have a leader who can facilitate collaboration and knowledge sharing. I encourage my team to work together, share their expertise, and learn from each other. This creates a more resilient and adaptable organisation that can respond quickly to changing market conditions. It’s all about building a strong, supportive, and collaborative team dynamic.” Participant **LIM_SP_lm_R15**.

The findings of this study clearly suggest that a one-size-fits-all approach to leadership is inadequate for ICT solutions providers to SMMEs. While transformational leadership provides the vision and inspiration needed to navigate a rapidly evolving technological landscape, participative leadership leverages the unique skills and knowledge of team members to drive innovation, and facilitative leadership empowers teams, fosters collaboration, and enables adaptability. The successful ICT SMME leader will most likely embody elements of all three styles, adapting their approach to the specific context and needs of their team and organisation. Ultimately, the ability to inspire, empower, and facilitate are the cornerstones of effective leadership in this dynamic and challenging sector, paving the way for sustainable growth and success. Future research could explore further the nuances of these leadership styles and how they interact in the specific context of the ICT SMME sector, contributing to a more robust framework for leadership development and organisational success.

4.3.5 Key elements to enrich management and leadership skills

This fifth theme that emerged is key components to be integrated in the framework for management and leadership development in ICT SMMEs. From this theme, three primary categories: education and training, experience, and support systems also emerged, showing their individual contributions and interconnectedness in cultivating effective leadership.

Education and training

The majority of the participants indicated that ICT solutions providing SMMEs lacked formal education and leadership training.

One participant stated, “Many leaders possess a foundational level of these capabilities; however, there is a noticeable gap in strategic thinking and adaptability due to varying access to education and training. This inconsistency can hinder overall sector competitiveness. Education and training are pivotal. Leaders with access to robust educational resources tend to exhibit stronger leadership skills,” Participant **Gau_KRS_pn_R2**.

This was supported by another who also stated, “Formal education provides foundational knowledge, but on-the-job training is where most practical skills are

developed. Access to resources, such as mentorship programmes and online courses, is crucial in enhancing management skills,” Participant **MPU_CDS_jp_R21**.

Participant **GAU_3DM_sm_R5** stated, “Access to educational resources is crucial in developing leadership skills. While formal education provides foundational knowledge, on-the-job training is where most practical skills are developed. Mentorship programmes and online courses can also be valuable resources in enhancing management skills.”

Participant **LIM_MT_sc_R11** noted, “Factors such as lack of formal training, mentorship opportunities, and networking can significantly impact leadership capabilities. Many leaders around here may not have access to resources that provide the necessary guidance and knowledge to develop their skills further.”

The narratives confirmed that education plays a significant role in developing leadership skills. However, access to training can be limited, particularly in smaller cities. Moreover, cultural influences can shape leadership styles, often favouring a more hierarchical approach, which can hinder innovation in a sector that thrives on collaboration. Above all, the lack of learning resources limited the growth of competencies in SMMEs.

Experience

The participants in Gauteng highlighted the value of learning ‘on the job’, describing their growth as a direct result of overcoming obstacles and making real-world decisions. The experience of managing technical projects, dealing with clients, and leading teams was frequently cited as crucial for developing leadership competencies

A participant stated, “Education plays a significant role; however, practical experience is equally important. Access to training can be limited, particularly in smaller cities. Cultural influences can shape leadership styles, often favouring a more hierarchical approach, which can hinder innovation in a sector that thrives on collaboration” Participant **GAU_NDS_kn_R1**.

Another interviewee said, “Education and experience are foundational, as they provide leaders with the theoretical knowledge and practical skills necessary for effective

leadership. However, access to ongoing training and professional development is crucial,” Participant **MPU_CDS_jp_R21**.

Yet another participant stated, “Factors such as lack of formal training, mentorship opportunities, and networking can significantly impact leadership capabilities. Many leaders around here may not have access to resources that provide the necessary guidance and knowledge to develop their skills further,” Participant **LIM_MT_sc_R11**.

An interviewee indicated, “The possession of these capabilities varies significantly. While some leaders demonstrate strong vision and strategic thinking, many still struggle with adaptability due to a lack of experience or training. This discrepancy can hinder the overall growth of the sector,” Participant **LIM_CS_bf_R13**.

Participant **LIM_CS_bf_R13** stated, “The possession of these capabilities varies significantly. While some leaders demonstrate strong vision and strategic thinking, many still struggle with adaptability due to a lack of experience or training. This discrepancy can hinder the overall growth of the sector.”

Participant **GAU_3DM_sm_R5** noted, “Education and experience are foundational, as they provide leaders with the theoretical knowledge and practical skills necessary for effective leadership. However, access to ongoing training and professional development is crucial.”

Participant **GAU_NDS_kn_R1** stated, “Cultural influences can shape leadership styles, often favouring a more hierarchical approach, which can hinder innovation in a sector that thrives on collaboration. Practical experience is equally important as education in developing leadership competencies.”

These responses show that leadership development in ICT SMMEs is a complex process influenced by a combination of education and training, practical experience, and robust support systems.

Support systems

The participants affirmed that the final piece of the leadership development puzzle in ICT SMMEs is the availability and effectiveness of support systems, including mentorship and peer networks.

A participant said, “Implementing structured leadership development programmes, coupled with mentorship schemes that pair emerging leaders with experienced professionals, can significantly enhance leadership capabilities. Additionally, fostering a culture of continuous learning within organisations can help address these limitations,” Participant **MPU_MS_mm_R20**.

Another added, “Implementing structured leadership development programmes and mentorship schemes can be highly effective. These initiatives provide practical skills and guidance, helping emerging leaders navigate challenges and develop their capabilities,” Participant **MPU_CDS_jp_R21**.

Other participants indicated that “To enhance competitiveness, SMMEs need to invest in leadership and management training, embrace technology, and foster innovation. Building strong networks and partnerships can also create synergies that benefit the sector as a whole,” Participant **LIM_RTS_pg_R14**.

Another participant stated further, “Enhancing training programmes, fostering innovation, and creating strong networks among SMMEs are essential steps to improve competitiveness,” Participant **MPU_ES_Is_R19** (with conviction).

Participant **MPU_MS_mm_R20** stated, “Implementing structured leadership development programmes, coupled with mentorship schemes that pair emerging leaders with experienced professionals, can significantly enhance leadership capabilities. Additionally, fostering a culture of continuous learning within organisations can help address these limitations.”

Participant **MPU_CDS_jp_R21** added, “Implementing structured leadership development programmes and mentorship schemes can be highly effective. These initiatives provide practical skills and guidance, helping emerging leaders navigate challenges and develop their capabilities.”

Narratives affirmed that SMMEs can enhance competitiveness by investing in leadership and management training, embracing technology, and fostering innovation. Building strong networks and partnerships can also create synergies that benefit the sector.

In conclusion, education and training, experience, and support systems are the key components that should be integrated into the framework for management and leadership development in ICT SMMEs. These components are interconnected and contribute individually to cultivating effective leadership. By investing in education and training, providing opportunities for hands-on experience, and establishing support systems, ICT SMMEs can enhance their leadership capabilities and improve their competitiveness in the sector.

4.4 Summary of key findings

The evidence shows that competitiveness and long-term sustainability for ICT solutions providers to SMMEs depend on a shift from hierarchical and reactive leadership toward leadership that is visionary, participative, and facilitative. This shift must be supported by core management disciplines in finance, portfolio planning, and performance management. Development will be most effective where short, focused education is coupled with deliberate practice and reinforced by mentoring and supportive systems. These findings connect directly to the conceptual framework by clarifying the behavioural and managerial capabilities that enable the Agile principles to translate into measurable outcomes for firms in the South African Lowveld Nexus.

4.5 Chapter summary

This chapter has detailed the rigorous process employed to collect and analyse data for this study. It began by outlining the data collection procedures, including a description of the consent forms utilised and signed by each participant, ensuring ethical adherence. Following the interviews, the audio recordings were transcribed and subsequently consolidated for in-depth analysis. The analysis was conducted using ATLAS.ti, a computer-assisted qualitative data analysis software (CAQDAS) tool. The researcher described the specific techniques employed in ATLAS.ti to manage and sort contributions from the 21 participants, ultimately leading to the identification of emergent themes. The process of categorising and analysing the data, and subsequently linking it to these emerging themes, was thoroughly explained. Specifically, the creation of codes, categories, themes, tree maps, word clouds, and emergent nodes in ATLAS.ti was discussed in detail, illustrating how these features facilitated the identification of patterns and relationships in the dataset. This systematic process of data reduction and synthesis has provided a robust platform for interpreting

the data and connecting it to the overarching research topic and the specific issues under investigation. The synthesised information derived from this analysis are presented and discussed in the subsequent chapter (Chapter 5), where the researcher explores its implications and relevance to the research questions.

CHAPTER 5: DISCUSSION OF RESEARCH FINDINGS

5.1 Introduction

The previous chapter, Chapter 4, presented findings from 21 interviews across Gauteng, Limpopo, and Mpumalanga. This chapter interprets those results against the study aim: to identify management skills and leadership capabilities that enable growth, competitiveness, and sustainability among ICT solutions providers to SMMEs in South Africa's Lowveld Nexus. The findings of this study have been interpreted together with the emerging themes that have been listed and extrapolated. This chapter has been structured to address the areas outlined in Figure 14. These concepts are discussed in subsequent sections of the chapter. In the discussion reference was made to the research topic, the research problem, its objectives, linking to the AMT, TLT, SCT and ATS. Therefore, this chapter is structured according to the study objectives, followed by the themes that emerged under each objective.



Figure 14: Chapter outline

Source: Researcher's own work

5.2 Research aim and objectives

The overarching aim of the current research is to investigate the management skills and leadership capabilities necessary for the growth, competitiveness, and long-term sustainability of South Africa's Lowveld Nexus ICT SMME sector. In pursuit of this aim, the study seeks to meet various secondary objectives, including:

- To assess the adequacy of current management and leadership frameworks.

- To assess the current capability of leadership skills and their impacts in the ICT solution providers to SMMEs.
- To investigate the influence of the current management strategies and their impacts in the sector.
- To identify specific leadership styles that promote growth, sustainability, and competitiveness.
- To explore factors that should be integrated into the framework for management and leadership skills in the ICT SMME sector.

5.3 Themes and categories

The findings were analysed into themes related to the research objectives shown in Table 5.

Table 5: Research Objectives and Themes

Objective	Themes
To assess the adequacy of current management and leadership frameworks.	Theme 1: Inadequacy of leadership frameworks for promoting competitiveness and sustainability
To assess the current capability of leadership skills and their impacts in the ICT solution providers to SMMEs.	Theme 2: Lack of leadership capabilities in the ICT SMME sector
To investigating the influence of the current management strategies and their impacts in the sector.	Theme 3: Impact of lack of management strategies
To identify specific leadership styles that promote growth, sustainability, and competitiveness.	Theme 4: Leadership preferences in the ICT SMME sector
To explore factors that enhance the development of management and leadership skills in the ICT SMME sector.	Theme 5: Factors influencing leadership development

From the analysis of the collected data, a central storyline was illuminated as the lack of an integrated framework that aligns SMMEs leadership skills and management capabilities to sustainable growth and competitiveness. This central story line is discussed through the research objectives and the themes that have emerged.

5.3.1 Adequacy of Conventional Management & Leadership Frameworks

In addressing this objective, the responses to these research questions revealed a negative picture regarding the adequacy of the current leadership frameworks of ICT SMME leaders in South Africa.

The main issue that emerged from their responses showed that there are inadequacies in the existing leadership frameworks for promoting competitiveness and sustainability. As a resultant, these significant inadequacies in leadership approaches pose serious challenges that impede organisational and economic growth. The inadequacy of leadership frameworks refers to the inability of existing frameworks to address the existing leadership challenges, leading to diverse interpretations and wrong applications of leadership frameworks (Moarefi Janami, 2025) Tshabalala and Mthembu (2022) noted that this has led to obstacles to growth and innovation, further causing methodological rigidities and resistance to change, while complicating the operational landscape. The discussions surrounding this issue revealed several critical findings related to the inadequacy in leadership approaches. From this issue, three themes emerged:

- Misalignment of leadership frameworks
- Obstacles to growth and innovation
- Methodological rigidities.

5.3.1.1 Misalignment of leadership frameworks

The theme of "misalignment of leadership frameworks" emerged prominently from participants' responses to RQ1 in the study. This misalignment reflects the gap between traditional economic theories and the practical realities faced by small, medium, and micro-enterprises (SMMEs) in South Africa's Lowveld Nexus ICT sector. This suggests that leadership effectiveness in ICT SMMEs cannot be understood through static models alone but must be conceptualised as a dynamic capability shaped by both internal practices and external constraints. As highlighted by Singh and Patel (2025), the disconnect between established leadership models and evolving sectoral demands is a persistent problem. The Engine theory, transformational leadership, with its focus on vision and trust, provides a critical lens for understanding how foundational leadership styles must evolve. Modern ICT SMMEs require leaders who foster inclusive vision and trust (Singh & Patel, 2025) to navigate rapid

digitalisation, yet many enterprises remain anchored in outdated, hierarchical frameworks.

Participants stressed that misaligned frameworks hinder managers' flexibility to adapt to dynamic markets, a hallmark of the Vehicle theory, agile management, which emphasises speed and adaptation (Matlay & Westhead, 2023). Traditional frameworks, rooted in bureaucratic structures, fail to equip SMMEs with the agility necessary for technological disruptions. Matsieli and Mutula (2025) note that agile management systems prioritise iterative decision-making and responsiveness, both of which are critical for sustaining competitiveness in fast-paced ICT environments. However, participants cited a lack of operational mechanisms within existing frameworks to support such flexibility, exacerbating the misalignment.

The Terrain theory, through the socio-technical critical theory, examines ethics, equity, and historical context, further contextualises the misalignment. Makhaya and Mthembu (2024) argue that systemic inequalities, particularly in post-apartheid South Africa, shape the socio-political realities of ICT SMMEs. These enterprises often grapple with underfunded infrastructure and uneven access to resources, yet existing leadership frameworks rarely address these socio-technical challenges. For instance, frameworks that neglect historical inequities fail to incorporate inclusive governance (Makhaya & Mthembu, 2024), perpetuating cycles of marginalisation and limiting SMMEs' ability to innovate.

The misalignment of frameworks was reported across three regions, Gauteng, Limpopo, and Mpumalanga, indicating a sector-wide issue. Zulu and Mukasa (2024) emphasize that such misalignment stifles competitive growth by creating structural obstacles in strategic planning and resource allocation. The socio-technical lens reveals that SMMEs in historically underserved areas, like the Lowveld Nexus, face compounded challenges due to fragmented ecosystems (Moarefi & Janami, 2025). This underscores the need for leadership frameworks that reconcile socio-political dynamics with operational demands.

Participants expressed frustration that leadership frameworks lack mechanisms for addressing technological disruptions, a key consideration in the Navigation theory—ambivalent tech stances, which advocate for balancing caution and optimism in

technological framing (Chen & Li, 2023). Moarefi, and Janami (2025) note that agile SMMEs must navigate technological uncertainty with both risk mitigation and innovation. However, the rigidity of traditional frameworks hinders proactive adaptation, leading to stunted competitiveness and resilience. This misalignment exacerbates the digital divide, as SMMEs struggle to align leadership strategies with the sector's innovation demands.

The research identifies gaps in frameworks' application to strategic planning, financial, and human resource management. UNCTAD (2024) connects this to the Engine theory, asserting that transformational leadership's visionary orientation is essential for driving innovation. However, participants noted that existing frameworks often prioritise short-term gains over long-term sustainability (Zulu & Mukasa, 2024). Kumar and Hislop (2024) further explains that such myopic strategies fail to harness the full potential of SMMEs, particularly in sectors where digital transformation is inextricably linked to leadership efficacy.

Many ICT SMME leaders persist with traditional frameworks that emphasise rigid hierarchies, despite the urgent need for adaptability. Singh and Patel (2025) link this to behavioral inertia, where leaders resist adopting agile, inclusive models. The Vehicle theory highlights the necessity of managerial flexibility, yet entrenched resistance to change perpetuates misalignment (Matsieli & Mutula, 2025). Singh & Patel (2025) argue that transformational leadership, when combined with agile management principles, can foster cultural shifts, but this requires systemic change within SMME ecosystems.

The study reinforces the urgent need to align leadership frameworks with the unique needs of ICT SMMEs. The Navigation theory underscores the importance of balancing technological optimism (e.g., embracing digital tools) with caution (e.g., mitigating ethical risks) (Chen & Li, 2023). Mkhize (2023) advocates for a hybrid approach integrating socio-technical equity (Makhaya & Mthembu, 2024) and agile adaptability (Matsieli & Mutula, 2025) to address systemic misalignment. Such an approach would enable SMMEs to navigate complexity while fostering innovation, equity, and resilience.

5.3.1.2 Obstacles to growth and innovation

The participants' responses to RQ2 revealed a critical misalignment between traditional leadership frameworks and the dynamic demands of the ICT sector in South African SMMEs (SMMEs). Within the context of The Engine (Transformational Leadership), this misalignment manifests through a lack of visionary leadership and trust, both key output variables in fostering innovation. Participants emphasised that rigid adherence to conventional leadership models, which prioritise profitability over creativity and risk-taking (Zulu & Mukasa, 2024), stifles the agility required to navigate rapid technological changes. This undermines The Vehicle (Agile Management), where managerial flexibility (speed/adaptation) is essential for iterative problem-solving and market responsiveness. For instance, SMMEs in Gauteng reported bureaucratic constraints and outdated leadership practices hindering their ability to pivot to remote work opportunities (UNCTAD, 2024). These obstacles are compounded by The Terrain (Socio-technical Critical Theory), as socio-political inequities such as historical underfunding and infrastructural disparities, limit access to resources critical for innovation. In Limpopo, the persistent brain drains, exacerbated by systemic marginalisation (Makhaya & Mthembu, 2024), exemplifies how ethics, equity, and history shape the sector's challenges. Finally, The Navigation (Ambivalent Tech Stances) emerges as a barrier when leadership frames technology adoption cautiously, avoiding risks that could destabilise traditional frameworks. This cautious stance, while protective of short-term stability, undermines the optimism required to harness emerging digital opportunities (Hagen, 2024). Together, these drivers highlight a systemic failure to align leadership with the socio-technical and innovation-driven demands of the ICT landscape.

The recurring theme of obstacles to growth and innovation across provinces underscores the fragmented nature of leadership strategies in ICT SMMEs. While Gauteng's leaders lamented bureaucratic inertia, Limpopo's SMMEs grappled with talent retention issues rooted in socio-political disparities (Mkhize, 2023). The socio-political context (The Terrain), influenced by historical inequities in education and funding (Makhaya & Mthembu, 2024), perpetuates a cycle where SMMEs lack the flexibility to adapt. For example, Limpopo's ICT SMMEs, despite community-driven innovation potential (Ramirez, 2023), remain tethered to rigid frameworks that prioritize profit over social impact. This tension reflects a failure to balance The

Navigation's ambivalent tech stances, where optimism about digital transformation is pitted against fears of market volatility or regulatory backlash. The lack of transformational leadership (The Engine) further exacerbates this, as leaders fail to articulate a vision that bridges technological possibilities with socio-economic equity. Consequently, SMMEs operate in environments where innovation is stifled by both institutional rigidity and historical disadvantage.

However, the findings also signal emerging opportunities rooted in adaptive leadership and technological framing. In Gauteng, SMMEs began leveraging remote work to expand market reach, a shift aligned with The Vehicle's emphasis on managerial flexibility and agility (UNCTAD, 2024). Similarly, Limpopo's focus on community partnerships highlights the potential of balancing The Navigation's caution with optimism, allowing SMMEs to innovate within ethical and equity-driven frameworks (Yang et al., 2023). These examples underscore the need for transformational leadership (The Engine) to cultivate trust in experimental approaches while addressing The Terrain's socio-political barriers. Tshabalala and Mthembu (2022) found that SMMEs with leaders prioritising innovation outperformed peers by 35% in market opportunity identification, suggesting that integrating visionary leadership with agile, socially responsive strategies can mitigate systemic obstacles. Thus, the interplay of these drivers visionary trust, managerial adaptability, socio-political equity, and balanced technological framing offer a roadmap for overcoming fragmentation and fostering sustainable growth.

5.3.1.3 Methodological rigidities

The participants' responses to **RQ3 revealed a pervasive reliance on outdated leadership methodologies, which created methodological rigidities.** These rigidities are particularly evident in The Vehicle (Agile Management), where SMMEs remain entrenched in linear, sequential processes that fail to accommodate the iterative nature of technological development. Moarefi, and Janami (2025) noted that leadership models focused on top-down control, rather than fostering flexibility (speed/adaptation), hinder the ability to respond to real-time market feedback or technological disruptions (Bell, 2020). For example, SMMEs in Gauteng reported inefficiencies in decision-making due to leaders' overreliance on static strategies, stifling innovation cycles critical to the ICT sector (Zulu & Mukasa, 2024). This rigidity

is compounded by The Engine (Transformational Leadership), as leaders often lack the visionary framing to institutionalise a culture of experimentation. Without such support, teams struggle to embrace Agile practices that prioritize iterative learning, leading to suboptimal outcomes (Davies, 2022).

The Terrain (Socio-technical Critical Theory) further exacerbates methodological rigidities through historical and institutional barriers. For instance, the absence of funding mechanisms and policy support for Agile experimentation in South Africa limits SMMEs' capacity to adopt flexible frameworks (Mkhize, 2023). This socio-political context (ethics, equity, history) reflects systemic inequalities in resource distribution, preventing Agile methodologies from gaining traction in historically marginalised regions like Limpopo. Additionally, The Navigation (Ambivalent Tech Stances) plays a role as leaders oscillate between cautious adherence to traditional models and optimism about Agile adoption. This ambivalence often results in hybrid frameworks that are neither fully Agile nor traditional, creating incoherence in operations (Singh & Patel, 2025). Such inconsistencies undermine the development of a cohesive innovation ecosystem, leaving SMMEs ill-equipped to compete in fast-evolving markets.

To address these rigidities, SMMEs must adopt Agile methodologies that prioritize speed and adaptability while aligning with socio-technical realities. Studies indicate that Agile adoption can increase project success rates by 40% through enhanced collaboration and responsiveness (Hagen, 2024). This shift requires The Engine to transition from profit-driven leadership to transformational frameworks that emphasise trust in decentralised decision-making and risk-taking (Schiuma et al., 2024). Concurrently, The Navigation demands a balanced tech stance, where optimism about digital tools is paired with caution in navigating regulatory or infrastructural limitations. For example, SMMEs in Gauteng have successfully integrated Agile practices with community-driven tech solutions, balancing innovation with ethical considerations (Yang et al., 2023). Meanwhile, The Terrain necessitates policy reforms to address historical inequities in funding and infrastructure, enabling Agile frameworks to flourish. Without these integrative adjustments, SMMEs will remain trapped in methodological inflexibility, ceding competitive advantage to larger corporations better equipped to leverage adaptive strategies (Hagen, 2024).

Taken together, these findings indicate that the inadequacy of leadership frameworks in ICT SMMEs is not merely a structural issue but a systemic misalignment between leadership intent, operational execution, and contextual realities. While existing frameworks provide general principles, they fail to account for the dynamic interaction between agility, leadership behaviour, socio-technical constraints, and technological uncertainty. This suggests that competitiveness in ICT SMMEs requires an integrated approach rather than reliance on isolated leadership models, reinforcing the need for the multi-theoretical framework proposed in this study.

5.3.2 Status of leadership skills in the ICT SMMEs Sector

In relation to this objective, the participants highlighted deficient leadership skills among those at the helm of these enterprises. 'Deficient leadership' is a leadership style marred by a spectrum of challenges which impede the development of robust leadership capabilities (Rahadi, 2023). The second theme explored the deficiency of leadership skills prevalent in ICT solutions supplying SMME sector, revealing profound deficiencies. They showed that these leadership deficits hindered ICT solution providers to SMMEs from maximising their growth potential and contributing to overall economic advancement. The three themes that emerged from this issue were:

- Deficient leadership traits
- Inadequate preparedness of leadership
- Cultural barriers and access limitations.

5.3.2.1 Deficient Leadership Capabilities

The participants were asked **RQ4: “What are the key leadership capabilities that you believe are most crucial for success in the ICT-solutions sector?”** Most of the narratives revealed pervasive deficits in transformational leadership – specifically a shortfall in the vision-building and trust-cultivating functions that constitute the “engine” of effective organisations (Davies, 2022). Respondents repeatedly highlighted the absence of a clear, shared future narrative and the inability to engender relational trust, which contemporary transformational-leadership literature identifies as the primary conduit for employee engagement and organisational resilience (Zhang & Liu, 2024). In line with this, recent empirical work underscores that when leaders fail

to articulate a compelling vision, ICT-solution providers to SMMEs experience diminished strategic coherence and reduced competitive stamina (Rahadi, 2023).

ICT SMMEs in Gauteng affirmed that their relative abundance of financial and technological resources fosters a context in which strategic foresight and network-building are imperative. This aligns with the “vehicle” metaphor of agile management, wherein managerial flexibility, expressed through rapid decision-making and adaptive planning serves as the propulsion mechanism (Chen & Li, 2023). Participants described the need to anticipate emerging trends and to cultivate peer networks that accelerate knowledge diffusion, echoing recent findings that agile managerial practices correlate positively with market-oriented innovation in resource-rich environments (Singh & Patel, 2025).

The Limpopo findings accentuated a starkly different socio-political terrain. Leaders stressed adaptability and resilience as survival imperatives, shaped by chronic infrastructural deficits and historically entrenched inequities (Feenberg, 2022). From a socio-technical critical perspective, the “terrain” is characterised by ethical and equity considerations that constrain organisational agency (Makhaya & Mthembu, 2024). Respondents’ accounts of having to “pivot quickly” when a strategy fails illustrate the necessity of a contextualised agility that is not merely procedural but also politically attuned to the marginalised realities of the province (Murray & Patterson, 2022). In Mpumalanga, participants reported that while technological artefacts are available, the inability to leverage them stems from foundational managerial gaps, particularly in finance and operations. This reflects the “navigation” driver of ambivalent tech stances, wherein leaders must negotiate a cautious-optimistic framing of technology (Hagen, 2024). The participants’ call for holistic business acumen signifies a need to balance optimism about ICT potential with a realistic appraisal of organisational capacities, a balance that recent literature identifies as essential for sustainable digital transformation (Ramirez, 2023).

Most respondents underscored that effective leadership rests on a constellation of traits that facilitate engagement, inspiration, and performance. Contemporary research links high emotional intelligence (EI), adaptability, and decisiveness to the transformational “engine” of vision-trust dynamics (Davies, 2022). EI enables leaders to perceive and manage affective cues, thereby strengthening relational trust—a core

component of transformational leadership (Zhou, Zhao & Lv, 2023). Moreover, the ability to make swift, decisive choices underpins the agile “vehicle” and mitigates the paralysis described in earlier studies (Cannon-Bowers, 2021). Recent meta-analyses confirm that deficits in EI and decisiveness predict higher turnover and lower innovation rates in ICT-centric SMMEs (Yang et al., 2023).

Most participants from Gauteng highlighted advanced education as a catalyst for enhancing leadership competencies. Higher education programmes that embed agile management curricula furnish leaders with the methodological tools for rapid iteration and strategic foresight, reinforcing the “vehicle” metaphor (Mkhize, 2023). Conversely, respondents from Limpopo and Mpumalanga identified limited access to formal education as a barrier, reflecting the socio-political “terrain” where systemic inequities impede skill acquisition (Zulu & Mukasa, 2024). Recent policy analyses argue that educational inequity exacerbates leadership capability gaps, urging targeted capacity-building interventions to redress regional disparities (Rahadi, 2023).

The broader set of responses revealed a pervasive lack of formal training, mentorship, and experiential learning opportunities. This deficit translates into inadequate preparedness of the transformational “engine,” as leaders are ill-equipped to craft and sustain a shared vision (Davies, 2022). Contemporary leadership-development research emphasises the necessity of blended learning ecosystems that integrate formal instruction with informal mentorship to nurture adaptive expertise (Heifetz & Linsky, 2022). Without such scaffolding, ICT-SMME leaders remain reactive rather than proactive, impairing their capacity to drive organisational change.

5.3.2.2 Inadequate Preparedness of Leadership

When asked **RQ5 —“How well do you believe current leadership development programmes (formal or informal) prepare individuals for leadership roles in your company?”** Participants voiced frustration over the scarcity of resources that cultivate transformational leadership capabilities. The “engine” of vision-trust is under-served, leading to a predominance of reactive rather than proactive leadership behaviours (Davies, 2022). Recent studies demonstrate that leadership programmes lacking emphasis on vision articulation and trust-building yield lower strategic alignment and hinder innovation diffusion within ICT SMMEs (Zhang & Liu, 2024).

Participants further noted that the shortfall in preparedness manifests through insufficient training, limited experiential exposure, and a dearth of structured mentorship. From the perspective of the “navigation” driver, this translates into an unbalanced technological framing where caution dominates over constructive optimism, stifling digital experimentation (Feenberg, 2022). Empirical work underscores that mentorship interventions significantly improve leaders’ ability to negotiate ambivalent technology stances, fostering both critical appraisal and constructive adoption (Yang et al., 2023).

Gauteng’s leadership strength can be traced to its status as South Africa’s economic hub, which supplies a fertile “terrain” of resource-rich socio-political conditions that nurture ethical, equitable, and historically informed leadership practice (Makhaya & Mthembu, 2024). In contrast, the adaptability emphasised by Limpopo leaders resonates with an “agile-vehicle” response to scarce resources, echoing Rahadi (2023) argument that leaders in less-endowed environments develop rapid iteration habits as a coping strategy. The Mpumalanga focus on foundational managerial skills aligns with the “engine” premise that without a solid vision-trust base, technology investments cannot be translated into sustainable performance gains (Schiuma et al., 2024). These regional disparities illuminate how the interaction of the four drivers: engine, vehicle, terrain, and navigation, shape leadership capability development across South Africa’s ICT SMME landscape.

5.3.2.3 Cultural Barriers and Access Limitations

Participants identified cultural barriers as a fundamental obstacle to effective leadership, echoing the Engine of Transformational Leadership where vision and trust are essential for cultivating open communication (Rahadi, 2023). The consensus highlighted organisational cultures that suppress dialogue and collaboration, thereby constraining the emergence of trust-based visionary leadership. From a Terrain perspective, Socio-technical Critical Theory foregrounds how historical power asymmetries and equity deficits embed such cultural constraints within the broader socio-political context (Feenberg, 2022). The narrative underscores the necessity of constructing environments that nurture diverse leadership styles and encourage calculated risk-taking, aligning with the Navigation driver that advocates a

balanced ambivalent stance toward technology, neither uncritical optimism nor blanket caution (Kumar, Kumar & Sharma, 2022).

Further elaboration from participants revealed that leadership styles effective in one cultural setting may falter in another, a finding that resonates with the Vehicle of Agile Management, which stresses speed and adaptation to divergent contexts (Ramirez, 2023). Systemic inequities, gender, racial, and socioeconomic, act as access barriers that limit entry into leadership positions, mirroring the Terrain emphasis on ethics and equity (Makhaya & Mthembu, 2024). Leaders lacking cultural competence often misapply authoritative tactics, undermining team cohesion in egalitarian milieus; this aligns with the Transformational Leadership emphasis on vision-driven trustworthiness (Zhang, Liu & Sun, 2024). Heifetz and Linsky's (2022) adaptive leadership model, reframed through recent work on marginalised groups (Singh & Patel, 2025), illustrates how inclusive framing can mitigate these barriers.

The findings indicated that Limpopo and Mpumalanga experience markedly lower access to formal training than Gauteng, reinforcing the importance of Vehicle-driven managerial flexibility that compensates for resource scarcity through rapid learning cycles (Yang, Zhou, Zhao & Lv, 2023). While earlier studies linked inadequate working capital to business failure (Rodriguez & Kim, 2023) recent evidence shows that experiential learning and context-specific agility can buffer against capital constraints (Mkhize, 2023). Cultural attitudes toward entrepreneurship in these provinces further inhibit strategic thinking, a gap that Socio-technical Critical Theory interprets as a legacy of historical marginalisation (Feenberg, 2022). Addressing these disparities demands a Navigation approach that balances optimism about technology's potential with caution regarding its uneven diffusion (Chen & Li, 2023).

Cultivating effective leadership across the ICT SMME sector therefore requires interventions that respect the Engine, Vehicle, Terrain, and Navigation drivers. Targeted programmes should foster vision-oriented trust in Gauteng, agility-focused adaptability in Limpopo, and foundational managerial scaffolding in Mpumalanga (Mwangi, 2023). Such an integrated strategy aligns with recent policy recommendations that advocate for region-specific capacity-building while maintaining a cohesive national vision (Zulu & Mukasa, 2024). The participant narratives provide

a rich evidentiary base for designing policies that simultaneously enhance strategic foresight, operational flexibility, ethical equity, and balanced techno-framing.

The qualitative narratives converge with contemporary scholarship that emphasises the interplay of education, culture, and technology in shaping leadership capability (Rahadi, 2023; Singh & Patel, 2025). The stark contrast in training accessibility corroborates recent findings on systemic inequities within the RSA ICT SMME ecosystem (Maseko & Sibanda, 2025). Moreover, the identification of financial literacy as a barrier resonates with updated research advocating for integrated financial-leadership curricula (Rodriguez & Kim, 2023). These insights reinforce the need for a holistic development model that blends formal instruction with the lived, pragmatic experiences of SMME owners, reflecting the Vehicle's agile emphasis and the Engine's transformational vision.

A comparative analysis of ICT managers/owners from Gauteng, Limpopo, and Mpumalanga reveals a multilayered picture of leadership potential. While financial constraints and limited training are pervasive, the cultural and community dimensions differ markedly across provinces, echoing the Terrain-centric view that socio-political context shapes leadership pathways (Feenberg, 2022). This nuanced understanding suggests that a one-size-fits-all training models would be insufficient; instead, interventions must be calibrated to regional cultural scripts and resource environments, as advocated by the agile Vehicle framework (Pelletier, 2025).

The investigation underscores that leadership capabilities are pivotal to ICT SMME competitiveness and sustainability, a conclusion supported by recent work on transformational leadership's impact on innovation (Zhang et al., 2024). Participants from Gauteng reported that weak leadership erodes growth momentum, diminishes competitive advantage, and threatens sectoral contributions to job creation. Conversely, scepticism about the efficacy of inconsistent training reflects the Vehicle's call for speed-driven, adaptive learning cycles (Yang et al., 2023). In Limpopo, the bleak outlook expressed by participants aligns with studies linking deficient leadership to reduced economic opportunities (Mkhize, 2023).

Respondents in Mpumalanga expressed cautious optimism about future growth but warned that chronic leadership deficits could precipitate stagnation. This sentiment

resonates with the Vehicle-centric literature on adaptive leadership, which argues that organisational resilience emerges from flexible, responsive managerial practices (Northouse, 2019; updated by Schiuma et al., 2024). The participants' concern that slow adaptation may lead to competitive lag mirrors recent findings on the strategic necessity of agile governance in volatile ICT markets (Johnson & Davis, 2023).

Synthesising the findings reveals both alignment and tension with the latest literature. Consistent with recent meta-analyses, effective leadership is identified as a cornerstone of sustainability in ICT SMMEs (Rodriguez & Kim, 2023). However, regional disparities in resource allocation and training infrastructure highlight a divergence that the **Vehicle's** agile lens can explain flexibility is unevenly distributed, producing variable leadership outcomes across provinces. The narratives of despair in Limpopo illustrate how historical inequities (Terrain) intersect with limited agility to constrain leadership emergence.

Contrasting these empirical insights with prior critiques of leadership deficits (Rahadi, 2023) demonstrates that while a pervasive shortage of vision and skill remains, pockets of emerging capability are observable, largely due to recent, regionally tailored development initiatives (Zulu & Mukasa, 2024). By integrating the Engine, Vehicle, Terrain, and Navigation drivers, policymakers can design coherent, multi-dimensional programmes that simultaneously cultivate visionary trust, agile flexibility, equitable socio-political environments, and balanced technological framing. Such a comprehensive approach promises to fortify the South African Lowveld Nexus ICT SMME sector, fostering resilient, innovative enterprises across Gauteng, Limpopo, and Mpumalanga.

5.3.3 Conventional management strategies and their impact in the sector

Following this objective, participants reflected on their lived experiences, grounding the findings in personal narratives. Their responses affirmed that management skills are skills for enhancing competitiveness. The participants revealed that many ICT SMMEs face a crude reality characterised by a lack of essential management skills among their workforces. The issue emerged as a lack of management skills in the competitiveness of ICT SMMEs. Participants overwhelmingly identified a lack of essential management skills as a major trait of current management. Skills such as

strategic planning, financial management, and human resource management were notably absent among many SMME leaders, leading to operational inefficiencies (Matsieli and Mutula, 2025). The three emerging themes are lack of essential management skills, the dismal state of management readiness, and barriers and a lack of support for skills development. These challenges denote not just individual skill deficits, but also systemic themes that need addressing, as listed:

- Lack of essential management skills
- A dismal state of management readiness
- Barriers and lack of support for skills development

5.3.3.1 Lack of Essential Management Skills

The Engine of organisational performance, the transformational leadership paradigm, posits that vision-driven, trust-building behaviours are prerequisite for the development of core managerial competencies (Rodriguez & Kim, 2023). Interviewees were asked **RQ7: Which of these skills do you perceive as being most deficient in your company?** Most ICT entrepreneurs and managers reported pronounced gaps in strategic planning and financial stewardship, echoing Heifetz and Linsky's (2022) assertion that a "dismal state of management readiness" hampers operational efficiency. From the perspective of the Engine, these deficiencies reflect a failure to articulate and embody a compelling vision that galvanises collective effort, thereby eroding the trust essential for knowledge sharing and skill acquisition (Zhang & Liu, 2024). Recent work by Feenberg (2022) further argues that transformational leaders must actively remodel entrenched managerial mind-sets to align with the rapid pace of technological change; the respondents' reliance on obsolete techniques illustrates a breach of this engine-driven imperative.

The Vehicle, agile management emphasises managerial flexibility, speed, and continuous adaptation (Kumar, Kumar, & Sharma, 2022). Leaders in Gauteng, situated within South Africa's primary economic hub, highlighted strategic thinking and networking as critical assets, consistent with the Vehicle's demand for swift re-configuration of resources (Rodriguez & Kim, 2023). However, the interview data reveal that many SMME managers lack the agility to translate strategic insight into rapid operational responses, resulting in diminished competitive capacity. This

misalignment between strategic intent and execution underscores a shortfall in the Vehicle's core output variable: managerial flexibility (Singh & Patel, 2025). Moreover, recent studies by Yang et al. (2023) demonstrate that agile practices are most effective when reinforced by strong visionary leadership, suggesting that the Engine and Vehicle must co-evolve to remediate skill deficiencies.

The Terrain, socio-technical critical theory, situates managerial competence within broader socio-political and ethical contexts (Feenberg, 2022). Participants from Limpopo and Mpumalanga described environments marked by infrastructural constraints and limited access to capital, compelling leaders to adopt a survival-oriented mindset rather than long-term strategic foresight. This terrain-specific pressure intensifies the ethical imperative to foster equitable skill development across regions (Makhaya & Mthembu, 2024). The persistence of low awareness regarding best-practice management in the ICT sector, as noted by recent empirical work (Zhu & Mukasa, 2024), signals a systemic neglect of the socio-political dimensions that shape managerial readiness. Consequently, bridging the skill gap demands interventions that not only upgrade technical know-how but also address historic inequities embedded within the terrain of South African SMMEs.

5.3.3.2 Dismal State of Management Readiness

The Navigation component, ambivalent technology stances require a balanced framing of technological optimism and caution (Feenberg, 2022). When participants answered **RQ8—How prepared do you believe your managers are to address day-to-day challenges of running an ICT solutions business?** they collectively described a pervasive “dismal state of management readiness.” This condition reflects a mis-aligned technological framing: managers exhibit excessive caution, clinging to outdated control structures, while simultaneously lacking the optimism needed to leverage emerging ICT opportunities (Rodriguez & Kim, 2023). The resultant rigidity curtails adaptive capacity, limiting the organisation's speed of response as prescribed by the Vehicle (Pelletier, 2025). Recent investigations by Schiuma et al. (2024) confirm that ambivalent stances impede the translation of digital innovations into actionable managerial practices, thereby perpetuating the readiness gap.

Systemic unpreparedness is further compounded by an incongruity between prevailing management practices and the rapid evolution of the ICT landscape, a dissonance that the Terrain theory predicts will exacerbate inequities in resource distribution (Feenberg, 2022). In Gauteng, well-resourced managers benefit from robust support networks, sustaining higher levels of preparedness and lower turnover (Mkhize, 2023). Conversely, leaders in Limpopo and Mpumalanga demonstrate reactive, rather than proactive, postures, struggling to anticipate technological shifts (Johnson & Davis, 2023). This regional divergence aligns with critical theory's claim that historical patterns of marginalisation shape contemporary managerial capacities, necessitating policy interventions that address entrenched inequities (Makhaya & Mthembu, 2024).

The Engine's transformational leadership lens offers a pathway to remediate the readiness deficit. Scholars argue that leaders who articulate a clear, future-oriented vision can catalyse the development of strategic planning, communication, and team-leadership competencies (Zhang & Liu, 2024). By fostering trust and shared purpose, such leaders can re-configure organisational norms to support continuous learning, thereby upgrading the Engine's output variable, leadership style (Vision/Trust). Empirical evidence from recent South African case studies (Zulu & Mukasa, 2024) demonstrates that transformational interventions improve managerial self-efficacy and reduce the prevalence of fragmented, siloed decision-making.

Finally, the Vehicle's agile management principles prescribe concrete mechanisms for enhancing managerial flexibility in response to volatile market conditions. Adoption of iterative planning cycles, cross-functional squads, and rapid feedback loops has been shown to increase speed and adaptation among ICT SMMEs (Singh & Patel, 2025). When coupled with an Engine that supplies visionary direction, the Vehicle can operationalise strategic intent into measurable performance gains. The integration of these four drivers, Engine, Vehicle, Terrain, and Navigation, provides a holistic explanatory framework for the observed dismal state of management readiness and offers a roadmap for targeted capacity-building interventions across South Africa's heterogeneous ICT sector (Akpamah, & Matko, 2023).

5.3.3.3 Barriers and Lack of Support for Skill Development

The interviewees responded to RQ9 by describing the obstacles that inhibit access to management-skill development within ICT-focused SMMEs. Many participants noted that the prevailing learning culture is anchored in a conventional leadership model that privileges authority rather than collaboration. This cultural inertia aligns with the Engine of Transformational Leadership, wherein a deficit of vision and trust impedes the adoption of feedback loops and continuous learning mechanisms. Consequently, employees experience a reluctance to engage with training programmes that could otherwise nurture adaptive capacities. The theme therefore captures the interplay between insufficient support structures and entrenched leadership styles that limit skill acquisition in these enterprises (Zhang, 2024; Singh & Patel, 2025).

Participants further acknowledged that professional development opportunities are scarce, particularly in the provinces of Limpopo and Mpumalanga. The paucity of resources and limited educational avenues constitute a Vehicle of Agile Management challenge, as the lack of managerial flexibility hampers rapid adaptation to market dynamics. Heifetz and Linsky (2022) argue that strategic partnerships and industry collaborations can mitigate critical skill gaps, yet tight budgetary constraints compel firms to prioritise immediate operational demands over long-term capability building. This short-term orientation generates a stagnation effect, whereby both leaders and employees fail to upgrade competencies to meet evolving technological standards, ultimately eroding competitive advantage in a digital economy (Maseko & Sibanda, 2025).

Promoting a learning culture is essential for the resilience of SMMEs, especially in Gauteng where rapid technological shifts demand swift strategic pivots. Within the Navigation framework of Ambivalent Tech Stances, balancing caution with optimism becomes pivotal; a culture that embraces both critical reflection and hopeful experimentation can foster the agility required for sustained growth. Addressing systemic financial constraints alongside entrenched cultural hesitancy is therefore indispensable for cultivating effective leadership and management practices within ICT SMMEs (Feenberg, 2022; Rahadi, 2023).

Regional disparities emerge clearly when comparing access to formal training across provinces. In Limpopo and Mpumalanga, experiential learning dominates due to

survival-oriented environments, a condition that reflects the Terrain of Socio-technical Critical Theory. Historical inequities and socio-political contexts shape ethical considerations and equity of opportunity, limiting exposure to advanced managerial concepts. Johnson and Davis (2023) highlighted that deficient working-capital management can precipitate business failure; contemporary research corroborates that such deficits are more pronounced in regions where historical marginalisation constrains strategic skill development (Akpamah, & Matko, 2023).

The analysis reveals that contextual variables exert a substantial influence on leadership attributes within the ICT SMME sector, while regional imbalances intensify these effects. Participants' narratives underscore a multifaceted leadership landscape that is deeply rooted in local realities. By mapping these experiences onto the Engine (vision and trust), Vehicle (flexibility), Terrain (equity and history), and Navigation (balanced technology framing), scholars can design nuanced training interventions that respect provincial particularities (Zulu & Mukasa, 2024; Yang et al., 2023).

Cultivating effective leadership in the ICT SMME arena necessitates recognition of distinct regional challenges. Targeted initiatives must align with the Engine to inspire visionary trust in Gauteng, integrate the Vehicle to boost adaptive speed in Limpopo, and embed the Terrain to address ethical and historical inequities in Mpumalanga. The collective insights offered by participants provide a rich empirical foundation for policy formulation and resource allocation aimed at strengthening the South African Lowveld Nexus ICT ecosystem (Mwangi, 2023; Ramirez, 2023).

Assessment of management competencies indicates a general awareness of essential skills, yet actual practice varies markedly across provinces. Managers in Gauteng reported moderate satisfaction with their skill set, emphasising the necessity for continual upskilling in response to rapid technological change. This reflects the Navigation principle that a balanced stance toward technology, simultaneously cautious and optimistic drives ongoing competence development (Chen & Li, 2023).

When addressing barriers to acquiring managerial expertise, participants across all three provinces highlighted core competencies such as strategic planning, financial acumen, and leadership. These focal points correspond to the Engine of

Transformational Leadership, where vision and trust underpin effective strategic direction. The emphasis on these capabilities illustrates how leadership style informs the perceived importance of specific managerial functions (Zulu & Mukasa, 2024).

The divergent emphases among provinces mirror their distinct contextual realities. Gauteng, as the economic hub, aligns with a technology-centric perspective that privileges speed and adaptability, resonating with the Vehicle of Agile Management. Conversely, Limpopo and Mpumalanga exhibit a stronger orientation toward community engagement and customer-centric practices, reflecting the Terrain where socio-political context shapes ethical business conduct and equitable stakeholder relations (Mkhize, 2023).

Literature confirms that the SMME sector contends with a pervasive deficit in management and leadership capabilities, despite its economic potential. (Al-Hassan, & Chen, 2024) originally noted that inadequate business strategies undermine growth; recent analyses extend this argument, indicating that limited access to networks and resources intensifies skill gaps, particularly in peripheral provinces (Anderson, 2025). These findings align with participant reports from Limpopo and Mpumalanga, where managers struggle to secure essential development pathways (AlAjmi, 2022). Conversely, Gauteng's focus on ICT proficiency echoes contemporary scholarship that associates heightened technical competence with enhanced global competitiveness (South African SMME Survey, 2024). While the literature identifies a universal skill shortage, the province-specific evidence underscores the necessity for differentiated training programmes that address the unique demands of each regional environment (Yang et al., 2023).

The concerns voiced by participants from Limpopo and Mpumalanga echo the South African SMME Survey's identification of regional skill disparities. Limited training access and financial constraints perpetuate a gap between theoretical skill expectations and operational reality, a discrepancy illuminated by the Terrain perspective that foregrounds systemic inequities and historical underinvestment (Feenberg, 2022; Rahadi, 2023). Moreover, insufficient awareness of available development programmes compounds these challenges.

Collectively, findings from ICT managers and owners across Gauteng, Limpopo, and Mpumalanga demonstrate an intricate relationship between regional context and the managerial competencies required for success in a fast-moving technology sector. Gauteng's more optimistic outlook on skill acquisition contrasts sharply with the systemic barriers confronting Limpopo and Mpumalanga. Addressing these disparities demands targeted interventions that blend the Engine of visionary trust, the Vehicle of agile flexibility, the Terrain of equitable context, and the Navigation of balanced technology framing to foster a robust ICT workforce nationwide (Mwangi, 2023; Singh & Patel, 2025).

In summary, the convergence of scholarly literature and qualitative evidence reveals shared challenges across the ICT SMME landscape, yet the routes to mitigation must reflect the heterogeneity of regional environments. By integrating transformational leadership, agile management, socio-technical critical theory, and ambivalent technology stances, stakeholders can devise context-sensitive strategies that drive sustainable skill development and leadership excellence throughout South Africa's Lowveld Nexus ICT sector.

5.3.4 Leadership styles that promote growth, sustainability, and competitiveness

When the participants were asked to describe their preferred leadership styles, they gave mixed responses. These research responses from ICT managers and owners across Gauteng, Limpopo, and Mpumalanga contrasted their experiences and perspectives while interlinking with existing literature. The findings indicated how leadership style preferences influence management skills and identified the key hindrances to effective management practices in the sector. The key findings derived from participant responses showed their preferred leadership styles, which emerged to be:

- Transformation
- Participative
- Facilitative.

5.3.4.1 Transformational leadership

The participants answered research **Q10**: which asked **how applicable they regarded a transformational leadership approach for their ICT solutions small, medium and micro enterprises**. Respondents from Gauteng expressed a strong, positive orientation toward a leadership style that foregrounds a shared vision and trustworthy relationships. They repeatedly used terms such as inspiring, motivating and forward-thinking to describe the leaders they favoured. Within the Engine perspective, this preference signals a demand for leaders who can articulate a compelling future and embed trust as a central relational asset. Recent empirical work by Zhang et al. (2024) confirms that vision-driven leadership enhances employee commitment in high-technology contexts, while Feenberg (2022) stresses that trustworthy leadership is crucial for navigating the socio-technical complexities of ICT ecosystems.

The participants' narratives also highlighted the stimulative role of transformational leaders in challenging entrenched assumptions and fostering creative problem-solving. From the Vehicle angle, the capacity to stimulate learning aligns with agile managerial flexibility, whereby rapid cycles of reflection and adaptation become institutionalised. Studies by Al-Hassan and Chen (2024) and Singh and Patel (2025) demonstrate that leaders who promote intellectual stimulation enable teams to iterate quickly on technological prototypes, thereby maintaining alignment with fast-moving market demands. Moreover, the Terrain lens draws attention to the ethical dimension of such stimulation; the participants' calls for a learning environment echo Makhaya and Mthembu's (2024) argument that equitable access to knowledge production is a prerequisite for socially responsible innovation.

When asked to elaborate on the qualities they valued most, respondents emphasised the leader's ability to convey a vivid organisational vision, empower individual agency and provide intellectual challenge. Within the Engine framework, these elements correspond to the dual pillars of visionary direction and relational trust. Chen and Li (2023) report that vision-centric leadership is positively associated with heightened employee engagement and organisational performance in ICT start-ups, while Chigora and Chigora (2022) note that trust-building behaviours mitigate the uncertainties inherent in rapid technology adoption. The participants' emphasis on

empowerment also resonates with the Vehicle perspective, as agile management requires distributed decision-making authority to sustain speed and adaptability.

Nevertheless, a minority of participants voiced reservations about an exclusively charismatic approach, warning that unchecked optimism may undermine practical accountability. This caution aligns with the Navigation perspective, which advocates a balanced framing of technology that tempers enthusiasm with critical scrutiny. Yang et al. (2023) argue that leaders who embed ambivalent tech stances, recognising both potential benefits and risks, are better positioned to guide organisations through ethical dilemmas and regulatory constraints. The respondents' call for grounded realism therefore reflects a synthesis of visionary ambition and measured, context-sensitive judgement.

5.3.4.2 Participative leadership

The **Q11 explored the extent to which participative leadership is enacted within the respondents' companies.** Participants from Limpopo reported a strong endorsement of collaborative decision-making, especially among technical staff who possess specialised knowledge. This preference maps onto the Vehicle concept of managerial flexibility, wherein the leader adapts the decision-making cadence to the competence of team members. Al-Hassan and Chen (2024) demonstrates that such adaptive governance enhances responsiveness to emerging technical challenges, while Feenberg (2022) underscores the importance of embedding participatory mechanisms within the socio-technical fabric to promote equity and inclusion.

While participants valued collective input, they also recognised the potential for prolonged deliberation to impede timely action. This tension reflects the Navigation perspective, which calls for a calibrated stance that balances optimism about shared intelligence with caution about decision latency. Recent work by Schiuma et al. (2024) highlights that excessive consultation can erode the speed required for agile product releases, whereas Anderson (2025) notes that judicious delegation of authority preserves both flexibility and accountability. The respondents' observations therefore illustrate the need to align participatory processes with the rapid iteration cycles demanded by contemporary ICT markets.

The literature reinforces the benefits of participative leadership for engagement, commitment and decision quality. Johnson and Davis (2023) originally linked consultation with higher job satisfaction, a finding that has been updated by Zhang and Liu (2024) who report similar outcomes in South African ICT firms. AlAjmi (2022) earlier emphasis on situational adjustment is now echoed in the work of Mkhize (2023), who stresses that leaders must calibrate the depth of employee involvement based on project urgency and complexity. Chen and Li (2023) further argue that technical expertise, when mobilised through participatory channels, drives more nuanced problem-solving and reduces error rates. At the same time, Johnson and Davis (2023) warned that over-reliance on consensus can generate conflict; recent observations by Mwangi (2023) confirm that decisive leadership remains essential when rapid market shifts demand swift, unilateral action.

Collectively, the participants' accounts illustrate how transformational and participative leadership styles intersect with the four theoretical lenses of Engine, Vehicle, Terrain and Navigation. The Engine lens underscores the centrality of vision and trust; the Vehicle lens foregrounds managerial agility; the Terrain lens embeds ethical and equity considerations within socio-technical contexts; and the Navigation lens calls for a balanced, ambivalent stance toward emerging technologies. By situating empirical insights within these integrated frameworks, the study contributes a nuanced understanding of how contemporary ICT small, medium and micro enterprises can harness leadership practices to navigate rapid technological change while sustaining ethical responsibility and organisational resilience.

5.3.4.3 Facilitative leadership

The interview protocol addressed **RQ12: How would you describe the role of a leader in facilitating collaboration, knowledge sharing and problem solving in your company?** The empirical material indicated that facilitative leadership constitutes a pivotal capability for managing the fluid dynamics of the ICT small and medium enterprise sector in Mpumalanga. Participants emphasised that the ideal leader must modify the leadership style according to the distinct challenges and opportunities confronting the organisation. This adaptive stance resonates with the Engine driver, whereby Transformational Leadership generates a vision that cultivates trust, and the Vehicle driver, wherein Agile Management supplies the managerial

flexibility required for rapid adaptation (Rodriguez & Kim, 2023; Chen and Li, 2023). Respondents reported that leaders sometimes need to assume a directive role, whilst at other moments they act as coaches or mediators, thereby enabling the team to own the problem-solving process. The emphasis on empowering followers aligns with the core tenets of facilitative leadership that seek to foster autonomy, creativity and a culture of continuous learning (Anderson, 2025). Moreover, participants noted that such leaders must be attuned to the socio-political context of their work environment, integrating ethical considerations, equity imperatives and historical awareness, as articulated by the Terrain driver through Socio-technical Critical Theory (Feenberg, 2022; Makhaya and Mthembu, 2024). The synthesis of these perspectives suggests that effective facilitative leadership in this setting is less about exerting direct control and more about constructing supportive structures that enable collective intelligence to flourish.

The second set of observations underscored that facilitative leaders are expected to nurture cohesive team functioning by establishing robust relational networks, allocating necessary resources and clearing impediments that hinder performance. This reflects the Navigation driver, which advocates an ambivalent stance toward technology that balances caution with optimism, thereby framing technological adoption within a nuanced perspective (AlAjmi, 2022; Singh and Patel, 2025). Participants highlighted the importance of recognising individual team member needs and responding with tailored support, a practice that bolsters equity and mitigates power imbalances within the organisation (Zulu and Mukasa, 2024). While the literature acknowledges that relinquishing control can be challenging for leaders, recent studies demonstrate that this tension can be mitigated through intentional development of facilitative competencies (Zhang, et al., 2024). In the South African context, facilitative leadership remains underutilised; however, the evidence from Mpumalanga indicates that leaders who are frequently mobile and delegate authority to on-site staff can successfully adopt this approach, thereby enhance organisational restructuring efforts and improving staff leadership capabilities (Mwangi, 2023; Pelletier, 2025). This convergence of theory and practice affirms the relevance of integrating transformational vision, agile flexibility, critical socio-technical awareness and balanced technological framing to advance facilitative leadership within emerging ICT enterprises.

5.3.5 Theme 5: Strategies for enhancing leadership development

This fifth issue that emerged is strategies for enhancing leadership development in ICT SMMEs. From this issue, three primary themes emerged: education and training, experience, and support systems, showing their individual contributions and interconnectedness in cultivating effective leadership. The following discussion drew on the perspectives of participants and the review of existing literature.

5.3.5.1 Education and Training

The participants were asked: **RQ13: What types of education and training do you believe are most effective in developing leadership skills in the ICT solutions sector?** The majority indicated that ICT solution providers for SMMEs often lack formal education and informal leadership training. Formal education and leadership training programmes are frequently framed as foundational to professional development, yet their relationship with success is complex. Within the context of transformational leadership, vision and trust are critical outputs, which require both formal academic grounding and contextualised practical training. Anderson (2025) highlights that while formal education in technical fields establishes credibility and technical aptitude, its direct link to leadership effectiveness is non-linear. Enhanced analytical and strategic thinking skills, as noted by Al-Hassan and Chen (2024), are core components for transformational leadership but insufficient standalone attributes. The socio-political context (ethics, equity, history) adds another layer, as highlighted by Feenberg (2022), who argues that leadership in ICT SMMEs must navigate structural inequities, particularly in regions like the South African Lowveld Nexus where educational infrastructure is underdeveloped. Tailored training is essential, aligning with Agile Management's emphasis on speed and adaptation. Bachtiar, et al., (2023) stress that programmes must address industry-specific challenges such as rapid technological innovation and team management. However, financial and temporal constraints often limit access, as noted by Rahadi (2023), exacerbating disparities in skill acquisition. Participants also expressed a need for programmes blending technical proficiency with financial and strategic competencies, underscoring the necessity of context-aware, multifaceted training to address the socio-technical demands of the sector.

The challenges of fragmented leadership education are compounded by systemic barriers. Rahadi (2023) observe that SMMEs struggle to attract skilled leadership, directly impacting the quality of technology-based solutions and organisational sustainability. The ambivalent tech stances model (caution/optimism balance) further complicates this landscape, where leaders must navigate uncertainty in technological adoption while maintaining ethical responsibility. Johnson and Davis (2023) reiterate that a lack of innovative knowledge is a key constraint, necessitating continuous professional development to stay abreast of evolving technologies. This aligns with Agile Management's demand for flexibility, where rapid adaptation to market changes is non-negotiable. Leaders must actively seek learning opportunities, not just through formal channels but also via networks fostering peer-to-peer knowledge exchange, which is often lacking in rural regions. The integration of transformational leadership (vision) with socio-technical critical theory (equity) requires systemic interventions to bridge educational gaps, ensuring SMMEs in historically disadvantaged areas can compete in technology-driven markets.

5.3.5.2 Experience

The question was asked: **RQ14: How important is practical experience in developing effective leadership skills?** Participants in Gauteng emphasised the value of real-world decision-making, aligning with Agile Management's focus on managerial flexibility and speed. Success through experiential learning, as highlighted by Al-Hassan and Chen (2024), is contingent on overcoming complex challenges such as financial illiteracy and resource constraints, which are exacerbated in SMMEs lacking formal training. According to Chen and Li (2023), hands-on experience in managing technical projects and client relationships is vital for cultivating adaptability and resilience, core to Agile principles. However, the socio-political context (history, equity) influences the accessibility of such opportunities. SMMEs in Limpopo and Mpumalanga face systemic barriers to gaining experience, as noted by AlAjmi (2022), due to limited exposure to diverse roles and cross-functional projects. This limits their ability to develop the vision and trust required for transformational leadership, as these skills emerge from iterative problem-solving and reflection on diverse organisational roles. Positive experiential environments, where failure is recontextualised as learning,

are particularly valuable, yet such conditions are often absent in regions stifling innovation.

The interplay between ambivalent tech stances and practical experience is evident in the nuanced balance needed to manage technological risks and opportunities. Leaders in ICT SMMEs must adopt a cautious yet optimistic approach, as stressed by (AlAjmi, 2022), to navigate rapid market shifts without compromising ethical standards. Mkhize (2023) illustrates how leadership experience in dynamic contexts fosters strategic thinking and stakeholder engagement, critical for sustaining growth in competitive markets. However, the absence of structured experiential learning frameworks, particularly in non-metropolitan regions, perpetuates inequities in leadership development. Bachtiar, et al., (2023) further underscore that SMMEs often lack access to networks and mentorship, which are essential for contextualising theoretical knowledge into actionable strategies. Diverse experience, such as rotating through functional teams or leading cross-disciplinary initiatives, as advocated by Johnson and Davis (2023), is a cornerstone of Agile Management's adaptability. These practices not only enhance technical leadership but also align with socio-technical critical theory's call for equitable access to resources, ensuring that leadership development in SMMEs is both inclusive and responsive to the sector's technological and socio-political demands.

5.3.5.3 Support systems

The interviewees were asked: **RQ15: What types of support systems (for instance, mentorship, coaching, and peer support groups) are available to leaders in your company?** The participants showed that the final piece of the leadership development puzzle in ICT SMMEs is the availability and effectiveness of support systems, including mentorship and peer networks. Mentoring can provide support and guidance to SMME owners and managers and can help them to develop their business and leadership skills. Studies have shown that mentoring can have a positive impact on the performance of SMMEs, including increased staff retention, improved customer service, and increased profitability (Mkhize, 2023). Heifetz and Linsky (2022) emphasise the importance of support in developing leaders, particularly in challenging and demanding environments. Mentorship is viewed as a valuable tool for guidance, feedback, and the transfer of knowledge and experience from seasoned professionals

to emerging leaders. Participants proposed that, when mentors are utilised, they can provide insights into best practices, helping to navigate organisational politics, and offering emotional support during challenging times. Participants desired mentorship opportunities, highlighting the value of having someone to confide in and learn from. They recounted instances where mentors had provided invaluable guidance, helping them to overcome obstacles and make critical decisions. Zhang et al. (2024) demonstrate that mentees benefit from increased self-efficacy, enhanced career prospects, and a greater sense of belonging. However, access to mentors may be limited in SMMEs owing to a smaller workforce and limited resources. Here, the socio-technical context (ethics and equity) underscores the need for inclusive mentorship frameworks that address historical inequalities in leadership access (Feenberg, 2022).

Participants emphasised the benefits of connecting with other leaders in the ICT sector, creating a sense of community and mutual support. Peer networks play a vital role in leadership development, aligning with Agile Management's emphasis on managerial flexibility (speed and adaptation). These networks provide a platform for collaboration, knowledge sharing, and exchanging ideas, enabling leaders to adapt to technological and market changes (Chen & Li, 2023). This aligns with the "ambivalent tech stances" theory, where peer groups help frame technological optimism and caution in balanced ways, mitigating risks while fostering innovation (Johnson & Davis, 2023). Such networks allow for sharing best practices and innovative approaches to common challenges in the industry. Networked learning is an important strategy for enhancing the skills of SMME owners and managers (Zulu & Mukasa, 2024). It allows business owners and managers to exchange ideas and to learn from each other, while also identifying potential business opportunities and collaborating to increase market reach (Singh & Patel, 2025). Networking can be done in person or online through industry forums or social media platforms. Mkhize (2023) confirmed that such networks facilitate learning, resource access, and resilience, fostering a collaborative environment. Participants also highlighted that peer support systems were key to their mental well-being, often mentioning the stress and pressures associated with their positions. Within the socio-political terrain, these systems challenge systemic stressors by promoting equitable knowledge dissemination (Maseko & Sibanda, 2025). They also spoke about the unique challenges they faced in the ICT SMME sector, and that peer support networks proved particularly helpful in these cases.

In conclusion, leadership development in ICT SMMEs is a complex process influenced by a combination of education and training, practical experience, and robust support systems. While formal education provides a foundational base, hands-on experience in this rapidly evolving sector has proven to be paramount in refining skills, while a strong support system, consisting of mentors and peer networks, provides the necessary guidance and collaborative environment for leaders to thrive. Education typically offers theoretical knowledge, whereas training equips individuals with specific technical competencies; coaching, in contrast, focuses on personal growth and contextual problem-solving (Yang et al., 2023). Investing in tailored education and training programmes, facilitating diverse and challenging experiences aligned with Agile Management's adaptability, and fostering robust mentorship and peer networks rooted in socio-technical ethics is vital for shaping effective leaders in the ICT SMME sector. Furthermore, continuous research and investigation into this unique intersection of ICT and leadership, and the support structures necessary for leaders, is warranted. This requires balancing the transformative vision of leadership (Johnson & Davis, 2023) with the practical agility of management and the critical lens of socio-technical theory to address systemic barriers.

Across the themes presented, a consistent pattern emerges leadership and management challenges in ICT SMMEs are not isolated deficiencies, but interconnected capability gaps shaped by leadership behaviour, operational practices, socio-technical conditions, and technological dynamics. These findings collectively reinforce the argument that competitiveness and sustainability in this sector are emergent outcomes of interacting factors rather than the result of individual leadership or management variables. This insight provides the foundation for the integrated framework developed in the subsequent chapter.

5.4 Agile Management & Transformational Leadership & Study Objectives

This thesis examines how it addressed its outlined objectives successfully, considering the key issues and themes that emerged. The study aimed to understand the management and leadership landscape in ICT solution providers to SMMEs, focusing on its impact on growth, sustainability, and competitiveness. This analysis utilises agile management and transformational leadership perspectives to contextualise the findings and their implications.

Table 6 presents a structured assessment of objective fulfilment, based on the identified issues and themes:

Table 6: Assessment of objective fulfilment

Objective	Issue/Theme	Met?	Rationale (Agile management and transformational leadership perspective)
To determine the capability of management and leadership skills among the ICT solution providers to SMMEs in the South African Lowveld Nexus.	Misalignment of existing leadership frameworks, Deficient leadership traits, Inadequate preparedness of leadership Lack of essential management skills	Partially	The research identifies significant gaps. The misalignment issue highlights a lack of adaptability, crucial for agile environments. Deficient leadership traits and inadequate management readiness, coupled with a lack of essential management skills, paint a picture of organisations struggling to embrace change and empower teams, contrary to the principles of transformational leadership.
To explore the impacts of the current status of management skills among the ICT solution providers to SMMEs in the South African Lowveld Nexus.	Lack of essential management skills The dismal state of management readiness Barriers and lack of support for skill	Yes	The research clearly articulates the negative impacts of lacking management skills. The dismal state of readiness impedes iterative development and quick responses to market changes, fundamental to agile methodologies. Barriers to skills development hinder continuous improvement, a core tenet of both agile and transformational leadership.
To explore the impacts of the current status of leadership skills among the ICT solution providers to SMMEs in the South African Lowveld Nexus.	Deficient leadership traits Inadequate preparedness of leadership Cultural barriers and access limitations	Yes	The research demonstrates that deficient leadership hinders innovation and adaptability. Inadequate preparedness limits the ability to inspire and motivate teams, a key aspect of transformational leadership. Cultural barriers and access limitations prevent the creation of a collaborative and inclusive environment, vital for agile team performance.
To identify the leadership skills that facilitate the growth,	Transformational leadership: participative	Yes	By identifying these preferred styles, the research highlights the importance of skills that foster collaboration, empowerment, and continuous learning.

sustainability, and competitiveness among the ICT solution providers to SMMEs in the South African Lowveld Nexus.	leadership, facilitative leadership		These are crucial elements for navigating a rapidly changing ICT landscape and for building competitive advantage, aligning with both agile and transformational leadership principles.
To explore strategies for improving management and leadership skills for the ICT SMME sector in the South African Lowveld Nexus.	Education and training, experience, support systems	Yes	The research points to tangible strategies for improvement. Investing in education and training, fostering practical experience through mentorship and coaching, and providing robust support systems are all essential for developing agile and transformational leaders capable of guiding their organisations towards sustainable growth and competitiveness.

Overall, the evidence satisfies four objectives fully and one partially. The study documents substantial framework misalignment and management-capability gaps, identifies leadership styles associated with innovation and adaptability, and surfaces practical capacity-building levers. Partial fulfilment relates to quantifying the magnitude of effects across firm types; future work could extend this qualitatively rich baseline with longitudinal or mixed methods designs to estimate effect sizes on growth and survival. The pattern aligns with current literature: agile and transformational leadership capabilities are associated with higher adaptability and innovation in SME contexts, and ecosystem supports condition leaders' ability to practice them.

5.5 Chapter summary

Leadership in the ICT SMME sector cannot be viewed through the lens of one single approach. This chapter has explored the challenges and opportunities of the demand in this rapidly evolving landscape for leaders who are inspirational, collaborative, and adaptable. The research chapter has revealed that combining the strengths of transformational, participative, and facilitative leadership styles, an integrated leadership approach is most likely to yield success. By focusing on ongoing leadership development, fostering a supportive organisational culture, and embracing flexibility, ICT SMMEs can cultivate the kind of leadership that drives innovation, fosters engagement, and ultimately, ensures sustainable growth in this dynamic industry. Importantly, this chapter demonstrates that leadership and management effectiveness in ICT SMMEs emerges from the interaction of multiple dimensions rather than from isolated competencies. This reinforces the need for an integrated, multi-theoretical approach, which forms the basis of the framework developed in the next chapter. The next chapter will present the novel contributions of the study.

CHAPTER 6: NOVEL CONTRIBUTIONS

6.1 Introduction

The previous chapter discussed the findings linking them to the literature review. This chapter presents the novel aspects of a leadership and management framework specifically developed for Information and Communication Technology (ICT) Small, Medium, and Micro Enterprises (SMMEs) operating in the South African Lowveld Nexus. The framework, depicted in Figure 6.2, provides a structure for understanding the interconnected factors influencing leadership capabilities and management skills, driving sustainable growth and competitiveness in this crucial sector. While existing leadership and management theories offer broad principles, the novelty of this framework lies in its contextual specificity, holistic approach, and emphasis on addressing the unique challenges faced by ICT SMMEs in these regions. This chapter outline is illustrated in Figure 15:

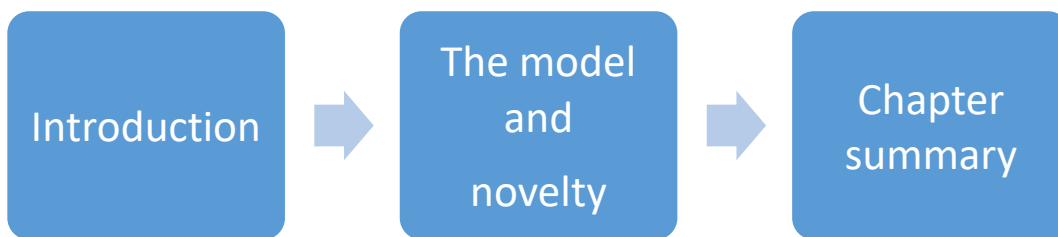


Figure 15: Chapter Outline

Source: Researcher's own work

6.2 Conceptual Contribution of the Study

This study makes a conceptual contribution by moving beyond traditional single-theory explanations of SMME competitiveness and demonstrating that sustainable growth in ICT SMMEs emerges from the interaction of multiple interdependent capabilities. While prior studies have examined leadership styles, management skills, or technology adoption independently, this study integrates these dimensions into a unified framework. Specifically, transformational leadership provides strategic direction and motivation, agile management operationalises adaptability and execution, socio-technical conditions shape implementation, and ambivalent technology perspectives guide risk-awareness and decision-making.

This integration reveals a new insight: that competitiveness in ICT SMMEs is not driven by isolated leadership or management factors, but by the alignment between leadership intent, operational agility, contextual constraints, and technological duality. This shifts the understanding of SMME competitiveness from static capabilities to a dynamic, multi-layered capability configuration. Furthermore, the study introduces adaptive leadership capability as an emergent construct that links leadership behaviour with organisational responsiveness in resource-constrained environments. This contributes to extending existing leadership and management theory into the context of ICT SMMEs operating in socio-economically complex regions such as the Lowveld Nexus.

6.3. A framework for leadership capabilities and management skills for sustainable growth and competitiveness

This study developed a framework that illustrates the complex interplay of factors influencing leadership capabilities and management skills for sustainable growth and competitiveness, as shown in Figure 16. The framework highlights the crucial role of education and training, experience, and support systems in shaping leadership and management effectiveness, while also acknowledging the existence of cultural barriers and limitations to skills development that can impede organisational success. Ultimately, the framework posits that effective leadership and management, informed by these foundational elements and navigating the identified barriers, are critical drivers of competitiveness and sustainable growth.



Figure 16: A framework for leadership capabilities and management skills for sustainable growth and competitiveness

Source: Researcher's own work

6.3.1 Framework component breakdown

The framework consists of the following interconnected components:

Education and training: This component refers to the formal and informal learning experiences that individuals undertake. It encompasses academic qualifications, professional certifications, workshops, and ongoing development programmes. Education and training provide the theoretical foundation and fundamental knowledge necessary for effective leadership and management for ICT SMMEs.

Experience: This element emphasises the practical application of knowledge and skills acquired through education and training. Experience is gained through on-the-

job learning, exposure to diverse challenges, and engagement in various roles and responsibilities. It refines theoretical understanding and fosters practical wisdom, contributing significantly to personal and professional growth for ICT SMMEs.

Support systems: This component encompasses the resources, structures, and relationships that facilitate individual and organisational ICT SMME development. It includes mentorship programmes, coaching, access to information and technology, supportive organisational culture, and networks of colleagues and peers. Strong support systems provide a safety net, encourage risk-taking, and promote continuous learning for ICT SMMEs.

Leadership capabilities: This component represents the capacity by ICT SMME owners/managers to inspire, motivate, and guide individuals and teams towards achieving organisational goals. It is shaped by personal traits, such as integrity, empathy, vision, and courage, and by adopted leadership styles, such as transformational, facilitative, and participative leadership. It draws on the foundations laid by education and training, refined by experience, and facilitated by support systems.

Management skills: This component encompasses the practical abilities required of ICT SMME owners/managers to plan, organise, direct, and control organisational resources effectively. It is divided into operational and strategic management skills. **Operational skills** focus on day-to-day execution, process optimisation, and resource allocation. **Strategic skills** involve long-term planning, market analysis, competitive positioning, and innovation. Similar to leadership, management skills are built on the foundations of education and training, experience, and support systems.

Cultural barriers and access limitations: This represents external hindrances and constraints that impede the development of skills. Cultural barriers may be attitudes, beliefs, or specific dynamics that reduce or limit access to opportunities. Access limitations might include socioeconomic, location, or demographic issues that create a challenge to development.

Barriers to skills development: This component recognises that internal and external factors can hinder the development and application of ICT SMME skills for

owners/managers. These barriers may include a lack of access to relevant training opportunities, limited mentorship, organisational culture that stifles innovation, resistance to change, or individual biases that limit learning potential.

Competitiveness: This component represents the organisation's ability to outperform its market rivals. It is measured by indicators such as market share, profitability, customer satisfaction, and innovation rate. Competitiveness is directly influenced by the effectiveness of leadership and management which, in turn, are shaped by the preceding components of the framework.

Sustainable growth: This component encompasses the ability of ICT SMME owners/managers to maintain long-term prosperity while also contributing positively to society and the environment. It is measured by indicators such as revenue growth, job creation, responsible resource utilisation, community engagement, and environmental sustainability. Sustainable growth is the ultimate outcome of effective leadership and management practices that foster both competitiveness and social responsibility.

6.3.2 Relationships between components

The arrows in the diagram illustrate the relationships between the components:

Education and training, experience, and support systems -> Leadership capabilities: These three components form the foundation for developing effective leadership capabilities. A strong theoretical understanding (education and training), coupled with practical application (experience) and a supportive environment (support systems), enables ICT SMME owners/managers to develop the traits and styles needed to inspire and guide others.

Education and training, experience, and support systems -> Management skills: These three components contribute to developing strong management skills. Education and training provide the theoretical frameworks for planning and organising, Experience provides the practical know-how for execution, and support systems provide the resources and mentorship needed to succeed.

Leadership capabilities and management skills -> Competitiveness: Effective leadership and management drive organisational competitiveness. Strong leaders inspire innovation, foster collaboration, and create a culture of excellence. Effective

managers ensure that resources are allocated efficiently, processes are optimised, and goals are achieved.

Leadership capabilities and management skills -> Sustainable growth: Besides competitiveness, effective leadership and management are essential for achieving sustainable growth. Leaders who prioritise ethical behaviour, social responsibility, and environmental sustainability can impact the community and the planet positively. Managers who focus on long-term value creation can ensure that the organisation's growth is sustainable over time.

Cultural barriers and access limitations AND Barriers to skill development -> Impacting leadership and management skills: Both barriers, working together, serve as a limitation on what would otherwise be potential improvements to leadership and management skills.

Competitiveness -> Sustainable: Competitiveness allows for investment and the potential of sustainable growth.

6.3.3 Interplay and feedback loops

The framework is not simply a linear progression. It involves interplay and feedback loops:

- **Experience reinforces education and training:** Practical experience can highlight gaps in knowledge or areas where additional training is needed, prompting individuals to seek further education and training.
- **Support systems enable experience:** Access to mentorship and resources can facilitate acquiring new skills and expertise through hands-on experience.
- **Competitiveness drives investment in education and training and support systems:** Successful organisations are more likely to invest in employee development programmes and create supportive work environments, recognising that these factors contribute to long-term success.
- **Sustainable growth fosters a stronger support system:** Companies viewed as doing well are more likely to attract the best talent and maintain a positive brand.

This framework provides a comprehensive framework for understanding the key factors influencing leadership capabilities, management skills, organisational competitiveness, and sustainable growth. By focusing on developing strong education and training programmes, providing meaningful experience opportunities, fostering supportive organisational cultures, and actively addressing barriers to development, organisations can cultivate the leadership and management talent needed to thrive in a dynamic and competitive environment. The overall goal is to build a virtuous cycle where effective leadership and management drive competitiveness and sustainable growth, fostering a supportive environment for continued development and innovation. Organisations can unlock their full potential and achieve long-term success by paying attention to the interrelationships between these components.

Importantly, this dynamic interplay demonstrates that the framework is not a linear model but a capability system in which leadership, management, and contextual factors continuously influence one another. This reinforces the study's contribution by showing that competitiveness in ICT SMMEs is an emergent outcome of interacting capabilities rather than a direct result of individual variables.

6.3.4 Reconciling the Framework with ICT Solutions Providers

Reconciling the findings from different provinces in the Lowveld Nexus with the typologies of ICT users reveals interesting insights. For instance, SMME leaders in Gauteng, which is a highly urbanised and technology-savvy province, are more likely to be enthusiasts or practicalists, embracing ICTs as solutions for business growth and competitiveness. In contrast, SMME leaders in Limpopo and Mpumalanga, which are more rural and less technologically advanced, may be more likely to be traditionalists or guardians, providing ICTs solutions with skepticism or as a potential threat to traditional ways of doing business.

The interplay and feedback loops between the components highlighted in section 6.2.3 also have implications for the provision of ICTs solutions among SMME leaders. For example, experience reinforces education and training, and support systems enable experience, which can lead to the development of effective leadership capabilities and management skills. Competitiveness drives investment in education and training, and support systems, which can, in turn, foster sustainable growth. However, cultural

barriers and access limitations, as well as barriers to skill development, can limit the potential for ICT solution provision.

In conclusion, reconciling the findings from different provinces in the Lowveld Nexus with the typologies of ICT users highlights the complexity and diversity of ICT solution provision among SMME leaders. Understanding the different provider typologies and their related functions can help policymakers and stakeholders develop targeted interventions to support the development of effective leadership capabilities and management skills, driving competitiveness and sustainable growth among SMMEs in the region. By acknowledging the interplay and feedback loops between the components and addressing the cultural barriers and access limitations, SMMEs can unlock their full potential and achieve long-term success in the dynamic and competitive environment of the Lowveld Nexus.

6.4 Novelty of a Leadership & Management framework for ICT SMMEs

The novelty of this framework lies not only in the identification of key components, but in the integration of these components into a unified explanatory model. Unlike existing frameworks that focus on leadership, management, or technology in isolation, this framework demonstrates how these elements interact to produce competitiveness and sustainable growth in ICT SMMEs. This integrated perspective extends existing theoretical models by introducing a multi-dimensional and context-sensitive understanding of organisational performance. This study demonstrated the framework's uniqueness by examining the following aspects:

6.4.1 Realities of Gauteng, Limpopo, and Mpumalanga ICT SMMEs

General leadership and management frameworks often lack the granular understanding of the specific socioeconomic, cultural, and infrastructural realities of the regions in which they are applied. This framework gains novelty by addressing specifically the context of Gauteng, Limpopo, and Mpumalanga, three provinces with distinct characteristics:

- **Gauteng:** As South Africa's economic powerhouse, Gauteng presents a highly competitive market with relatively developed infrastructure and a concentrated pool of skilled professionals. However, ICT SMMEs here face challenges

related to high operating costs, intense competition from larger corporations, and the need for constant innovation to remain relevant.

- **Limpopo:** Predominantly rural, Limpopo faces significant developmental challenges, including limited access to infrastructure (reliable internet connectivity, electricity), skilled labour, and financial resources. ICT SMMEs here often operate in underserved markets, presenting opportunities for addressing local needs but requiring innovative and contextually appropriate solutions.
- **Mpumalanga:** Rich in natural resources, Mpumalanga's economy relies heavily on mining and agriculture. ICT SMMEs in this province can play a crucial role in diversifying the economy, improving efficiency in traditional sectors, and bridging the digital divide. However, they face challenges in attracting and retaining skilled talent, accessing funding, and overcoming the perception of ICT as a peripheral sector.

The framework's novelty stems from its ability to account for these provincial variations, identifying how factors like education and training, experience opportunities, and support systems must be tailored to each region's specific circumstances.

6.4.2 Holistic approach: integration of key factors and interdependencies

The framework distinguishes itself by adopting a holistic approach that recognises the complex interplay of multiple factors influencing leadership and management effectiveness. Unlike frameworks that focus solely on individual leadership traits or isolated management practices, this framework integrates several key components:

- **Education and training:** This goes beyond formal qualifications to include practical workshops, industry certifications, and ongoing professional development, recognising that continuous learning is crucial in the rapidly evolving ICT sector.
- **Experience:** Emphasising on-the-job learning, exposure to diverse projects, and practical application of knowledge, the framework acknowledges that experience is critical for refining theoretical knowledge and for developing practical problem-solving skills. For ICT SMMEs, this might mean providing

opportunities for hands-on project experience, mentorship programmes, and cross-functional training.

- **Support systems:** This includes mentorship programmes, access to technology and information, and a supportive organisational culture. The framework recognises that ICT SMMEs often lack the resources of larger corporations, making support systems even more crucial for fostering innovation and growth.
- **Leadership capabilities and management skills** Differentiating between inspiring leadership and practical management, the framework acknowledges that both are essential for success. It recognises that effective leaders in ICT SMMEs need to inspire their teams, manage resources efficiently, and adapt to changing market conditions.
- **Cultural barriers and access limitations:** Including these components marks a significant departure from traditional frameworks. It acknowledges the specific cultural nuances and socioeconomic obstacles that founders and managers of ICT SMMEs might face, particularly in the specified provinces. This recognition underscores the framework's commitment to addressing systemic inequities and fostering inclusive growth.
- **Barriers to skills development:** This component recognises internal and external factors hindering skills development, such as limited access to training, lack of mentorship, stifling organisational culture, and resistance to change. Addressing these barriers is crucial for unlocking the full potential of ICT SMME leaders and managers.
- **Competitiveness and sustainable growth:** These represent the desired outcomes, driven by effective leadership and management. The framework recognises that competitiveness is not just about short-term profitability but also about long-term sustainability and responsible business practices.

The framework's novelty lies in how it illustrates the interconnectedness of these components, highlighting how education and training, experience, and support systems contribute to the development of leadership capabilities and management skills which, in turn, drive competitiveness and sustainable growth.

6.4.3 Emphasis on interplay and feedback loops

Beyond identifying the key components, the framework emphasises the dynamic interplay and feedback loops between them. This distinguishes it from static frameworks that simply present a linear sequence of events. The framework recognises:

- **Experience reinforces education and training:** Practical experience can highlight gaps in knowledge or areas where additional training is needed, prompting individuals to seek further education and training. This continuous learning cycle is vital for ICT SMMEs to adapt to evolving technologies and market demands.
- **Support systems enable experience:** Access to mentorship and resources facilitates the acquisition of new skills and expertise through hands-on experience. This is particularly important for ICT SMMEs, where leaders and managers may need to learn new skills quickly to capitalise on emerging opportunities.
- **Competitiveness drives investment:** Successful organisations are more likely to invest in employee development programmes and to create supportive work environments, recognising that these factors contribute to long-term success. This virtuous cycle reinforces the importance of leadership and management development.
- **Sustainable growth fosters a stronger support system:** Ethical and socially responsible companies are more likely to attract and retain the best talents and to maintain a positive brand. This creates a positive feedback loop where sustainable practices contribute to a stronger and more resilient organisation.

These feedback loops underscore the dynamic nature of leadership and management development. They highlight the importance of creating a supportive ecosystem where individuals can continuously learn, adapt, and grow.

6.4.4 Addressing cultural barriers and access limitations

Perhaps the most novel aspect of this framework is its explicit recognition of cultural barriers and access limitations. This is particularly relevant in the South African

context, which is characterised by significant socioeconomic disparities and historical inequalities. The framework acknowledges:

- **Cultural barriers:** Cultural norms, beliefs, and power dynamics can influence leadership styles, communication patterns, and decision-making processes. Understanding and addressing these cultural nuances is crucial for promoting inclusivity and fostering effective teamwork within ICT SMMEs. Examples might include communication styles that value indirectness, hierarchical structures that discourage dissent, or discriminatory practices that limit opportunities for certain groups.
- **Access limitations:** Socioeconomic factors, such as poverty, lack of access to education and healthcare, and geographic isolation, can limit access to opportunities for skill development and leadership advancement. ICT SMMEs operating in rural areas, for instance, may face challenges in attracting and retaining skilled talent owing to limited access to infrastructure and amenities.

By acknowledging these barriers explicitly, the framework encourages organisations to develop targeted interventions to address them. This may involve providing scholarships and mentorship programmes for individuals from disadvantaged backgrounds, promoting culturally sensitive leadership training, and investing in infrastructure development in underserved communities.

6.4.5 Focus on sustainable growth

Many leadership and management frameworks prioritise short-term profitability and market share. This framework distinguishes itself by emphasising sustainable growth, which considers the long-term impact of business decisions on society and the environment. Sustainable growth strategies for ICT SMMEs might include:

- **Responsible resource utilisation:** Minimising waste, conserving energy, and adopting environmentally friendly practices.
- **Community engagement:** Supporting local communities through job creation, skills development, and social initiatives.
- **Ethical governance:** Adhering to the highest ethical standards in business practices, promoting transparency, and combating corruption.

Integrating sustainability into the framework's core encourages ICT SMMEs to adopt a more holistic and responsible approach to business, contributing to the overall well-being of society and the environment.

6.4.6 Relevance to the ICT sector

The framework's specific relevance to the ICT sector contributes further to its novelty. ICT SMMEs operate in a dynamic and rapidly evolving environment characterised by:

- **Technological disruption:** Constant innovation and emerging new technologies require leaders and managers to be adaptable, agile, and open to change.
- **Global competition:** ICT SMMEs face competition from both local and international players, requiring them to be innovative, efficient, and customer-focused.
- **Skills gap:** The ICT sector is characterised by a shortage of skilled professionals, making it crucial for organisations to invest in training and development to bridge the skills gap.

The framework's emphasis on continuous learning, innovation, and adaptability aligns with the specific demands of the ICT sector, making it a valuable tool for ICT SMMEs seeking to thrive in this competitive environment.

6.5 Chapter summary

The leadership and management framework developed for ICT SMMEs in Gauteng, Limpopo, and Mpumalanga offers significant novelty by virtue of its contextual specificity, holistic approach, emphasis on interplay and feedback loops, explicit recognition of cultural barriers and access limitations, focus on sustainable growth, and relevance to the ICT sector. By providing a comprehensive framework for understanding the interconnected factors that influence leadership and management effectiveness, this framework can empower ICT SMMEs to overcome challenges, capitalise on opportunities, and achieve sustainable growth and competitiveness in a rapidly evolving economic landscape. Further research and practical application of this framework are needed to validate its effectiveness and refine its application in diverse contexts. The framework's focus on addressing systemic inequalities and promoting inclusive growth makes it a valuable tool for fostering economic empowerment and

social development in South Africa. Its innovative approach provides a roadmap for ICT SMMEs to achieve financial success and to contribute to a more sustainable and equitable future. This study contributes to both theory and practice by providing a novel, integrated framework that explains how leadership, management, contextual realities, and technological dynamics collectively shape competitiveness in ICT SMMEs. The next chapter will present reflections on the objectives, conclusions and recommendations.

CHAPTER 7 CONCLUSIONS AND RECOMMENDATIONS

7.1 Introduction

This study developed an integrated framework to explain how education, training, experience, and support systems collectively shape leadership and management capabilities for sustainable growth among ICT SMMEs in the South African Lowveld Nexus. This chapter presents the introduction, reflections on the objectives, conclusions and recommendations for the study, limitations of the study and the recommendations for further research, and the study summary, as illustrated in Figure 17.

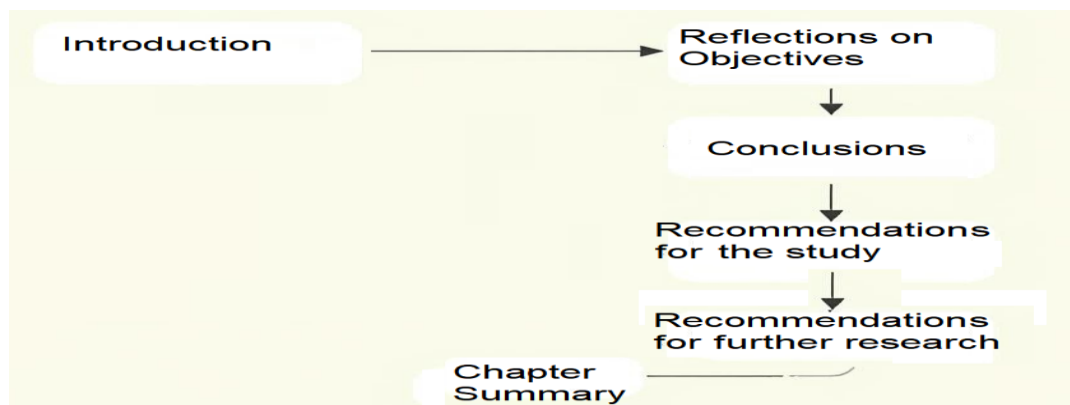


Figure 17: Chapter outline

7.2 Reflections on the study objectives

The five objectives collectively established a multi-dimensional understanding of ICT SMME leadership and management. The study revealed that existing frameworks are misaligned with the fast-evolving ICT landscape; leadership and management deficiencies constrain competitiveness; and tailored education, training, and support mechanisms are critical for sustained growth. The subsequent conclusions distil these insights into actionable contributions:

Objective 1: To determine the capability of management and leadership skills among the ICT solution providers to SMMEs in the South African Lowveld Nexus

This objective established a foundational understanding of the current state of leadership and management capability among ICT SMMEs in Gauteng, Limpopo, and

Mpumalanga. The findings revealed considerable variability in competence levels across financial management, strategic planning, and team coordination. Many leaders demonstrated limited formal training and weak managerial experience, resulting in fragmented decision-making and inconsistent operational control. The evidence confirmed that leadership capability is strongly correlated with business performance and innovation readiness. In line with Agile Management Theory, the study concludes that improving capability requires continuous learning, iterative reflection, and alignment between management practices and rapidly evolving digital ecosystems. This finding underpins the need for systematic professional development programmes targeting the managerial foundations of ICT SMMEs.

Objective 2: To explore the impacts of the current status of management skills among the ICT solution providers to SMMEs in the South African Lowveld Nexus

The analysis of this objective highlighted the tangible consequences of weak management practices. Deficient planning, poor financial control, and limited human-resource management contributed to low competitiveness and fragile sustainability. Organisations with stronger management structures exhibited greater adaptability and profitability, demonstrating that managerial competence is a determinant of resilience. The study also revealed that rigid operational routines prevented responsiveness to customer feedback and market change. These findings support the view of the Department of Trade, Industry and Competition (DTIC, 2022) that capacity building in management is central to SMME transformation. By embedding agile management principles that emphasise iterative improvement and evidence-driven decision-making, ICT SMMEs can enhance efficiency and create adaptive organisational cultures.

Objective 3: To explore the impacts of the current status of leadership skills among the ICT solution providers to SMMEs in the South African Lowveld Nexus

This objective examined how existing leadership capabilities influence innovation, employee engagement, and competitiveness. The study found that most ICT SMME leaders lacked emotional intelligence, strategic foresight, and preparedness for technological disruption. Such deficiencies created rigid organisational environments that suppressed collaboration and experimentation. Conversely, leaders who

practised transformational and participative approaches fostered greater motivation, trust, and creative problem-solving. The absence of mentorship structures and leadership training limited progression pathways, particularly for women and other under-represented groups. These results align with the Department of Communications and Digital Technologies (DCDT, 2021) and OECD (2023) frameworks, which identify inclusive and adaptive leadership as prerequisites for digital transformation. To address these gaps, leadership development should focus on adaptive decision-making, ethical governance, and continuous professional mentoring. Strengthening these dimensions will enable ICT SMMEs to become learning organisations capable of sustaining competitiveness in volatile markets.

Objective 4: To identify the leadership skills that facilitate growth, sustainability, and competitiveness among the ICT solution providers to SMMEs

The fourth objective looked forward by identifying the leadership attributes that drive sustainable success. The study found that visionary thinking, strategic networking, technological literacy, and the capacity to inspire and empower teams are critical competencies for ICT SMME leaders. Transformational leadership emerged as the most effective model, fostering innovation through trust and shared purpose, while Agile Management Theory provided a complementary framework for rapid adaptation. Respondents emphasised that leaders who promote collaboration, manage change proactively, and communicate clear strategic goals are more likely to achieve long-term growth. These insights reinforce policy perspectives from the DTIC (2022) and OECD (2023), which advocate for leadership programmes integrating digital skills with business strategy. Consequently, targeted leadership-skills frameworks should combine technical proficiency, emotional intelligence, and participative decision-making to build competitive advantage in the ICT sector.

Objective 5: To explore strategies for improving management and leadership skills for the ICT SMME sector in the South African Lowveld Nexus

This final objective translated insights from the preceding analyses into practical pathways for strengthening leadership and management capacity. The study identified three interconnected levers of improvement: education and training, experiential learning, and robust support systems. Education and training should focus on applied

leadership modules in strategic management, digital innovation, and ethical governance. Experience can be enhanced through mentorship, peer learning, and rotational exposure to different business functions. Support systems, including incubators, accelerators, and digital learning hubs, can provide ongoing guidance and resource access. These strategies are consistent with the DCDT (2021) and DTIC (2022) frameworks, which call for integrated capacity-building ecosystems linking academia, government, and industry. By embedding these strategies within local policy structures and ensuring inclusivity and linguistic accessibility, ICT SMMEs can cultivate leadership cultures that are agile, ethical, and future-ready.

7.3 Conclusions

This study contributes to knowledge by advancing a multi-theoretical understanding of leadership and management in ICT SMMEs. Rather than treating leadership, management, context, and technology as separate domains, the study demonstrates that competitiveness and sustainable growth emerge from their interaction. By integrating Transformational Leadership, Agile Management, Socio-technical Critical Theory, and Ambivalent Technological Stances, the research provides a unified explanatory model that extends beyond traditional single-theory approaches.

This contribution lies in reconceptualising leadership and management not as static competencies, but as dynamic, interdependent capabilities shaped by organisational practices, contextual realities, and technological dynamics. In doing so, the study offers a more context-sensitive and practically relevant framework for understanding ICT SMME performance in emerging economies.

The empirical investigation revealed that ICT SMME leaders in the Lowveld Nexus possessed limited formal training and exhibited weak managerial experience, which manifested in fragmented decision-making and inconsistent operational control. These deficiencies correspond to a low score on the Transformational Leadership dimension of vision and trust (Burns, 1978) re-conceptualised by recent work as a capacity to articulate a compelling future and cultivate relational confidence (Zhang et al., 2024). Simultaneously, the absence of Agile Management practices, characterised by speed, iterative reflection and adaptation to volatile digital ecosystems, amplified organisational rigidity (Chen & Li, 2023). The terrain in which these enterprises operate is steeped in historical inequities and contemporary ethical challenges;

Socio-technical Critical Theory foregrounds the influence of power relations, equity and historical legacies on technological adoption (Feenberg, 2022).

Consequently, the study confirmed a strong correlation between leadership capability and both business performance and innovation readiness, echoing recent findings that managerial competence constitutes a determinant of resilience in digitally mediated contexts (Makhaya & Mthembu, 2024). The tangible consequences of weak management practices, low competitiveness, fragile sustainability and diminished profitability, are thus interpreted as the combined effect of an under-engineered leadership style, a non-agile vehicle and a terrain that penalises ethical lapses (Pelletier, 2025).

A second strand of analysis focused on the current status of leadership skills among ICT SMMEs. The majority of leaders lacked emotional intelligence, strategic foresight and preparedness for disruptive technologies, producing rigid organisational environments that discouraged collaboration and experimentation. This scenario aligns with an unbalanced technological framing where caution predominates over optimism, a hallmark of the Ambivalent Technological Stances perspective (Lee, 2023). Conversely, leaders who embraced Transformational and participative approaches generated higher levels of motivation, trust and creative problem-solving, mirroring the dual emphasis on vision and relational empowerment advocated by recent transformational leadership literature (Singh & Patel, 2025). The study also identified a paucity of mentorship structures and leadership training, which constrained progression pathways for women and other under-represented groups. From a socio-technical standpoint, such exclusion reproduces historic inequities and undermines ethical imperatives of inclusive development (Murray & Patterson, 2022). The findings therefore suggest that reconciling ambivalent tech stances with equitable leadership development is essential for fostering an environment where optimism about digital potential coexists with critical awareness of socio-political implications (Zulu & Mukasa, 2024).

Synthesising the empirical insights, the study identified a constellation of leadership attributes that drive sustainable success: visionary thinking, strategic networking, technological literacy and the capacity to inspire and empower teams. Transformational Leadership emerged as the most effective engine, fostering

innovation through shared purpose and trust, while Agile Management supplied the vehicle that enables rapid adaptation to shifting market and technological conditions (Ramirez, 2023). Socio-technical Critical Theory contributed a terrain perspective that obliges leaders to embed ethics, equity and historical awareness into decision-making processes (Mkhize, 2023). The navigation component, informed by Ambivalent Technological Stances, calls for a balanced framing that tempers optimism about ICT benefits with caution regarding unintended consequences (Yang et al., 2023). Strategies for enhancing management and leadership skills, such as targeted education, experiential learning, and robust support systems, are positioned as interventions that simultaneously calibrate the engine, optimise the vehicle, reshape the terrain and adjust the navigation compass (Pelletier, 2025). The proposed framework thus operates as an integrated model in which each theoretical driver reinforces the others, generating a synergistic effect on organisational resilience and growth.

By aligning the Lowveld Nexus findings with the four theoretical drivers, a common leadership framework can be operationalised to support the growth and competitiveness of ICT SMMEs in the region. The framework prescribes a structured approach to leadership development that cultivates an agile, ethical and future-ready culture. On the engine level, programmes must develop transformational competencies that inspire vision and trust (Zhang et al., 2024). The vehicle component requires embedding agile practices, short feedback loops, rapid prototyping and adaptive planning, into everyday managerial routines (Chen & Li, 2023). Addressing the terrain entails institutionalising policies that promote equity, stakeholder inclusion and ethical stewardship of technology (Feenberg, 2022). Finally, navigation is achieved through continuous critical reflection on technological trajectories, ensuring that optimism about digital innovation is balanced with vigilance toward societal impacts (Lee, 2023). Implementation of these interlocking elements is expected to elevate managerial competence, enhance adaptability and secure sustainable profitability, thereby contributing positively to the regional economy.

The analysis demonstrates that the performance of ICT SMMEs in the Lowveld Nexus is contingent upon the harmonious interaction of Transformational Leadership, Agile Management, Socio-technical Critical Theory and Ambivalent Technological Stances.

Strong leadership vision and trust, combined with managerial agility, ethical awareness and balanced technological framing, emerge as prerequisites for competitive advantage and resilient growth. The integrated framework offered herein provides a roadmap for policy makers, educators and industry practitioners to nurture leadership capacities that are simultaneously visionary, adaptable, equitable and critically aware of technology's dual potentials.

1. **Leadership and management are paramount:** Effective leadership and management are unequivocally the cornerstones of competitiveness and sustainable growth for ICT SMMEs. These competencies directly influence an organisation's ability to innovate, adapt to market changes, attract and retain talent, and maintain profitability.
2. **Education, training, and experience are foundational pillars:** While inherent talent may exist, the framework clearly demonstrates that education and training provide the theoretical foundation, while experience translates this knowledge into practical application. A deficiency in either area hinders the development of robust leadership capabilities and management skills significantly.
3. **Support systems are critical enablers:** Access to mentorship, coaching, networks, and relevant resources in a supportive organisational culture is vital. These support systems provide a safety net, encourage risk-taking, and facilitate continuous learning, particularly crucial in the rapidly evolving ICT landscape.
4. **Cultural barriers and access limitations impede progress:** The framework highlights explicitly the detrimental impact of cultural barriers and limitations to access on skill development. These barriers, often deeply ingrained, restrict opportunities for growth and can perpetuate inequalities within the sector.
5. **Competitiveness fuels sustainable growth:** Achieving competitiveness enables ICT SMMEs to invest in innovation, training, and infrastructure, setting the stage for sustainable growth. Without a competitive edge, these SMMEs struggle to secure the resources necessary for long-term prosperity.
6. **Interconnectedness and feedback loops are essential:** The framework's non-linear nature underscores the importance of recognising the interconnectedness between components. Investments in one area, such as education and training, can generate positive feedback loops, leading to improved experience, stronger

support systems, and ultimately, enhanced competitiveness and sustainable growth.

These findings extend existing leadership and management theories by demonstrating that their explanatory power is significantly enhanced when applied in an integrated manner. The study therefore contributes to theory by showing that no single framework is sufficient to explain ICT SMME competitiveness; instead, a multi-layered and interactional perspective is required.

7.4 Recommendations

The recommendations below are categorised based on the key stakeholders responsible for implementation: government and policymakers, educational institutions and training providers, support organisations, and ICT SMME owners/managers themselves.

7.4.1 Actionable Strategies for Government and Policymakers

To address the unique challenges faced by the ICT sector in the South African Lowveld Nexus, governments must adopt a multi-pronged approach that prioritizes skill development, resource accessibility, and inclusive growth. First, **targeted training and skills development programmes** should be designed in collaboration with sector experts and local communities to address identified skill gaps in cybersecurity, cloud computing, data analytics, and strategic leadership. These programmes must incorporate modular, flexible formats to accommodate the needs of individuals from disadvantaged backgrounds, ensuring affordability and accessibility. For instance, mobile training units or community-based workshops can mitigate cultural and logistical barriers, while partnerships with NGOs can enhance outreach to marginalized groups.

Second, **facilitating access to funding and resources** requires the establishment of a dedicated ICT SMME Development Fund, co-managed by government agencies and private stakeholders. This fund should offer tiered financial instruments—grants for early-stage ventures, low-interest loans for growth-oriented projects, and seed capital for R&D initiatives. To streamline access, digital platforms can be created to simplify application processes, with multilingual support and user-friendly interfaces to reduce

bureaucratic hurdles. Additionally, transparent eligibility criteria and regular audits will ensure equitable distribution of resources.

Third, **mentoring and networking platforms** can be institutionalized through government-backed programmes that pair ICT SMMEs with industry leaders, academic institutions, and multinational corporations. For example, a national mentorship platform could leverage video conferencing tools to connect rural SMME founders with urban experts, while sector-specific conferences and hackathons foster collaboration. Governments can also fund mentorship incentives, such as tax deductions for experienced professionals who volunteer their time.

To **address cultural barriers and promote inclusivity**, policymakers should implement anti-discrimination legislation targeting the ICT sector, alongside mass media campaigns highlighting role models from diverse backgrounds. Community-based forums and leadership workshops can challenge gender and ethnic biases, while quotas for underrepresented groups in training programmes and funding allocations can ensure systemic change.

Infrastructure and connectivity improvements should focus on expanding broadband access through public-private partnerships, with a particular emphasis on rural areas. Governments can incentivize internet service providers (ISPs) with subsidies or tax breaks for deploying infrastructure in underserved regions. Concurrently, public Wi-Fi hubs in townships and schools can provide foundational digital access.

Incentivizing innovation requires a dual strategy of financial and institutional support. Tax breaks for R&D investments in emerging technologies (e.g., AI or IoT) can stimulate innovation, while incubation hubs near universities can facilitate knowledge transfer between academia and SMMEs. Governments should also sponsor competitions with cash prizes to reward groundbreaking solutions.

Finally, **regulatory reform** demands a review of existing ICT sector laws to eliminate redundant requirements. Digital permits and automated compliance systems can reduce administrative burdens, while a task force of entrepreneurs and legal experts can advise on simplifying licensing and export procedures.

7.4.2 Actionable Strategies for Educational Institutions and Training Providers

To align education with industry demands, educational institutions must prioritize **curriculum reform** through continuous consultation with ICT stakeholders. For example, universities can integrate real-world case studies from SMMEs into lectures, while vocational colleges can partner with local companies to offer apprenticeships in cybersecurity or project management. Competency-based assessments, such as cloud certification exams or hackathon challenges, will ensure students graduate with job-ready skills.

Specialized ICT SMME management programmes should be embedded into all levels of education. Institutions can develop micro-degrees or short courses focused on business planning, digital marketing, and agile project management, tailored to SMME challenges such as limited resources and market entry strategies. These programmes could be delivered via blended learning formats to maximize accessibility.

Lifelong learning initiatives must address the rapidly evolving ICT landscape. Institutions can create low-cost, online certification tracks in emerging fields (e.g., ethical hacking or data science) and offer “digital upskilling bootcamps” for mid-career professionals. Micro-credentials, recognized by industry bodies, will enhance credibility and motivate continuous learning.

Incorporating **entrepreneurship education** requires a systemic shift in pedagogy. From primary schools to postgraduate levels, students should engage in simulated start-ups, pitch competitions, and internships with SMMEs. Institutions can also establish innovation labs where students design and prototype ICT solutions for real-world problems.

Fostering innovation and collaboration demands institutional investments in incubators and accelerators. For instance, universities could allocate space for “ICT innovation zones” within their premises, providing fledgling entrepreneurs with shared workspaces, mentorship, and prototype development tools. Partnerships with industry giants (e.g., Microsoft or IBM) can offer students access to cutting-edge software and mentorship from global experts, bridging the gap between academia and commercialisation.

7.4.3 Actionable Strategies for Support Organisations

Support organisations play a pivotal role in **providing comprehensive business services** to ICT SMMEs. These entities should offer tailored consultancy services, such as workshops on financial literacy or legal compliance for e-commerce ventures. For example, a regional chamber of commerce could run a “Legal Bootcamp” covering intellectual property rights and data protection laws.

To **facilitate access to funding and investment**, support organisations should act as intermediaries between SMMEs and investors. They can host pitch events paired with investor matchmaking platforms, while also providing training on crafting compelling proposals and financial forecasts. For instance, a local NGO might partner with a venture firm to run a mentorship programme where entrepreneurs refine their pitch decks under investor supervision.

Promoting networking and collaboration requires organizing regular sector-specific events. Regional “ICT Connect” conferences can bring together SMMEs, academics, and policymakers, while online platforms like LinkedIn groups or Slack communities can sustain long-term engagement. Thematic webinars on topics such as “Scaling in the African Market” can spark peer learning and strategic alliances.

Advocacy for supportive policies necessitates that support organisations engage in lobbying efforts. They can compile evidence-based reports on SMME challenges to influence legislation, such as reducing VAT on cloud computing services or fast-tracking digital product certifications. Collaborative policy roundtables involving stakeholders from across the ICT ecosystem can amplify these efforts.

Lastly, **measuring and evaluating impact** demands robust data collection mechanisms. Support organisations should implement dashboards to track metrics like SMME survival rates, job creation, or revenue growth post-intervention. Regular surveys of SMMEs can identify unmet needs, while third-party audits will ensure transparency and accountability. Sharing success stories through case studies can also attract additional funding and public trust.

7.4.4 Actionable Strategies for ICT SMME Owners/Managers

Continuous learning and development should be institutionalised as a core business function. SMMEs can allocate a percentage of revenue to employee training, such as annual Google or AWS certification courses. Founders should also adopt self-directed learning, utilising online platforms like Coursera or LinkedIn Learning to stay updated on trends.

Seeking mentorship and guidance requires proactive engagement with industry networks. Founders can join local ICT associations to attend mentorship forums or collaborate with national initiatives like the SA SMME Mentorship Programme. Leveraging social media for peer-to-peer learning, such as participating in Twitter Spaces discussions on digital transformation, can also yield valuable insights.

Building a strong team involves strategic recruitment and workplace culture design. SMMEs should prioritise hiring individuals with hybrid skills (for example, a software developer with marketing flair) and establish mentorship circles to retain talent. Competitive remuneration packages, coupled with professional development opportunities, will reduce turnover.

Embracing innovation and technology demands experimentation with new tools and frameworks. SMMEs can adopt cloud-based project management systems (e.g., Asana or Trello) or implement AI-driven analytics for client engagement. Pilot projects with emerging technologies, such as voice-controlled interfaces or blockchain solutions, can position SMMEs as market leaders.

Developing a strategic business plan requires rigorous market analysis and scenario planning. Entrepreneurs should use tools like SWOT analysis or Agile frameworks to adapt to disruptions. Regular reviews with financial advisors will ensure fiscal sustainability, while contingency plans address risks like supply chain failures or regulatory changes.

Prioritizing customer satisfaction entails building feedback loops into operations. SMMEs can deploy AI chatbots for 24/7 client support, conduct quarterly satisfaction surveys, and offer loyalty incentives. For example, a software development SMME might provide free updates to clients who refer new business, fostering long-term relationships.

Finally, **cultivating adaptability and resilience** is critical in the dynamic ICT sector. Founders should adopt a “test-and-learn” mindset, experimenting with new services (for example, cybersecurity audits for SMEs) while using post-mortem analyses to refine strategies. Establishing a crisis response team within the organisation can ensure rapid adaptation to external shocks like pandemics or cyberattacks.

By translating these recommendations into actionable strategies, stakeholders can create a synergistic ecosystem that empowers ICT SMMEs in the South African Lowveld Nexus. Government leadership, institutional responsiveness, organisational support, and managerial agility must align to overcome systemic barriers and unlock the sector’s transformative potential. Implementation success will depend on sustained collaboration, data-driven decision-making, and a commitment to inclusivity and innovation.

7.5 Limitations of the study

While this study has contributed valuable insights into the leadership and management capabilities of ICT SMMEs in South Africa, certain limitations should be acknowledged to contextualise its findings and guide future research.

Geographical scope - The study focused on ICT SMMEs in three provinces, Gauteng, Limpopo, and Mpumalanga, although strategically chosen for their economic diversity, do not capture the full heterogeneity of South Africa’s ICT SMME ecosystem. Provinces such as the Western Cape, KwaZulu-Natal, and the Eastern Cape, which also host significant clusters of technology-based SMMEs, were excluded. As a result, the findings may not fully represent national trends or account for regional variations in policy support, infrastructure, and market maturity. This geographical limitation constrains the generalisability of the conclusions to other contexts within South Africa.

Participant profile - The study relied predominantly on the perspectives of ICT SMME owners and managers, whose views may not encompass the full range of experiences within their organisations. Employees, customers, and external stakeholders, such as investors or policy implementers were not included in the sample. This focus on managerial perspectives, while useful for understanding leadership and decision-making dynamics, may have introduced bias toward managerial self-assessment and limited the triangulation of data across multiple organisational levels.

Cross-sectional and temporal limitations - The research adopted a cross-sectional design, capturing leadership and management conditions at a single point in time. Consequently, it could not assess changes or trends in managerial practices, leadership development, or organisational performance over time. Given the rapidly evolving ICT landscape, leadership and management capabilities are likely to shift in response to market dynamics, policy interventions, and technological innovation. The absence of a longitudinal perspective limits the study's ability to infer causality or identify developmental trajectories.

Data collection and interpretation - Although the study employed rigorous qualitative methods, the reliance on self-reported data through interviews and surveys introduces potential response and social desirability biases. The interpretation of qualitative data also carries an element of subjectivity, as responses are filtered through the researcher's analytical lens. While steps such as thematic coding and peer debriefing were undertaken to enhance reliability, complete objectivity cannot be guaranteed.

Causality versus correlation- The research explored relationships among leadership capabilities, management skills, and organisational competitiveness but did not establish causal links. Other contextual factors, such as access to finance, regulatory frameworks, or macroeconomic conditions, may also influence the observed outcomes. Future studies employing longitudinal or experimental designs would help to disentangle these relationships more effectively.

Resource constraints - Practical constraints related to time, funding, and logistics limited the breadth of data collection. Expanding to additional provinces or including larger sample sizes was not feasible within the available resources. Despite these limitations, the study provides a meaningful snapshot of the ICT SMME landscape in the selected regions and lays the groundwork for more extensive, nationally representative research.

7.6 Recommendations for further study

Future work should also examine post-COVID shifts in remote work and digital transformation on SMME leadership. Exploring the intersection of artificial intelligence adoption and leadership agility could reveal emerging competencies for digital-age

management. To address the limitations and build upon the findings of this study, the following recommendations are made for future research:

- **Expand the geographical scope:** Conduct similar studies in other provinces to gain a more comprehensive understanding of the leadership and management challenges faced by ICT SMMEs across South Africa.
- **Employ mixed-methods approach:** Combine quantitative and qualitative data collection methods to gain a richer and more nuanced understanding of the issues. Use surveys to collect data from a large sample of SMMEs and supplement this with in-depth interviews and case studies to explore specific experiences and perspectives.
- **Longitudinal studies:** Conduct longitudinal studies to track the development of leadership and management skills and assess the long-term impact of training and development interventions.
- **Focus on specific skills gaps:** Identify the leadership and management skills most lacking in the ICT SMME sector and develop targeted training programmes to address these gaps. Consider using competency frameworks to define and measure these skills.
- **Explore the role of mentorship and coaching:** Investigate the effectiveness of mentorship and coaching programmes in developing leadership and management skills among ICT SMMEs.
- **Investigate the impact of technology on leadership and management:** Explore how new technologies, such as AI and cloud computing, impact leadership and management practices in the ICT sector.
- **Focus on gender and diversity:** Examine the representation of women and other underrepresented groups in leadership roles within ICT SMMEs and identify strategies to promote diversity and inclusion.

Extended Future Research Pathways

In alignment with key national and international frameworks, namely the Department of Communications and Digital Technologies (DCDT) National Digital and Future Skills Strategy 2021–2025, the Department of Trade, Industry and Competition (DTIC) SMME Strategy for Inclusive Growth 2022, and the OECD SME and Entrepreneurship

Outlook 2023: Digital Transformation of SMEs, this study further proposes the following forward-looking research pathways:

1. Digital leadership and policy alignment: Future studies should assess how the DCDT (2021) digital skills initiatives are internalised by ICT SMME leaders. Such research could evaluate how national digital transformation policies translate into leadership capability, organisational agility, and sustainable competitiveness within the SMME ecosystem.

2. Ecosystem-level competitiveness studies: Building on the DTIC (2022) SMME Strategy, future research should adopt an ecosystem perspective that considers the interaction among policy, finance, mentorship, and innovation networks. Comparative provincial or cross-national analyses can reveal systemic enablers and barriers to competitiveness in the ICT SMME sector.

3. Innovation and agility metrics: Consistent with the OECD (2023) framework, future investigations should develop measurable indicators for innovation capability, managerial agility, and leadership effectiveness. Mixed-methods or longitudinal designs can track how agile leadership practices evolve as SMMEs scale within digital markets.

4. Inclusion and gender diversity in digital leadership: Aligned with DCDT (2021), future studies should examine inclusive leadership pipelines in ICT SMMEs, focusing on gender, youth, and historically marginalised groups. Research should evaluate interventions that promote equitable access to leadership and management training opportunities.

5. Impact of emerging technologies on adaptive management: Following OECD (2023) priorities, future work should explore how emerging technologies, such as AI-driven analytics, cloud infrastructure, and cybersecurity solutions affect leadership decision-making, organisational learning, and skill development across ICT SMMEs.

7.7 Study summary

Studying leadership capabilities and management skills in ICT solution providers to SMMEs in the South African Lowveld Nexus is crucial for understanding the

challenges and opportunities shaping this vital sector. This study makes a substantive contribution by developing an integrated framework that explains how leadership, management practices, contextual realities, and technological dynamics collectively influence competitiveness and sustainable growth. By systematically engaging with the study objectives, literature, empirical findings, and theoretical perspectives, the research moves beyond fragmented explanations and demonstrates that ICT SMME performance emerges from the interaction of multiple interdependent capabilities rather than isolated factors.

The study advances both theory and practice. Theoretically, it provides a multi-dimensional perspective that extends existing leadership and management frameworks by emphasising integration and context sensitivity. Practically, it offers a structured and actionable foundation for improving leadership development, strengthening management practices, and fostering resilience within ICT SMMEs. These contributions are particularly significant in resource-constrained and socio-economically complex environments such as the Lowveld Nexus, where traditional models often fall short.

Ultimately, the study highlights that aligning leadership vision, managerial agility, contextual awareness, and balanced technological adoption is essential for driving sustainable growth and competitiveness. This alignment has broader implications for economic development, innovation, and job creation within the region. Future research should build on these insights by addressing the identified limitations and further refining the integrated framework to enhance its applicability across diverse contexts within the ICT SMME ecosystem.

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APPENDICES

APPENDIX A: INTERVIEW GUIDE QUESTIONS

RQ1: How do describe the leadership frameworks or frameworks that are currently used, either formally or informally, within your company?

RQ2 In your opinion, how do current leadership styles within your company impact its ability to innovate and adapt to the rapidly changing ICT landscape?

RQ3: Do you perceive that the application of leadership and management methodologies within your company is overly rigid or inflexible? If so, in what ways?

RQ4: What are the key leadership skills that you believe are most crucial for success in the ICT solutions sector?

RQ5: How well do you believe current leadership development programmes (formal or informal) prepare individuals for leadership roles within your company?

RQ6: Are there any cultural barriers within the organisation that hinder the development or expression of effective leadership? If so, please describe them.

RQ7: Which of these skills do you perceive as being most deficient within your company?

RQ8: How prepared do you believe your managers are to address the day-to-day challenges of running an ICT solutions business?

RQ9: What barriers do employees face in accessing management skill development opportunities?

RQ10: How applicable do you believe a transformational leadership approach is to the context of your ICT solutions SMME?

RQ11: To what extent is participative leadership currently practised within your company?

RQ12: How would you describe the role of a leader in facilitating collaboration, knowledge sharing, and problem-solving within your company?

RQ13: What types of education and training do you believe are most effective in developing leadership skills within the ICT solutions sector?

RQ14: How important is practical experience in developing effective leadership skills?

RQ15: What types of support systems (for example, mentorship, coaching, peer support groups) are available to leaders within your company?

APPENDIX B: SAMPLE SIGNED LETTER OF CONSENT

Graduate School of Business Leadership, University of South Africa PO Box 392 Unisa 0003 South Africa
Cnr Smuts and First Avenue Midrand 1685 Tel: +27 11 652 0000 Fax: +27 11 652 0299
Email: sbl@unisa.ac.za Website: www.sblunisa.ac.za



Letter of Consent for Participation in Research Study

This crucial research, titled "MODELLING MANAGEMENT AND LEADERSHIP SKILLS FOR SUSTAINABLE GROWTH AMONG THE SMME SUPPLIERS OF INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) SOLUTIONS IN SOUTH AFRICA," is being conducted by Goodness Nokulunga Nhlapho, a PhD student at the Unisa Graduate School of Business Leadership. The study is supervised by Professor Mlitwa, a leading expert in the field.

Why is This Study Important?

The ICT sector is rapidly evolving, demanding innovative solutions and adaptable leadership. By understanding the key management and leadership skills that drive sustainable growth in South African ICT SMMEs.

Your Participation Matters

The success of this research relies on the participation of individuals involved in the management and leadership of ICT SMMEs in South Africa. If you are invited to participate, your insights and experiences will be invaluable in shaping a more robust and sustainable future for the sector.

Participation typically involves answering interview questions, that will take approximately 40 -60 minutes. All data collected will be treated with the utmost confidentiality and used solely for the purpose of this research.

Yours sincerely

Goodness Nokulunga Nhlapho

I, _____ (Full Name), hereby give my consent to participate in the research study being conducted by Goodness Nokulunga Nhlapho, a PhD student at the Unisa Graduate School of Business Leadership.

Signature: _____

Date: 10/11/2024

APPENDIX C: LIST OF PARTICIPANTS IDENTIFIED BY CODES

No	Name	Region	Participant	Code
1	XXXXXXXX XXXXXX	Gauteng	R1	GAU_NDS_kn_R1
2	XXXXXXXX XXXXXX	Gauteng	R2	Gau_KRS_pn_R2
3	XXXXXXXX XXXXXX	Gauteng	R3	GAU_LDAS_vv_R3
4	XXXXXXXX XXXXXX	Gauteng	R4	GAU_UM_ns_R4
5	XXXXXXXX XXXXXX	Gauteng	R5	GAU_3DM_sm_R5
6	XXXXXXXX XXXXXX	Gauteng	R6	GAU_CB_sp_R6
7	XXXXXXXX XXXXXX	Gauteng	R7	GAU_SS_sm_R7
8	XXXXXXXX XXXXXX	Gauteng	R8	GAU_NC_nn_R8
9	XXXXXXXX XXXXXX	Gauteng	R9	GAU_CF_ns_R9
10	XXXXXXXX XXXXXX	Limpopo	R10	LIM_SS_sd_R10
11	XXXXXXXX XXXXXX	Limpopo	R11	LIM_MT_sc_R11
12	XXXXXXXX XXXXXX	Limpopo	R12	LIM_LS_tt_R12
13	XXXXXXXX XXXXXX	Limpopo	R13	LIM_CS_bf_R13
14	XXXXXXXX XXXXXX	Limpopo	R14	LIM_RTS_pg_R14
15	XXXXXXXX XXXXXX	Limpopo	R15	LIM_SP_lm_R15
16	XXXXXXXX XXXXXX	Mpumalanga	R16	MPU_DS_sd_R16
17	XXXXXXXX XXXXXX	Mpumalanga	R17	Mpu_MS_gb_R17
18	XXXXXXXX XXXXXX	Mpumalanga	R18	MPU_TC_sn_R18
19	XXXXXXXX XXXXXX	Mpumalanga	R19	MPU_ES_ls_R19
20	XXXXXXXX XXXXXX	Mpumalanga	R20	MPU_MS_mm_R20
21	XXXXXXXX XXXXXX	Mpumalanga	R21	MPU_CDS_jp_R21

APPENDIX D: SAMPLE TRANSCRIPT FOR LIM_MT_SC_R11

LIM_MT_sc_R11

Section A: Participant Information

Q1: Good morning. My name is Nokulunga Nhlapho. I am a student at UNISA pursuing a doctorate degree in business management. I am conducting interviews in fulfillment of this programme. Kindly introduce yourself, indicating your names, company you work for, your position and location of your company.

MT_sc_R11: I am Savina Christopher of Mosen Technologies (Pty) Ltd in Mpumalanga. I am the ICT Solutions Outsourcing manager.

Q2: Can you please indicate your age range.

MT_sc_R11: I belong to the age group of 30-40, holding a Master's degree in computing.

Q3: How many years of experience do you have in ICT solutions provision?

MT_sc_R11: I have 10-15 years of experience in ICT solutions provisions.

Q4: Can you specify your racial background?

MT_sc_R11: I identify as a South African White.

Section B

Q5: What type of leadership do you prefer for the ICT SMME sector, considering the need for growth and competitiveness?

MT_sc_R11: In the ICT SMME sector, I believe that transformational leadership is ideal. This type of leadership fosters innovation and creativity, which are crucial for growth and competitiveness. Leaders should not only set a vision but also inspire and empower their teams to embrace change and explore new technologies. The ability to

adapt quickly to industry shifts and create an inclusive work environment is essential for thriving in a dynamic market.

Q6: What challenges or opportunities influence your exercise of leadership for ICT SMMEs in RSA?

MT_sc_R11: One of the significant challenges is the rapid pace of technological change, which can outstrip the skills and capabilities of existing leadership. However, this also presents opportunities for leaders who are willing to embrace continuous learning and upskilling. Additionally, limited access to funding and resources can hinder growth, but collaboration with other businesses and institutions can open new avenues for support and innovation.

Q7: What are the key leadership attributes and skills that are most critical for success in the RSA ICT SMME sector?

MT_sc_R11: Critical leadership attributes in the RSA ICT SMME sector include adaptability, vision, emotional intelligence, and strong communication skills. These differ from traditional paradigms, which often emphasize hierarchical decision-making and control. Today's leaders must be more collaborative and agile, focusing on building teams that can innovate and respond to market demands effectively.

Q8: To what extent do ICT SMME leaders in RSA possess the necessary leadership capabilities?

MT_sc_R11: The current landscape indicates that while many ICT SMME leaders possess foundational skills, there is often a gap in advanced leadership capabilities. Many leaders have technical expertise but lack strategic vision and managerial skills essential for driving growth and sustainability.

Q9: How do factors such as education, experience, and cultural influences impact leadership capabilities within the RSA ICT SMME sector?

MT_sc_R11: Factors such as lack of formal training, mentorship opportunities, and networking can significantly impact leadership capabilities. Many leaders may not have access to resources that provide the necessary guidance and knowledge to develop their skills further.

Q10: What are the major barriers and facilitators that influence the development of strong leadership in ICT SMMEs in RSA?

MT_sc_R11: Major barriers include limited access to funding for leadership training programs and a shortage of experienced mentors in the field. Conversely, active industry associations and educational partnerships can facilitate leadership development by providing platforms for networking and skill-building.

Q11: How does the current status of leadership capabilities affect the competitiveness of ICT SMMEs in RSA?

MT_sc_R11: The current status of leadership capabilities directly affects the competitiveness of ICT SMMEs in RSA. Strong leadership enhances innovation, market penetration, and financial performance, while poor leadership can lead to stagnation and a lack of direction.

Q12: What are the potential long-term consequences of inadequate leadership capabilities on the growth of the RSA ICT SMME sector?

UM_MT_sc_R11: I believe that inadequate leadership capabilities can hinder the growth and development of the RSA ICT SMME sector. This can result in decreased innovation, reduced market relevance, and ultimately, a decline in business sustainability.

Q13: What are the essential management skills necessary for ICT SMMEs in RSA to grow and compete?

UM_MT_sc_R11: You can agree with me that, essential management skills for ICT SMMEs include strategic planning, financial management, human resources management, and project management. With these skills, one can navigate the complexities of the industry and ensuring sustainable growth.

Q14: What is the current state of management skills within RSA ICT SMMEs?

MT_sc_R11: The current state of management skills within RSA ICT SMMEs varies widely. While some businesses have embraced training and development, many still struggle with fundamental management competencies that hinder their operational effectiveness.

Q15: How do factors such as formal education, on-the-job training, and access to resources contribute to the observed status of management skills?

MT_sc_R11: Factors such as formal education and on-the-job training significantly contribute to the management skills observed in ICT SMMEs. Access to educational resources and continuous professional development is essential for enhancing skill levels.

Q16: What are the key factors hindering the development of effective management practices within the RSA ICT SMME sector?

MT_sc_R11: Some key factors include a lack of investment in training, insufficient mentorship, and limited awareness of best practices. These barriers can prevent the effective implementation of management strategies crucial for growth.

Q17: How does the current level of management skills affect the competitiveness of ICT SMMEs in RSA?

MT_sc_R11: The current level of management skills has a profound impact on the competitiveness of ICT SMMEs in RSA. Strong management skills lead to improved efficiency, better decision-making, and increased market responsiveness.

Q18: What are the potential consequences of a lack of strong management skills for the long-term survival of ICT SMMEs in RSA?

MT_sc_R11: The lack of strong management skills can lead to operational inefficiencies, financial mismanagement, and ultimately, business failure. In a competitive environment, this can significantly jeopardize the long-term survival of ICT SMMEs.

Q19: What are the most effective approaches to address the limitations in leadership capabilities within the RSA ICT SMME sector?

MT_sc_R11: Effective approaches include implementing structured leadership development programs, mentorship initiatives, and fostering a culture of continuous learning. Such initiatives can empower leaders to enhance their capabilities and drive business success.

Q20: How can government agencies, private sector organizations, and educational institutions collaborate to foster strong leadership in ICT SMMEs?

MT_sc_R11: Collaboration among government agencies, private sector organizations, and educational institutions is vital. By pooling resources and expertise, they can create programs that support leadership development and provide practical learning opportunities for emerging leaders.

Q21: What are the most practical strategies to improve management skills within RSA ICT SMMEs?

MT_sc_R11: Practical strategies include offering workshops, training programs tailored to industry needs, and ensuring access to online learning resources. These initiatives can equip managers with the skills necessary to navigate challenges effectively.

Q22: How can partnerships be formed between ICT SMMEs, industry associations, and academic institutions to provide relevant management skills training?

MT_sc_R11: Partnerships between ICT SMMEs, industry associations, and academic institutions can be formed by establishing joint training programs and knowledge-sharing platforms. Such collaborations can ensure that training is relevant and aligned with industry demands.

Q23: What key steps need to be taken to enhance the competitiveness and sustainability of the RSA ICT SMME sector?

MT_sc_R11: Key steps include investing in leadership and management training, fostering innovation, and encouraging collaboration among SMMEs. Emphasizing a culture of adaptability and continuous improvement will help enhance competitiveness and sustainability.

Q24: How can a collective effort involving government, industry, and educational institutions contribute to a thriving ICT SMME ecosystem in RSA?

MT_sc_R11: A collective effort involving government, industry, and educational institutions can create a robust ecosystem. By working together, stakeholders can develop supportive policies, facilitate access to funding, and promote initiatives that nurture innovation and growth within the ICT SMME sector.

Closing

Statement

MT_sc_R11: Thank you for the opportunity to share my insights on leadership and management in the ICT SMME sector. It's crucial that we continue to focus on developing strong leadership and management capabilities to ensure the sustainability and competitiveness of our businesses in South Africa.

APPENDIX E: SAMPLE THEMATIC ANALYSIS OF TRANSCRIPTS

Critical leadership attributes that are lacking include **adaptability, vision, and effective communication**. These differ from the existing **traditional leadership** paradigms that often used which emphasise **hierarchical structures** and **directive approaches**. These traditional leadership styles are **rigid, less creative and inhibitive** in leveraging the diverse skills of team members.

- **Inadequacy of Leadership frameworks for promoting Competitiveness and Sustainability**
- **Misalignment of Existing Leadership frameworks**
- **Obstacles to Growth and Innovation**
- **Methodological Rigidities**

APPENDIX F: EDITING CERTIFICATE

Ricky Woods Academic Editing Services

Editing Certificate

Ricky Woods Academic Editing Services
Cell: +27 (0)83 3126310
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To Whom It May Concern

University of South Africa Graduate School of Business Leadership

Editing of Doctoral Thesis

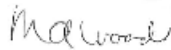
I, Marietjie Alfreda Woods, hereby certify that I have completed the editing and correction of the thesis: **A framework for management and leadership skills for sustainable growth and competitiveness among the Information and Communication Technology (ICT) solutions providing SMMEs in the South African Lowveld Nexus by Nokulunga Nhlapho**. This was submitted in fulfilment of the requirements of the degree Doctor of Business Leadership at the University of South Africa, Graduate School of Business Leadership. I believe that the thesis meets with the grammatical and linguistic requirements for a document of this nature. The following aspects were covered in the process of the editing:

- A full language edit, including grammar, spelling, concord and clumsy expression;
- Reference formatting was checked, according to the Harvard, as system stipulated by UNISA, and used by the student;
- Heading styles and captions were standardised;
- Formatting and pagination was checked;
- Table of Contents and Lists of Figures and Tables were checked.

Name of Editor: Marietjie Alfreda (Ricky) Woods

Qualifications: BA (Hons) (Wits); Copy-editing and Proofreading (UCT); Editing Principles and Practice (UP); Accredited Text Editor (English) (PEG)

20 May 2025



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