Leadership and digital transformation in the telecommunications industry in the South African context

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

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ABSTRACT

The telecommunication industry is disrupted by digital transformation and needs to change its current business to a new paradigm of business. The legacy systems and the traditional business model are some of the barriers that challenge innovation in the telecommunication sector. Therefore, the study views organisational capabilities as digital transformation instruments for the telecommunication sectors. The study uses the three concepts emerging from the dynamic capability framework, namely sensing, seizing, and transforming, to determine the leadership competencies required for the digital era. A qualitative generic theory approach was employed, and interviews were conducted with ten senior leadership participants. The result highlighted that digital leaders have direct and indirect impact on digital transformation in their organisations. The findings of this study indicates that leadership in telecommunication must develop digital mindset and open-up their sensing capabilities to diverse value chains and integrate with other industries for sustainability and competitive advantage. The study further highlights that leadership in telecommunication need to create organisational structures and strategies to integrate and increase existing resources and skills while establishing primarily new capabilities.

Furthermore, this study suggests that the leadership need to develop competencies that will enable them to continuously mobilise the organisations internal process, people, services, and develop business models that can adapt to rapid changes, foster agility, and create an environment that allows risks, proactiveness and quick decision making. In addition, leadership must foster digital culture that encourage the use of effective and efficient digital tools for customer knowledge exploitation and enablement of fast decision making across all departments in telecommunication companies.

Keywords:

Digital transformation, Digital leadership competencies, Dynamic Capabilities

DECLARATION

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

Name: Tshenolo Malunga Signature:

Signed at ……Centurion……

On the ……20…….. day of ……July…… 2023…..

DEDICATION

I dedicate this research report to my myself and my sons, Kgatoentle and Kabotsaona.

This has been a challenging journey, and it shows that hard work, perseverance, diligence, and focus give desired outcomes. May this research remind me of my capabilities and strengths and that life is indeed a journey.

To my sons, may you always find your inner light and go through life with positiveness, self-motivation, and encouragement to achieve anything you put your mind to.

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LIST OF ACRONYMS

AI	Artificial intelligence
API	Application programming interfaces
B2B	Business to business
B2C	Business to consumer
BI	Business intelligence
CEM	Customer experience management
CEX	Customer experience
EDR	Endpoint Detection and Response
EI	Emotional Intelligence
GSM	Global System for Mobile communication
ICASA	Independent Communications Authority of South Africa
ICT	Information and communications technology
IT	Information technology
KPI	Key Performance Indicator
RBV	Resource-Based View
P	Participants
SIM	Subscriber identity module
SMS	Short Message Service
Telecom	Telecommunication

CHAPTER 1. INTRODUCTION

1.1 Statement of purpose

Based on a study conducted by Deloitte in 2022, telecommunication companies (telecommunications) experienced traffic in fixed data of more than 200%, and mobile data traffic grew up to 50% during the covid pandemic. Although the telecommunication sector was able to meet the challenge of connecting people during the pandemic, it is faced with the challenge of responding to high service demands regardless of limited network capacity and reduced margins (Deloitte, 2022). Telecommunications must create innovative solutions to address the challenges they are facing. This can be achieved through digital leadership with strong competencies (Klein, 2020). For telecommunication leaders to implement digital transformation programs that will not undesirably impact their organisations, they need to have leadership styles aligned with the digital transformation strategy (Sow & Aborbie, 2018; Türk, 2023).

This qualitative study aims to explore leadership competencies required from executive and senior management in the telecommunication industry, for digital transformation in the South African (SA) context.

1.2 Background

Today's dynamic world has introduced unprecedented changes in organisations, and the telecommunications industry is not immune to this continuously changing environment. It is at the centre of the rapid changes presented by the digital revolution and is ranked three on the digital vortex (Armstrong & Lee, 2021). Wahyu et al., (2020), state that the telecommunication sector is one of the main sectors disrupted by new entrants. In the past ten years and more, there have been pressures on the telecommunication landscape, as well as erosion of the traditional value pool because of digital disruption. To address some of these challenges, the telecommunication sector has taken a strategic approach to move from being connectivity providers to providers of digital solutions. For

instance, in the SA context, leading Telecommunications such as MTN has strategically partnered with Tecnotree to embark on a digital journey to transform from traditional Communications Service Provider to Digital Services Provider. Also, Telkom has moved from fixed wireless to mobile and from connectivity to information technology (IT) services solutions and digital ecosystems (Telkom SA SOC Limited, 2020).

Organisations face the challenge of digital disruption, where customers request creative value propositions, and the telecommunication industry is faced with the same challenge (Ahmad et al., 2021). Part of digital disruption is observed in traditional forms of leadership and organisational structures (Cortellazzo et al., 2019). Armstrong & Lee, (2021), mention that leadership plays a vital role in shaping an organisation's culture and reaching a high level of digital maturity. Leadership in the telecommunication sector require capabilities that will enable them to manage the digital disruptions that the digital transformation presents in their industry and to bridge the innovation gap (Verhoef et al., 2021). The leadership is required to have the capabilities to create specific organisational structures for digital transformation.

The telecommunication industry needs to embrace digital transformation to exploit the adoption digital technologies such as blockchain, speech recognition, the internet of things, artificial intelligence and robotics that have changed the environment and the competition intensely (Verhoef et al., 2021). According to Gaibi et al. (2021), the next generation of telecommunications is defined by the competencies of its leaders. Leadership in telecommunication need to be adaptable to constant uncertainties to drive digital transformation programs (Contreras et al., 2020).They need to develop competencies that enable them to take risks and allow growth in other untapped horizons (Tigre et al., 2023).

1.3 Research Problem

Digital transformation has been a topic of interest for many different industries. It has been researched widely over the past years whilst organisations need leaders to give direction and steer the organisation through the change. The role of leadership in integrating digital transformation into their organisations has been included in some of the literature (Cortellazzo et al., 2019). However, few studies reflect on the effective leadership competencies critical in the successful implementation of digital transformation in telecommunications.

Digital technologies are continuously reshaping the telecommunication industry. However, based on the foregoing literature, leaders in the telecommunication industry are not fully equipped with the competencies necessary to construct and apply effective digital transformation strategies to realise successful outcomes(Gaibi et al., 2021; Muneeb et al., 2023). The impact of digital technologies on telecommunication cannot be ignored, and leaders in this sector need to gain the technical knowledge that will enable them to lead the digital transformation(Gaibi et al., 2021). Karippur and Balaramachandran (2022), state that leaders need competencies that enable them to sense competitive environment changes as well as changes in the customers and the technology.

The existing business models in the telecommunication industry are mainly built on existing assets, and these models are not geared up to support the digital capabilities required for digital transformation(Wahyu et al., 2020). There is a need for telecommunication leaders to have the capabilities that will enable them to respond to the dynamic environment, competitiveness, and complex nature of this industry. Therefore, leadership is required to present strategies that will enable them to identify opportunities in the internal and external environment for operational sustainability and transformation of existing business model. They are required to develop new capabilities that will attract new markets as well as anticipate changes in the customer and the market (Mehta & Ali, 2021; Mihardjo et al., 2019a).

1.4 Research questions

1.4.1 Main research question

Which leadership competencies are required in the telecommunication industry for digital transformation in the South African context?

1.4.2 Secondary research question:

- What sensing competencies are required for digital leadership in the telecommunications sector?
- What seizing competencies are required for digital leadership in the telecommunications sector?
- What transforming competencies are required for digital leadership in the telecommunications sector?

1.5 Rationale

In the South African telecommunications sector, some of the barriers to innovation include the legacy systems and the established business model. As a result, the study views organizational capabilities as tools for the telecoms industry's digital transformation. Three ideas from the dynamic capability theory serve as the foundation for this study's justification. The idea is to use these ideas to pinpoint the leadership skills necessary for them to recognize and adapt to shifts in the competitive environment as well as in customer and technological demands. It also attempts to comprehend the skills necessary for SA telecom leaders to take advantage of chances by utilizing the large amounts of data at their disposal and other organizational resources.

Furthermore, the study aims to determine effective skills that will enable leadership in telecommunications to digitally transform their organizational culture and structures as well as reconfigure their business model to allow for new markets that will bring new revenue streams.

The Independent Communications Authority of South Africa (ICASA), as well as the data protection and consumer protection regulator, are official communications regulators in South Africa. These regulators will need to work together to develop regulations that will allow the telecommunications sector to drive digital transformation. The study is crucial for the practitioners in the telecommunications industry since it emphasizes the roles and skills needed to develop internal governance measures that would safeguard clients from regulated, unfair, and dishonest business practices.

The study also contributes to the scholarship in terms of theoretical contribution and methodological contributions. This study has meaningful implications that can be applied in theory and practice to identify dynamic capabilities that enable an organisation to seize opportunities, sustain and scale itself through a robust and effective method of identifying core competencies. This study also assists in explaining the theoretical fundamentals of competency theory and provides a relationship between leadership competencies and dynamic capabilities that can promote the digital maturity of organisations.

1.6 Delimitations of the study

The study explores the competencies that telecommunications leaders require to drive digital transformation. The competency theory followed for this study suggests that there are various competencies that leaders need to possess and develop to be able to lead in a constantly changing environment. However, this study is delimited by the concepts of dynamic capabilities theory: sensing, seizing and transformation

The study is delimited to executives and senior management, as well as to telecommunication industry in the South African context. Due to the telecommunication industry's complex, competitive and rapidly changing nature, the study cannot be generalised to other industries

1.7 Operational definitions of the study

This research study consists of a few important concepts used throughout the paper. This section includes definitions of these concepts and the context within which they have been defined. The definitions are as follows:

1.7.1 Digital transformation

Digital transformation is a phase that brings in new business models that can create value for an organisation using digital technologies that digital transformation requires (Imran et al., 2021; Verhoef et al., 2021). Digital transformation is viewed in this study as a learning process driven by leadership competencies to sense and seize opportunities as well as to transform their organisation's structures and business model to participate in the digital economy.

1.7.2 Digitization

Digitization is defined as a process of changing the analogue information into a digital format that will enable computers to process and store the information (Rachinger et al., 2019).Verhoef et al., (2021), also defines digitization as a process of encoding analog information to digital format. This study follows views digitization as a framework for digitalisation and it is defined as the action taken to change information from analog to digital information to enable internal systems to process and store the information.

1.7.3 Digitalisation

Digitalisation the process of using digital technologies to transform business model and move an organisation to a digital business (Kunaka, 2019). Digitalisation is reconceptualization and reconfiguration of products, processes, and systems from analogue form into digital forms (Armstrong & Lee, 2021). This study refers to digitalisation as a process of revolutionised existing processes and

reconfiguration of existing business model and systems through digital technologies.

1.7.4 Competencies

Competence can be defined as a combined approach based on the conditions for organisational performance (Mikelsone et al., 2022). The second definition is based on the individual-level approach based on individual manners, attributes, and skills (Imran et al., 2021).This study competency definition is based on leadership skillsets, attributes and mindset required for digital transformation.

1.7.5 Dynamic capability

Dynamic capability is defined as the firm's strategic capability to integrate internal and external competencies to manage unpredictable environments and phases of rapid change (Teece et al., 1997; Muneeb et al., 2023).This study uses the three concepts emerging from the dynamic capability framework, namely sensing, seizing, and transforming, to determine the leadership competencies required for the digital era.

1.8 Assumptions

The context of the study is on competencies required from telecommunication leadership. The following assumptions were made in this study

- Leaders can be taught new skills. They can learn new behaviours, attributes and develop the characteristics required to lead the digital transformation journey of an organisation.
- The participants will be honest in their responses and will provide information based on their knowledge and experience in the telecommunication industry
- The three concepts from dynamic capabilities theory (sensing, seizing, and transforming) guides the transformation journey of an organisation and allows the organisation to enhance its capabilities and resources.

- Due to the complex competitive, and rapidly changing nature of telecommunication industry, the study cannot be generalised to other industries.

1.9 Chapter Outline

- Chapter 1 defines the background of the study, the purpose of the study, the delimitations of the study and the research problem statement.
- Chapter 2 provides a summary of the literature that has been reviewed on the topic. The theoretical framework is identified, and research propositions are defined.
- Chapter 3 of the paper outlines the study's research methodology and design. Furthermore, the population, sample and suitable research instruments are selected. The remainder of the chapter focuses on the process of collecting and analysing data to identify patterns that will be meaningful to the study.
- Chapter 4 presents the demographics, findings, and interpretation of the findings.
- Chapter 5 discusses the findings based on the data collected and the theoretical framework.
- Chapter 6 presents the conclusions and recommendations of the study as well as the limitation of the study.

CHAPTER 2. LITERATURE REVIEW AND THEORETICAL FRAMEWORK

2.1 Introduction

This chapter consists of two sections theoretical review and empirical review. The first section focuses on the theoretical review of digital transformation and leadership competencies concepts from a broad perspective and builds up towards a theoretical framework relevant to the context of this study. In the second section, an investigation of the application of these concepts in other sectors as well as the telecommunications industry, is conducted. The section concludes with gaps emerging from the literature related to the leadership competencies for the digital transformation of the telecommunications sector and the skills and attributes required to effectively drive digital transformation in the telecommunication industry.

2.2 Digital transformation

Digital transformation has become a topic of interest for many industrial organisations (Imran et al., 2021). Industrial organisations have adopted digital transformation initiatives to help them respond to opportunities and risks resulting from digital technologies (Imran et al., 2021). Verhoef et al. (2021) describe three phases of digital transformation: digitisation, digitalisation, and digital transformation, which are terms often used interchangeably when referring to organisational digital evolution. Digitisation and digitalisation are important phases of strategic requirements that help build up extensive phases of digital transformation (Verhoef et al., 2021). Digitisation refers to a process of changing the analogue information into a digital format that will enable computers to process and store the information; it is a framework for digitalisation (Rachinger et al., 2019). Most literature states that digitalisation has revolutionised the activities of companies using digital technologies that are able to share data extensively and interpret and perform predictive analytics. Through digitalisation,

organisations can optimise and coordinate their existing processes, which can result in better customer experience (Verhoef et al., 2021). However, applying technological advances that come with digitalisation is insufficient to make an organisation profitable(Rachinger et al., 2019). To leverage digitalisation, organisations need to reflect and transition to innovative business models and strategies(Parida et al., 2019).

Digital transformation is a phase that brings in new business models that can create value for an organisation using digital technologies that digital transformation requires (Imran et al., 2021; Verhoef et al., 2021). Digital transformation is a process that enables organisational improvement because it triggers changes in the organisational structure and culture and enables the organisation to move from a traditional industrial economy based to a digital economy(Imran et al., 2021). It allows organisations to be innovative and develop agility, improving customer experience (Imran et al., 2021).

2.3 Leadership Theory

In the past decades, leadership theories on transitioning from transactional to transformational leadership theory were discussed and were regarded as influential leadership behaviours. Transactional leaders focus on the exchange process between the leader and the follower. Transformational leaders concentrate on ensuring that the people they lead remain motivated and inspired for high and quality output (Cortellazzo et al., 2019). A transformative leader has the ability to spot issues and enhance staff productivity and product innovation. According to Hensellek (2020) and Tigre et al. (2023), digital transformation demands digital leadership with traits of technology-savvy transformational leaders.

A leader who is a digital leader is one who is curious and open to learning about the complex, dynamic environment and changing competitive landscape. According to Mihardjo et al. (2019), a digital leader is inventive and has a creative attitude. The leadership of an organization is responsible for creating innovation

on their product offerings and service business model based on customer wants. Digital transformation depends on the creation of an organization's new capabilities and innovation of their business model (Mihardjo et al., 2019).

2.4 Theoretical framework

Most organisations are fighting for a strong market position while retaining access to sustainable resources is a fundamental strategic choice. To reach this position, the existing literature proposes two opposed methods, namely the external factors perspective and the internal factors viewpoint. The internal factors perspective (resource-based theory) argues that a firm's competitive advantage is developed when it proactively acquires, accumulates, and manipulates strategic resources and capabilities (Muneeb et al., 2023; Teece et al., 1997). Resource-based views (RBV) are imperative when determining the sources of long-lasting competitive advantage for firms(Barney et al., 2011). They also assist in identifying intangible and tangible assets of integrating, building, and reconfiguring internal and external competencies (Barney et al., 2011; Teece et al., 1997).

The external perspective (market-based theory) contends that enterprises gain profits through superior product-market positions (Muneeb et al., 2023). To address the changing nature of a firm's resources and capabilities regarding external factors, the concept of dynamic capability was formulated as an extension of the RBV(Mehta & Ali, 2021; Muneeb et al., 2023).

This proposed study adopted a dynamic capability framework as an underpinning theoretical framework. This framework has introduced a different research perspective on an organisation’s innovation perspective (Teece et al., 1997). It considers innovation in relation to the organisation’s capabilities and resources (Teece et al., 1997).Organisations cannot only survive on traditional sources of competitive advantages, such as operational capabilities but require renewed competencies and unique capabilities that allow the organisation to regenerate and scale itself (Teece et al., 1997). Dynamic capabilities can be generated

through the organisation's processes, internal learning, and development over time (Muneeb et al., 2023; Teece et al., 1997).

According to Teece et al. (1997), the combination of dynamic capabilities and strategy creates a justifiable business model which guides the transformation journey of an organisation and allows the organisation to enhance its capabilities and resources through increased profit levels gained from this defensible business model. Three types of capabilities comprise dynamic capabilities consisting of routines that act upon a portfolio of competencies, as illustrated in Figure 2.4-1.

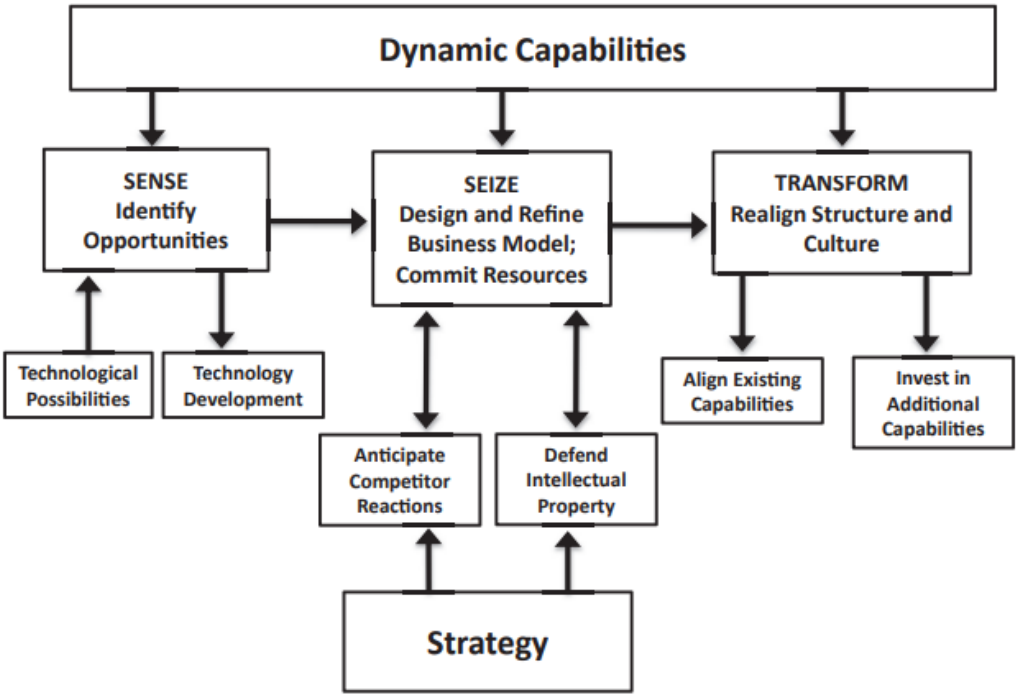

Figure 2.4-1: Dynamic capability framework Source: (Teece, 2018)

(i) Sensing is a mechanism that allows the organisation to learn, capture, and analyse market data to identify opportunities and threats (Teece et al., 1997). (ii) Seizing refers to addressing the sensed opportunities through mobilising internal resources such as processes, technology, and services to utilise these capabilities (Teece et al., 1997). (iii) Transforming refers to aligning and reconfiguring existing capabilities and organisational structures to correspond to opportunities (Teece et al., 1997). The mechanism allows organisations to

acquire new competencies and eject those that are no longer required (Teece et al., 1997).

According to Teece et al. (1997), the sustainability of dynamic capability requires a different management approach and a mindset to manage uncertainties in this rapidly changing environment(Teece et al., 1997). Managers need to foster entrepreneurial culture across the organisation, which will enable the organisation to respond to a dynamic environment to achieve competitive advantage (Teece et al., 1997). Jialu et al. (2019) ranked information and communications technology (ICT) which includes telecommunications high as an industry with high exposure to technology disruption. Dynamic capabilities theory is applicable to the context of the telecommunication industry. In this regard, dynamic capability theory is relevant for this study because the theory has been developed with an explicit focus on changing established and developed organisations operating in a dynamic environment (Teece et al., 1997). Also, capabilities theory is relevant to leadership in a developing country such as South Africa, which still relies on technology from developed countries. Leaders in the telecommunication sector need to introduce innovative processes where order management tools such as cloud sourcing platforms can be used to sense new opportunities, agile practices, and lean frameworks to support the innovation process so that new business opportunities can be seized (Teece et al., 1997).

2.5 Empirical Review

This section provides a review of the application of digital leadership competencies for digital transformation. Also focuses on how these competencies are being used in telecommunication other areas. The section concludes with a synthesis of the literature and describes the research gaps that have been discovered and the key references that have identified those research gaps.

2.5.1 Factors influencing sensing

This section discusses the application of sensing capabilities and the factors that influence an organisation's ability to sense opportunities and threats in other sectors and telecommunication sector. Sensing capabilities refers to the organisations ability to learn, detect, capture, analyse market data so that opportunities and threats can be identified (Teece et al., 1997; Teece, 2018).

2.5.1.1 Digital knowledge and adoption of new technologies

Many across the spectrum are formulating digital transformation strategies to survive in a competitive environment. Digital technology is a driver of change and requires special technology management competencies(Mikelsone et al., 2022).One of the most imperative competencies for digital leaders is the knowledge of digital technologies and processes (Imran et al., 2021; Karippur & Balaramachandran, n.d.; Türk, 2023)Although leaders are not expected to have in-depth technical understanding of this digital tools(Imran et al., 2021), they are expected to have solid understanding of how the digital tools can affect their business and customers, as well as understand how these digital tools can be applied in different areas of their business(Imran et al., 2021; Türk, 2023). This stresses the requirement for leadership in digital era to adopt a life-long learning approach to sharpen their digital knowledge and skills(Cortellazzo et al., 2019)

Digital leaders influence the organisation's performance because they have the qualities of transformational leaders merged with digital skills(Shin et al., 2023). The study conducted by Mikelsone et al. (2022) explains that the adoption and management of technologies is essential, especially in a dynamic environment, requiring special technology competencies from both leadership and employees. The study also explains that an organisation's superior performance depends not only on the application of ICT but also on relations between the system, organisational structure, and the technology management competencies of leaders (Mikelsone et al., 2022). Mikelsone and colleagues developed four categories of technology management competence to help an incumbent firm to manage rapid technology advancements within their context. The first category

is process competencies which is the ability to identify inputs and transform them into outputs within a specific set of parameters (Mikelsone et al., 2022).

The second category is project competencies which require the capability to define scope and parameters that will either produce a unique product or service or improve an existing service/product (Mikelsone et al., 2022); the third category is systems competencies which is the ability to manage technology in each context; lastly is operations systems which considers individual's industry knowledge and experience within a specific context (Mikelsone et al., 2022).

2.5.1.2 Big data analytics

Big data has been described as capability that leads to enhanced performance and depend on the management of strategic resources (Moumtzidis et al., 2022). Using advanced digital technologies like Big Data Analytics (BDA) can help companies across different industries to open new prospects and boost efficiency (Hinga,2022.; Moumtzidis et al., 2022; Pathak et al., 2021.). BDA capabilities have an impact on technology, marketing organisational processes and competitiveness (Hinga, 2022.; Pathak et al., 2021).

Effective BDA builds critical thinking of leadership because they need to determine based on trends observed through BDA to produce innovative ways to gain competitive advantage and allows quick and informed decision making because reliable, real-time information (Moumtzidis et al., 2022) . Literature has also indicated that other sectors such as health sector, supply chain and banking have managed to solve some of their problems and gained value from investing in BDA(Moumtzidis et al., 2022). Further, literature states that organisations need to invest in capabilities and resources that can utilise these technologies for quick and effective identification of risks, opportunities, and threats to survive in the digital era and for business value creation(Hinga, 2022.; Moumtzidis et al., 2022; Pathak et al., 2021.).

2.5.1.3 Adoption of Big data analytics in healthcare

Healthcare is one of the industries that big data analytics are adopted (Hinga, 2022). There is huge amount of patient's medical history data in the database of various institutions such as medical practices, pharmacies, insurance institutions etc. Big data analytics tools are used to integrate the information to offer customers better services in terms of treatments, collection, and delivery of medications (Hinga, 2022). Big data analytics has also improved the health care sector diagnose patients quicker and more accurately and to also determine some health factors in specific arears, age group, gender race etc at a high speed (Hinga, 2022). The implementation of big data analytics tools is however restricted and controlled by established laws and procedures due to sensitivity of the information (Hinga, 2022)

2.5.1.4 Customer experience

Industry 4.0 has brought customer experience in the forefront and organizations are leaning towards customer experience in response to the rapid changes and high customer demands. Customer experience has introduced a new digital ecosystem and customers are influenced by the interactions through digital platforms (Mihardjo et al., 2019). Leaders in develop technical expertise to formulate strategies that will digitally transform their organisations' customer experience and gain a better understanding of their customers (Alwan & Alshurideh, 2022). They need to develop entrepreneurship competency to grow their top-line and customer touchpoints (Alwan & Alshurideh, 2022; Mihardjo et al., 2019). Furthermore, customer's behaviour and demand are influenced by the information accessed via digital platforms. The leaders need to focus more on customer experience to learn more about how "customer's cognitive, emotions and social factors influence their response to products and services (Mihardjo et al., 2019).

2.5.1.5 Adoption of Sensing capabilities in manufacturing sector

This study investigated the application of digitally enabled sensing capabilities in manufacturing sector (Chirumalla et al., 2023). Three sensing capabilities are highlighted are knowledge exploitation, data interpretation capability to explore

new opportunities, and integration of digital competence within the network to map new offerings (Chirumalla et al., 2023).

2.5.1.5.1 Knowledge exploitation capabilities

In manufacturing sector as explained by Chirumalla and colleagues, exploiting knowledge refers to gaining knowledge through data exploration and exploitation (Chirumalla et al., 2023). It is the organisation's ability to collect and analyse historic information available within the organisation through various digital technologies to gain new knowledge about the customer's interests, needs and wants (Chirumalla et al., 2023; Wenninger et al., 2022). Leaders require entrepreneurial start-up mindset competency to enable their organisations to gain knowledge through conducting market research and assessing different industries, as well as investigating and gathering data from external entities such as partners, suppliers, and regulators (Chirumalla et al., 2023; Kolagar et al., 2022). Manufacturing sector has mechanisms in place to evaluate information collected so that only valuable information is used to gain knowledge and insight (Chirumalla et al., 2023; Kolagar et al., 2022).The mechanism include big data analysis tools, however the data also needs to be accurate for proper filtering of information to ensure only relevant information is processed Chirumalla et al., 2023).

2.5.1.5.2 Interpretation of data for proactive services (PAS)

Interpretation of data refers to the organisations' ability to recognise new opportunities and customers' needs through interpretation of information gathered (Chirumalla et al., 2023; de Aro & Perez, 2021). It is imperative for an organisation operating in a dynamic environment to differentiate their products and services through invaluable services(Hu et al., 2021). The study by Wenninger et al., (2022), states that organisations can gain competitive advantage by offering personalised services that address customers interests and needs before the customers is aware of the need through digital and smart services. This concept is known as proactive service (PAS) and is associate with digital technologies (Wenninger et al., 2022). According to Wenninger et al., (2022), PAS is connecting to customers through digital technologies which

enable collection of customer data from varied sources, contextualisation of data and creation of customer models for individuals.

2.5.1.5.3 Integration of digital competence inside the network for mapping of new products and services

In manufacturing industry, identification of services that can be integrated into their existing products to provide their customers with the best customer experience and holistic offerings is the main activity under sensing theme (Chirumalla et al., 2023). Also, the ability to establish the willingness of customers to pay for these differentiated services is important because this will help determine the target market (Chirumalla et al., 2023).For an organisation to gain value and profits in the digital era, they need to open their sensing dynamic capabilities to distinct value chains and other industries and current network boundaries (Chirumalla et al., 2023; Kolagar et al., 2022). Also, this is made possible when organisation foster innovation in the roles of their workforce and all streams in the value chain (Chirumalla et al., 2023).

2.5.2 Factors influencing seizing

Seizing capabilities of an organisations control the crafting of a revenue methods (Block et al., 2023.; Teece et al., 1997). It also includes mobilising of internal processes and systems to extract value sustainability of the business. The study discusses the factors that influence seizing of opportunities and the application of seizing capabilities in supply chain sector.

2.5.2.1 Organisational agility in supply chain

In this study, agility is described as an ability of an organisation to grasp digital market opportunities quicker than its competitors (Aldhaheri & Ahmad, 2023) Agility involves flexibility of the operations, people, quick deployment and agile project management (Ahmad et al., 2021). A review of the study by Aldhaheri and Ahmad (2023) on the supply chain has been performed to identify factors and benefits of agility in an organisation. Aldhaheri and Ahmad (2023) indicate that agility, flexibility, and visibility are linked and contribute to the response to

customer demands. In this study, flexibility is defined as the accurate degree of an organisation's adaptability to evolving market conditions (Aldhaheri & Ahmad, 2023). Flexibility focuses on developing strong internal competencies within an organisation, while agility concentrates on developing strong external competencies(Aldhaheri & Ahmad, 2023). An organisation's response pace to customer demands and prediction of future products and services is important to the organisation's performance (Rad et al., 2022). These three elements can help organisations respond to customers' unique demands faster(Ahmad et al., 2021; Aldhaheri & Ahmad, 2023; Konopik et al., 2022). Agility, flexibility, and visibility can achieve using appropriate digital technologies. Moreover, processes can be optimised for greater agility because of the valuable analysis of data performed using digital tools (Ahmad et al., 2021).

The supply chain operations involve strategic partners. It requires transparency and trust between the parties since they share common goals (Aldhaheri & Ahmad, 2023). In the supply chain, digital technologies have promoted visibility and flexibility because of sharing of information as well as, and leaders are strategically ready for challenges and can easily decide(Aldhaheri & Ahmad, 2023). Based on this, visibility influences the agility and proactiveness of an organisation; however, this requires a digital leader that can plan, facilitate, and coordinate internal and external entities in the ecosystem (Aldhaheri & Ahmad, 2023). Visibility and flexibility are not yet present in the telecommunication industry; as a result, the operations, process, and decision-making process are not agile (Alwan & Alshurideh, 2022). They influence product value creation, customer experience and competitiveness of the telecommunication industry(Ahmad et al., 2021; Alwan & Alshurideh, 2022).

2.5.2.2 Decision making

The primary focus of the seizing capabilities is revolutionising the business model. This is usually aided by fast decision-making competencies of leadership of an organisation. Leadership with decision making mental models can maintain high dynamic through fail fast concept and experimentation (Ahmad et al., 2021). Decision making is however dependent on the quality and integrity of the data

and data analysis capabilities of an organisation (Ahmad et al., 2021). Digital transformation requires leaders to trust in their employees and allow them to make decisions and learn from trial -error basis (Ahmad et al., 2021; Qvarfordt & Aadan, n.d.)

2.5.3 Factors influencing transformation of capabilities.

The section discusses recent research studies and literature on factors that influence the transformation of organisations to digital transformation. It also highlights leaders' influence on organisational performance, culture, and innovation. It further discusses the competencies that enable leaders to drive transformation through organisational capabilities.

2.5.3.1 Digital vision and mindset

Digital vision is key in leading digital transformation(Imran et al., 2021).Digital leaders need to have a holistic vision of their organisation and they need to have the ability to clearly articulate their digital vision to their followers so that they can understand and execute the vision (Imran et al., 2021; Karippur & Balaramachandran, 2022; Živković, 2022). A digital leader needs to provide a vision that is purposeful, sustainable and creates value (Imran et al., 2021; Karippur & Balaramachandran, 2022). Leaders of digital transformation need to have actionable plans to successfully implement this vision (Hensellek, 2020; Imran et al., 2021; Karippur & Balaramachandran, 2022). Furthermore, the digital leadership needs to have entrepreneurial mindset that allows them to seize opportunities and have digital skillsets that will enable them to digitally implement the vision (Živković, 2022). He further mentions that for sustainable competitive advantage, the digital leader needs to ensure digitalisation has been incorporated into the organisation’s strategy and operations(Živković, 2022).

2.5.3.2 Digital culture and innovation exploratory

In a competitive and dynamic industry, innovation is essential for firm survival and expansion(He & Su, 2022; Wang et al., 2022). The key component of a company's innovation capacity is its ability to integrate and increase its existing resources and skills while establishing primarily new capabilities(He & Su, 2022). Digital leaders should create organisational structures and strategies that enable their organisations to easily integrate digital capabilities so that they can develop their digital culture and expertise(Shin et al., 2023). To preserve or improve competitive advantage in a dynamic environment, leaders need to guide the organisation through the transformation process by participating in a reconfiguration of organisation's the capabilities, which involves adding, redeploying, recombining, and divesting resources(He & Su, 2022; Teece et al., 1997; Yu et al., 2022).

Organisation can consider reconfiguration capability evolution, which entails constant regular improvement, and capability substitution, which provides a quick and effective response to environmental change (Wang et al., 2022; Xi et al., 2022). However, the organisational culture needs to support these reconfiguration strategies. Leadership needs to establish and promote digital culture for the organisation to benefit from digitalisation in new opportunities(Shin et al., 2023). Digital culture introduces new knowledge and skill sets that influence the financial and non-financial performance of the organisation(Shin et al., 2023). Furthermore, digital culture allows employees with digital competencies to collaborate across the organisation and generate new ideas that will improve the performance of the organisation (Chirumalla et al., 2023).The literature also states that the is a positive relationship between employee's digital capabilities and organisational culture and that digital capabilities of an employee act as a mediator between the digital leader and organisational performance (Chirumalla et al., 2023).

Exploratory innovation in the implementation of digital transformation is positively impacted by digital leadership's ability to foster quick decision-making and change(Wang et al., 2022). To achieve digital transformation effectiveness,

leadership need to change the organisational culture by developing a “digital mindset” of its employees (Ahmad et al.,2021). Digital leaders that encourage the use of effective and efficient digital tools across all departments and promote the level of automation and intelligence in internal operations will increase operational efficiency(He & Su, 2022; Wang et al., 2022). This allows employees to concentrate on more difficult and cognitive tasks (Xi et al., 2022).

2.6 Synthesis of Research Gaps

This section provides synthesis of the literature and the description of the research gaps. The Table 2.6-1 describes the research gaps that have been discovered and the key references that have identified those research gap.

Table 2.6-1 Research gap synthesis

Research Gap	Research/ Research Theme	Reference
The literature reviewed that testing of the dynamic capabilities' theory concepts have been tested on South Korea and the concepts have not been tested in another cultural context (Shin et al., 2023).	Part of this study test the concepts in the South African context.	(Shin et al., 2023).
Digital Culture and Employee capabilities have been used in previous studies as concepts for digital transformation and leadership (Shin et al., 2023).	This study employs leadership capabilities and dynamic capabilities of organisations.	(Shin et al., 2023).
The literature indicates that numerous studies have been conducted on the leadership characteristics, styles, and organisational capabilities. However, there is no clear indication of the leadership characteristics and competencies that contribute to the successful implementation of digital transformation (Tigre et al., 2023).	This study employs leadership capabilities and dynamic capabilities of organisations	(Tigre et al., 2023).

Research Gap	Research/ Research Theme	Reference
The literature does not provide confirmatory studies of each single micro foundation (sensing, seizing, and reconfiguring) (Chirumalla et al., 2023)	This study categories leadership capabilities in micro foundations i.e., sensing, seizing, and transforming	(Chirumalla et al., 2023)
The reviewed literature does not provide the actual process of generation as well as development of the digital capabilities and micro foundations (Chirumalla et al., 2023).	This study investigates the process of generation of DC in the telecoms industry in South Africa.	(Chirumalla et al., 2023)
The study focused on other specific industries (Manufacturing, Human resource, and service industries) (Shin et al., 2023).	This study focuses on the Telecoms industry.	(Shin et al., 2023).
Limited research on the influence of organisational capabilities for digital transformation (Konopik et al., 2022)	The theme of this research relates to the influence of dynamic capabilities on digital transformation	(Konopik et al., 2022)
Attention of the reviewed literature is on the characteristics of digital leadership. A discussion on organisational factors, processes, and their impact in creating effectiveness of digital leaders for digital transformation is lacking (Wang et al., 2022)	This study looks at organisational factors, processes, and their impact in creating effectiveness of digital leaders for digital transformation	(Wang et al., 2022)

2.7 Research gaps

The following research gaps have been identified from the literature and form the basis of the research questions.

- There is limited literature on the leadership competencies required for digital transformation in the context of the telecommunications industry.
- The literature review highlights that there is a research gap to identify the direct and indirect impact of digital leaders on digital transformation in their organizations.
- There is a need to define and empirically test possible theoretical propositions for each single micro foundation (sensing, seizing, and reconfiguring).
- There is limited literature on how the dynamic capabilities of organizations can be employed to build resilience to sense and seize opportunities as well as identify threats in the internal and external markets.
- The literature also highlights that there are limited studies on how leadership competencies can open up the sensing, seizing, and transforming capabilities of telecommunication organizations for diverse sustainability and competitive advantage.
- There is limited literature on the leadership capabilities employed to reconfigure telecommunications organizational structures and business models for competitive advantage.
- There is a need to define and empirically test possible theoretical propositions for each single micro foundation (sensing, seizing, and reconfiguring).

2.8 Summary of the chapter

In this chapter, a theoretical review of digital transformation was conducted, and a narrative on the evolution of Digital Transformation and related concepts such as Digitalisation and Digitisation was reviewed. A review of leadership competencies was conducted where discussion on the changed landscape is prompting a need for a different form of leadership competencies.

Part of the theoretical review was the narrative on theoretical frameworks such as porters' market-based theory and RBV, and a narrative on the chosen dynamic capability framework is provided. Its relevance to the study is based on the dynamic nature of the telecommunication industry, and South African leadership is mostly influenced by competencies adopted by developed countries.

Lastly, the chapter looked at the empirical review where digital age leadership is discussed, the competencies that previous studies had considered as important for digital transformation and the factors that influence sensing, seizing, and transforming capabilities. The chapter concludes with a synthesis of the literature, which describes the research gaps discovered and the key references that have identified those gaps.

CHAPTER 3. RESEARCH METHODOLOGY

This chapter outlines the research methodology of this study. It explained the research approach used and the rationale for selecting the specific approach. It also explained the design of the research, population, sampling techniques and the methods used to collect data. The procedures used to analyse and interpret the data. A qualitative research methodology was used with the non-probability sampling technique, purposive sampling, and interviews for data collection. The chapter concludes with ethical considerations.

3.1 Research Approach

This study is an exploratory qualitative study. In qualitative research, the study is instrumental in gathering and using the data to reflect, generate meaning and understand complex social phenomena such as leadership competencies and their contexts (Creswell, 2007). The study adopted a deductive research approach, using a theoretical framework to guide data collection and analysis (Creswell, 2007).

A paradigm is a fundamental set of assumptions or worldviews that steers a research investigation (Creswell, 2007). The paradigm impacts what should be investigated, how it should be researched, and how to interpret the research's findings (Kivunja & Kuyini, 2017). There are four components that make up a paradigm: epistemology, ontology, methodology, and axiology (Lincoln & Guba, 1985). However, Interpretivism, Positivism, and Critical Theory are the three paradigms that are most utilized in qualitative research (Antwi & Hanza, 2015). Therefore, this study adopted the qualitative interpretivism research philosophy.

The rationale for adopting philosophy is based on the argument it presents. Interpretivism argues that reality and knowledge are social products that consider the context of the researchers who create and interpret them (Sekgwelelo et al., 2017). This is true in the context of this study because the data collected from the natural environment of the telecommunication industry was interpreted by the

researcher to gain an understanding of how executives and senior managers in the telecommunication industry make sense of their natural environment. The constructed reality is steered by the theory; hence, a deductive approach was employed for this study.

3.2 Research Design

Generic research design was chosen as a suitable research design methodology. The generic qualitative design was used to explore the phenomenon of competencies required for leadership to effectively drive digital transformation in the telecommunication industry(Jahja et al., 2021). Generic qualitative design enables the study to seek new insights and obtain an in-depth understanding of the phenomenon based on the data collected (Jahja et al., 2021). These met the purpose of this study, which was to explore the leadership competencies for an effective digital transformation strategy.

The reality of generic qualitative design is based on how humans engage and make sense of their surroundings (Jahja et al., 2021). According to Jahja et al. (2021), the process of collecting and interpreting data is systematic.

3.3 Data collection method

Microsoft team’s platform was used for semi-structured interviews to collect data. The reason for selecting semi-structured interviews was because the techniques allow the study to explore more by providing the flexibility to rearrange questions according to the responses to gain a better understanding of the participant's experiences (Kunaka, 2019). Also, semi-structured interviews allow participants to express their views because the questions are open-ended (Alshenqeeti, 2014; Kunaka, 2019).

3.4 Population and sample

3.4.1 Population

According to Zikmund et al. (2013), the target population can be described as a group of individuals that generally with shared characteristics. The population for this study was middle and senior managers in the telecommunications industry in South Africa involved in the company's digital transformation. This population was recognised as sources likely to have information relevant to answering the research question because of their involvement in the company's day-to-day operations. The population included Senior Managers (Divisional heads) and Middle managers (Divisional managers).

3.4.2 Sample

Jahja et al. (2021) stated that sample size might be reduced if a small sample size can provide data that a study can deduce patterns and dimensions that can be used to develop a new phenomenon model or theory.

The targeted sample size of the semi-structured interviews for this generic qualitative research method is 10 (Jahja et al., 2021.). However, the sample size could have increased or decreased during the data collection phase because there was a dependency on the theoretical saturation (Jahja et al.,2021). A non-probability sampling technique, purposive sampling, was used because the research is exploratory and participant selection was not random. The participant selection was based on the study’s expert judgement in identifying suitable participants with in-depth knowledge and experience of digital transformation in their organisations (Kunaka, 2019).

3.5 The research instruments

A semi-structured interview guide was formulated to collect interview data. An interview guide (see Appendix A) consisted of open-ended questions. The first set of questions were short and focuses on position and work experience, job tasks and domain. The second part of the interview focused on specific questions relating to the work environment, organisational digital maturity levels and leadership competencies for digital transformation. The study rephrased or rearranged the questions when required to guide and obtain more information about the research phenomenon.

3.6 Procedure for data collection

Interviews are commonly utilised for qualitative research because the study can capture the participant's experience and perception of the research subject (Alshenqeeti, 2014). Semi-structured interviews data collection method was adopted for this research study. The following data collection process was followed:

- Started with obtaining contact details of identified middle and senior leaders for digital transformation from networks that the study has with employees in the telecommunication sector.
- The professional media platform LinkedIn was also used to contact potential interviewees. This was conducted in line with Protection of Personal Information Act (POPIA) regulations.
- An email requesting participation was sent out to the identified leaders. Included in the email were the scope of the study, its background, and the purpose of the study.
- Once permission was attained from these participants, an online interview was scheduled via email using a preferred online communication platform which allowed recording. A consent form and interview guide were attached to the email interview invite.

- Participant confidentiality was prioritised. Thus, no names were stored, but pseudonyms were utilised to protect the identity of these leaders and their respective organisations.
- A brief introduction was given prior to the commencement of the interview to give focus and for a common understanding between the interviewer and the interviewee.
- The responses from the interview were saved in an electronic format on a password-protected device.

3.7 Data analysis

Since this is a qualitative deductive study, a thematic analysis was followed to interpret the meaning and identify patterns, but this was theoretically bounded (Braun & Clarke, 2006). According to Braun and Clarke (2006), the theoretical thematic analysis is the approach that is based on theory and allows the study to categorise the data to identify themes or patterns from the responses captured. Thematic analysis is shown in Figure 3.7-1 and discussed thereafter:

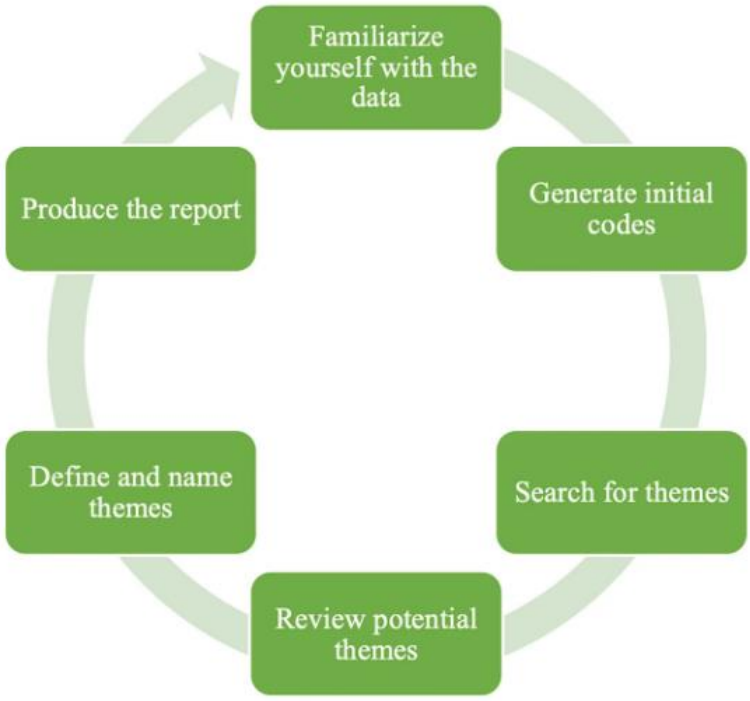

Figure 3.7-1: Thematic analysis (Braun & Clarke, 2006)

- **Familiarisation with data**: the study first familiarised themselves with the data collected by listening to the recording of the interviews and compiling notes (Braun & Clarke, 2006).
- **Produce initial codes**: the study executed coding by labelling data features identified as relevant (Braun & Clarke, 2006).
- **Searching for themes**: Classifying codes into possible themes and collecting relevant data relating to each theme(Braun & Clarke, 2006)
- **Reviewing themes**: Determining whether the themes work in relation to the extracts coded extracts as well as the whole data set producing a thematic 'map' of the analysis(Braun & Clarke, 2006).
- **Defining and naming themes:** analysed and generated names for each theme(Braun & Clarke, 2006).
- **Producing the report**: The final phase is performing the final analysis of chosen extracts, relating the back of the analysis to the literature and research question, and producing an analysis report (Braun & Clarke, 2006).

3.8 Ethical considerations

Ethical principles were applicable in this study for the protection of the human subject (Roshaidai & Arifin, 2018). Ethics approval from Wits Business School is included under Appendix D.

3.8.1 Confidentiality

Confidentiality is the process of purposely concealing information about a participant's identity with the intent to protect the participants from any harm that may arise due to disclosing their experiences or actions to the public (Roshaidai & Arifin, 2018). In this study, the interviews were conducted individually to protect the interviewee's identity. The names of other participants were not referred to or mentioned in another interview session to ensure the confidentiality of all the interviewees. A consent form (see Appendix C) was shared with the participants

to give consent. The study informed the participants that consent should be given voluntarily and that they have the right to withdraw their consent at any time (Roshaidai & Arifin, 2018).

3.9 Quality assurance

3.9.1 Transferability

The following approach was adopted to ensure the transferability of this qualitative study (i) The participants of the study were selected purposefully using purposive sampling (Jahja et al., 2021.). These participants were selected based on their experience and knowledge of the phenomenon explored. (ii) The study also focused on one context, which is the telecommunication industry and specific participant roles with commonalities (i.e., senior, and middle managers). (iii) This research paper described the processes followed, such as data collection, methodology and context 10 (Jahja et al., 2021.).

3.9.2 Credibility

Research findings can be regarded as credible based on the level of confidence in the accuracy of the study (Jahja et al., 2021.). For this research study, the researcher obtained feedback and guidance on the emergent findings from the allocated supervisor to ensure credibility and congruency with the realities. The objective and background of the study was explained to participants to gain their trust and provide an understanding of the context (Jahja et al., 2021.). Furthermore, the interview recordings were listened to more than once to immerse into research data. The extracts from the transcripts are stated against each parameter of categories to support the theme.

3.9.3 Confirmability and dependability

Dependability refers to the level of consistency of the findings in relation to the data collected (Jahja et al., 2021.), while confirmability refers to the degree in which the findings of the research are not influenced by the researcher but are the results of the research (Jahja et al., 2021). For this study, the study kept an

audit trail for evidence of data collected in the interviews, recorded events that took place and protected the identity of the interviewees for integrity (Jahja et al., 2021.)

3.10 Summary of the chapter

Research plan has been discussed. The research plan included the qualitative research approach, data collection methods and data analysis approach. The research design is generic qualitative design, which is exploratory in nature, seeking to understand the factors that influencing sensing, seizing, and transforming capabilities for digital transformation. The following chapter presents the findings of this study.

CHAPTER 4. PRESENTATION OF FINDINGS

4.1 Introduction

This chapter details the findings from interviews conducted for the purpose of this study. The findings of this study have been categorised into three themes (Sensing, seizing, and transforming) based on dynamic capability theory, see Figure 4.1-1 below:

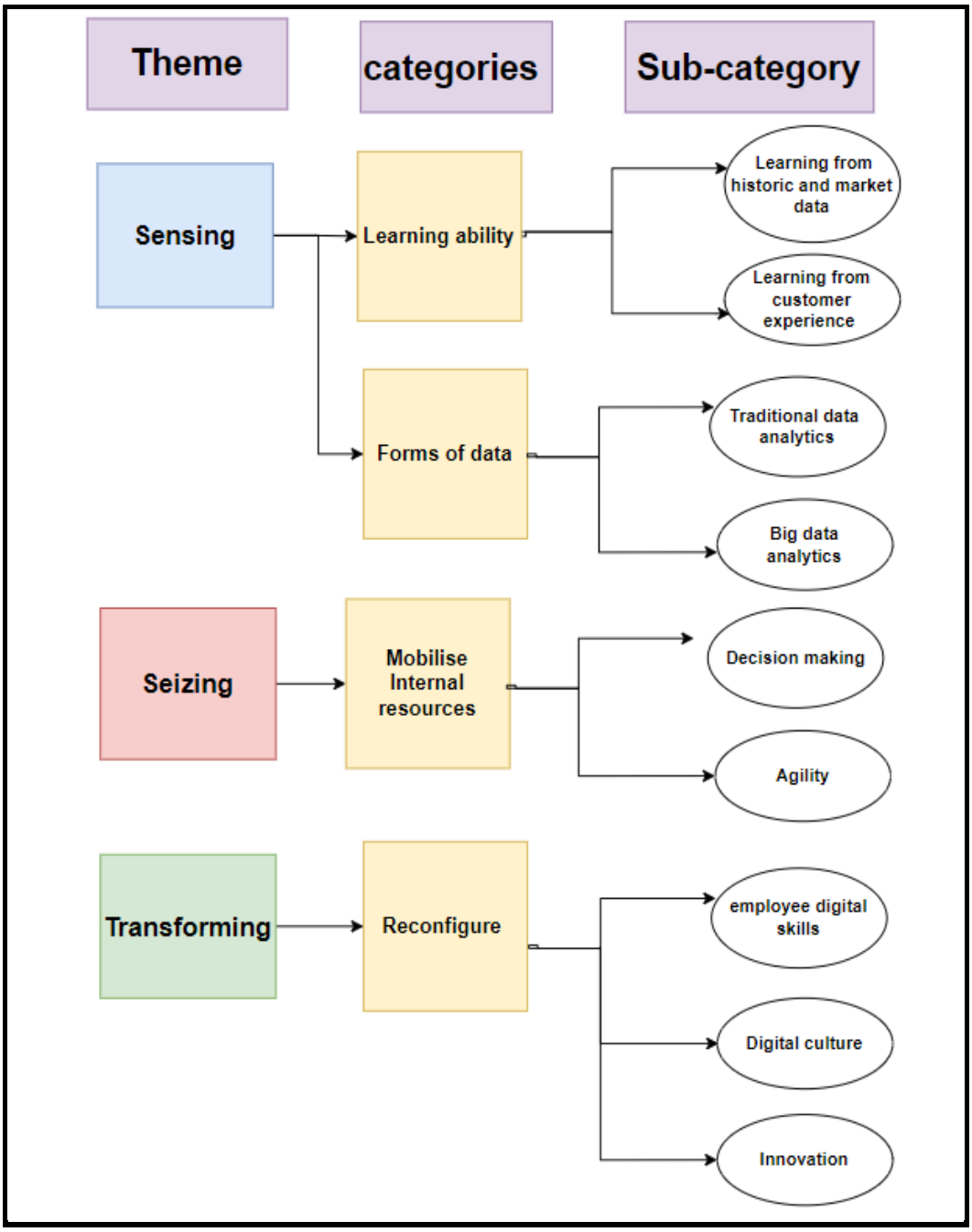

Figure 4.1-1: Summary of themes and categories

The three themes emerging from the theoretical framework have been used to classify data and categorise the data in relation to each theme and determine factors that influence sensing, seizing, and transforming in telecommunications.

The data collected for this study was analysed following Braun and Clarke's (2006) theoretical thematic analysis process.

- The first step was to understand the data by listening to the recordings and reading the interview transcriptions.
- Followed by generating codes from the data and categorising the codes to each theme that emerged from the dynamic capability theoretical framework.
- The last step was interpreting and presenting the results per theme and discussing the relevance of the results to the objectives of the study.

4.2 Demographics

The findings of this study were based on data from a total of 10 participants. Four out of ten participants are executives, two of the participants are general managers, and the remaining four participants are senior managers. Majority of the participants are male, and 40% of the participants are female, The age group ranged from 35-55 years, and 70% of the participants have been in the telecommunication industry for more than ten years, two for more than five years and one for less than five years, see Figure 4.2-1.

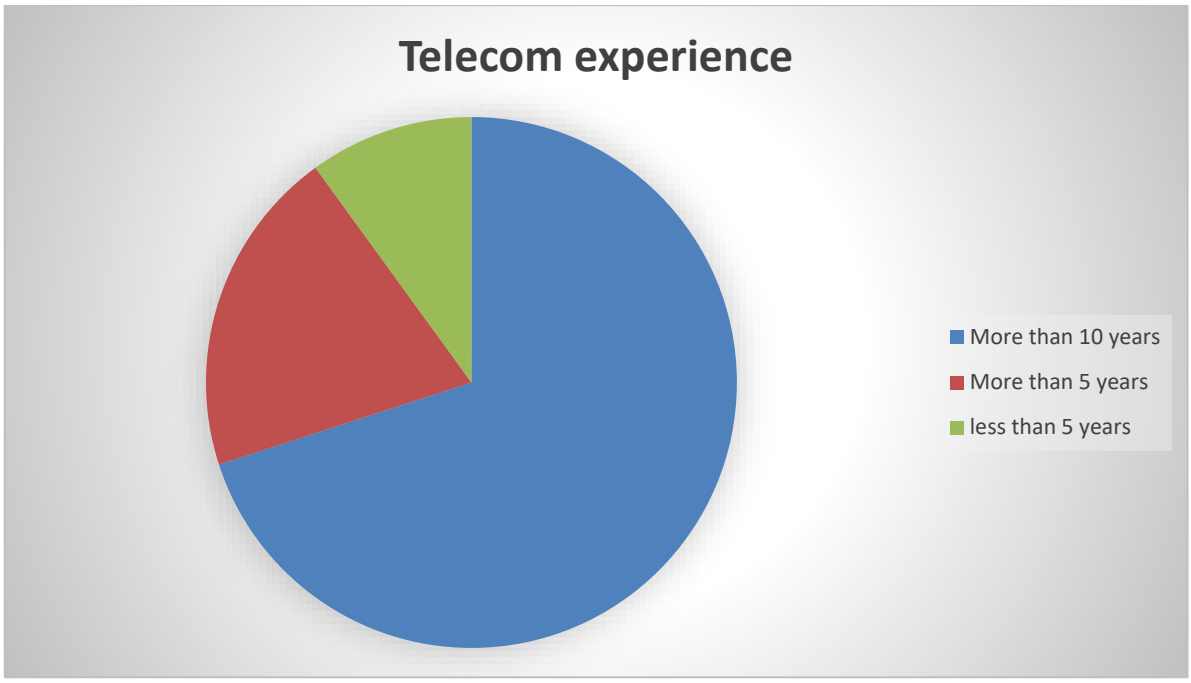

Figure 4.2-1: Experience of study participants

Most of the participants are from MTN (SA) and Telkom. MTN (SA)and Telkom are two of the largest telecommunications in SA. MTN share has increased in 2023 to 42%(Msomi, 2023; Taylor, 2023). This is in comparison to the 2022 market share of 31 %, and Telkom, now the third largest telecommunication in SA and has gained market share growth over the years at 15 % market share in Feb 2023 (Msomi, 2023; Taylor, 2023). All the participants engage in the digital transformation process in the organisation, see Table 4.2-1. Therefore, all the participants are in a prime position to address the aim of this study.

Table 4.2-1: Study participants

NO	Interviewee	Organisation
1.	Participant 1	MTN (SA)
2.	Participant 2	MTN (SA)
3.	Participant 3	Telkom
4.	Participant 4	MTN (SA)

NO	Interviewee	Organisation
5.	Participant 5	Telkom
6.	Participant 6	MTN (SA)
7.	Participant 7	Telkom
8.	Participant 8	Vodacom
9.	Participant 9	Telkom
10.	Participant 10	MTN (SA)

4.3 Sensing

Sensing is a discipline that allows organisations to ingest market-relevant data for analysis and gain a competitive advantage. It involves analytical systems (people, processes, and tools) for scanning, searching and exploration activities across markets and technologies to identify possibilities (Moumtzidis et al., 2022; Teece et al., 1997).Learning ability, technological possibilities and developing mechanisms for capturing and analysing market data were subthemes that emerged under sense.

4.3.1 Learning ability

Core to an organisation's intangible assets is its learning ability (Schoemaker, Heaton, & Teece, 2018). Organisations must understand how their customers perceive value and how to deliver it. Also, how to identify opportunities and threats from the internal and external factors. The learning ability is divided into two categories learning from historic and market data, learning from customer experience.

4.3.1.1 Learning from historic and market data

The huge amount of data is the key for organizations to learn their consumers' mindsets and their expectations from a product (Ahmad et al., 2021). Based on the participants, telecommunication companies do not exploit the data to learn and know their customer's behaviours, needs and interactions with the organisation to deliver a unique value proposition, and to close the general disconnect with customers. This is highlighted in the below verbatim:

> ***P5:*** *We need to understand our customers better. We need to make sure that we know our customers. We need to know what they're interested in and analyse that data to make sure that we can make it relevant.*
>
> ***P10:*** *Services are quite reactive. The needs and wants to come from customers, I believe the competitors manage to react to customers; however, we respond to our competitors. If we did a better job of listening and creating rather than reacting to customers, we might win a bit more regularly rather than constantly defending*.
>
> ***P1:*** *I think we've made a good start, and I think there's a big growth in terms of taking that data and using it more effectively. I think it could be better.*

4.3.1.1.1 Interpretation of learning from historic and market data excerpts

The participants are alluding to unexploited historic data in telecommunication companies to gain knowledge about their customers. This indicates the lack of appropriate big data analytics tool and entrepreneurial start-up mindset of telecommunication leaders to sense and analyse the historic data for the telecommunication companies to gain pertinent insights and to better understand the needs of their customers. Furthermore, the participants further indicate that the service is not proactive in nature and that telecommunication companies are not in the position to make the first move in identifying the gaps and opportunities that will enable them to offer improved and personalised services to their customers. Telecommunication companies must alter their attention from

reacting to competition to actively listening to and developing for their customers. This demands an in-depth knowledge of customer data and analytics, as well as a desire to adapt and develop in response to customer input. By doing so, telecommunication companies will produce customised services that satisfy the expectations of their customers, and they will be in the position to proactively anticipate their consumers' demands and supply answers before problems emerge. Therefore, customer trust and overall satisfaction will increase.

4.3.1.2 Learning from customer experience.

Customer experience critical factor to help organisations to maintain a good relationship with their customers in this digital economy (Ahmad et al.,2021; Alwan & Alshurideh, 2022).Customers are well informed about digital technologies and how they can use them to make purchasing decisions (Ahmad et al.,2021; Alwan & Alshurideh, 2022). Most of the participants indicated the need for the telecommunication industry to put more effort into using the available data to improve their customer journeys and ensure alignment with the organisation's digital transformation strategy. The below verbatim highlights the participants sentiments on customer experience:

> ***P3:*** *I think customer experience is still in the infancy stage. I think that's, we've got a lot of work.*
>
> ***P6:*** *I think that we need to bring customer experience to the full of the organisation more. I think we could be better because when you are really reading the customer is when customer experience is one of your core competencies, and it's at the centre of what you do, and I think we are not there yet. I think we could do better!*
>
> ***P4:*** *The customer experience office that's up and running, and they're busy looking at how to improve customer experience. They are still doing a lot of work to ensure our journeys and our customer experience are aligned with our strategy.*

4.3.1.2.1 Interpretation of customer experience excerpts

The participants allude to immature customer experience in telecommunication companies and that the customer experience office is still in the early phase of establishment. Customers are not at the centre of telecommunication companies and big data analytics tools to analyse customer reactions at different touchpoints of the customer journey have not been adopted yet. It is essential to recognize, that the digital era has caused a considerable shift in client behaviour and expectations. Customers have access to a multitude of information and possess greater autonomy than ever before. Consequently, their expectations for personalised and seamless experiences have grown. This necessitates that enterprises in the telecommunications industry to make customer experience a vital component of their business strategy. Failing to do so may result in missed opportunities and threats from rivals who can give superior client experiences. Investing on customer experience, on the other hand, can result in improved customer loyalty, favourable word-of-mouth marketing, and eventually increased revenue.

4.3.2 Forms of data collection

An organisation's resilience can be built by its ability to sense and seize opportunities and threats (Schoemaker, Heaton, & Teece, 2018). Data and analytics have become the key drivers for organisations to drive digital transformation strategy. Organisations that can identify patterns in data that provides organisations with answers to what is most likely to happen (predictive analysis) and why certain events happened (diagnostic analysis) could decide on a course of action to be innovative and to proactively respond to customer needs (Shayaa et al., 2018; Alwan & Alshurideh, 2022)

4.3.2.1 Traditional data sources

In this study, the participants indicated that traditional data sources are their primary sources of acquiring data because the telecommunications are still in the adoption stage of digital technologies. Thus, they cannot analyse data for value

creation and customer satisfaction(Alwan & Alshurideh, 2022). These traditional data sources include surveys, net promoter score, word of mouth and completion of forms questionaries at the physical stores. The below is the verbatim from the participants on the forms of data:

> ***P10:*** *Data collection is sourced quite traditionally. Telephonic surveys and research through research houses.*
>
> ***P1:*** *We started using this call as its control group, and I source questionnaires; we do market research on control groups of our own type of customers as well as customers from other networks and translate them into coming customer feedback.*
>
> ***P2:*** *I think; currently, I would say it's still a little bit more; traditional digital platforms are not very highly adopted. I think they're also late on the bandwagon of advanced analytics. They have big ambitions in terms of how they want to increase digital transformation by using many past analytical solutions.*
>
> ***P3:*** *We use both traditional and digitised methods with larger phases of your traditional data collection.*
>
> ***P4:*** *We use more traditional data methods at the moment. We use forms from the stores to get data. We do have a large store footprint, and we get customers to complete surveys, and we probably receive some of that feedback by word of mouth.*
>
> ***P5:*** *Some of the data is collected manually when they visit the stores, depending on what it is that they are doing. So, we can keep track to see what the customer was doing there and how many actually came to perform the same function. We can also look at how we minimise the number of customers going to the stores for this specific function.*

4.3.2.1.1 Interpretation of forms of data excerpts

The participants indicate that telecommunications companies use traditional methods to collect data and have not adopted digital data collection methods.

The use of digital data collection methods will not only give telecommunication companies a greater reach but will also permit immediate feedback. The participants are also alluding to traditional data collection methods used across telecommunications physical. However, telecommunications companies are not using data analytics tools to track and learn the functions that can be digitalised to minimise the number of customers going their physical stores for the same function. Telecommunication companies need to utilise control group to compare the results of their clients to those of other networks and acquire vital insight into what sets them apart from their competitors. Additionally, telecommunication companies must continually monitor and assess their data collection procedures to ensure their accuracy and dependability.

4.3.2.2 Traditional and big data analytic capabilities

The influx of digital technologies in this digital era has given many organisations new opportunities to use big data analytics tools to derive substantial insights from unstructured data (Shayaa et al., 2018). Big data allows high volume, high velocity and varied data types from multiple sources that require innovative ways of processing for value extraction (Hinga, 2022). Big data analytics is the operation of advanced analytic tools to big data (Hinga, 2022). The GSM data allows the telecommunication industry the ability to locate the customer, obtain details of customer affordability and average revenue per user or every spend per user etc. Most participants indicated that both traditional and big data analytical tools are utilised to solicit customer feedback and to obtain information about their customers. The participants indicated that traditional data analysis tools such as power business intelligence (BI) and centralised data centre are utilised to obtain insights on their customers. The participants verbatim highlighted below verbatim:

> ***P9:*** *I think we're very traditional because we have a lot of customer data which we are not analysing. So, we are analysing this data on an error basis. It's not integrated, and we don't have a fully digitised data platform to see the customer's behaviour from the onboarding to consumption.*

P10: *I wouldn't say the current data analytics tools are effective; data is collected and presented monthly/quarterly. If we could get this information more fluidly, we may uncover opportunities more easily and compensate for risks more dynamically.*

P1: *You got general traditional data metrics that are calculated based on taking someone's spin on the network. We use tools like Power BI, and we've got a centralised data centre which is your environment that stores all these metrics from an Endpoint Detection and Response (EDR) that flows too and brings up a chunk.*

P2: *So, collecting data, there's the first-party data, GSM data, which is one of the big things that we have. When collecting first-party GSM data, a customer comes up with a prepaid subscriber identity module (SIM) card, and they're able to collect how he's using the SIM card, where he is in the location, and so on and so on. You're starting to have a lot more focus on data than on the traditional voice, whether it's 5G propositions, whether it's fixed-line propositions and also you starting to see for the first time this year, we have seen a shift where data revenue is starting to grow faster than the voice revenue, which is something that for the voice was used to be the goods that lay the golden egg but now things have turned around, that means that whether it's in our platforms or engaging with customers, the types of solutions that we do, we need to be able to create those platforms in a digital space. We are also, starting to Improve our analytical capabilities with which is big data platform as well as Addam, which is our analytics machine learning platform.*

P5: *We haven't fully automated it. So, when customers are engaging with us through our digital channels, be it SMS, [00:04:30] WhatsApp, the app on our portals we collect data from, from that their behaviour. We use those texts to see what the customer is interested in and all of that. We keep that unstructured data in our database, even in social media and all of it.*

4.3.2.2.1 Interpretation of traditional and big data analytics excerpts

The participants indicate that telecommunication companies are acting on error basis due to being late on the bandwagon of advanced analytics. This indicates use of primitive data analytics tools which are not integrated for optimisation of procedures and processes. While conventional data approaches have their place, firms must adopt and implement emerging technologies and strategies to identify opportunities and remain competitive in the modern marketplace. In addition, big data analytics can be used to analyse vast quantities of data from multiple sources, including social media, website traffic, and client behaviour. This can provide insights about customer preferences and trends.

4.3.3 Alignment to sensing objective of the study

This section aligns the findings based on the respondent's views with objective of this study which is addressing sensing competencies required from leadership in the telecommunications of this study to effectively drive the digital transformation strategy. The data collected in this study, telecommunication leaders recognise that the environment in which they operate is volatile, uncertain, and rapidly changing. However, sensing opportunities and threats are still mainly done using traditional ways. The industry is still learning to analyse and use the huge amount of data at its disposal to improve customer experience, predict customer behaviours, products, and services. Competencies to utilise market insights and data to sense opportunities and forecast future products and services need to be improved. There is a combination of skills and attitudes leaders need to develop to be empowered to drive digital transformation strategies of their organisations effectively.

4.4 Seizing

Seizing organisations are characterised by the ability to rapidly mobilise their internal resources to produce products that are closely aligned with customer needs (Moumtzidis et al., 2022; Teece et al., 1997). Seizing organisations

implement digital technologies and agile processes to proactively create products that have not yet been introduced to the market. They have innovative leaders that can execute strategies based on knowledge and insight gained from data feeds (Moumtzidis et al., 2022; Teece et al., 1997). This allows them to provide dynamic value propositions for their customers.

4.4.1 Decision making

Leaders in seizing organisations can make rapid decisions for faster processing, system integration and development of products and services (Shin et al., 2023). Most of the participants in the telecommunication industry have expressed that they are not empowered to experiment and learn from failure because of the huge financial investment in the telecommunication.

> ***P1****: So, I think that the creation of a safe space will enable us to make decisions better because sometimes we are dealing with problems that have never been solved before.*
>
> ***P2****: The decision has been a big problem; it goes back to your innovation problem, you know, about failing fast and trying things and so on and so on. The decisioning is still very, very, very slow, there's just so much at risk, and people are uncomfortable about having so much at risk. We need to create environments where we can allow people to test out concepts without breaking the bank.*
>
> ***P10****: I still feel decisions are difficult because of the red tape that comes with a large corporate.*
>
> ***P3:*** *No, they are not easily made because of the magnitude of the investments that have to be made with technology. So, because of the effort and the magnitude of investment in technology that you have in the company when you have to decide to change technology, it's often not an easy decision to make.*

4.4.1.1 Interpretation of decision-making excerpts

The participants allude to slowness of telecommunication leadership in taking decisions due to the red tape and huge financial risks associated to the decision. The telecommunication companies do not have the space for failure or testing of concepts. Telecommunication companies must invest in a robust data platform capable of collecting, storing, and analysing client data in real-time. This will enable them to get insight into customer behaviour, areas for improvement, and make data-driven decisions that will enable them to stay ahead of the curve.

4.4.2 Agility

Seizing organisations are agile and use the principle of progress over perfection which entails releasing many small features rather than a completed product. Frequent feature release allows the organisation to fail quickly with minimal loss. This will empower leaders in Telecommunications to use more agile processes and deliver dynamic value propositions. Most participants have indicated that agile concepts have been introduced, but the resources, systems, processes, and workforce are not yet agile.

> ***P4****: We are agile, but we are not agile enough hence why we've got this big drive of this digital transformation that we are on.*
>
> ***P6:*** *We are still a bit slow, so we are still at the data governance phases, making sure we are collecting it, making sure it's right, making sure it's accessible, and making sure it is KPI (key performance indicator) driven.*
>
> ***P9:*** *We still have a long way to go to be agile enough to fully adopt this digital transformation mindset and also set up the unnecessary structure and culture that will make sure that.*
>
> ***P10:*** *Technology is still quite immature; project management is not agile, and the mindset of the executors is not exactly evolutionary.*

4.4.2.1 Interpretation of on agility excerpts

The participants alluded to immature technology to support digital transformation. They also expressed some frustrations with slowness of their organisations in adopting agile practices. This slowness in the adoption of agile indicates lack of flexibility of processes and ineffective big data analytic tools for process for agility. We recognise that agility is essential in today fast-paced business climate in order to remain competitive and relevant. By adopting new technology and procedures, telecommunication companies can streamline their operations, cut expenses, and enhance their capacity for innovation. This will allow them to anticipate and respond to client needs more effectively, as well as quickly adjust to market developments. Additionally, Telecommunication companies must ensure that their data is readily available to those who require it. This may involve the creation of user-friendly dashboards or reports that facilitate quick access to the information stakeholders require.

Furthermore, participants allude that accessibility and verification of data should be driven by KPIs. By placing an emphasis on precision, accessibility, and KPI-driven analysis, they can build the groundwork for effective decision-making. Lastly participants allude to altering the way telecommunication companies think and operate as a business. The leadership and workforce need to change their mental change from conventional methods to a more flexible and adaptable approach for digital transformation.

4.4.3 Alignment to seizing objective of the study

This section aligns the findings based on the respondent’s views with objective of this study which is addressing seizing competencies required from leadership in the telecommunications of this study to effectively drive the digital transformation strategy. The data indicate that the leadership in the telecommunication industry need to develop competencies that will enable them to continuously mobilise the organisation's internal process, people, and services to enable the organisation to gain a competitive advantage from the identified opportunities (Aldhaheri & Ahmad, 2023). Furthermore, telecommunication

industry needs to adopt big data analytical capabilities be able to seize opportunities (Hinga, 2022).The leadership need to develop competencies to develop business models and organisational structures that can adapt to the rapid changes faced by telecommunication (Wahyu et al., 2020).Lastly the leadership needs to foster agility and create an environment that allows risks, proactiveness and quick decision making (Shin et al., 2023).

4.5 Transforming

Some sensed opportunities and threats might not be addressed using agile processes, depending on size, complexity, cost, or expertise but require organisations to transform by Integrating, acquiring required competencies, reconfiguring existing capabilities and reviewing organisational structures (Moumtzidis et al., 2022; Teece et al., 1997; Schoemaker et al., 2018)

4.5.1 Employee digital competencies

Acquiring required competencies and executing of digital transformation strategy can take the form of recruiting, investing in skills development, collaboration with other organisations or corporate takeovers (Shin et al., 2023).

> ***P1:*** *I do feel we have very, very valuable and skilled resources internally. I just don't think we have enough of them.*
>
> ***P2:*** *I think you find that the people that know a lot about the data, you find that sometimes they are sitting outside the commercial business units. So, in that on its own, it creates a problem that they don't have a commercial interest at heart. So, the situation would be to get those people into the business unit and business areas so that they also become part of driving the coalition value.*
>
> ***P8:*** *We normally do a skills gap analysis on an annual basis, and we normally take them for training, or we do it in-house.*
>
> ***P10****: There are educational programmes in place to upskill the workforce.*

P3: *we try to find ways of reskilling those areas that are perhaps going to be to need revision through the transformation itself, where certain processes or systems would have to be.*

4.5.1.1 Interpretation of employee digital competencies excerpts

The participants allude to ineffective use of employee's digital capabilities and improper repositioning of digitally skilled employees at the right areas within the organisations. Numerous vocations are becoming obsolete because of technology improvements and automation, while new ones are emerging. Therefore, it is essential for telecommunication companies to continually invest in their employees' growth and to ensure that the workforce has the vital digital skills to fulfil the demands of a fast-changing employment market. They need to offer educational courses that can assist workers in acquiring new skills and adapting to these changes. In addition, embedding this expertise within the business unit can aid in the destruction of silos and the promotion of cross-team communication. This can result in more effective communication and knowledge exchange, which can ultimately lead to enhanced efficiency and improved organisation-wide outcomes.

4.5.2 Digital culture and innovation

Digital cultures can be defined as digital tools and techniques used to influence and shape the workforce of the organisation to enable innovation and collaboration within the organisation (He & Su, 2022; Wang et al., 2022). According to Ahmad et al. (2021), an organisation that reorganises its organisational structures and culture to keep up with the market changes experiences the effectiveness of transformation and realises improvements in its operations. A transforming organisation can consider 'restructuring 'or reconfiguring itself to enable it to seize opportunities rapidly and enhance innovation within the organisation.

P5: *There's, still a lot of movement from a structure perspective, with a lot of changes that happened in the organization and moving off resources to*

different, domains from the IT side and all of that. There's still, quite a bit of redefining of the different structures in terms of how then we support the business. So, it's still something that is in motion it hasn't been finalized.

P1: *The things that they've actually done now is they starting with the basis of changing the culture across leadership in the business.*

P2*: There's a lot of initiatives that, geared towards the new digital future, whether they have a program called Digitising the Core.*

P6: *There is a massive initiative in line with the called People Transformation that is relooking the entire organization culture structure to drive it, to build it towards a digital transformation, to digital organization.*

P3: *We try to find ways of reskilling those areas that are perhaps going to need revision through the transformation itself, where certain processes or systems would have to be changed. Therefore, having to change their staff and the skills to make sure that they're able to learn with the organization change from a culture perspective, the ability to understand the new relationship between us as an organization and our customers to know that the customers that we have are more astute and more in touch with technology than they would have been in the past*

4.5.2.1 Interpretation of employee digital competencies excerpts

This can result in higher productivity, cost savings, and enhanced customer satisfaction. However, large investments in IT infrastructure and employee training are required. As more industries are affected by digital transformation, businesses must embrace these initiatives to remain competitive in the digital future.

This necessitates a staff that is flexible and adaptive, as we must be able to respond quickly and effectively to their needs. Additionally, we must be able to utilise new technologies and tools that enable us to better comprehend our clients and supply them with the products and services they require. This requires a staff that is tech-savvy and continually willing to acquire new skills. Our ultimate objective is to establish a culture of continuous learning and improvement in

which every member of the organisation is committed to staying ahead of the curve and embracing change as it occurs.

4.5.2.2 Interpretation digital culture and innovation

The participants allude to telecommunication sector being at the initial phase of redefining and reconfiguring their capabilities and structures for digital transformation. This endeavour requires a fundamental transformation in the way the organisation runs and thinks, as opposed to merely installing new technology or tools. It involves redefining roles and responsibilities, developing a culture of innovation and constant learning, and creating a more agile and collaborative work environment. It is essential for telecommunication companies to approach these changes with a flexible perspective, recognising that what worked in the past may not be the optimal answer in the future. It is also essential to ensure that these changes are implemented with a thorough grasp of how they will affect the firm as a whole. This requires consideration of aspects such as resource distribution, domain competence, and organisational effectiveness as a whole. In the end, the objective should be to design a structure that is flexible enough to adapt to changing business requirements while still providing the necessary support and resources for success.

Furthermore, telecommunication companies must establish a culture of accountability and openness from the top down. Changing the leadership's culture establishes the framework for a constructive work environment in which everyone participates Leaders must exemplify the behaviour they desire from their people. In addition to talking the talk, one must also walk the walk. Leaders must be willing to acknowledge and accept responsibility for their errors. It is also essential that leaders actively listen to their staff and foster an environment where feedback is acknowledged and encouraged. Creating a comfortable environment for employees to discuss their ideas is essential. This can result in innovation and innovative solutions that might have gone ignored otherwise. Moreover, when employees feel acknowledged and appreciated, they are more likely to be engaged and motivated at work. This might result in enhanced productivity and improved business results overall.

4.5.3 Alignment to transforming objective

This section aligns the findings based on the respondent's views with objective of this study which is addressing transforming competencies required from leadership in the telecommunications of this study to effectively drive the digital transformation strategy. The collected data for the study has revealed that leadership in the telecommunication industry have not been able to articulate the organisation's vision, goals, and strategic plans for how to achieve their digital transformation strategy. Thus, the leadership need to be able to clearly articulate their digital vision. Also, the leadership in telecommunication needs to foster organisations that promote a learning culture and give the workforce the zeal to grow their skill set to progress and grow with the organisation. They need to gain knowledge and understanding of the impact of new technology on their product and services. Leaders require an entrepreneurial mindset that will allow them to encourage innovation within the organisation.

4.6 Category view of all respondents

A category view of all responses is shown in Table 4.6-1 below.

Table 4.6-1: Category view of all respondents

Sensing			
Learning from historic and market data	***Learning from customer experience***	***Traditional data sources***	***Traditional and big data analytic capabilities***
P5: *We need to understand our customers better. We need to make sure that we know our customers. We need to know what they're interested in and analyse that data to make sure that we can make it relevant.*	***P3:*** *I think customer experience is still in the infancy stage. I think that's, we've got a lot of work.*	***P10****: Data collection is sourced quite traditionally. Telephonic surveys and research through research houses.*	***P9:*** *I think we're very traditional because we have a lot of customer data which we are not analysing. So, we are analysing this data on an error basis. It's not integrated, and we don't have a fully digitised data platform to see the customer's behaviour from the onboarding to consumption.*
P10*: Services are quite reactive. The needs and wants to come from customers, I believe the competitors manage to react to customers; however, we respond to our competitors. If we did a better job of listening and creating rather than reacting to customers, we might win a bit more regularly rather than constantly defending.*	***P6****: I think that we need to bring customer experience to the full of the organisation more. I think we could be better because when you are really reading the customer is when customer experience is one of your core competencies, and it's at the centre of what you do, and I think we are not there yet. I think we could do better!*	***P1****: We started using this call as its control group, and I source questionnaires; we do market research on control groups of our own type of customers as well as customers from other networks and translate them into coming customer feedback.*	***P10****: I wouldn't say the current data analytics tools are effective; data is collected and presented monthly/quarterly. If we could get this information more fluidly, we may uncover opportunities more easily and compensate for risks more dynamically.*
P1*: I think we've made a good start, and I think there's a big growth in terms of taking that data and using it more effectively. I think it could be better.*	***P4****: The customer experience office that's up and running, and they're busy looking at how to improve customer experience. They are still doing a lot of work to ensure our*	***P2****: I think; currently, I would say it's still a little bit more; traditional digital platforms are not very highly adopted. I think they're also late on the bandwagon of advanced analytics.*	***P1****: You got general traditional data metrics that are calculated based on taking someone's spin on the network. We use tools like Power BI, and we've got a centralised data centre which is your environment that stores all these metrics from an Endpoint Detection*

	journeys and our customer experience are aligned with our strategy.	*They have big ambitions in terms of how they want to increase digital transformation by using many past analytical solutions.*	*and Response (EDR) that flows too and brings up a chunk.*
		***P3**: We use both traditional and digitised methods with larger phases of your traditional data collection.*	***P2**: So, collecting data, there's the first-party data, GSM data, which is one of the big things that we have. When collecting first-party GSM data, a customer comes up with a prepaid subscriber identity module (SIM) card, and they're able to collect how he's using the SIM card, where he is in the location, and so on and so on. You're starting to have a lot more focus on data than on the traditional voice, whether it's 5G propositions, whether it's fixed-line propositions and also you starting to see for the first time this year, we have seen a shift where data revenue is starting to grow faster than the voice revenue, which is something that for the voice was used to be the goods that lay the golden egg but now things have turned around, that means that whether it's in our platforms or engaging with customers, the types of solutions that we do, we need to be able to create those platforms in a digital space. We are also, starting to Improve our analytical capabilities with which is big data platform as well as Addam, which is our analytics machine learning platform.*
			***P5**: We haven't fully automated it. So, when customers are engaging with us through our digital channels, be it SMS, [00:04:30] WhatsApp, the app*

			on our portals we collect data from, from that their behaviour. We use those texts to see what the customer is interested in and all of that. We keep that unstructured data in our database, even in social media and all of it.
Seizing		***Transforming***	
Decision making	***Agility***	***Employee digital competencies***	***digital culture and innovation***
P1: *So, I think that the creation of a safe space will enable us to make decisions better because sometimes we are dealing with problems that have never been solved before.*	***P4:*** *We are agile, but we are not agile enough hence why we've got this big drive of this digital transformation that we are on.*	***P1:*** *I do feel we have very, very valuable and skilled resources internally. I just don't think we have enough of them.*	***P1:*** *The things that they've actually done now is they starting with the basis of changing the culture across leadership in the business.*
P2*: The decision has been a big problem; it goes back to your innovation problem, you know, about failing fast and trying things and so on and so on. The decisioning is still very, slow, there is just so much at risk, and people are uncomfortable about having so much at risk. We need to create environments where we can allow people to test out concepts without breaking the bank.*	***P6****: We are still a bit slow, so we are still at the data governance phases, making sure we are collecting it, making sure it's right, making sure it's accessible, and making sure it is KPI (key performance indicator) driven.*	***P2:*** *I think you find that the people that know a lot about the data, you find that sometimes they are sitting outside the commercial business units. So, in that on its own, it creates a problem that they don't have a commercial interest at heart. So, the situation would be to get those people into the business unit and business areas so that they also become part of driving the coalition value.*	***P5****: There's, still a lot of movement from a structure perspective, with a lot of changes that happened in the organization and moving off resources to different, domains from the IT side and all of that. There's still, quite a bit of redefining of the different structures in terms of how then we support the business. So, it's still something that is in motion it hasn't been finalized.*

***P10**: I still feel decisions are difficult because of the red tape that comes with a large corporate.*	***P9**: We still have a long way to go to be agile enough to fully adopt this digital transformation mindset and also set up the unnecessary structure and culture that will make sure that.*	***P8:** We normally do a skills gap analysis on an annual basis, and we normally take them for training, or we do it in-house.*	***P6**: There is a massive initiative in line with the called People Transformation that is relooking the entire organization culture structure to drive it, to build it towards a digital transformation, to digital organization.*
***P3:** No, they are not easily made because of the magnitude of the investments that have to be made with technology. So, because of the effort and the magnitude of investment in technology that you have in the company when you have to decide to change technology, it is often not an easy decision to make.*	***P10:** Technology is still quite immature; project management is not agile, and the mindset of the executors is not exactly evolutionary.*	***P10:** There are educational programmes in place to upskill the workforce.*	***P2:** There's a lot of initiatives that, geared towards the new digital future, whether they have a program called Digitising the Core.*
		***P3:** we try to find ways of reskilling those areas that are perhaps going to be to need revision through the transformation itself, where certain processes or systems would have to be.*	***P3:** We try to find ways of reskilling those areas that are perhaps going to need revision through the transformation itself, where certain processes or systems would have to be changed. Therefore, having to change their staff and the skills to make sure that they're able to learn with the organization change from a culture perspective, the ability to understand the new relationship between us as an organization and our customers to know that the customers that we have are more astute and more in touch with technology than they would have been in the past*

CHAPTER 5. CONCLUSIONS

5.1 Introduction

This chapter discusses the findings of the study emanating from the views of the participants in chapter 4. The findings use the three concepts emerging from the dynamic capability framework, namely sensing, seizing, and transforming to determine the leadership competencies required for the digital transformation in the telecommunications industry. The literature and empirical reviews discussed in Chapter 2 are used as lens to address the objectives of this study and contrasted against the findings of these studies to determine any uniformity or differences between them. The overarching objectives are:

- To determine sensing competencies required from leadership in telecommunications to effectively drive the digital transformation strategy.
- To determine seizing competencies required from leadership in telecommunications to effectively drive the digital transformation strategy.
- To determine transforming competencies required from leadership in telecommunications to effectively drive the digital transformation strategy.

5.2 Sensing

Sensing is the ability of an organisation to scan, learn as well as interpret market data to acquire the information and knowledge that enables creation of opportunities (de Aro & Perez, 2021). The findings indicated slowness in knowledge exploitation and adoption of digital technologies, reactive customer service and immature customer experience.

5.2.1 Big data analytics and entrepreneurial mindset

Digital technologies have exposed customers to different products and services and customers can easily move to another service provider when they are not satisfied with their current service provider (Alwan & Alshurideh, 2022).It has become important to organisations in the digital era to exploit customer

information collected from big data analytics tools to understand their customers better to meet their product/service expectation(Alwan & Alshurideh, 2022). The findings, based on the participants indicates that telecommunication's need to understand their customers better. They need to analyse the data in order to understand their needs and interest. This study, based on the findings, interprets this as the indication of missed opportunity to exploit historic customer data available for knowledge gain. Also, this is interpreted as lack of appropriate big data analytics tool to analyse and gain knowledge about customers. The literature review also echoes that organisation that use digital technologies such as big data analytical tools to exploit and explore existing information understand their customers better (Chirumalla et al., 2023). They use big data analytical tools to filter and process relevant data to identify opportunities based on the information gained about their customers (Chirumalla et al., 2023). Furthermore, this study may interpret the findings as lack of entrepreneurial start-up mindset of the leaders in telecommunications. Literature explains that a leader with entrepreneurial start-up mindset is key in sensing opportunities and threats because they are not restricted by intra-organizational limitations but could explore external environments, research other industries and partners to understand how they use digital technologies to gain knowledge about their customers and opportunities in the market (Chirumalla et al., 2023; Kolagar et al., 2022).

5.2.2 Digital skills competencies

The value of digital knowledge and IT competencies have amplified in the past four decades(Türk, 2023). Leaders' competencies are no longer primarily based on social and emotional intelligence but requires a leader who has the competency to manage the employment of various technologies (Türk, 2023). The findings based on the participants indicate that there is a gap in the leadership's digital knowledge and skills competencies because most of the participants demonstrated an exceptional understanding of using traditional telecommunication methods (i.e., GSM, power BI dashboards) to analyse and interpret data whilst demonstrated a limited understanding of using digitised

technologies to anticipate, analyse and create valuable products for their customers.

The literature in this study echoes the same sentiments that leaders driving digital transformation are not required to have in-depth technical skills of digital technologies (Türk, 2023). However, they are required to have digital knowledge and skills that will enable them to understand the impact of digital technologies on the business and their customers and the application of these digital tools (Imran et al., 2021; Karippur & Balaramachandran, 2022.; Mikelsone et al., 2022; Türk, 2023). Furthermore, the literature echoes that leadership plays a vital role in identifying and managing digital tools that maybe used to analyse the customer data better so that valuable information can be obtained from the data to enable opportunity and threats identification(Imran et al., 2021; Mikelsone et al., 2022).

5.2.3 Proactive customer service

The swift developments in digital technologies and data analysis have altered the nature of services and have headed to digital, proactive, and autonomous nature (Wenninger et al., 2022). The findings of this study indicate that participants are frustrated with the reactive approach in servicing their customers. They expressed that they react more to competitors by defending rather than effectively utilising the data to create and deliver better services to their customers. This study interprets this as lack of data interpretation capabilities for the enablement of proactive services in telecommunication sector. The literature section, states that organisations that provide proactive services (PAS) through digital and smart services gain competitive advantage by offering personalised services that address customers interests and needs before even then customers can realise the need (Wenninger et al., 2022).

5.2.4 Customer experience

The information accessed via digital platforms influences customers' behaviour and demand(Alwan & Alshurideh, 2022). Customers can have a perception about the value of organisation’s products and services based on their experience on

digital marketing platforms (Ahmad et al.,2021; Alwan & Alshurideh, 2022). The findings, based on participants, indicate that customer experience is telecommunication sector is still in the infancy stage, thus the study's interpreted that customer experience in telecommunication sector as immature because of slowness in adopting digital technologies that have advanced analytical capabilities that can assist with identifying new services based on customers future needs that can be integrated to existing products for improved personalised customer experience (Ahmad et al.,2021; Alwan & Alshurideh, 2022).

The findings are interpreted as immature customer experience team. This is based on literature that indicates that telecommunication leaders to build successful methods for enhancing the customer experience and must take a comprehensive, organisation-wide strategy that ensures that everyone in the organisation understands the significance of customer experience (Ahmad et al.,2021; Alwan & Alshurideh, 2022). This means not just having a dedicated customer experience office, but also ensuring that all workers are trained on how to provide excellent experiences and that mechanisms are in place to continually measure and enhance performance (Ahmad et al.,2021; Alwan & Alshurideh, 2022). This will assist in providing exceptional customer service and excellent customer experience for the consumer (Chirumalla et al., 2023).

The findings are interpreted as restriction and limitations on telecommunication's value chain and network boundaries. This is based on the literature that indicate that organisations that provide customers with best customer experience give holistic offerings (Chirumalla et al., 2023). This they achieve through opening of their sensing capabilities to diverse value chains and integrating with other industries to create valuable products and services for customers (Chirumalla et al., 2023).

5.2.5 Sensing Conceptual framework

The concepts that emerged from the findings of this study, under the sensing theme, are depicted below as a conceptual framework. The framework depicts

the sensing theme in relation to the objective research question: What sensing competencies are required for digital leadership in the telecommunications sector? The sensing conceptual framework is as follows:

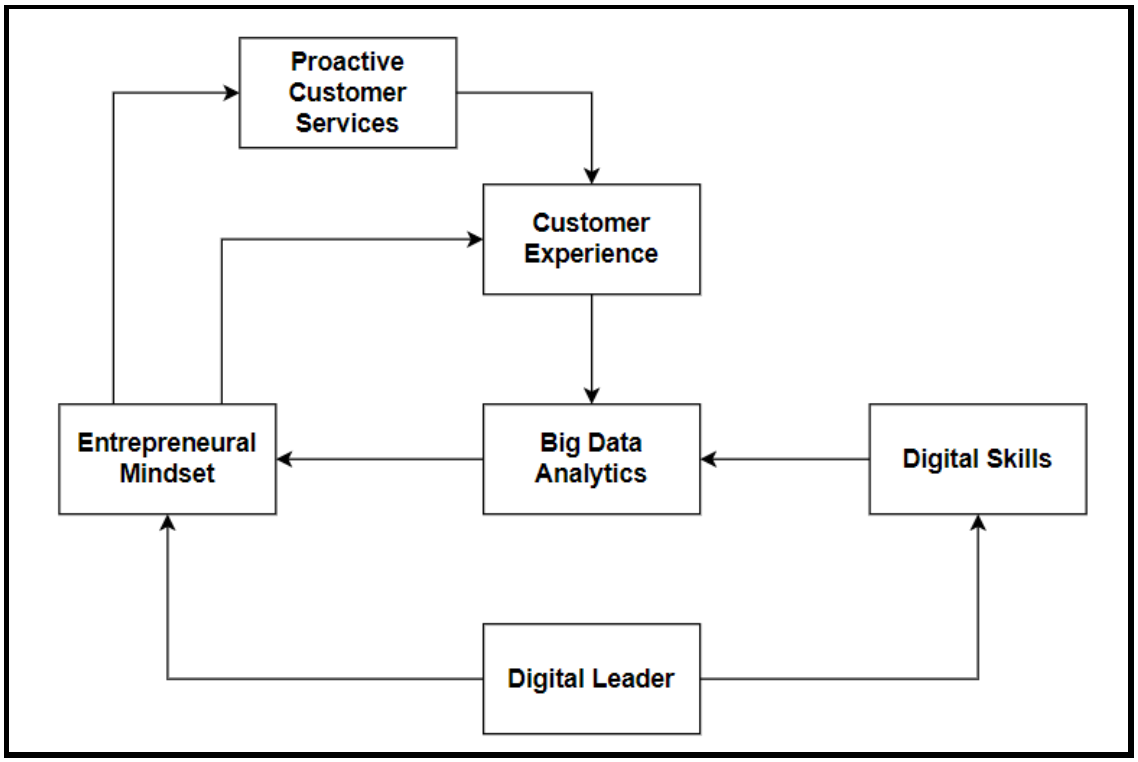

Figure 5.2-1: Sensing conceptual framework:

The Sensing Conceptual Framework above shows the relationship between the different capabilities and their role in the sensing capabilities of an organisation for digital transformation. The digital leader is required to demonstrate strong digital skills to select appropriate big data analysis tools for the organisation and understand their impact on the organisation and its customers. The digital leader also requires an entrepreneurial mindset to utilise knowledge gained from big data analytics capabilities to sense opportunities to deliver proactively customer services and customer experience.

5.3 Seizing

Organisations that have the intent to transform digitally need to re-evaluate their internal process, people and services to enable the seizing of sensed opportunities timely through the innovation of systems that can adapt to external

changes (Chirumalla et al., 2023; Teece et al., 1997).Seizing focuses on mobilising internal processes & systems of an organisation (Block et al., 2023; Teece et al., 1997).Seizing capabilities comes after opportunities have been sensed and involves recognising potential of the opportunities and their value(Qiu et al., 2022; Teece et al., 1997). This sub-section discusses findings under seizing theme.

5.3.1 Big data analytics tools for seizing identified opportunity and threats

Big data allows high volume, high velocity and varied data types from multiple sources that requires innovative ways of processing for value extraction and big data analytics is operation of advanced analytic tools to big data (Hinga, 2022). The findings indicate that data analytics tools used in telecommunication sector are ineffective and the leaders have a view of the information based on the data collected monthly or quarterly. This is interpreted as the data analytics tools used are not advanced for faster processing and are not integrated. This may lead to delayed identification of emerging opportunity or risks because the leadership may only be aware of these opportunities/threats at a later stage (Hinga, 2022.; Moumtzidis et al., 2022).

The findings indicate that telecommunication sector is late on the bandwagon of advanced analytics. The literature states that big data analytic capabilities have an impact on innovation because through big data, trends from competitors and customers can be analysed and innovative can emerge from those trends (Hinga, 2022.; Moumtzidis et al., 2022; Pathak et al., 2021.). This gives the organisation competitive advantage (Moumtzidis et al., 2022).

5.3.2 Decision making

The adoption big data analytics techniques have enabled fast decision making for digital transformation (Hinga, 2022) .Leaders are required to engage more with internal and external stakeholders to get their ears on the ground for visibiity, flexibility and agility in decision making (Aldhaheri & Ahmad, 2023) .The findings

indicate that decisioning is slow and is problematic in telecommunication. The leaders are finding themselves in difficult situations when it comes to making decisions regarding legacy systems and they highlighted that they do not have a safe space that allows them to fail fast. This has impact on innovation capabilities of the leaders and employees of telecommunication sector and affects competitive advantage of the sector.

Decision making is an important factor in seizing and the speed that the decision is taken has an impact on the ability to build improved business process and models for competitiveness (Hinga, 2022). The study links the slowness in decision making to ineffective data analysis tools. The visibility and flexibility capabilities of an organisation fostered by big data analytics affects decision making (Aldhaheri & Ahmad, 2023). The study interprets the slowness of leaders in making decisions to lack of decision-making mental models of telecommunication leaders' services (Hinga, 2022). The literature emphasis that, for an organisation to have high dynamic capabilities, they need to have leadership with decision making mental models and allow innovation through trial-error basis and experimentation of new ideas, concepts products and services (Hinga, 2022).

5.3.3 Flexible processes, visibility, and agility

Utilising digital technologies improves agility of an organisation (Hinga, 2022). Organisations can use digital technologies such as big data analytics for detection of markets changes and enhance their agility in responding to these changes (Hinga, 2022). The findings of the study indicate that the adoption of agile concept in their organisation is slow and is still in the infancy stage where they are still in the data governance stage. The findings presented indicate that the project management is not agile, and the leadership mindset is not positioned for evolution and agility. The slowness in adoption of agile in their organisation may be linked to lack of visibility and flexibility and may indicate of ineffective big data analytic tools for process optimisation for agility (Aldhaheri & Ahmad, 2023). The literature echoes that organisation that is not flexible to respond to changes

affects decision making and compromise on organisation's agility (Aldhaheri & Ahmad, 2023). Also, the literature indicates that ineffective use of digital technologies such as big data analytics tools compromise on how data is shared and visible across the organisation and management (Aldhaheri & Ahmad, 2023). The lack of visibility and flexibility influence decision making process; therefore, organisation's agility is also negatively impacted (Aldhaheri & Ahmad, 2023).

5.3.4 Seizing Conceptual framework

The Seizing Conceptual Framework has been created and presents how the objective research question relating to seizing theme has been addressed by this study are discussed. What seizing competencies are required for digital leadership in the telecommunications sector? The seizing conceptual framework is as follows:

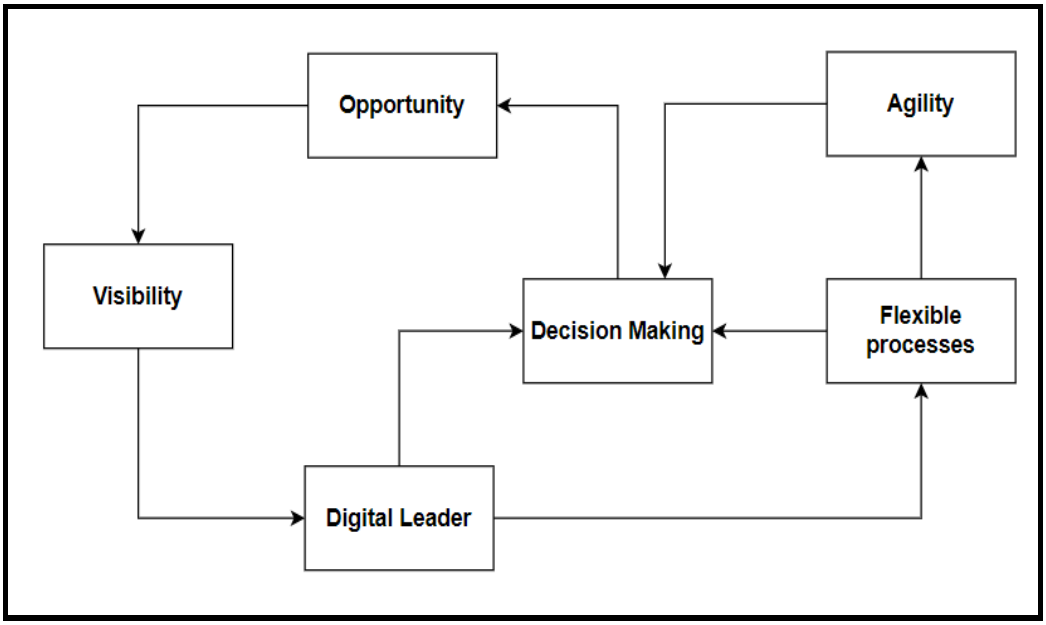

Figure 5.3-1: Seizing Conceptual framework

Figure above illustrates the seizing conceptual framework enabled by these 4 concepts namely, visibility, flexible processes, agility, and decision-making capabilities. These concepts combined play an important role in enabling seizing abilities of an organisation in digital transformation. Visibility of information allows leaders to make quick decisions to seize opportunities. Rapid decision making

requires the support of flexible processes to seize opportunities. Flexible processes also promote organisational agility, thus creating value propositions rapidly and gives organisations a competitive edge.

5.4 Transforming – reconfiguring organisational structures and culture

The theoretical framework adopted for this study provides guidelines for aligning the structure and culture of the organisation. Transforming capabilities involves reconfiguring the structures, cultures, and capabilities of an organisation (Teece et al., 1997; Yu et al., 2022). The below details the findings under transforming theme.

5.4.1 Employees digital skills

Chirumalla et al., (2023), states that it is important for organisation to invest in new skills and create new roles that will be compatible with digital transformation of the organisation. The findings of the study indicate that the leaders have taken the initiative to provide training and re-skilling of the workforce to enable them to be functional in the digital environment. However, also indicated by the participants is that telecommunications leaders face the challenge of identifying and repositioning people with the right skills for digital transformation at the right areas within the organisations. The study interprets this as ineffective use of employee's digital capabilities as well as lack of digital culture to foster collaboration across the multiple divisions within the organisation which impacts organisational performance. The literature states that employee's digital capabilities act as a mediator between organisational performance and digital leadership (Chirumalla et al., 2023). Also, the digital competencies of employees are important component for organisational performance because skilled workforce help to generate new ideas that will sustain in the organisation in this dynamic environment (Chirumalla et al., 2023)

5.4.2 Transforming business structures, models through big data capabilities and entrepreneurial mindset

Innovation is driving force for competitiveness in this digital era and requires organisational culture that supports innovation (He & Su, 2022). Digital culture refers to digital technologies and tools used to innovate, collaborate, and shape the workforce of an organisation (He & Su, 2022; Wang et al., 2022). The findings of this study indicate that the telecommunication companies are still in the early stage of redefining their organisational structures across different divisions within the organisation to better support digital transformation strategy. According to the study being late in the reconfiguring of organisational structures affects innovative capabilities of the organisation and this may be viewed as lack of leadership capabilities to create innovative business models. The literature that states that the digital leaders are enablers of innovation through creation of structures and business model that can easily integrate to digital capabilities (Shin et al., 2023). Also, literatures explain that a digital leader needs to have a digital skills and entrepreneurial mindset for to determine relevant BDA tools applicable for the transformation of business structures and models from traditional ecosystem to digital ecosystem(Imran et al., 2021).

5.4.3 Digital culture and exploratory innovation

Furthermore, the findings indicate that telecommunications' leadership are moving at a slower pace when it comes to re-evaluating their organisational culture. The literature indicates that leadership need support reconfiguration of existing business model to allow acquisitions, partnerships or merging with other external entities in different industries to promote innovation and provide customers with dynamic value propositions (Shin et al., 2023; Ahmad et al., 2021), this however can be achieved by leaders who have digital mindset. Leaders that can also enforce digital mindset in their workforce to develop innovative culture within the telecommunication industry (Shin et al., 2023; Ahmad et al., 2021).

5.4.4 Transforming conceptual Framework

The transforming conceptual framework, presented below, depicts the relationship of various concepts to one another in support of the objective research question for transforming: What transforming competencies are required for digital leadership in the telecommunications sector? The transforming conceptual framework is as follows:

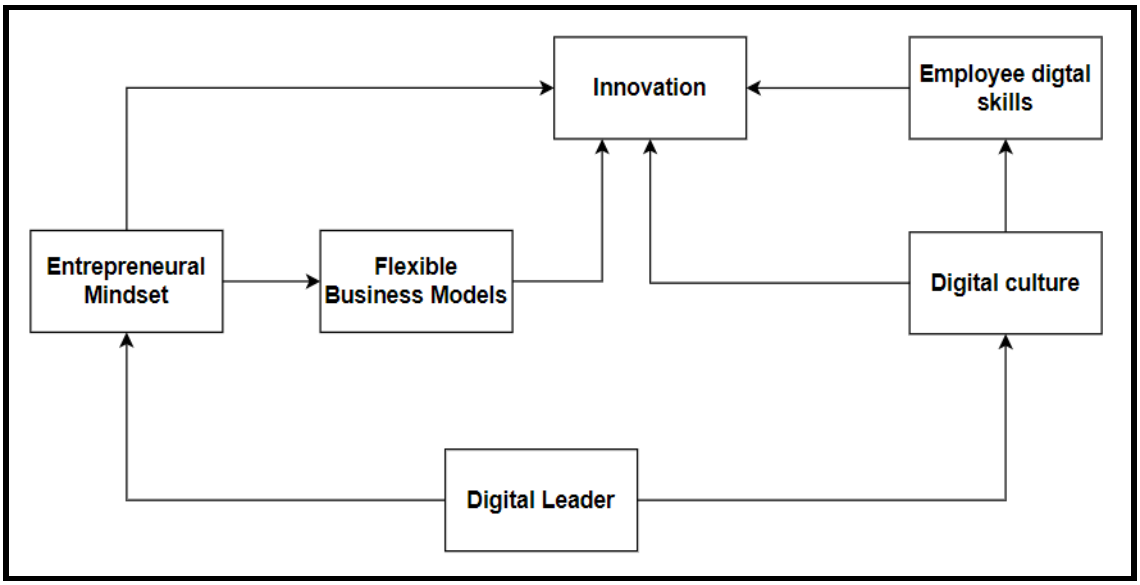

Figure 5.4-1: Transforming conceptual framework

Digital leaders must create an organisational culture that allows and encourages collaboration and innovation in an organisation. Digital culture is linked to the development of employee's skills sets. Leaders need to create a digital organisational culture that embraces knowledge, digital skills developments, and reskilling of employees. There is also a connection between employee's digital skills and innovation because employees with digital skills can use their skills to create innovative value propositions and generate new ideas. Entrepreneurial mindset is reinforced by the knowledge gained from sensing and seizing opportunities. Digital leaders in telecommunication sector need to develop entrepreneurial mindset that will help them to redefine and restructure their business models and organisational structures to promote innovation and develop vibrant digital ecosystem.

5.5 Conclusions and recommendations

The primary objective of the study is to establish the leadership competencies required for digital transformation in the telecommunications industry. Our study outlines that telecommunication companies can benefit greatly by mastering the three dynamic capabilities discussed in the dynamic capability framework. The literature review highlighted a theoretical review of digital transformation and a narrative on the evolution of Digital Transformation and related concepts such as Digitalisation and Digitisation was given. Part of the theoretical review was the narrative on theoretical frameworks such RBV and a narrative on the relevance of the chosen dynamic capability framework was provided. Lastly, the chapter looked at the empirical review where the application of dynamic capabilities was discussed in other industries.

A research plan which included qualitative research approach, data collection methods and the approach taken to analyse the data was discussed. Chapter 4 presented the research findings and concepts were identified under each theme sensing, seizing, and transforming. The findings indicated that traditional methods are being used to sense opportunities and threats in the telecommunication sector. Customer experience is considered as a causal event and customer service is more reactive than proactive. The findings also highlighted lack of organisational agility due to ineffective big data analytic tools and slowness in decision making by telecommunication leaders. Furthermore, leaders are in the initial phase of redefining organisational culture and structures for digital transformation. Conceptual frameworks have been developed to depict capabilities and competencies required to address the research objectives for sensing, seizing, and transforming for digital transformation in telecommunication sector.

5.5.1 Recommendations

This study recommends adoption of the three conceptual frameworks in by leadership in telecommunication industry for successful implementation of digital

transformation. Telecommunication leaders must use the frameworks to re-evaluate sensing, seizing, and transforming capabilities of their organisations.

5.5.1.1 Adopt conceptual Sensing framework for identification of opportunity and threats

Leadership plays an integral part in connecting the layers of the sensing conceptual framework thus leaders in the telecommunication must develop digital skills and entrepreneurial start-up mindsets. Leader needs to adopt the sensing conceptual framework to gain knowledge on how various factors such as big data analytics tools enable improved customer service and customer experience and the role that leaders play in each factor. When leaders have gained an understanding of the impact that big data analytics tools have on their organisation and customers, they will be able to extract meaning information from internal data sources and formulate valuable partnership with external entities.

5.5.1.2 Execute flexible processes and agility capabilities for organisational agility

The leaders in the telecommunication sector need to identify variables applicable to their organisational context for organisational agility. As the telecommunication industry progresses in digital transformation, the leaders must be empowered to operationalise the organisation's dynamic capabilities for digital transformation. They must implement flexible processes to cater for rapid changes in telecommunication sector to enhance the pace of decision making for agility. Leaders build organisational capabilities however they need to ensure that the workforce implement and deploy them at ground levels when innovation challenges are tackled. Therefore, agility must be enforced not only on processes but also on the creation of product and services for sustainability of the organisation.

5.5.1.3 Employ transforming conceptual framework to reconfigure business models and culture

Leaders in telecommunication must change their organisational cultures from traditional to digital cultures. They should consider leadership programs that will challenge their mental boundaries to enable them to unlock their creativity and address unconscious boundaries that may limit their entrepreneurial and innovative mindset. Telecommunication sector is bounded by legacy systems and their organisational structures need to be transformed to accommodate digital ecosystem that will allow them to build value propositions that will give customers holistic services. Telecommunication leaders need to consider migration strategies that will enable them to detach from legacy systems without compromising on customer service. They should transform their organisations to digital culture to drive innovation and allow decentralised decision-making.

5.6 Contributions of the study

This study contextually contributes to the body of knowledge on leadership competencies required for digital transformation in the telecommunication sector. The dynamic environments require strong leaders who withstand the strong centripetal forces of the status quo. Secondly telecommunication is shifting from traditional telecommunications to techno. Thus, leadership must have the competencies to sense opportunities, have the agility to seize opportunities and reconfigure business model for innovation.

This study offers practical contributions by providing leadership and practitioners in the telecommunication industry with detailed frameworks for analysing and adopting digital technologies in digital transformation. Another practical contribution is the insight provided on the new competencies of customer experience, agility, entrepreneurial mindset practitioners and leadership require to enable opportunity identification using market data and seizing of opportunities in as well as transform organisational culture into digital culture. The study contributes also to regulatory bodies such as the Independent Communications Authority of South Africa (ICASA), the data protection and consumer protection

regulator by providing guidelines and insights that will assist in the creation of regulations and policies for digital transformation in telecommunication industry.

5.7 Possible limitations and future research

The significant limitation was that the researcher not having enough percentage of leaders involved in digital transformation in the telecommunications sector. Most of the interviewees could not make the online interviews due to their tight schedules. Therefore, the researcher only interviewed 10 people in leadership positions.

There are ethical concerns in telecommunications sector that have emerged because of digital technologies. Therefore, future studies can explore leadership capabilities that explicitly provide anti-fraud measures to mitigate the exploitation of customers' personal information and possible fraudulent activities that may arise from digitalisation. Future research could also be included for other industries and the application of the three conceptual frameworks can be tested on other industries.

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APPENDIX A: INSTRUMENT

INTERVIEW GUIDE DOCUMENT

TOPIC: Exploring leadership competencies required for digital transformation in the telecommunications industry in the South African context

Ice Breaker:

- Can you tell me a little about yourself and your organisational role?
- What is your understanding of digital transformation?

The questions are open-ended. Please elaborate on your answers.

Capability	Description	Interview guide
Sensing	A mechanism that allows the organisation to learn, capture, and analyse market data to identify opportunities and threats (Teece et al., 1997; Teece, 2018).	• From your perspective, how is market data collected in your industry? • Is your organisation utilising digitized, traditional, or integrated data analytics tool(s) to learn about opportunities and threats? (Please elaborate) • Are these data analytics tools effective/ best fit for your organisation to learn about opportunities and threats? (Please elaborate) • In your view, is your organisation's application of new knowledge gained from market data collected

		better than the competitors? (Please elaborate) • What role does leadership play in strategy execution for big data?
Seizing	Refers to addressing the sensed opportunities through mobilising internal resources such as processes, technology, and services to utilise these capabilities	• Are your organisation's business processes and systems geared to support digital transformation? (Please elaborate) • How agile is your organisation in terms of using data to seize opportunities and defend against threats? • How is your organisation using digital technologies for faster processing, system integration and development of products and services? • What role does leadership play in strategy execution for the identified opportunities and threat mitigation? • What initiatives is the organisation establishing for the leadership to lead digital transformation across the organisation?

Transform	Integrating and reconfiguring existing capabilities and organisational structures to correspond to opportunities seized	• In your opinion, is your organisation embracing innovation and how? • Do you believe your organisation is adopting new, progressive practices that continuously improve product or service delivery? • Is the reusability of Software applications possible across multiple analytics platforms within the organisation? • In your opinion, are decisions made easily because of the newly adapted technology? • How are the Organisations using data available in their systems to provide dynamic value propositions (gain a deeper understanding of customer value management, market segment and customer needs? • What changes is your organisation embarking on in terms of structure and culture that will enable it to be a digital leader?

APPENDIX B: PARTICIPATION INFORMATION SHEET

REQUEST FOR PARTICIPATION INFO SHEET

STUDENT NO: 0513747H

DATE OF MEETING:

MASTER OF MANAGEMENT IN DIGITAL BUSINESS

Approval of Meeting

TOPIC: Leadership and digital transformation in the telecommunications industry in the South African context

Dear

My name is Tshenolo Malunga, and I am a Master's student in Management of digital business at the University of the Witwatersrand, Johannesburg. Part of my studies requires that I part-take in a research project, and I am investigating leadership and digital transformation in the South African telecommunications industry under the supervision of Prof Nixon Muganda. This research project aims to find out the critical competencies that leadership in digital transformation need to develop and their effect on the digital maturity of the telecommunication industry.

I invite you to partake in the interview session; this will take 45 minutes of your time. With your permission, I would like to record the interview session, and I will not share the recording with other participants or other parties.

Yours Sincerely

Study: Tshenolo Malunga, 083 597 8877

APPENDIX C: INFORMED CONSENT FORM

CONSENT FORM

STUDENT NO: 053747H
NAME OF STUDY: Tshenolo Malunga

TOPIC: Leadership and Digital Transformation in the telecommunications industry in the South African context

I, ……., agree to participate in this research project. The research has been explained to me, and I understand what my participation will involve. Please circle the relevant options below.

I agree that my participation will remain anonymous: YES/NO

I agree that the study may use anonymous quotes in his / her research report: YES/NO

I agree that the interview may be audio recorded: YES/NO

…… (signature)
…… (name of participant)
…… (date)

APPENDIX D: ETHICS APPROVAL

Graduate School of Business Administration
University of the Witwatersrand, Johannesburg

Wits Business School Ethics Committee
Constituted under the University Human Research Ethics Committee (Non-Medical)

Ethics Clearance Certificate

Ethics protocol number: WBS/DB0513747H/143

This certificate is only valid with a legitimate ethics protocol number and signed by the Researcher (below).

Project title	Leadership and digital transformation in the telecommunications industry in the South African context
Investigator / Researcher	Mrs Tshenolo Malunga
Nature of Project	MM (Digital Business)
Decision of the Committee	Approved, provided stakeholders and participants are guaranteed confidentialty.
Issue Date of Certificate	2022-09-13
Expiry date	Date of submission of the project / research report
Chairperson	Prof Anthony Stacey ☎ +27 11 717 3587 📱 +27 82 880 4531 ✉ anthony.stacey@wits.ac.za

Declaration by Researcher

One copy must be signed by the Researcher and returned to the Chairperson of the Wits Business School Ethics Committee.

I fully understand the conditions under which I am authorized to carry out the abovementioned research and I guarantee to ensure compliance with these conditions. Should any departure to be contemplated from the research procedure as approved I undertake to resubmit the protocol to the Committee.

T.R Malunga	20/09/2022
Signature	Date: