

**FINANCIAL SUSTAINABILITY MODEL FOR THE SOUTH AFRICAN  
TELECOMMUNICATION INDUSTRY**

by

**PHINDILE RODA NENE**

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SUPERVISOR: **Prof. NV Moraka**

CO-SUPERVISOR: **Prof. M Kanyangale**

13 March 2024

## DECLARATION

Name: **Phindile Roda Nene**

Student number: **34929533**

Degree: **DOCTOR OF PHILOSOPHY: MANAGEMENT STUDIES**

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### **A FINANCIAL SUSTAINABILITY MODEL FOR THE SOUTH AFRICAN TELECOMMUNICATION INDUSTRY**

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# A FINANCIAL SUSTAINABILITY MODEL FOR THE SOUTH AFRICAN TELECOMMUNICATION INDUSTRY

## **Key terms**

Financial sustainability, telecommunication industry, performance, financial model, costing model, governance, strategy, risk management, compliance, regulation, spectrum allocation, competitive advantage, stakeholder management.

## **ACKNOWLEDGEMENTS**

Abba Father, You are not a man that should lie, and what You have promised, certainly, You fulfil it (Numbers 23:19). To the King of my heart, the One who is, who was, and who will forever be, in Him I live, move, and have my being: thank You for granting me the wisdom, strength, and patience I needed during this journey, for it was not easy, but the knowledge of who I am in You and the confidence in Your Word gave me hope during dark moments (James 1:5, Acts 17:28, James 1:17, and Ecclesiastes 3:14). Yeshua Hamashiach, Your steadfast love for me remains the same yesterday, today, and forever (Hebrews 13:8). The depths of my heart know very well that without the work of Ruach HaKodesh, I would have given up; it was not my power or my might, but Your Holy Spirit that made this thesis a success (Zachariah 4:6). The cry of my heart to You, Adonai, is this: may Your presence never depart from me and may Isaiah 11:2 be a reality in my life because You make all things beautiful in your own time (Ecclesiastes 3:11). Therefore, less of me and more of You (John 3:30).

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## ABSTRACT

There is limited research on the intricate dynamics inherent in the telecommunications industry that affect the financial sustainability of mobile operators in many countries including South Africa. This study aimed to explore the factors that influence the financial sustainability of South African mobile operators. The study used purposive sampling to identify executives in mobile telecommunication companies who participated in this study. Qualitative data were collected through interviews while secondary quantitative data came from selected financial data from 2016 to 2020 to analyse the financial sustainability of the selected mobile operators in South Africa over time. Thematic analysis and financial ratios were used to analyse the data.

Six themes identified to depict the financial sustainability of the South African mobile telco industry focusing on Vodacom, MTN, and Cell C were: clarity of mission to government as a key stakeholder, strategic flexibility in turbulent times, strategic innovation and growth in an adjacent market, investment in network infrastructure for quality and spectrum, managing ambidexterity and dealing with the risk of bypass. Furthermore, the study revealed that market complexity and dynamics putting pressure on financial sustainability; re-enforcing collaboration for resilience, the pressure of building individual and organisational capacity for the future and dealing with the difficulties of spectrum scarcity and its consequences were key in evaluating the impact of the competitive environment on the financial sustainability. The results show that there was the influence of regulation on financial performance evident through spectrum allocation, price control, and collaboration with stakeholders. In response to the COVID-19 pandemic on the financial sustainability of the telco industry mobile operators accelerated digitisation, increased data revenue, exploited market opportunities for data revenue growth, changed operating strategy, and injected a sense of urgency.

Given the above results on financial sustainability, the study has proposed a financial sustainability model for telco mobile operators. This study contributes to the existing body of knowledge on financial sustainability by proposing a framework of financial sustainability relevant and useful to executives to assess and enhance the financial sustainability of their telco organisations to achieve competitive advantage in a volatile,

uncertain, and complex environment. The results of this study are limited to the cases or sampled mobile operators, and the research only focused on the South African telco industry. Future research is recommended to empirically test the proposed model and validate the financial sustainability of the telco industry in contexts outside South Africa and other industries.

**Key terms**

Financial sustainability, telecommunication industry, strategy, spectrum allocation, stakeholder management.

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**LIST OF ABBREVIATIONS**

<b>Abbreviation</b>	<b>Description</b>
4G	Fourth-generation network
4IR	Fourth Industrial Revolution
5G	Fifth-generation network
5IR	Fifth Industrial Revolution
ANC	African National Congress
ARPU	Average revenue per user
BTS	Base transmitter station
CA	Chartered accountant
CEO	Chief executive officer
CFO	Chief financial officer
CGP	Corporate green performance
COO	Chief operating officer
CPI	Consumer price index
CSI	Corporate social investment
CSR	Corporate social responsibility
CTO	Chief technology officers
Deloitte	Deloitte Touche Tohmatsu Limited
DRC	Democratic Republic of Congo
EBITDA	Earnings before interest, taxes, depreciation, and amortisation
EGSEE	Economic, governance, social, ethical, and environmental
ESG	Environmental, social, and governance
EU	European Union
FSB	Financial Services Board
FSCA	Financial Sector Conduct Authority
FSS	Financial self-sufficiency
FTB	Fibre to business
FTH	Fibre to home
GB	Gigabyte
GDP	Gross domestic product
GDPR	General Data Protection Regulation

GSM	Global System for Mobile Communications
IBA	Independent Broadcasting Authority
ICASA	Independent Communications Authority of South Africa
IDSA	Institute of Directors South Africa
IM	Impression management
IoT	Internet of things
ISP	Internet service provider
IT	Information technology
JSE	Johannesburg Stock Exchange
KM	Knowledge management
KZN	KwaZulu-Natal
LCA	Lesotho Communications Authority
M2M	Machine to machine
MCN	Mobile core network
MDGs	Millennium Development Goals
MEIH	Middle East Internet Holding S.A.R.L.
MNO	Mobile network operator
MNP	Mobile number portability
MVNO	Mobile virtual network operator
NCC	Nigerian Communications Commission
NERSA	National Energy Regulator of South Africa
NGO	Non-governmental organisation
NPO	Non-profit organisation
NPS	Net promoter score
OE	Operational efficiency
OECD	Organisation for Economic Co-operation and Development
OOB	Out of bundle
OSS	Operating self-sufficiency
OTT	Over the top
OW	Opportunity and weakness
P/S	Product or service
PBX	Private branch exchange
PESTEL	Political, economic, social, technological, environmental, and legal



POPI	Protection of Personal Information Act 4 of 2013
pp	Percentage points
PPE	Personal protective equipment
PTT	Push to talk
PwC	PricewaterhouseCoopers
RAN	Radio access network
RBV	Resource-based view
RMF	Regional monetary fund
ROA	Return on total assets
ROE	Return on equity
ROI	Return on investment
SADC	Southern African Development Community
SARS	South African Revenue Service
SATRA	South African Telecommunications Regulatory Authority
SD	Standard deviation
SDGs	Sustainable Development Goals
SIM	Subscriber identification module
SM	Stakeholder management
SME	Small- and medium-sized enterprise
SMS	Short message service
SOE	State-owned entity
STC	Saudi Telecom Company
SWOT	Strengths, weaknesses, opportunities, and threats
TBL	Triple bottom line
TCRA	Tanzania Communications Regulatory Authority
Techco	Technology company
Telco	Telecommunication company or industry
TQM	Total quality management
UET	Upper echelons theory
UK	United Kingdom
Unisa	University of South Africa
US	United States
USA	United States of America

USD	United States dollar
USSD	Unstructured supplementary service data
VAT	Value added tax
VOIP	Voice over Internet protocol
WHO	World Health Organization
ZAR	South African rand

## CHAPTER 1: INTRODUCTION AND BACKGROUND TO THE STUDY

### 1.1 Introduction

The COVID-19 pandemic has shown us that mobile connectivity is at the forefront of closing the digital divide through new and innovative solutions, accelerating the world by connecting unconnected communities and powering economies, even in turbulent times (Almeida, Santos, & Monteiro, 2020). It is important that the strategic leaders of mobile phone operators ensure the financial sustainability of these organisations for digitalisation to progress and unlock the full power of digital and network connectivity so that people, society, and industry thrive. The financial challenges faced by numerous companies both on a global and local scale are linked to disregarding responsible management practices and have been the subject of significant scholarly enquiry (Carroll, Adler, Mintzberg, Cooren, Suddaby, Freeman, & Laasch, 2020). Entities such as the South African Post Office, Eskom, South African Airways, Nigerian Airways, Ghana Airways, and Jatropha have encountered significant financial losses due to various factors such as mismanagement, corruption, economic challenges, operational inefficiencies, and adverse market conditions, which adversely affect their profitability and, consequently, their sustainability (Ahmed *et al.*, 2019; Holtzblatt, Foltin, & Tschakert, 2020). Due to the complexities inherent in the concept of sustainability, Ben-Eli (2018: 1340) proposes the following definition: sustainability is a dynamic equilibrium between population and environmental processes of interaction to 'express its full potential without producing irreversible adverse effects on the carrying capacity of the environment upon which it depends'. While the notion of sustainability has predominantly been situated in the environmental context, it is equally relevant to financial aspects of organisations operating in various sectors, including mobile phone communication services. Neglecting the fundamental principles of responsible management grounded in sustainability, responsibility, and ethics is recognised as a crucial contributor to financial challenges (Carol *et al.*, 2020). Economic fluctuations, mismanagement, operational inefficiencies, and inadequate strategic planning often play pivotal roles in undermining the financial health of these organisations. Financial sustainability refers to the capacity of an entity to uphold and sustain its financial standing over an extended period (Sontag-Padilla, Staplefoote, & Morganti, 2012).

In the case of state-owned enterprises such as the South African Post Office, Eskom, and various national airlines, issues surrounding governance, political influence, and regulatory frameworks have exacerbated financial woes, impeding their ability to remain profitable and sustainable (Holtzblatt, Foltin, & Tschakert, 2020). Within the aviation industry, companies such as 1Time Airline, African International Airways, Chinese Airlines, Air Afrique, and Skywise faced collapse attributed to inadequate performance, questionable strategic leadership, and corporate strategies (Fu, Lei, Wang, & Yan, 2015; Ahmed, Campion, & Gasparatos, 2019; Mukhezakule & Tefera, 2019). These instances underscore how financial irregularities emerged due to a failure to adhere to responsible management practices, improper governance, and a lack of independent financial oversight (Holtzblatt *et al.*, 2020). Incorrect financial reporting represents a severe breach of trust and integrity within the corporate landscape. It transcends mere fraudulent activity by fundamentally undermining the ethical conduct expected of those involved in these scandals, thereby straying from the core principles of corporate responsibility. Company directors bear the weighty responsibility of safeguarding the interests of all stakeholders, including shareholders, employees, customers, and the broader community (Clarke, 2019). When they fail to uphold this fiduciary duty by engaging in or condoning deceptive financial practices, they betray the trust placed in them and jeopardise the long-term sustainability and reputation of the organisation. Thus, combating incorrect financial reporting is not solely about enforcing compliance; it is also about upholding the ethical fabric that underpins corporate governance and accountability.

Businesses, including those in the telco industry, have an obligation to enhance shareholder value and protect the investor's interest. This can be achieved by long-term success through risk mitigation, a sustainable environment, economy, and social impact (Curren & Metzger, 2017). From a financial sustainability perspective, economic lobbying, market competition, government monopoly, and politics have an impact on telco competition rules and the prices set by mobile operators (Faccio & Zingales, 2017). The sustainability of social-ecological systems has created ambiguity among scholars resulting in reputation as a field of research and weakening its effectiveness (Aminpour, Gray, Richardson, Singer, Castro-Diaz, Schaefer, Ramlan, & Chikowore, 2019). The Steinhoff financial fraud scandal is one of the numerous

examples of corporate scandals and irresponsible behaviour that affect financial sustainability (Van der Linde, 2022). Steinhoff seemingly adhered to compliance standards, boasting a R300 billion market capitalisation that placed it among the top 10 listed companies on the Johannesburg Stock Exchange (JSE). However, the subsequent collapse of the entity revealed that the purported adherence to King IV corporate governance principles amounted to a superficial check-box exercise (Van Vuuren, 2020). Besides South African corporate failures, global corporate failures that have been reported can be found in the automotive industry. The leading Japanese automobile company and Takata transgressed sound corporate governance pillars related to transparency by failing to timeously notify stakeholders of the defects in the Takata airbag inflators that were installed in some Honda vehicles (Khoo, 2019). It is believed that the companies knew about this problem but did not disclose it timeously to their respective stakeholders, including regulators; subsequently, nearly 13 million vehicles were recalled by Honda.

Another aspect of sustainability and good corporate governance is to protect the environment where the business operates. In Germany in 2015, Volkswagen was exposed when the diesel emission scandal was reported in connection with the shocking discovery related to its diesel vehicles, and the company lost about \$35 billion due to environmental non-compliance (Matussek, 2018). The company corporate governance scandal caused reputational damage that resulted in a reduction of sales worth \$5.2 billion in the United States (US) for German automobile manufacturers such as Mercedes-Benz, BMW, and Smart (Bachmann, Ehrlich, Fan, & Ruzic, 2019). The compliance of an organisation is part of corporate reputation management and can attract the attention of investors, suppliers, and large customers and help retain employees (Clarke, 2019). Poor performance and weak business planning are among the contributing factors to the Jatropha collapse in Ghana (Ahmed *et al.*, 2019). Therefore, financial sustainability remains an important topic, not only because it communicates the results of the business strategy and its legitimacy, but also because it emanates from the key financial determinants in which various stakeholders are interested (Božić, Stanić, & Jurišić, 2021).

The profitability of an organisation is an important economic variable, and it is one of the key specific determinants of financial leverage that investors monitor closely about

a firm alongside its capital structure (Chen, Sensini, & Vazquez, 2021). Theoretical, conceptual, and empirical research is available on capital structure articulating financial behaviour and financial reporting of the financial status of firms (Modigliani & Miller, 1958; Aggarwal, 1981; Fama & French, 2002; Faulkender & Petersen, 2006; Titman & Tsyplakov, 2007; Chakraborty, 2010; Chen *et al.*, 2021). Due to the intricacies within the telco industry, there is a dearth of research aimed at elucidating the financial decision-making processes that underpin the financial sustainability of this sector. Contrary to the usual supply chain processes of many industries, the telco industry does not generate revenue through the conventional processes of buying and selling goods; instead, the profitability derives from the penetration of voice, short messages (SMSs), and data services. The existing theoretical, conceptual, and empirical research on capital structure, financial behaviour, and financial reporting in the telco industry points to a scholarly gap regarding how financial decisions are made, ultimately influencing financial sustainability. Both on a local and an international scale, no research delves into the challenges affecting the telco industry that directly or indirectly influence the financial sustainability of mobile operators. For example, Hodge (1999) investigated the state of the South African telco industry and potential liberalisation costs and benefits, but did not explore financial sustainability. Tlili, Othman, and Hussainey (2019) explored integrated financial reporting using evidence from the South African context, while Moloi and Iredele (2020) conducted empirical research examining the value and relevance of financial reporting of JSE-listed companies. Jung (2020) developed a theoretical model explaining investment decisions in the telco industry. The research conducted by Tlili *et al.* (2019) and Moloi and Iredele (2020) focused on financial reporting, while the study conducted by Jung (2020) can be classified among capital structure or investment management research studies. None of these studies considered the financial sustainability of the telco industry. The aim of this chapter is to introduce the study. In pursuit of this aim, the chapter first focuses on the background of the study to give an overview of the telecommunication (telco) industry and considers the research problem, research objectives, research questions, and delimitation of the study.

## 1.2 Background to the study

The background section focuses on two discussions centred around the role of the telco industry in the economy and the competitive forces in the South African telco industry that have an impact on the financial sustainability of the industry.

### 1.2.1 The role of the telco industry in the economy of South Africa

The role of the telco industry in South Africa's economic growth and gross domestic product (GDP) is key, as mobile operators are among the contributors to tax. In the context of South Africa during the 2021/22 financial year, the South African Revenue Service (SARS) collected R1.564 trillion and the telco industry contributed 35.5% through individual income tax, 25% through value added tax (VAT), and 20.7% through corporate income tax to total government revenue (SARS, 2022). The total tax revenue collected by the South African government in 2021/22 contributed 25.0% of the tax-to-GDP ratio (SARS, 2022). Nene (2019) points out that there is a correlation between the tax rate and GDP. Muyanga (2014) and Lešnik, Jagrič, and Jagrič (2018) concur that the lower the tax rate is, the higher the deficit of the country might subsequently be, which will lead to economic decline and hinder economic growth. Like any other organisation, Vodacom, MTN, Cell C, Telkom, Rain, and Liquid Telecom are not just taxpayers and VAT contributors in the countries where they operate, but also contribute to the GDP of those countries. While the current study is broadly situated in the telco industry in South Africa, it is crucial to initially emphasise that the focus is primarily on the financial sustainability of mobile operators, which are key contributors to GDP, but also contribute to the enhancement of communication in a digital world.

Various scholars draw a correlation between VAT, tax revenue, and GDP performance in developing countries (Bird & Gendron, 2006; Sancak, Velloso, & Xing, 2010). Go, Kearney, Robinson, and Thierfelder (2005) suggest that there is a close relationship between household consumption and investment. According to Ng and Yi Young (2019), the telco industry index (price performance) was 13.3% from 350 European telecommunication services with a 3.1% revenue growth, showing that the telco industry directly contributes to the European GDP. Therefore, telco operators play a

significant role not only in local job creation, but also in global economic growth and the GDP of each country. Furthermore, the telco industry contributes significantly to modern society and economies by paying tax. However, in Africa and rural areas such as South African villages, the telco industry also fosters the digital economy and increases digital literacy by driving global and social connectivity, modern technology, innovation, and telco infrastructure development and contributing to communication performance, disaster recovery, and emergency services (Parkinson, 2005; Baca-Feldman, Velázquez, Malvido, Hinojosa, & Ramos, 2019; Fitch Solutions, 2019; Jung, 2020). However, the success of the telco industry does not only depend on macroeconomic factors, but also on customer behaviour related to the increase or decrease in the consumer price index (CPI).

Apart from the VAT that the government collects from the telco operators, the telco industry continues to contribute to the GDP of the country through a corporate income tax on the profit generated (Anojan, 2015; Gillitzer, 2017; Horton, 2019). Direct tax and indirect tax are not the only compliance challenges the telco industry faces. Direct tax is progressive taxation and is based on income (the more you earn, the more tax you pay), while indirect tax is regressive taxation, and there is no correlation between earnings and amount of tax payable (Anojan, 2015; Gillitzer, 2017; Horton, 2019; Nene & Moraka, 2023). Examples of direct tax include estate duty and fringe benefits, income, corporate tax, and wealth tax; examples of indirect tax include excise duties, import duties, sales tax, and VAT (Nene, 2019).

In 2019, Vodacom paid R20.4 billion to the public finances of the governments in the markets where it operated (Vodacom, 2020), while MTN contributed R30.5 billion, with R4.6 billion paid to the South African Revenue Service (MTN, 2020). The R20.4 billion and R30.5 billion contribution to the economy of the country is commendable, taking into consideration that there are other social initiatives that the mobile operators drive to promote a sustainable environment, social inclusion, and economic viability. It could be argued that Vodacom, MTN, Cell C, Telkom, Rain, and Liquid Telecom's tax contribution is also among the tax revenue of the GDP of other countries, which is seen in Figure 1.1.



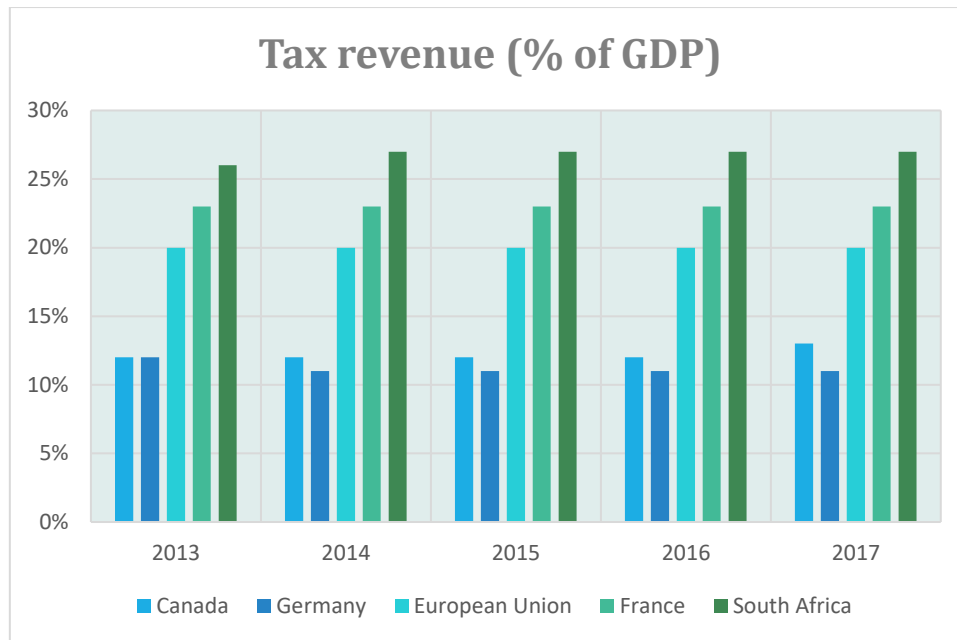


Figure 1.1 The telco industry is among the contributors to tax revenue of the GDP of each country

*Source:* Anojan (2015); Faccio and Zingales (2017); Gillitzer (2017); Horton (2019); Ng and Yi Young (2019)

The telco industry is among those that contribute towards the total tax revenue contribution in each country where they operate to improve each country's GDP as depicted in Figure 1.1 above. In 2013, total tax revenue contributed 26% of South African GDP, and from 2014 until 2017, it was steady at 27%. Where the government offers free education, the mobile operators will offer free communication services to government-selected schools such as computers and free Internet connections through zero-rated services (Lymer & Oats, 2009, cited in Anojan, 2014; Anojan, 2015). In the financial year that ended March 2020, Vodacom invested up to R146 million in health and well-being, education, gender equality, and other community initiatives (Vodacom, 2020). Similarly, in 2019, MTN established 36 computer laboratories for digital learning and spent a total of R189.5 million on corporate social investment (CSI) (MTN, 2019). The initiatives undertaken by the biggest South African mobile operators prove that the mobile operators have the needs of future generations at heart and promote a sustainable environment by investing in the education, health, and well-being of South African dwellers. One should not be naïve and simply understand the role of mobile phone operators from the organisational aspect of tax contributions, excluding the role of mobile technology in enhancing financial inclusion. Another role of mobile phone services besides the contribution to taxes is in the area

of financial inclusion (Satyasai & Kumar, 2020). For example, financial and technological services such as fintech in Africa have drastically changed the lives of millions of unbanked communities by allowing them to transfer cash locally and abroad without using a bank account in emerging markets. In the case of Vodacom, its fintech service is M-PESA, and MTN's fintech service is Mobile Money. While the mobile money sector has developed in markets such as Malawi, Tanzania, Zambia, and Kenya, it has largely been unsuccessful in South Africa despite multiple attempts from the top telco market players to launch such products (Robb & Paelo, 2020). In South Africa, the poor uptake of mobile money services is due to several competing channels for domestic remittance, and also, a large proportion of the population is already banked (FinMark Trust, 2017). However, mobile money as a new service remains a potential product for new entrants to enhance financial inclusion, even though it has not succeeded in the South African market yet. The next section will explore the structure and nature of competitive forces evident in the South African telco industry.

### 1.2.2 Competitive forces in the South African telco industry

The telco industry has undergone notable changes since the onset of the COVID-19 pandemic. With the widespread disruptions caused by the pandemic, industries across various sectors have had to adapt rapidly to changing circumstances. In the case of the telco industry, there has been a significant shift towards remote work, online education, telehealth services, and increased reliance on digital communication and connectivity. This has led to a redefinition of the telco industry, with a greater emphasis on facilitating remote collaboration, supporting digital infrastructure, and enabling seamless communication in a world where remote interactions have become the norm. Additionally, there has been an increased focus on ensuring reliable and robust networks to support the surge in online activities, underscoring the importance of the telco industry in enabling socio-economic activities during times of crisis.

An industry can be defined as 'a group of companies offering products or services that satisfy the same basic customer needs' (Hill, Jones, & Schilling, 2014: 45), regardless of the technological phenomenon (Müller & Hopf, 2017). In the current study, it is significant to highlight that the South African telco industry refers to mobile network operators (MNOs) and mobile virtual network operators (MVNOs) that operate within

the South African jurisdiction. The difference between MNOs and MVNOs is that the MNOs run their own network, while MVNOs run their services through the network of an MNO, whether it be through roaming agreements or contracted services. There are very few MNOs and several MVNOs in South Africa that contribute to the telco market. The MNOs includes Vodacom, MTN, Cell C, and Telkom, while the MVNOs include Afrihost Mobile, Rain, Virgin Mobile, and Liquid Telecom, to name just a few. Throughout the thesis, the term 'mobile operator' will be used when referring to South African telco companies, including the cases studied, namely, Vodacom, MTN, Cell C, Telkom, Rain, and Liquid Telecom.

#### 1.2.2.1 Three top market players in South Africa

In South Africa, there are four mobile phone operators and multiple MVNOs as noted in section 1.2.2 above. The top three market-dominating mobile operators in South Africa (based on market share) are Vodacom, MTN, and Cell C. As the top mobile operators are key to setting trends and industry-level direction, it is imperative to have a key understanding of their strategic directions in terms of vision, mission, market size, current business strategies, future plans, and challenges, which may relate to the pursuit of financial sustainability in general. Table 1.1 below provides a brief company overview of the strategic landscape.

Table 1.1 Strategic landscape of the top three South African telco market players

<b>Company overview</b>	<b>Vodacom</b>	<b>MTN</b>	<b>Cell C</b>
Start	Both Vodacom and MTN were founded during the notable and historic year of 1994.		2001.
Vision	'Africa's leading communications company. Diversify and differentiate with our digital ecosystem. Optimised, future-ready [technology company] TechCo' (Vodacom, 2024).	'Africa's largest mobile network operator ...' (MTN, 2024).	'To be the first choice for customers because we put them at the heart of everything we do' (Cell C, 2024).
Mission	'To connect for a better future' (Vodacom, 2024).	'To enable the benefits of a modern connected life for everyone' (MTN, 2024).	'... harness the power of technology to delight our customers and improve their lives' (Cell C, 2024).
Company size (number of employees or subscribers, capital, or revenue)	R70 billion in revenue and R29 billion worth of EBITDA (Vodacom, 2020).	R22 billion worth of EBITDA, with over 30.2 million subscribers in the South African market (MTN, 2018).	As of 2019, it had 15.9 million customers (BusinessTech, 2020; Cell C, 2021).
Strategic intent	'A leading African TechCo with a clear system of advantage' (Vodacom, 2024).	'Ambition 2025: Leading digital solutions for Africa's progress' (MTN, 2024).	'Committed to bridging the digital divide in South Africa ...' (Cell C, 2024).

Key challenges	Several legal and regulatory cases, including taxation matters, that were still pending against Vodacom Group (Vodacom, 2020).	Political instability and active economic conflict in some of the international markets, resulting in MTN exiting the market, such as in Afghanistan, Syria, and Yemen, and these conflicts directly affect legal and regulatory matters (MyBroadband, 2018b; Fitch Solutions, 2019).	Cash flow and going concern, for example, Cell C reported a R656 million net loss after tax in 2018, R8.03 billion net loss after tax in 2019, and R5.5 billion net loss in 2020 (BusinessTech, 2020; Cell C, 2021).
Future plans	Continue to fight Eskom load-shedding and ensure that the network stays active for the customers to remain connected even during power cuts (Illidge, 2023).	New leadership to drive the liquidity platform, transition from a telco to a techco, reduce network expenses, and be more of a wholesale aggregator through the Vodacom and MTN roaming agreement (Cell C, 2021).	

Source: Own compilation

The assessment of the financial sustainability of South African mobile operators entails the examination of various financial indicators. Scholars in previous research have used indicators such as earnings before interest, taxes, depreciation, and amortisation (EBITDA), net profit margin, return on total assets (ROA), return on equity (ROE), and return on investment (ROI) as part of the effort to understand financial sustainability and the costing model of organisations. Through the analysis of these indicators, a comprehensive evaluation of the financial health and long-term viability of South African mobile operators can be achieved. Financial indicators play a significant role in business, as they reveal potential financial risk exposure that will affect the competitive position of an enterprise where corporate finances are not sound (Kliestik, Valaskova, Lazaroiu, Kovacova, & Vrbka, 2020). The assessment of these financial indicators in this section aids in assessing financial sustainability within the telco industry, identifying which mobile operator commands the largest market share from the top three market players, namely, Vodacom, MTN, and Cell C, and, lastly, understanding the costing model of the evaluated mobile operators. Figure 1.2 below demonstrates the financial status of each mobile operator from the top three market players using 2016 to 2020 financial results.

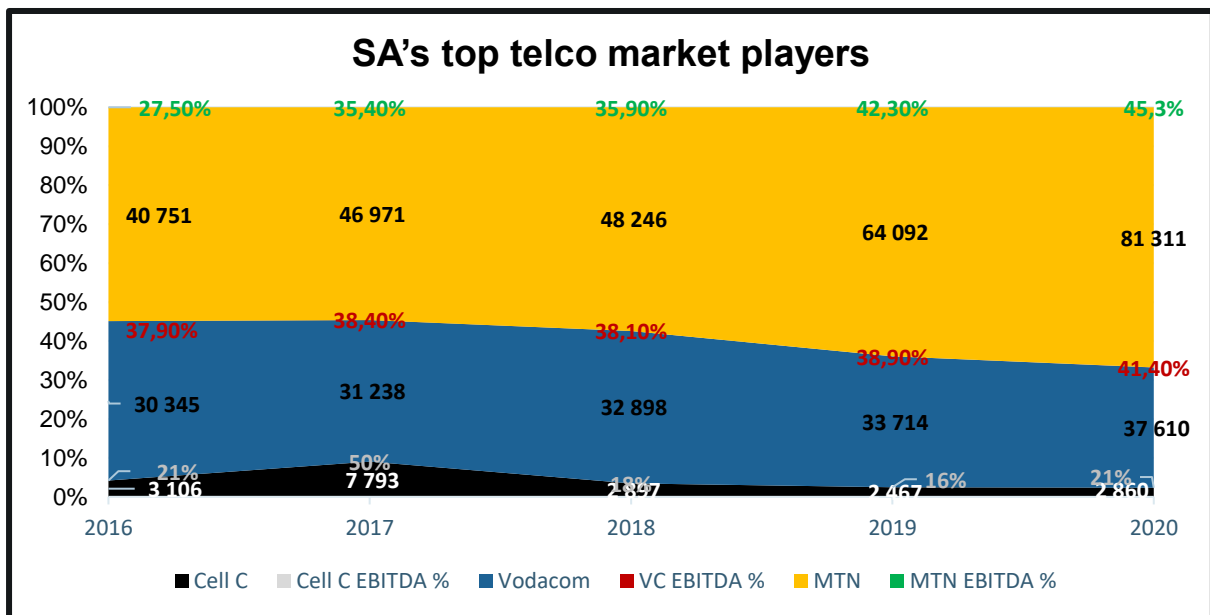


Figure 1.2 Summary of the EBITDA analysis of the top three telco market players  
 Source: Vodacom financial reports (2017, 2018, 2019, 2020); MTN financial reports (2017, 2018, 2019, 2020, 2021); Cell C financial reports (2018, 2020d, 2021)

It is important to note the significance of the market share of both Vodacom and MTN, as they are strong in the sub-Saharan Africa region where they operate, while Cell C's brand is strong in South Africa, as it only operates within the South African jurisdiction. The EBITDA analysis results for both Vodacom and MTN in Figure 1.2 convey a financially sustainable message, while the financial sustainability of Cell C is questionable, with continuous losses year on year. A further quantitative review and financial analysis of these mobile operators will be presented in Chapter 5 under quantitative findings. While Porter's five forces model is helpful in understanding the telco industry in South Africa, it is salient to understand the criticisms of this framework. Porter's framework is criticised as being too static. Porter (2008) chooses the metaphor of forces that are ideally supposed to be dynamic, but uses them in a way that makes one think they are static and applicable more to a stable than dynamic and fast-changing industry. As the industry evolves, it is important that dynamic changes be scanned, monitored, and assessed to capture any variations in the influence of industry forces.

Additionally, Porter's framework is criticised for speaking to the advantages or problems of specific companies, but does not account enough for collaborative business models and contexts, which are changing quickly. In short, the original framework of Porter's (2008) forces focuses exclusively on competitive aspects and excludes collaboration as a strategy. The focus on competitive forces in the framework by Porter is on pure competition and the self-interested and competitive commercial enterprises that are successful in the market and is at the cost and exclusion of other forces. The competitive environment is predominantly viewed from the lens of self-interested, traditional, profit-seeking organisations with low trust, an adversarial mentality, and the pursuit of defensive positions that primarily protect the bottom line. This does not resonate with contexts where winning requires collaboration, as well as competition, with others (Kolokoltsov & Malafeyev, 2020). Porter's five forces should take cognisance of co-opetition as the relationship between two organisations that simultaneously involves competition and co-operation.

i. The threat of new entrants to the South African telco market

The threat of new entrants to the South African telco market poses a significant challenge to existing mobile operators. These potential entrants could range from local

start-ups such as Rain to international telco giants such as Vodafone seeking to penetrate and dominate the market. The barriers to entry might vary, including regulatory hurdles, high initial capital requirements for infrastructure development, spectrum availability, and the need to establish a customer base in a competitive landscape dominated by established players. New entrants could potentially disrupt market dynamics, intensifying competition and pressuring existing mobile operators to innovate, invest, and adapt swiftly to retain their market share (Porter, 1987; Nene, 2019). In South Africa, during the apartheid regime, the telco policy favoured a monopolistic telco environment, resulting in immense communities being deprived of communication access, which is one of the basic rights for all South Africans; it also hindered economic growth (Ali, 2010). In the decades prior to the 20<sup>th</sup> century, communication channels were exclusively opened to serve specific regions (Kang, 1987; Beyersdorf, 2015). These regional limitations and the industry monopoly posed a great threat to the skill set of the telco industry. However, the two biggest South African mobile operators, Vodacom and MTN, never experienced these restrictions, since they both started operating in 1994 (MTN, 2018; Loom, 2019a).

ii. Competitive rivalry among existing competitors in the South African industry

In South Africa's competitive mobile telco sector, there is rivalry among the key players, which include Vodacom, MTN, Cell C, Telkom, Rain, and Liquid Telecom, although the nature of the competition has not been successful in driving affordable and advanced services. The South African telco industry is driven by a desire to capture and retain market share, technological innovation, and the continuous quest for improved services and customer satisfaction (Shava, 2021; Mbanje, 2022). The competitive factors that have a direct effect on the financial sustainability of the South African industry arise from Vodacom's and MTN's market dominance, technological disruptions, 5G advancements, Independent Communications Authority of South Africa (ICASA) data price regulation, competition laws, and product differentiation (Höller, Tsiatsis, Mulligan, Karnouskos, Avesand, & Boyle, 2014; Fotouhi, Qiang, Ding, Hassan, Giordano, Garcia-Rodriguez, & Yuan, 2019). In order to maintain competitiveness and profitability, mobile operators must engage in ongoing evaluation of their services. This evaluation encompasses an assessment of subscriber market satisfaction, the uniqueness of the products or services offered, as well as the cost and quality associated with the brand. Furthermore, there is a need to consider



expanding the geographical reach, from local to international markets, as a means of broadening the scope of operations and accessing additional revenue streams.

Kundu, Ayyasamy, and Patel (2010) highlight the convenience of using a cell phone, as it delivers communication live in real time. In South Africa, the government monopoly and political interference in the telco industry influence the strategic alliances and cost leadership of mobile operators. Even though Telkom enjoyed a monopoly in South Africa under the apartheid regime, the transformation and evolution of the South African telco industry is evidence of the communication access freedom promised by the African National Congress (ANC) government during the dawn of democracy in 1994; yet, it was easy for Cell C to disrupt the South African telco market in 2001 (Loom, 2019b). When Cell C first launched its product in 2001, it focused on a low-cost strategy; over the years, it has built a strong subscriber base and become a strong competitor against Vodacom and MTN (Loom, 2019b; BusinessTech, 2020; Cell C, 2021). Hence, the telco sector has undergone a transformation, transitioning away from a monopolistic structure. The market is now accessible to multiple mobile operators, fostering competitiveness that enables South African telecom companies to engage in international trade and compete against global counterparts such as Orange, Orascom, and Globacom (Faccio & Zingales, 2017; Magliozzi, 2017).

### iii. Threat of substitutes

The complexity of the telco industry creates a compelling landscape, with opportunities evolving alongside technology and changing customer expectations. It is not like other industries where human engagement is always required to generate revenue; telco industries are also driven by machines, and there is a demand in the market to grow Internet of things (IoT) revenue, which is revenue gained from communication between machines (IDATE & ETNO, 2017). In Europe, machine-to-machine (M2M) services contributed 4% of the overall mobile revenues in 2017, while yearly IoT revenues are anticipated to grow by 11% between 2017 and 2025 (IDATE & ETNO, 2017). In South Africa, both MTN and Vodacom are advancing their enterprise segments and investing in M2M and IoT in order to diversify their revenues (Fitch Solutions, 2019). IDATE and

ETNO (2017) suggest that, in the next decade, M2M and IoT revenue will increase from 4% to 8%.

South African mobile operators offer various services ranging from fixed to mobile services, international roaming, and interconnect services, to name just a few. Fitch Solutions (2019) refers to interconnect cost as termination cost, while Ng and Yi Young (2019) refer to it as interconnection cost. These can be used interchangeably. The interconnected part of the telco business is a highly regulated area, and the government uses these costs to drive competition, as the small operators are charged a lower cost compared to the larger operators most of the time (Fan & Xiao, 2015; Ng & Yi Young, 2019). Due to interconnect costs, some operators will charge a slightly higher rate when calling an alternative network, but a cheaper rate when calling on the same network. However, voice calls use wireless or microwave networks, and for both options, the usage generated by the subscribers is reported under voice revenue. Figure 1.3 below provides an overview of a typical voice call when using wireless and microwave networks (Kundu *et al.*, 2010).

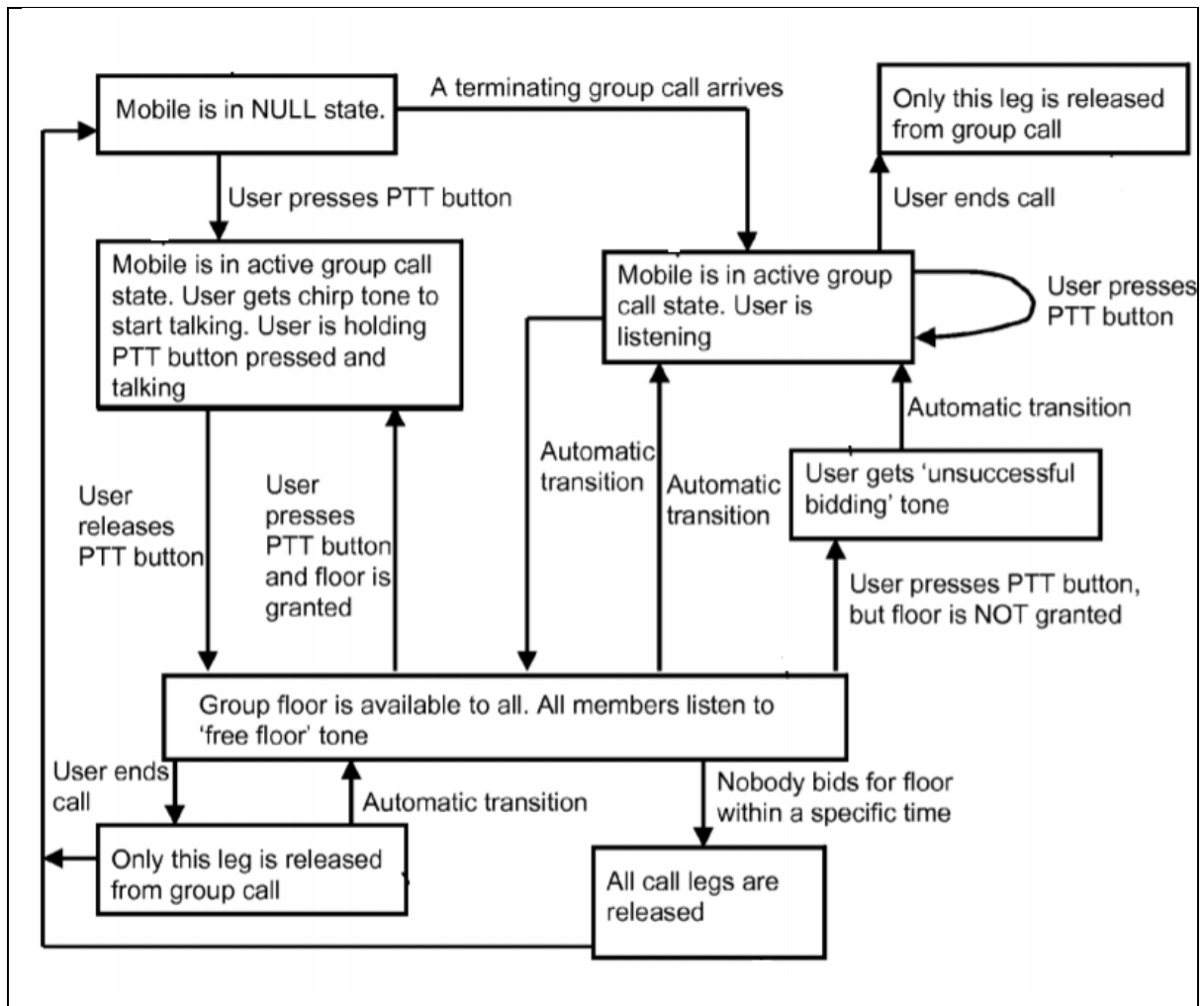


Figure 1.3 The voice call flow on the microwave network  
 Source: Kundu *et al.* (2010)

Figure 1.3 depicts how the voice call flows on the microwave network and presents both successful and unsuccessful connections. For example, when the originating user presses the push-to-talk (PTT) button, but gets an unsuccessful dialling tone, then the call can be released, as the mobile is switched off (NULL state). With the current advanced technology and improved network, there is absolutely no more need for human intervention to transfer calls where the caller had to wait for a long time while the operator was ringing the subscriber to whom the caller wished to speak. This raised frustration with callers when the operator sometimes dialled the incorrect number and/or listened to the conversation to determine whether the conversation had finished (Occomore, 1995). However, in this century, what remains a challenge from the point of view of the mobile operator is the high cost of maintaining the infrastructure in such a highly competitive generation where over-the-top (OTT) services, such as WhatsApp and Facebook, are exploiting the mobile operators' network (Kay, 2015).

OTT services do not pay any licence fee, levy amount, or VAT to the mobile operators in spite of the fact that their services permeate the network of mobile operators, causing a significant threat to the financial sustainability of mobile operators. Over and above OTT services, substitute threats also involve unconventional ways of communicating, advances in technology, convergence of services, and wireless connectivity.

#### iv. Bargaining power of the supplier

Despite the relatively restricted number of telecommunications service providers in South Africa, it is essential to consider various factors influencing the financial sustainability of the industry. Economic lobbying, market competition dynamics, government monopolies, and political interventions significantly shape the regulatory landscape governing telco competition and influence the pricing strategies adopted by mobile operators (Faccio & Zingales, 2017). On 30 September 2005, section 89(1)(b) of the Telecommunications Act 103 of 1996 was replaced by section 68(1)(b) of the Electronic Communications Act 36 of 2005 (Government Gazette, No. 28743). The Independent Communications Authority of South Africa published the mobile number portability (MNP) regulations in order to protect the rights of consumers and drive telco supplier concentration (ICASA, 2018). MNP offers customers the flexibility to switch their telephone numbers from one mobile operator to another available in the country free of charge, and this feature gives customers the power to use the same number across different service providers (Prasad, 2020). MNP stimulates competition among mobile operators, encouraging them to develop more distinct products and services, while giving power to the customers to move to a suitable mobile operator with the same number should they not be happy with the service rendered. It was first implemented in Singapore in 1997, followed by other countries such as Hong Kong, the Netherlands, and the UK in 1999, and Belgium, Germany, and Italy in 2002 (Smura, 2004; ICASA, 2018). MNP allows customers to be in control of their numbers; however, in the view of the mobile operators, MNP encourages churn, and even though it helps to acquire new customers, it might be difficult to retain existing ones and threatens the financial sustainability of mobile operators (Smura, 2004). Onuigbo, Onoh, and Inyama (2021) suggest that, periodically, the regulator should benchmark and assess network services to reduce confusion about services and customer complaints, as the caller cannot determine which mobile operator he or she is calling

just by looking at the number prefix and, thus, is unsure about how much he or she will be billed.

According to Louw and Venter (2013), supplier power is high when there are no substitutes available with high forward, vertical integration; the buyers' cost of switching supplier is high with supplier concentration and dependence in a single industry. Kitov (2023) asserts that supplier power is high when the following is in place (with weak supplier bargaining power as the adverse):

1. No substitutes exist.
2. Many buyers are concentrated with few suppliers.
3. Suppliers earn revenues through many small sales, without dominant buyers to depend on.
4. The products offered are differentiated.
5. The switching costs of suppliers are high.
6. Suppliers are big enough to have the potential for forward integration.

For example, evolving technology presents mobile operators with both challenges and unlimited opportunities and allows customers to choose from various services such as 5G, IoT, and Fourth Industrial Revolution (4IR) offerings (Höller *et al.*, 2014; Fotouhi *et al.*, 2019). Lastly, the impact of, and government response to, COVID-19 also affected some of the South African mobile operators' regulatory requirements stipulated in Government Gazette, No. 28743. For example, mobile operators were required to report their prices 14 days before launching a new product or making changes to an existing one. However, in 2020, during the National State of Disaster, the 14 days requirement was adjusted to one day (Government Gazette, No. 45458; ICASA, 2022).

#### v. Bargaining power of the buyer

The bargaining power of the buyer is a competitive advantage that drives cost-efficiencies, increases profits to the industry, and improves the quality of services with very few switching costs (Gürlek & Tuna, 2018). In the South African telco industry, as mentioned, the ICASA regulation allows customers to port their numbers and change mobile service providers if they are not happy with the service rendered by the current service provider. According to Onuigbo *et al.* (2021), poor connectivity, dropped calls,

and poor customer service are the main reasons why customers port their numbers and change mobile service providers. The switching of customers increases customer churn for the mobile operator that is losing the customers and threatens its financial sustainability; however, it is a gain to the mobile operator that is receiving customers, as this will increase its customer base. The nature of the large customer base of the telco industry means that low switching costs are often associated with MNP, which includes access to a variety of substitutes because of increased technology, access to good network quality, and digital literacy.

Customers in South Africa's mobile telecom industry have some bargaining power due to substitutes. To ensure financial sustainability, it is imperative that mobile operators offer attractive packages and discounts and invest in customer service, further strengthening customer preference for their services. The original model of the five forces proposed by Porter in 1987 with the threat of new entrants, competitive rivalry among existing competitors, threat of substitutes, bargaining power of the buyer and bargaining power of the supplier is limited in capturing all the key relationships in the structure of an industry. An extended framework of industry competition adds complementors and networks as a sixth force and government and industry regulators as the seventh force (Louw & Venter, 2019).

Government and regulators, as forces, regulate market entry and govern competition and competitive behaviours in the industry environment. Sector-specific regulators play the role of enhancing or reducing profit for organisations in an industry. Examples of sector-specific regulators in South Africa include the Financial Sector Conduct Authority (FSCA) for the financial sector, the Independent Communications Authority of South Africa for the South African communications, broadcasting, and postal services sectors, and the National Energy Regulator of South Africa (NERSA), which is responsible for the regulation of the electricity sector in South Africa. Barriers to entry are maintained by regulators through licensing and accreditation systems. Industry regulators also control pricing to reduce abuse of market power or introduce legislation that may bring competition or disrupt an industry through deregulation.

#### vi. Nature and influence of complementors

It is notable that Porter's industry forces do not include the power, vigour, and competence of organisations that are complementors in an industry (Myers, 2020). Complementors consist of the organisations, firms, or companies that sell products or services complementing the industry and its products or services, adding value through satisfying customer demands (Lasserre, 2017). For example, complementors of the telco service providers are software-developing organisations. The willingness of buyers to pay for the product or service is enhanced when complementors are available. The power of complementors is high when there are only a few of them and switching costs are high. Complementors have low power when they are dependent on a single industry rather than many industries. Co-operation with complementors is key to increasing the total value to customers. The complementors, such as consumers and software providers, play a significant role in the telco ecosystem, making the telco value chain meaningful for successful communication. The nature of complementors such as platform ecosystems stimulates open innovation and increases competition among hardware and software providers (Inoue, 2019). Apart from government and regulators, there are complementors that are crucial for telco sustainability such as Huawei, Samsung, Apple, and other cell phone, accessories, and SIM card manufacturers. Regardless of the United States government barring or banning Huawei, the supplier still leads the global telco market (Pongratz, 2023). Figure 1.4 reflects the top telco complementors worldwide, where Huawei remains the number-one supplier; this is applicable to the South African context as well.

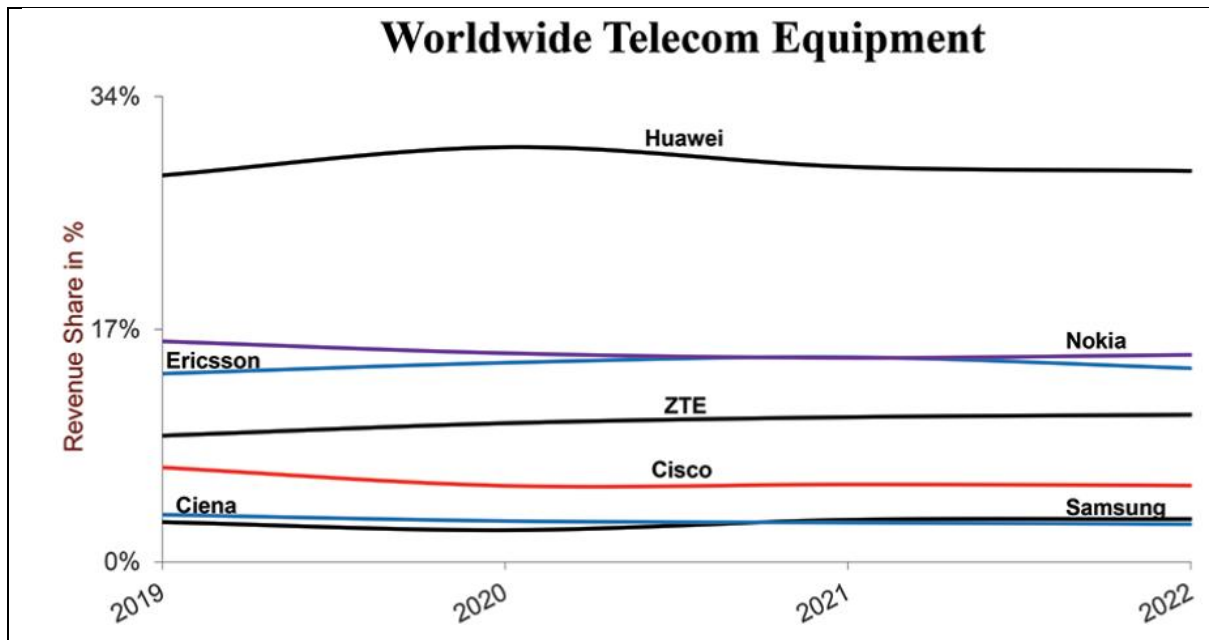


Figure 1.4 Worldwide telco equipment providers  
Source: Pongratz (2023)

Over the years, Huawei has continued to dominate the telco industry, not just from the cell phone manufacturing perspective, but also from the critical and sophisticated equipment used by mobile operators for towers and other network transmission, as demonstrated in Figure 1.4. Complementors can diversify their products to benefit from economies of scale and leverage advancing technologies (Inoue, 2019). The services analysed in Figure 1.4 consist of mobile core networks (MCNs), microwave, optical transport, broadband access, and radio access networks (RANs), as these services drive telco technologies, 4IR, 5G, and innovations such as IoT (Pongratz, 2023). Therefore, cell phone gadgets and accessories play not only a large role in ensuring the financial sustainability of the industry, but also in technology and subscriber usage.

Despite the telco industry playing a critical role in global economic growth, closing the digital divide, driving financial inclusion, connecting people while improving education through data connectivity, increasing business efficiencies while reducing travelling costs, enabling emergency services and contributing to the country's GDP through job creation and tax payment. However, the complexity of the industry and high regulation raise a question of financial sustainability both local and abroad. Upon the literature search, the existing studies on financial sustainability in the telco industry have focused more on liberalisation costs and benefits (Hodge, 1999), challenges to the



adoption of big data (Malaka & Brown, 2015), and the relationship between customer satisfaction and service (Shava, 2021). Mbanje (2022) developed the cost, productivity, and profitability framework to evaluate the impact of business process outsourcing in Southern Africa, focusing on the operational performance of the South African telco industry. While Tsindeliani *et al.* (2019) investigated the financial sustainability of the Russian Federation by examining the existing patterns and features of the Russian tax system and then suggested that to achieve the financial sustainability of the Russian Federation, legal acts can be optimised by integrating sustainable development indicators into the tax system. However, there was no research found where researchers developed a model to evaluate and measure the financial sustainability of the telco industry and or any other industry both locally and abroad. This study, therefore, sought to investigate and analyse the financial sustainability of the South African telco industry and further develop a model that measures and evaluates the South African telco industry. It was very important to explore and extensively assess, evaluate and analyse the South African telco industry by using the market dominators namely, Vodacom, MTN, and Cell C in order to extrapolate the financial sustainability of the South African telco industry.

### **1.3 Problem statement**

Generally, the telco industry is a very complex industry and is highly regulated, with governments being eager to collect levies and licence fees to increase revenue collection by auctioning off the right to use the spectrum needed to enable communication (Faccio & Zingales, 2017). Whether mobile operators comply or not, their financial sustainability is threatened, as they continue to lose money through regulatory requirements. The unpredictability and uncertainty of regulatory compliance has an impact on investors' decisions to invest in the industry because the cost of non-compliance can be extremely high (Syekeli, Kapinga, & Kalule, 2021). The high cost of connectivity in South Africa is driven by the government's monopoly and ineffectiveness in issuing available spectrum to mobile operators. The effectiveness of the regulatory role is critical in achieving the liberalisation and efficient allocation of spectrum and resources in the market through healthy competition in order to drive affordable network connectivity (Gillwald, 2005). From the literature search, nothing

was found that integrated all three academic theories, namely, knowledge management, stakeholder management, and impression management with the end-to-end practical telco strategies and a close look at a practically known problem along with the gaps in academic knowledge. For example, the telco industry is very segmented by country, not only in South Africa, but also around the world, and the origins of this segmentation are complex, as the government control of the spectrum results in this industry being highly regulated (Faccio & Zingales, 2017).

In South Africa, the telco industry is regulated by the Independent Communications Authority of South Africa (ICASA) and, over the past 20 years, ICASA has been hampered by political imperatives, and this is evident in its ineffectiveness in allocating spectrum to mobile operators (Howell & Potgieter, 2022). Due to the complexity of the telco industry in South Africa, there is no single product standardised across all South African mobile operators with a unified marketing strategy that allows them to share revenue proportionally. This is a big problem because each South African mobile operator cannot possess all the necessary knowledge, skills, resources, and innovation in such an evolving and cataclysmic market (West & Gallagher, 2006; Mansanta & Sani, 2019). A standardised product can make a great contribution and change the narrative of how the industry makes a profit and sustains itself for its own survival and that of its stakeholders. Furthermore, at present, in South Africa, there is no regulated service developed or a single infrastructure owned by all mobile operators for which they share revenue proportionally to improve collaboration and innovation that will create a unique and competent industry skill set. The absence of a regulated service or shared infrastructure is a problem because it limits open innovation and does not promote revenue stream diversification and collaboration among South African mobile operators. Open innovation promotes collaboration between organisations and other stakeholders to accelerate innovation, expand markets, and create financial sustainability (Chesbrough, 2006). Financial sustainability is achieved through efficient revenue stream diversification and a clear financial performance vision (Xie, Liu, Najam, Fu, Abbas, Comite, Cismas, & Miculescu, 2022). Therefore, having a single product, service, and/or shared infrastructure across mobile operators will increase open innovation within the South African telco industry.

Gleißner, Günther, and Walkshäusl (2022), in their recent article entitled 'Financial sustainability: Measurement and empirical evidence', concur that financial sustainability is underrepresented in both the research on, and the practice of, sustainability, management, and financial reporting, and they propose some measures positioned at the intersection of sustainability management, risk management, and risk governance. Current studies on financial sustainability in the telco industry have focused on liberalisation costs and benefits (Hodge, 1999), challenges to the adoption of big data (Malaka & Brown, 2015), the relationship between customer satisfaction and service (Shava, 2021), and a cost, productivity, and profitability framework to evaluate the impact of business process outsourcing in Southern Africa, focusing on the operational performance of the South African telco industry (Mbanje, 2022).

The telco industry is very segmented, complex by country, and highly regulated as the government controls the allocation of the spectrum. The inefficiencies of the government in allocating the use of the spectrum lead to high capital expenditure as the mobile operators are forced to invest in the infrastructure in order to improve network quality and this is not financially sustainable. This study investigated and analysed the financial sustainability of the South African telco industry and concluded by developing a model that measures and evaluates the South African telco industry. It was very important to explore and extensively assess, evaluate, and analyse the South African telco industry in order to assess and understand the impact of the industry complexities, segmentation and the role played by the South African government as the regulator of the industry.

#### **1.4 Purpose of the study**

The purpose of the research was to explore the financial sustainability of the South African telco industry, given its complex and highly regulated nature, which poses risks to its sustainability. By gaining deeper insights into the financial health of telecommunications companies, stakeholders can better navigate the challenges and opportunities within this critical sector. Understanding the financial sustainability of the telco sector is essential to assessing its contribution to the GDP of the country, job creation, and overall economic development. Given the high regulatory nature of this

sector, researching financial sustainability within this context can provide valuable insights into crafting effective regulation that promotes competition, innovation, and economic development while ensuring the long-term viability of the industry. Previous studies have examined different phenomena and perspectives, focusing on big data analytics and the customer satisfaction costing model. Hodge (1999) investigated the potential liberalisation costs and benefits of the South African telco industry while Malaka and Brown (2015) explored the challenges to the adoption of big data; however, none of these scholars extended their research to financial sustainability. Shava (2021) explored the relationship between customer satisfaction and service while Mbanje (2022) developed a cost, productivity, and profitability framework to evaluate the impact of business process outsourcing in Southern Africa, focusing on the operational performance of the South African telco industry. Even though these scholars conducted their research within the South African telco industry, they did not include the aspect of financial sustainability in their studies; nor did they investigate how the telco industry made financial decisions that led to its financial sustainability. The lack of research integrating knowledge management, stakeholder management, and impression management theories with practical telco strategies to explain the financial decisions and challenges affecting the financial sustainability of South African mobile operators indeed highlights a significant research gap.

The challenges experienced by South African mobile operators are contemporary and global, such as fraud, evolving technology, global economic challenges, the COVID-19 pandemic, and social impact, as the industry connects millions of communities and their response to the price of connectivity and data, resulting in the #DataMustFall campaign in South Africa.

The financial sustainability of South African mobile operators has been measured by means of financial indicators such as EBITDA, net profit margin, return on total assets (ROA), return on equity (ROE), and return on investment (ROI). Alobari, Igbara, Tordee, and Domale (2019: 4035) measure financial sustainability 'through the use of ROA', while Marx (2010) classifies EBITDA, net profit margin, ROA, ROE, and ROI ratios as the key fundamental financial evaluators for investors to make decisions. A single financial ratio is not deemed to be used independently to measure financial sustainability. For example, Gitman (2006: 65) defines ROI as a 'measure of

management's effectiveness in generating profits with its available assets', which is the same as ROA, while Alobari *et al.* (2019: 4035) measure financial sustainability 'through the use of ROA', meaning that there is a positive correlation between ROA and ROI. Furthermore, ROA measures 'the return earned on the common stockholders' investment in the firm' (Gitman, 2006: 69). Analysing these financial indicators assists in evaluating the competitive strategies in the telco industry and the costing model of the evaluated mobile operators.

## **1.5 Research objectives**

The term 'research objective' refers to the end goals that a researcher is required to have reached before the conclusion of a thesis (Neuman, 2006; Levitt, Creswell, Josselson, Bamberg, Frost, & Suarez-Orozco, 2018). In the current study, the research objectives of the study are categorised into two sets of objectives, namely, the main or primary objective and the secondary objectives.

### **1.5.1 Primary objective**

The primary objective was to analyse the financial sustainability of the South African mobile telco industry using Vodacom, MTN, and Cell C as the market dominators.

### **1.5.2 Secondary objectives**

The following secondary research objectives were set:

1. To evaluate the impact of the competitive environment on the financial sustainability of the South African telco industry according to the executives from the mobile operators.
2. To investigate the influence of regulation on the financial performance of mobile operators.
3. To understand how mobile operators in South Africa responded to the COVID-19 pandemic and explore the impact on the telco industry according to the mobile operators investigated.

4. To propose a framework for the financial sustainability of South African mobile operators.

## **1.6 Research questions**

Research questions seek to understand and explore the research problem, while the research problem drives the formulation of the research questions that must be answered by the investigative study (Mouton, 2017). Focusing on the context of the South African telco industry, the current study was directed by the following primary research question:

### **1.6.1 Primary research question**

What are the determinants for the financial sustainability of the South African telco industry?

### **1.6.2 Secondary research questions**

The following were the secondary research questions for this study:

1. According to the executives from the mobile operators, what is the impact of the competitive environment on the financial sustainability of the South African telco industry?
2. What is the influence of South African regulation on the financial performance of mobile operators?
3. How have mobile operators in South Africa responded to the COVID-19 pandemic, and what was the impact on the telco industry?
4. What appropriate frameworks are used to measure the financial sustainability of South African mobile operators?

## **1.7 Significance of the study**

The absence of a model or framework for measuring financial sustainability in both the South African and the international telco industry represents a significant gap that

needs to be addressed. Establishing such a framework is essential for enhancing comparability, transparency, and accountability, ultimately fostering a more competitive, resilient, and sustainable telco industry ecosystem. This study contributes practically, socially, methodologically, scholarly, and theoretically to the existing body of knowledge. The significance of the study will be presented into two categories namely, a) the theoretical significance of the study and 2) the practical significance of the study.

a) The theoretical significance of the study

Researchers can expand the research to other industries in order to test the proposed financial sustainability model to define, measure, and calculate financial sustainability.

b) The practical significance of the study.

The financial sustainability model and theoretical framework will assist mobile operators and other businesses in assessing their financial sustainability by not only considering financial indicators, but also incorporating integrated academic theories considering stakeholder management (SM), knowledge management (KM), and impression management (IM) theory.

## **1.8 Assumptions**

Myers (1997) and Saunders, Lewis, and Thornhill (2015) agree that, regardless of the research method applied in the study, whether it be qualitative or quantitative, one of the key philosophical elements that drive valid research is the assumption being made. Astute, sound, and consistent assumptions constitute a credible research philosophy that underpins the researcher's research strategy, methodological choice, data collection techniques, and analysis process (Saunders, Lewis, & Thornhill, 2019). A full account of the research philosophy will be provided in Chapter 4 Section 4.3. Therefore, it is imperative for researchers to explicitly declare their philosophical assumptions in order to prevent any inconsistencies in the research (Neuman, 2011; Ngulube, 2015). In this study, the researcher's ontological assumption was that participants responded honestly during the qualitative data collection and defined interview process. As previously stated, based on what the researcher knows about

the telco industry, the researcher's three key epistemological assumptions were as follows:

1. The absence of a regulated service, product, or infrastructure is a problem because it limits open innovation and does not promote revenue stream diversification and collaboration among South African mobile operators.
2. A standardised product, service, or infrastructure will improve efficiencies, promote collaborations among mobile operators, and drive 4IR/5IR innovations.
3. A standardised product, service, or infrastructure can contribute greatly and change the narrative of how the industry makes a profit and sustains itself for its own survival and that of its stakeholders.

The researcher's epistemological assumptions are directly linked to the research problem. Most importantly, both philosophical and epistemological assumptions assisted the researcher in drafting the research question and understanding that the mixed research method was the best methodology to use to allow the triangulation of data collection and flexibility of data analysis. The research design will be explored in Chapter 4 Section 4.6 where research design construction and mixed-method design will be explicitly articulated in Sections 4.6.1 and 4.6.2. Assumptions assist in drafting the research question, understanding which research methodology to follow, and, lastly, analysing, interpreting, and presenting the results; assumptions assist the researcher's data collection process (Ngulube, 2015; Saunders *et al.*, 2019). Further details expanding the research paradigm will be presented in Chapter 4 Section 4.2.

Even though assumptions are not always empirically warranted, they assist the researcher to decide how data should be gathered and accumulated while considering what is significant from what is considered 'noise' in the unit of measure (Overgaard, 2021). As part of good corporate governance, companies are expected to truthfully report their financial results and provide sustainability reports where they demonstrate their corporate social responsibility. Therefore, the researcher assumed that the quantitative data collected from the financial results published on the websites of these companies, in business journals, and with the JSE was correct, considering also that there are independent audit firms that audit these results (except that Cell C's results are not audited). Even though Cell C's annual results are not audited, the researcher still assumed the validity, completeness, and accuracy of the published information,



since investors use the same data for decision and investment purposes. To conclude, the fact that Cell C's financial results are not audited will not adversely affect the reliability and credibility of the study, as the South African telco market benchmark uses the same results presented in this study. Furthermore, the authenticity of the year-on-year financial data was confirmed with the organisation during the ethical application process and when seeking permission to use company information.

### **1.9 Delimitation of the study**

Delimitation provides an explanation of aspects for which the researcher is responsible or not responsible during the research (Rahamathunnisa, Selvakumar, & Kannan, 2023). According to Hofstee (2006), the delimitation explicitly provides a declaration of what the research or thesis examines and explores and, furthermore, states what is included in, and what is excluded from, the research. There are three issues regarding the delimitation of this study. Firstly, there was geographical and industry delimitation in the current study, as it deliberately focused on only the telco industry, with a close look at the South African telco industry. Secondly, the study only focused on the financial sustainability of the South African telco industry. In this regard, the organisations selected for the purpose of this study were Vodacom, MTN, Cell C, Telkom, Rain, and Liquid Telecom because of their dominance in the South African telco industry. The selected organisations could shed light on the market dynamics, growth, and financial viability of the industry.

Lastly, the study only focused on the executive team from the participating companies because of their greater exposure to, and involvement in, strategy and clarifying telco strategic priorities in their respective organisations. The people in the upper echelons of an organisation or members of the top management team are not only powerful, but also responsible for the long-term direction of an organisation. Given the above scope and level of responsibility of the executive team or top management team, they are in a better position to reflect and comment on financial sustainability issues than lower-level employees. As such, this study intentionally excluded middle- and lower-level employees in the selected companies, as these are predominantly involved in the execution of day-to-day operations rather than the financial sustainability of the entire organisation. The identified participants were only from the executive team of various

South African mobile operators, and as previously articulated, the selection of the executive team was only based on their vast experience, maturity in the industry, and level of responsibility, ensuring that they would be familiar with financial sustainability issues in their respective organisations and the telco industry as a whole.

For quantitative data, the researcher used published financial statements from the websites of the cases studied to gather and triangulate multiple data sources, such as JSE and business reports or journals, using textual analysis methods in order to get valuable, in-depth insight. However, for qualitative data, interviews were conducted with the executive team from the participating companies because of their greater exposure to telco strategic priorities compared with lower-profile employees. Most importantly, the executive team was selected only based on their vast experience and maturity in the industry. To ensure the anonymity and confidentiality of the research participants, the mobile operators who participated in the interviews will not be disclosed.

### **1.10 Outline of the thesis**

Figure 1.5 below provides the overall structure of each chapter by depicting the key topics covered by the chapter.

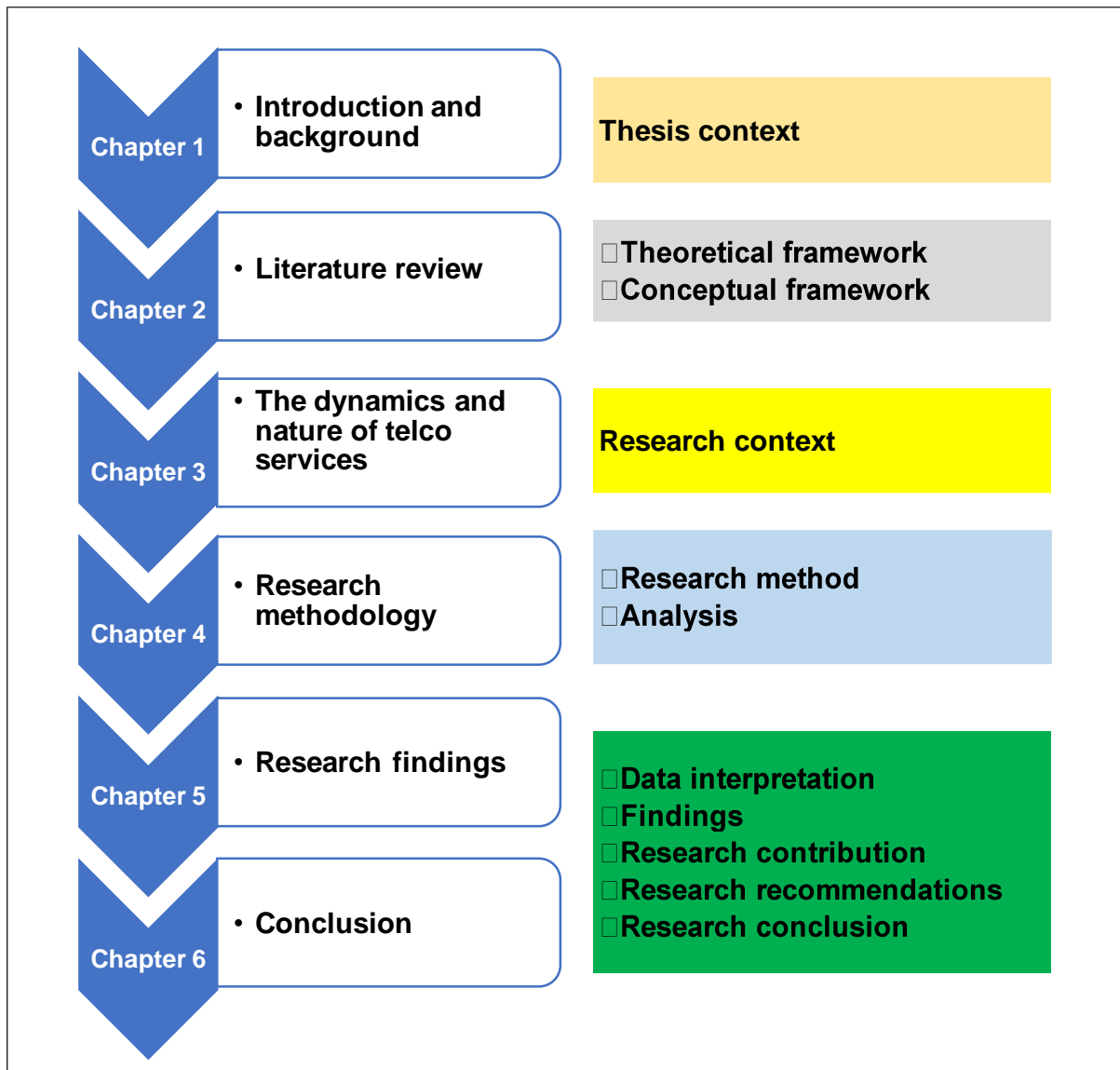


Figure 1.5 The structure of this thesis  
 Source: Own compilation

- Chapter 1: Introduction and background

Chapter 1 provides the context of the topic and the background of the study, including Porter's five forces framework for the industry analysis, namely, the threat of new entrants, the competitive rivalry among existing competitors in the industry, the threat of product or service substitutes, the bargaining power of the supplier, and the bargaining power of the buyer; these were explored when reviewing the South African telco industry. Thereafter, the consequences of compliance and non-compliance of the studied South African mobile operators are examined. The research problem statement is followed by the purpose of the study, the research objectives, and the

research questions. The contribution of the study to knowledge is stated and the delimitation of the study is considered. This chapter, furthermore, provides the orientation of the study, the thesis context, and its full structure.

- Chapter 2: Literature review

The literature review provides the understanding of, and reports on, the existing research conducted on financial sustainability. In addition, it provides a critical review of the concept of financial sustainability, enablers of, and barriers to, financial sustainability, and models of financial sustainability, as well as previous empirical research on financial sustainability within and outside South Africa. The literature search discovered that, currently, there is no model that simultaneously uses all the key financial variables, namely, earnings before interest, taxes, depreciation, and amortisation (EBITDA), net profit margin, return on assets (ROA), return on equity (ROE), and return on investment (ROI), while integrating the proposed theoretical framework to measure the financial sustainability of the telco industry.

- Chapter 3: The dynamics and nature of local and international telco services

Chapter 3 provides the competitive environment of financial sustainability, the impact of disruptive change on the strategic performance of mobile operators, and the conceptual framework guiding the study. The resource-based view (RBV) of the companies studied and competition in the industry is included. In addition, this chapter extensively evaluates factors affecting sustained competitive advantage by exploring firm agility, alertness, accessibility, decisiveness, swiftness, and flexibility, new product development, innovation, and technology distribution.

- Chapter 4: Research methodology

Chapter 4 provides the research philosophy, design, and research methodology of the study, where a mixed-method research approach was applied. This chapter articulates the study paradigms that provided guidance to the research process as suggested by Babbie (2007); further highlighted are the research strategies, the research design, and the research method.

Furthermore, this chapter explains the procedures followed to collect data. Triangulation was used to explore the phenomenon and answer the research questions. Shenton (2004) highlights that the application of triangulation validates the research data and strengthens measures of trustworthiness. Since the unit of analysis was multiple cases, a mixed methodology was the best strategy of enquiry to be followed in this thesis, as it allowed in-depth data collection using multiple sources to triangulate a comprehensive research strategy and provide flexibility during the data analysis stage (Creswell, 2013). To get valuable in-depth insight, the researcher used published financial statements from the websites of the cases studied to gather and evaluate quantitative data and triangulated multiple data sources such as JSE and business reports or journals using textual analysis methods. For qualitative data, interviews were conducted with the executive team from the participating companies because of their greater exposure to telco industry strategic priorities compared to lower-profile employees.

- Chapter 5: Research findings

Chapter 5 presents the research findings and discusses the results of both quantitative and qualitative data. The major characteristic of mixed-methods research is to authenticate the trustworthiness and credibility of the research findings while assuring the validity of the case study by drawing a meaningful conclusion from the sample (Creswell & Miller, 2000; Lincoln, Lynham, & Guba, 2011; Levitt *et al.*, 2018). To ensure the credibility of the research findings, the measures of trustworthiness articulated in Chapter 4 were observed and followed accordingly.

- Chapter 6: Conclusion

Chapter 6 reiterates the research objectives, provides the research contribution and recommendations, and concludes the thesis.

### **1.11 Chapter conclusion**

The purpose of the study has been clearly discussed to elucidate the intent of the research and define its importance in understanding the complex and highly regulated nature of the industry, which poses risks to its sustainability. At present, in South

Africa, there is no regulated service, product, or infrastructure developed and owned by all mobile operators for which they share revenue proportionally. Financial sustainability is achieved through efficient revenue stream diversification and a clear financial performance vision (Xie *et al.*, 2022). A standardised product can contribute greatly and change the narrative of how the industry makes a profit, sustains itself for its own survival and that of its stakeholders, and promotes revenue stream diversification. Therefore, the absence of a regulated service is a problem because it limits open innovation and collaboration among South African mobile operators, as each South African mobile operator cannot possess all the necessary knowledge, skills, resources, and innovation in such an evolving and cataclysmic market (West & Gallagher, 2006; Mansanta & Sani, 2019).

Recognising the operational dynamics of the industry is crucial for sustainability, given the significance of the telco in fostering African economic growth. It serves as a catalyst in bridging the digital gap among underserved communities residing in distant rural regions and advancing the objectives of the digital age (Fourth/Fifth Industrial Revolution) by leveraging emerging technologies and enhancing network connectivity. Furthermore, the high cost of connectivity in South Africa is driven by government monopoly and ineffectiveness in making available spectrum to mobile operators. The effectiveness of the regulatory authority is critical in achieving the liberalisation and efficient allocation of spectrum and resources in the market through healthy competition in order to drive affordable network connectivity (Gillwald, 2005).

In addition, the purpose of the chapter has been to introduce the entire study of the financial sustainability of selected mobile operators in South Africa. In this chapter, the study has discussed industry structure using not only the traditional Porter's five forces, but also the extended version, which embraces the role of government and complementors in shaping the nature and intensity of competition in the mobile telco industry. The chapter has clearly defined the research problem and how the current study seeks to provide insights into the framework of financial sustainability useful to strategic leaders, members of the top management team of mobile phone operators, and/or scholars of financial sustainability in an organisational context. Furthermore, the chapter has clarified the research objectives, research questions, and delimitation of the study.

The importance of the study and its contribution have been described to indicate the scientific contribution of the thesis to the body of knowledge. Research questions and research objectives that were constructed to direct the aim of the study have then been given. Lastly, the research outline that provides the structure of the thesis has subsequently been presented to conclude this chapter. The next chapter, Chapter 2, focuses on the literature review, which is specifically about financial sustainability in a competitive environment.

## CHAPTER 2: UNDERSTANDING FINANCIAL SUSTAINABILITY IN A COMPETITIVE ENVIRONMENT

### 2.1 Introduction

A literature review is a comprehensive summary of existing research and prior scholarship that critically evaluates and draws contrasts between the studies done by other researchers in order to establish connections, prevent duplication, and give credit to other researchers (Kennedy, 2007; Garg, 2016; Mouton, 2017). Webster and Watson (2002) emphasise the importance of the literature review, as it exposes the areas about which the scholar is writing, provides a foundation of knowledge on the topic, and provides the background of the explored research theories. Knowledge management is not only about theory, but also about the in-depth understanding of the telco industry and its dynamic business environment (Bouhnik & Giat, 2015). This chapter provides an understanding and definition of both financial sustainability and the contemporary business environment in the context of this study. The objective of providing a view of the full dynamics of the contemporary South African business environment is to explore the nature of the telco industry and close the literature gap by developing new theoretical and conceptual frameworks that support the nature of this research while exploring the existing literature.

According to Goodland (1995), the United Nations General Assembly (2005), and Aminpour *et al.* (2019), there are various dimensions of financial sustainability such as economic, social, technological, and environmental. This chapter explores the concept of financial sustainability within the South African telco industry, examining its various dimensions within the context of the contemporary business environment. The aim is to understand the enablers of, and barriers to, financial sustainability and determine how financial sustainability in other organisations and/or industries differs from financial sustainability in the telco industry, with a close look at the telco market. The telco industry is competitive and is a magnificent global tool and channel for moving information within the local and the international context (Ani, Mary, & David, 2013; Ng & Yi Young, 2019). The telco industry contributes significantly to global connectivity, fuelling economic growth by providing infrastructure for business, technological innovation, enhanced communication, social connectivity, infrastructure development,



innovation of future technologies, and access to information. The usefulness of the telco industry is pervasive, affecting nearly every aspect of modern life and continuously evolving to meet the demands of an increasingly connected world. Therefore, it is imperative to also examine the operational efficiencies of mobile operators and global telco market trends in order to compare the challenges experienced by South African mobile operators with those of international mobile operators to determine how the South African telco industry differs from the international market.

## **2.2 Origin and elements of a model of financial sustainability**

Based on the conceptual and theoretical frameworks developed by various scholars (Leon, 2001; Effiong, Oti, & Akpan, 2019; Bhuiyan *et al.*, 2020; Sulimany, Ramakrishnan, Chaudhry, & Bazhair, 2021), there are methods to measure financial sustainability along with the close relationship between shareholder value and financial sustainability. Shareholder value and profitability are major pillars of financial sustainability, such as income diversification, strategic and financial planning, effective administration, sufficient income generation, and sound financial management, which must be visible in the strategy of an organisation (Leon, 2001; Alobari *et al.*, 2019; Bhuiyan *et al.*, 2020). On the one hand, stakeholder theory confirms a positive relationship between shareholder value and financial sustainability (Sulimany *et al.*, 2021). Stakeholder theory and the shared value theory promote transparency, and information must be disclosed to all stakeholders in order to create a competitive advantage (Alsayegh, Abdul Rahman, & Homayoun, 2020). Stakeholder theory also integrates models such as corporate governance, corporate performance, corporate identity, and corporate reputation (Okoye, Erin, Ado, & Isibor, 2017; Effiong *et al.*, 2019; Nyagadza, Kadembo, & Makasi, 2019; Sulimany *et al.*, 2021). On the other hand, impression management theory focuses on brand storytelling, corporate reputation, marketing, and corporate communications (Merkl-Davies & Brennan, 2011; Spear & Roper, 2013; Nyagadza *et al.*, 2019; Srivastava & Kathuria, 2020). The resource-based view (RBV) theory is the perfect conceptual framework to be used to analyse the financial sustainability of the South African telco industry. Internal resources, such as financial knowledge, capital structure, technology, and human capital, drive innovation and the financial sustainability of the business (Albert, 2023).

The implementation of these resources enables financial transparency and accountability, driving mobile operators to achieve their strategic financial sustainability (Barney & Mackey, 2018). Figure 2.1 below depicts the conceptual framework of the study, outlining the key stakeholders that contribute to financial sustainability, adopting the RBV theory and models of a sustainable organisation such as positive margin, profit, and shareholder value.



Figure 2.1 The conceptual framework of financial sustainability  
Source: Own compilation

The conceptual framework of financial sustainability is not only about profitability, but also considers key internal resources and capabilities that contribute to the business operating model. However, Figure 2.1 conveys the impression that meeting the objectives of the organisation does not happen by chance, but requires a commitment from all stakeholders, such as the private and public sectors, and proper planning. Priadana, Sunarsi, Wahyitno, Mogi, Agustin, Irawati, Supriyadi, Wandu, and Purwanto (2021) suggest that planning is part of the strategy. However, knowledge grants organisations the opportunities to develop and optimise their resources to effectively achieve their goals (Tseng & Lee, 2014). Effective leaders influence others to perform in order to meet the goals of the organisation to ensure profitability, provide ROI to investors, and be sustainable (Priadana *et al.*, 2021). Figure 2.2 below presents the

structure of this chapter and the various topics that will expose the areas that the researcher is exploring in this study.

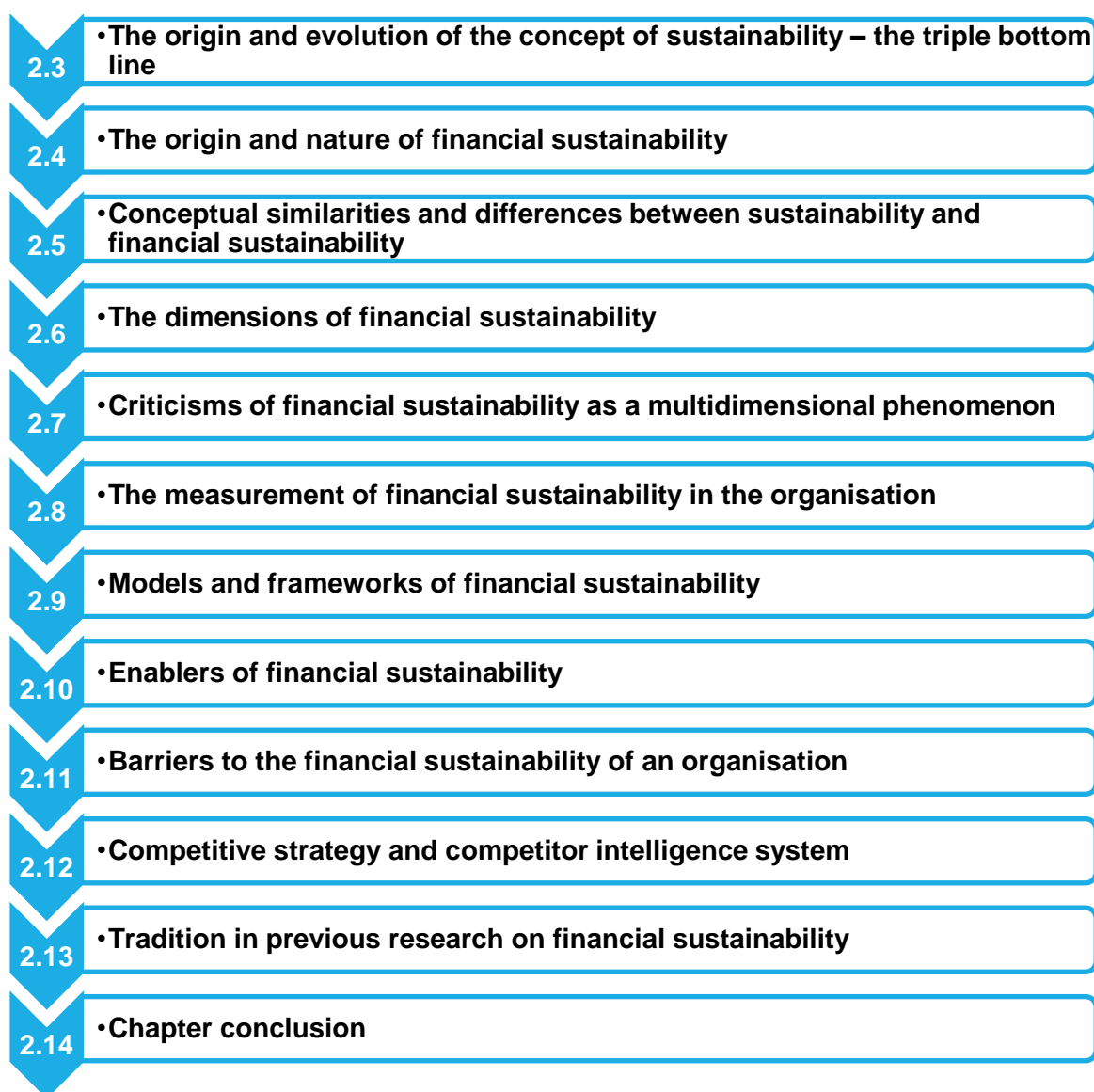


Figure 2.2 The structure of this chapter  
*Source:* Own compilation

### **2.3 The origin and evolution of the concept of sustainability – the triple bottom line**

The concept of sustainability is complex because it can be defined from multiple perspectives, namely, social, economic, and environmental aspects, making it very difficult to have a single definition of the concept (Rosário & Dias, 2022). In the 17<sup>th</sup> and 18<sup>th</sup> centuries, the concept of sustainability was introduced by forestry experts

such as Evelyn and Carlowitz for forest resources across Europe (Warde, 2011; Grober, 2012). In the 19<sup>th</sup> and early 20<sup>th</sup> century, natural scientists and ecologists prescribed the conservation of natural resources due to their inherent worth for sustainable consumption (Callicott & Mumford, 1997). According to Purvis, Mao, and Robinson (2019), the concept of sustainability did not exist until the late 20<sup>th</sup> century. Eizaguirre, Garcia-Feijoo, and Laka (2019) advise that there are more than 100 definitions of sustainability, depending on the context discussed and whether provided by professionals or scholars. However, sustainable practices promote current and future generations' economic, environmental, and social needs and ensure satisfactory outcomes (Avila-Gutierrez, Martin-Gomez, Aguayo-Gonzalez, & Lama-Ruiz, 2020). Sustainability and sustainable development debates among professionals and scholars are not new; in 1987, the World Commission on Environment and Development tabled and defined sustainability as development that meets the needs of the present without compromising the needs of future generations (Brundtland, 1987). Bateh, Heaton, Arbogast, and Broadbent (2013) and Subrahmanyam and Azad (2019) highlight that, over the years, most companies have adopted sustainability strategies such as incorporating social, economic, environmental, and human aspects into their corporate responsibility structure to develop their competitive advantage and improve productivity. Goodland (1995) mentions three paradigms of sustainability that have an impact on financial capital, human well-being, and social capital, namely, economic sustainability, environmental sustainability, and social sustainability.

Various scholars classify equity, economy, and the environment as the three pillars and dimensions of financial sustainability, while other scholars integrate these dimensions with people, prosperity, biodiversity, natural resources, human rights, cultural diversity, equality, social cohesion, and profits (Eizaguirre *et al.*, 2019; Purvis *et al.*, 2019). The importance of these three dimensions of sustainability, namely, economy, environment, and society, was part of the 2005 World Summit agenda, and the outcome at the United Nations (UN) was that these paradigms drove both the international and domestic economic environment (United Nations General Assembly, 2005). Therefore, the heads of state and governments fully understood the pillars that would develop and strengthen the UN's progress. Aminpour *et al.* (2019) suggest that developed countries describe sustainability as a common understanding of

environmentalist well-being. The researcher's view is that, whether in developed or developing countries, the context of sustainability remains the same, as it is all about the success of the current developments that will not jeopardise future generations' success. In the 20<sup>th</sup> century, the concept of sustainability gained global attention when the Club of Rome's 'Limits to Growth' advocated for a sustainable society and sustainable world system (Purvis *et al.*, 2019). Furthermore, when analysing the definition provided by Goodland (1995) that highlights the three paradigms of sustainability, it is clear that the definition provided by Aminpour *et al.* (2019) is incomplete, as it only focuses on one sustainability pillar, which is environmental sustainability, and overlooks the other two pillars, namely, economic and social sustainability. Thus, the definition provided by Aminpour *et al.* (2019) was not used as a key definition in this study.

Bateh *et al.* (2013) assert that the concept of sustainability changes its meaning, as it constantly evolves, while Gonzalez (2019) suggests that the concept of sustainability has been modified and changed over the years, resulting in no specific definition, as the individual's view influences the definition of sustainability. The views shared by Bateh *et al.* (2013) and Gonzalez (2019) are a bit confusing, as there is consistency in the theories that draw a direct connection between social, environmental, and economic factors, linking them to a clear and sound definition of sustainability. This study will adopt the definition of sustainability provided by Hollensbe, Wookey, Hickey, George, and Nichols (2014: 1232), as they define it as a measure that seeks 'to replace what we use and repair what we damage, striving to leave the planet in a better condition than that in which we found it'. Evolving technology and mobile operators in the telco industry are the key players in the 4IR/5IR through network connectivity in South Africa. Therefore, by default, mobile operators are required to be agile and to continuously replace old infrastructure to eliminate inadequate physical telco facilities and improve network capacity. By so doing, in the context of South Africa, mobile operators accelerate connectivity and make it available to all while sustaining the quality of communication without compromising the ability to meet the future telecommunication needs of subsequent South African generations.

Financial sustainability, which is the focus of this research, is about efficiencies and financial performance achieved through revenue stream diversification (Xie *et al.*,

2022). The study sought to investigate the financial sustainability of the South African telco industry. The reason for choosing this definition from among the others was based on the theoretical harmony presented by Brundtland (1987) and Goodland (1995), as articulated in the previous paragraph. Therefore, from the three paradigms of sustainability mentioned by Goodland (1995), which are economic sustainability, environmental sustainability, and social sustainability, the study explored economic sustainability, as financial sustainability directly influences economic development.

Financial sustainability is about long-term compatibility between standardised operational and financial plans and revenue growth strategies (Sulimany *et al.*, 2021). For governments, financial sustainability is not only about managing individual public entities; it considers multifaceted levels of governance, since the budgetary outcome, whether it be a surplus or deficit, influences both the macro level (local government) and the micro level (provincial government) (Guarini & Pattaro, 2017). There is a significant relationship between financial sustainability, financial transparency, and the level of government officials' corruption (Puron-Cid, Reddick, & Ganapati, 2019). The concept of financial sustainability is not familiar to all governments. Tsindeliani, Kot, Vasilyeva, and Narinyan (2019) suggest that, in general, a universal initiative can be used to elevate the financial stability of countries; however, the challenge is that states interpret the concept of financial sustainability in the public sector differently, since not all countries separate public and private finances. For macro and micro levels of government to ensure the long-term viability of sustainability without the endorsement of higher levels of government, financial support must drive the legalisation of capital accumulated by individuals and businesses, which will drive financial stability and bring the population's money into the economy of the country; by so doing, it will reduce offshore capital withdrawal and stimulate growth (Tsindeliani *et al.*, 2019). Offshore capital withdrawal requires strong financial controls, governance, policies, and discipline to protect the commercial and banking transactions of the country. Financial sustainability requires the ability and strength of the company to exercise financial self-sufficiency without compromising operational management and governance contrivance (Okoye *et al.*, 2017). Sulimany *et al.* (2021) concur that there is a strong correlation between corporate governance and financial sustainability. Helms (2006) and Siele (2009) assert that the ultimate objective and goal of the corporate governance of organisations is to achieve financial sustainability.

### 2.3.1 Sustainability as a multifaceted concept

The concept 'sustainability' faces challenges such as vagueness, trade-offs, short-term focus, complexity, and implementation gaps. Sustainability is a complex yet essential concept, since its importance affects various stakeholders and multiple industries (Stanek-Kowalczyk, 2021). To overcome these weaknesses, therefore, ongoing efforts are required to clarify definitions, improve measurement, address conflicts of interest, and provide evaluation frameworks. The concept of sustainability is broad and does not only apply in the South African telco industry. The United Nations General Assembly adopted the 17 Sustainable Development Goals (SDGs) agenda in 2015, which interlinks with the triple bottom line (TBL) dimensions and interdependence and has 169 targets that are set to achieve policy development, ensure coherence, and strengthen governance (Breuer, Janetschek, & Malerba, 2019).

The triple bottom line theory is the framework used for conceptualising the multiple dimensions of sustainability, namely, social equity, environmental protection, and economic progress (Ghardallou, 2022). Investors and policymakers pay more attention to how the organisation manages the economic, environmental, and social aspects of companies, with sound environmental, social, and governance (ESG) policies leading to strong market and financial performance (Zhou, Liu, & Luo, 2022). Therefore, companies that do not disclose their ESG contribution and social corporate governance are exposed to non-systemic risks (Mishra & Modi, 2013; Albuquerque, Koskinen, & Zhang, 2019). The profitability of the South African telco industry and its ESG contribution are critical in the contemporary business environment when examining the financial sustainability of the industry. Corporate governance improves transparency and supports the integrity of the internal decisions of the business to ensure that the strategic objectives of the company are achieved (Al-Faryan, 2020; Van Vuuren, 2020). Furthermore, Ryu (2019) suggests that there is a relationship between corporate social responsibility and firm value.

### 2.3.1.1 Merits and demerits of the model of financial sustainability

All organisations need to address social, environmental or ecological, and economic issues as role players in sustainability and key stakeholders in sustainable development (Onyeiwu, 2022). Ozili (2022) proposes six sustainable finance theories that provide a greater understanding of economist behaviour and actions towards sustainable finance. These sustainable finance theories are resource theory, peer emulation theory, priority theory, positive signalling theory, system disruption theory, and lifespan theory. Reading Figure 2.1 clockwise, the entity segment depicts a few entities that are key stakeholders in sustainable development, as the government cannot win the fight against poverty and the alleviation of social problems alone. Therefore, private, public, small- and medium-sized enterprises (SMEs), social enterprises, non-governmental organisations (NGOs), state-owned entities (SOEs), and non-profit organisations (NPOs) must collaborate for the betterment of the country. Financially sustainable organisations are strong in corporate governance, and this attracts investors, while impression management strengthens the share price. Therefore, knowledge management, stakeholder theory, and impression management are relevant theories when examining financial sustainability, as shareholders are more concerned about financial returns and reporting integrity (Effiong *et al.*, 2019; Sulimany *et al.*, 2021). However, strategic and financial planning, sufficient income generation, and sound financial management will drive the effective and efficient administration of the organisation, resulting in a positive margin and profitable portfolio (Leon, 2001; Abraham, 2003; Bhuiyan *et al.*, 2020).

Knowledge management has a 65% effect on business strategy in the Iranian banking industry (Nazari, Valizadeh, Kashani, Rezaei, & Amini, 2022). In the context of the financial sustainability of the South African telco industry in the current business environment, there is a gap in the simultaneous integration of impression management theory, knowledge management, and stakeholder theory, as these theories independently focus on the aspects listed in Table 2.1.



Table 2.1 The current theories and models of financial sustainability

No.	Theory	Code	Models and merits	Demerits	Authors
1.	Impression management	IM	<p>Brand storytelling, corporate reputation, marketing, and corporate communications.</p> <p>Organisations are using sponsorship strategies to communicate the brand and gain public trust (Dolores, Macchiaroli, &amp; De Mare, 2020).</p>	<p>The disclosure of positive information about the organisation to make a good impression on all the stakeholders could be used as a strategy to hide, and a tactic to suppress, bad information, for example, the case of Steinhoff.</p>	<p>Merkl-Davies &amp; Brennan, 2011; Spear &amp; Roper, 2013; Nyagadza <i>et al.</i>, 2019; Srivastava &amp; Kathuria, 2020</p>
2.	Stakeholder theory	ST	<p>Corporate governance, corporate performance, corporate identity, and corporate reputation.</p> <p>As part of corporate governance, the organisation must be transparent and disclose sufficient information to all stakeholders (Institute of Directors South Africa (IDSA), 2016).</p>	<p>For organisations to disclose information, it does not mean that all stakeholders will be interested; follow through with actions, and hold governing bodies accountable.</p>	<p>Okoye <i>et al.</i>, 2017; Effiong <i>et al.</i>, 2019; Nyagadza <i>et al.</i>, 2019; Sulimany <i>et al.</i>, 2021</p>

3.	Knowledge management	KM	<p>Business dynamics, commodity, competitive advantage, and resource development.</p> <p>The RBV theory is the perfect conceptual framework to analyse internal resources and better understand the financial sustainability of the business (Albert, 2023).</p>	<p>Having defined and tested competitive strategies does not mean that all organisations apply them to be financial sustainable.</p>	<p>Rahimli, 2012; Tseng &amp; Lee, 2014; Bouhnik &amp; Giat, 2015; Bouhnik &amp; Marcus, 2015; Nakash &amp; Bouhnik, 2021</p>
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*Source:* Own compilation

There are many existing independent financial sustainability models and theories that various authors have explored as presented in Table 2.1. However, to design a unique and sound financial sustainability model of the South African telco industry, this research integrated three theories, namely, the impression management theory, the knowledge management theory, and the stakeholder theory, in order to select resilient theoretical models that would add value to the South African telco industry. The selected models are corporate reputation, corporate communications, corporate governance, corporate performance, corporate identity, business dynamics, competitive advantage, and resource development.

Figure 2.3 below illustrates the theories to be enhanced and integrated in order to develop a solid financial sustainability framework based on the interlink in these three models that will lead to a sustainable telco industry.

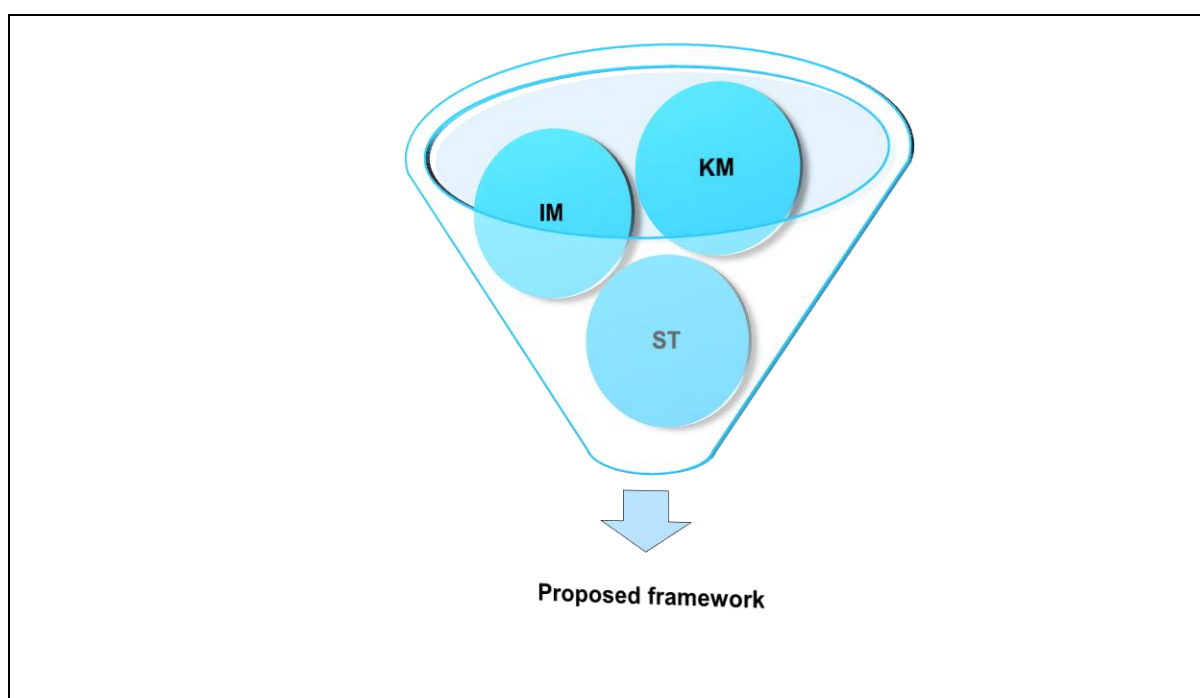


Figure 2.3 Theoretical framework  
*Source: Own compilation*

McLaren and Struwig (2019) conducted an empirical study and propose five groups of ratios, namely, financial performance, liquidity, asset management, debt management, and reserves ratios, as a theoretical framework for South African universities. There is a gap in the literature examining the financial sustainability of the South African telco industry with a close look at knowledge management, impression

management, and stakeholder theory in the current business environment. The existing studies focus on the '... role of education and ICT in promoting environmental sustainability in Eastern and Southern Africa' (Shobande & Asongu, 2022: 1) and the sustainability of South African SMEs in the 4IR (Adelowotan, 2021). Other studies focus on sustainable economic development in other countries such as India and explore other industries such as tourism and energy (Atsu, Adams, & Adjei, 2021; Pradhan, Arvin, Nair, Hall, & Bennett, 2021; Musakwa & Odhiambo, 2022). Sunassee and Sewry (2002) developed a knowledge management framework exploring the South African motor vehicle manufacturing industry. Yet, the proposed framework should consider South African telco guiding principles that drive the financial sustainability of the industry, such as competitive strategy, telco compliance and regulations, network infrastructure, a costing model, and stakeholder management. Therefore, the study will add value, close scholarly gaps, and provide practical literature on the financial sustainability of the South African telco industry in the current business environment.

### 2.3.2 Relevance of the triple bottom line for the sustainability of businesses

The triple bottom line is imperative for sustainability, as it provides the financial stability, investor confidence, resource allocation, compliance and reporting capabilities, risk management capacity, competitive advantage, and long-term viability necessary for businesses to thrive in a rapidly changing and increasingly sustainability-focused global economy. Late in the 1990s, John Elkington developed the 'triple bottom line' accounting framework to assist businesses in measuring their contribution to social justice, environmental quality, and economic profitability using profit and loss, people, and planet aspects (Elkington, 1997; Slaper & Hall, 2011; Vuong, 2021). It is very difficult and complex to have a single definition of the concept of sustainability, as it is defined from triple bottom line aspects, and the social, economic, and environmental dimensions affect all organisations in the world (Rosário & Dias, 2022). Unless the company accounts for the production of the triple bottom line, it has not considered the full cost involved in business operation (Slaper & Hall, 2011). There are course and discourse of sustainability that might lead to sustainable or unsustainable organisations emanating from the triple bottom line, which are known

as social, economic, environmental or planet, people, and profit (Curren & Metzger, 2017).

The terms 'sustainable development' and 'sustainability' are often used interchangeably, even though these two terms can be seen to be different. For example, sustainable development can be viewed as the process to get to the desired state of sustainability (Laine, Tregidga, & Unerman, 2022). Furthermore, Laine *et al.* (2022) refer to sustainability management accounting and control as a range of various activities, tools, processes, and procedures aimed at specifically assessing, evaluating, measuring, and communicating the sustainability activities and reporting of an organisation. Bowman (2011) defines sustainability as the ability of an organisation to conserve its eminence over a long period of time and refers to financial sustainability as financial agility. Sustainability has an impact on all value chains in the business, including the supply chain. In an emerging economy, the collaboration among government, supply chain stakeholders, and policymakers is the key driver of the 4IR in achieving a high triple bottom line in supply chain management (Luthra, Kumar, Zavadskas, Mangla, & Garza-Reyes, 2020). Businesses use corporate social responsibility (CSR) as a competitive advantage, leading to stakeholder trust and better financial performance (Bansal & DesJardine, 2014; Ghardallou, 2022).

There are interesting issues regarding sustainability and the pursuit of financial sustainability in an organisation, bringing to the fore not only the economic but also the environmental and social dimensions of what it entails to survive as an organisation. Firstly, the TBL in an organisation raises the issues of organisational hybridity derived from, or composed of, elements of different types or sectors that are rarely complementary. Hybrid organisations are better understood not in terms of the dichotomy or division between purity and a mixture or combination of sectors. Another dichotomy of social and commercial sectors is also inadequate to explain hybrid organisations. This is because organisational hybridity is best viewed on a continuum. For example, there is a continuum ranging from purely social to purely economic enterprises. A continuum is able to indicate variety in the degrees of combinations of different models and the ethos from more than one sector to make a hybrid (Abu-Saifan, 2012).

There are key aspects that are crucial to understanding hybrid organisations using a continuum. Firstly, a hybrid organisation often has its identifiable roots to which it adheres while adopting aspects of another (Guo & Bielefeld, 2014). For example, a non-profit hybrid organisation could take the form of non-profit-public, non-profit-business, or non-profit-public-business while adhering to the principles of its roots in the non-profit sector. Secondly, the continuum of for-profit and non-profit enterprises gives insights into at least three types of organisations. One end of the continuum focuses on pure for-profit enterprises run by entrepreneurs for the purposes of profitability. The opposite end of the continuum focuses on pure non-profit organisations that pursue a mission dependent on subsidies, grants, or donor funds. In the middle of the continuum are hybrid organisations that may take one of the two forms, namely, for-profit or non-profit hybrid organisations (Abu-Saifan, 2012). The for-profit hybrid organisation is run by an entrepreneur who engages simultaneously in commercial and social entrepreneurial activities predominantly aimed at for-profit growth with the creation of social value as a by-product. The non-profit hybrid organisation engages in entrepreneurial activities and a social mission and is self-sustaining, suggesting that social and commercial goals are oftentimes equally important to it (Abu-Saifan, 2012). In terms of a revenue model, for-profit and non-profit organisations traditionally have different approaches to revenue that are critical for financial sustainability.

The second interesting issue in the literature on organisational hybridity is that the focus has been on how the various tensions and contradictions of hybrids are resolved and result in enhanced performance and/or survival, but there is very little that is known about the relationship between organisational hybridity and failure (Siwale & Venable, 2020). Thirdly, the relevance of the TBL to business is that there is no universal standard method for calculating the TBL (Slaper & Hall, 2011), and nor is there a universally accepted standard for the measures that comprise each of the three TBL categories. This can be viewed as a strength because it allows a user to adapt the general framework to the needs of different entities (for-profit or non-profit), different projects or policies (infrastructure investment or educational programmes), or different geographic boundaries (a city, region, or country) (Slaper & Hall, 2011). Lastly, the TBL captures the essence of sustainability by measuring the impact of the activities of enterprises on the world, including both their shareholder values and

profitability, along with the social, human, and environmental capital of the organisations.

## **2.4 The origin and nature of financial sustainability**

In an attempt to understand the origin and nature of financial sustainability, one encounters a variety of views that complement and sometimes contradict one another while seeking a holistic view. For example, Aschhoff (1982) traces the origin of the term 'financial sustainability' to the mid-19<sup>th</sup> century; two men from Germany, namely, Hermann Schulze-Delitzsch (1808-1883) and Friedrich Wilhelm Raiffeisen (1818-1888), collaborated in promoting economic self-sufficiency, as there were economic and social development issues at the time (Aschhoff, 1982). Subsequently, the work done by Schulze-Delitzsch and Raiffeisen formed the foundation of co-operative finance that was adopted by co-operative banks in the Federal Republic of Germany. Later the co-operative credit principles spread to other countries in Europe such as Italy, Belgium, France, Spain, Austria, Switzerland, Finland, Sweden, and the Netherlands (Colvin & McLaughlin, 2014). Financial health is the best prediction for financial sustainability and a successful competitive market (Kliestik *et al.*, 2020). Reflecting on the origin and nature of financial sustainability empowers us to pursue more sustainable and resilient pathways to economic development and effectiveness. The financial sustainability of a business is driven by multifaceted dimensions that are both inside and outside of financial concepts such as human capital and innovative technology, as these aspects emanate from organisational strategy and leadership behaviour (Albert, 2023). From the public value perspective, fiscal transparency is the driving force for financial sustainability, stakeholder value, and corruption reduction (Moore, 1995). Criado and Gil-Garcia (2019) conducted an empirical study, investigating and analysing strategies to be used in fighting against corruption committed by public officials. They discovered that, for government to improve financial sustainability and mitigate public sector corruption, smart digital technology had to be used to implement fiscal transparency and stakeholder value goals. Financial knowledge, capital structure, technology, and human capital are critical for financial sustainability (Albert, 2023).

In a different vein, Zabolotnyy and Wasilewski (2019) provide some insights into the evolution and nature of financial sustainability by examining the focus at macro-, institutional-, and firm-level scholarly work on financial sustainability and how these have unfolded over the years. An extensive scientific discussion on finance and sustainability was started in the last decade of the 20<sup>th</sup> century (Zabolotnyy & Wasilewski, 2019). It was found that there was research on financial sustainability that previously adopted macro-level research to focus on the relationship between sustainability and finance, concentrating on issues of shaping financial policies and designing financial measures that would support sustainable development.

#### 2.4.1 The difference between financial sustainability and financial resilience

There is a difference between financial sustainability and financial resilience, even though both financial sustainability and financial inclusion are multidimensional phenomena (Satyasai & Kumar, 2020). Financial resilience is different from financial sustainability, as financial resilience incorporates financial inclusion (Kass-Hanna, Lyons, & Liu, 2022). Satyasai and Kumar (2020) recommend that a financial inclusion index should be measured by actual financial usage intensity and the extent of digital penetration, while financial sustainability is about the financial health of the organisation or entity (Kliestik *et al.*, 2020). Financial sustainability is mostly measured by the financial performance and profitability of the organisation, where various financial indicators such as ROA and ROI are used (Alobari *et al.* 2019; Chen *et al.*, 2021). Financial resilience can be measured by considering household savings, borrowing, repayments, and financial risk mitigation (Demirgüç-Kunt, Klapper, Singer, Ansar, & Hess, 2020). Financial sustainability is directly influenced by the soundness of the corporate finances of a business (Kliestik *et al.*, 2020). The banking industry plays a pivotal role in enhancing financial resilience and driving a sustainable economy (Kass-Hanna *et al.*, 2022). Countries that are advanced in financial literacy with ample financial resources and that are economically advantageous might collaborate in building a regional monetary fund (RMF) in order to support developing countries in building financial resilience, especially in regions that are culturally sensitive and clouded with religious characteristics such as in Islamic countries (Zaman, 2023). Microfinance was created to provide financial sustainability for the poor (Nyamsogoro,



2010). However, political and economic disagreements and governance structures might be a challenge, as an RMF will compete with the World Bank.

According to the study conducted by Kass-Hanna *et al.* (2022), there were about 1.7 billion adults globally who were still excluded from formal financial services, and the majority of those who still lacked access to formal financial services lived in sub-Saharan Africa and South Asia. They, furthermore, discovered that both financial and digital literacy were key drivers of financial resilience. Through mobile phone and fintech services, mobile operators directly contribute to the financial services solutions that are closing the gap of financial inequality and building financial resilience. For example, Vodacom holds a diverse portfolio, including Safaricom, a joint venture for the M-PESA ecosystem, to drive fintech, while MTN is offering a mobile financial service called Mobile Money (Fitch Solutions, 2019). Therefore, one cannot have financial resilience without financial equality, financial freedom, financial inclusion, and digital literacy. Furthermore, financial resilience requires strong collaboration with various stakeholders such as the World Bank and fiscal policymakers in order to agree on the choice of currency, considering several aspects such as the usability of a currency, the level of acceptance among the countries involved, and financial stability (Zaman, 2023).

#### 2.4.2 The significance of the concept of financial sustainability in an organisation

The concept of financial sustainability is relevant for various organisations (for example, non-profit and for-profit organisations). However, the concept of sustainability is complex; over the years, most companies have adopted sustainability strategies to develop competitive advantage and improve productivity (Bateh *et al.*, 2013; Subrahmanyam & Azad, 2019). To provide a clear context of sustainability and understanding of the significance of financial sustainability to organisations, this section will focus on the dimensions of sustainability and their significance to organisations.

##### 2.4.2.1 The dimensions of sustainability

Firstly, financial sustainability is significant for organisations because it draws the attention of organisational leaders and employees to profitability while also being

mindful of other dimensions of sustainability, resulting in a sustainable, environmental consumption pattern, appropriate conditions of employment such as equal distribution of wealth, and care of natural resources (Oláh, Aburumman, Popp, Khan, Haddad, & Kitukutha, 2020). Goodland (1995) mentions three paradigms of sustainability that affect financial capital, human well-being, and social capital, namely, economic sustainability, environmental sustainability, and social sustainability. As previously mentioned, Gonzalez (2019) suggests that the concept of sustainability has been modified and changed over the years, resulting in no specific definition, as an individual's view influences the definition of sustainability. Hult, Mena, Gonzalez-Perez, Lagerström, and Hult (2018) define sustainability as a replacement of what was used and repairing what was damaged to ensure that we leave the planet in a better condition than when we found it. According to Bateh *et al.* (2013), the concept of sustainability changes its meaning, as it constantly evolves. Developed countries such as Canada, the United States, China, and Germany describe sustainability as a common understanding of environmental well-being (Aminpour *et al.*, 2019). Examples of underdeveloped countries are Mali, Chad, Nigeria, and South Sudan. Huttunen, Ojanen, Ott, and Saarikoski (2022) state that sustainability is not fair in terms of environmentalism because it demands meeting current needs without compromising the capacity of future generations to meet theirs.

Secondly, financial sustainability is significant for organisations, as it draws from various aspects such as reasoning, social sciences, economics, and politics to create a sustainable organisational culture. Jun and Moon (2021) highlight that there is a demand for business schools to incorporate ethics and corporate social responsibility in their curriculum, as they drive financial sustainability, and define sustainability as 'development that meets the needs of the present without compromising the ability of future generations to meet their own needs' (Jun & Moon, 2021: 1).

Some businesses care more about profitability than observing all the dimensions of sustainability, resulting in unsustainable environmental consumption patterns, inappropriate conditions of employment such as unequal distribution of wealth, and depletion of natural resources (Oláh *et al.*, 2020). Neglecting other domains and only focusing on one dimension may lead to unsustainable social and economic environmental states because a successful, effective, and efficient ecosystem should

balance all dimensions of sustainability. Müller and Hopf (2017) suggest that there is a positive relationship between technology, ecosystem process efficiencies, and environmental sustainability. There is no empirical evidence pointing to companies affecting environmental sustainability (Oláh *et al.*, 2020). Leadership, strategic planning, customer management, community, employees, process management, green management performance, and informatics drive the relationship between corporate social responsibility (CSR), total quality management (TQM), and corporate green performance (CGP) (Abbas, 2020). CSR, TQM, and CGP directly affect all three dimensions of sustainability, including the cultural aspects of the environment where the business is operating (Raimi, 2017). Abbas (2020) suggests that TQM has a negative impact on both CSR and CGP. The philosophical roots of these three concepts are similar, and the size of the firm matters when achieving CGP (Makhdoom & Anjum, 2016; Saunila, Ukko, & Rantala, 2018). All dimensions of sustainability are equally important for successful business performance and quality. Therefore, because the sustainability phenomenon can be too broad, this research focused on economic sustainability, since financial sustainability directly influences economic development.

#### 2.4.2.2 Financial sustainability in the business context

As organisations operate in an environment where resources are limited, financial sustainability is important to reinforce operational efficiencies. One can exemplify views related to operational efficiency that support financial sustainability. Operational efficiencies are also evident in views of financial sustainability, seen in the ability of the firm or entity to compare all costs against total income received from activities carried out (Almilia, 2009). Overall, financial sustainability can be seen as continuous economic improvement without jeopardising future resources or causing liabilities to arise while continuously in the process of meeting current needs (Filho, 2015; Ben-Eli, 2018). Given the above, financial sustainability is about efficiencies and financial performance (Xie *et al.*, 2022). Xie *et al.* (2022) recommend that, in Asia, financial institutions such as banks can achieve financial sustainability through revenue stream diversification. The definitions provided by Filho (2015) and Ben-Eli (2018) complement the definition provided by Hollensbe *et al.* (2014: 1232), who define sustainability as a measure that seeks 'to replace what we use and repair what we damage, striving to leave the planet in a better condition than that in which we found

it'. Therefore, Filho's definition of financial sustainability supports the research objectives of this study. To address sustainability, financial and non-financial risks, and the maximisation of economic, environmental, and social performance, stakeholders must adopt and enforce a good corporate governance model through the implementation of sustainable risk management and sustainable business practices (Aziz, Manab, & Othman, 2015).

There are many challenges associated with financial sustainability in the telco industry due to evolving technology, global market competition, and microeconomic pressure; the telco industry is continuously facing such evolutionary challenges. The year 2020 and the global COVID-19 pandemic proved that mobile operators are operating in an environment that is exposed to cataclysmic change, which makes financial sustainability a critical factor. For the purposes of this study, the term 'financial sustainability' cannot be perfectly defined without considering the predicaments and pursuits of the here and the now that affect the performance of the South African telco industry, which the study defines as contemporary business environment aspects. The current performance of a mobile operator directly affects the future strategic, operational, and financial resources of the business and the economic growth of the country. Therefore, the needs of future generations must never be compromised while accelerating growth. This study focused on the political, economic, social, technological, environmental, and legal challenges in order to perform a PESTEL analysis while investigating the financial sustainability of the telco industry in the current South African business environment.

To increase the return on assets and be financially sustainable, a cost leadership strategy is better than a differentiation strategy in the manufacturing and hotel industries (Bhattarai, 2018). Various scholars such as Zamanian and Hardiman (2005), Timotijevic and Barnett (2006), Kundu *et al.* (2010), Birks, Guxens, Papadopoulou, Alexander, Ballester, Estarlich, Gallastegi, Ha, Haugen, Huss, Kheifets, Lim, Olsen, Santa-Marina, Sudan, Vermeulen, Vrijkotte, Cardis, and Vrijheid (2017), Faccio and Zingales (2017), Lin (2018), Russell (2018), and Aminpour *et al.* (2019) discuss technological, economic, social, and environmental dimensions of sustainability in general and in the telco industry in both developed and developing countries. They highlight health hazards, especially to children who still have years of

development ahead of them, related to the impact of radiation, radio frequency electromagnetic fields, and microwaves emitted by mobile phones and wireless devices. The theoretical arguments and empirical evidence presented by these scholars are not different from the South African context. For example, South African mobile operators are required to adhere to the Competition Act 89 of 1998 to ensure the effectiveness of a competitive economic environment that efficiently balances the interests of all stakeholders such as employers, employees, and consumers and focuses on the development that will benefit the well-being of all South Africans (Government Gazette, No. 40057).

While scholars such as Zamanian and Hardiman (2005), Timotijevic and Barnett (2006), Kundu *et al.* (2010), Birks *et al.* (2017), Faccio and Zingales (2017), Lin (2018), Russell (2018), and Aminpour *et al.* (2019) have explored the dimensions of sustainability in the telco industry in both developed and developing countries, they have not done so in the context of South Africa. Additionally, these scholars have not sought to explore the full end-to-end telco business processes that lead to financial sustainability locally and internationally. Veligura, Chan, Van Ingen, and Cufre (2020) examined the impact of COVID-19 on the global telco industry, as people relied on technology and the Internet to connect, since COVID-19 disrupted both the social and economic aspects of life due to the lockdown and social distancing rules. However, their research does not explain the impact of COVID-19 on the financial sustainability of the telco industry, especially the role played by mobile operators in a vulnerable society as part of corporate governance. There is a strong correlation between corporate governance and financial sustainability (Sulimany *et al.*, 2021). Alobari *et al.* (2019) strongly suggest that good corporate governance is a good indicator in terms of maximising shareholder value and company profitability. To achieve financial sustainability and maximise economic, environmental, and social performance, stakeholders must adopt and enforce good corporate governance models (Helms, 2006; Siele, 2009; Aziz *et al.*, 2015). Therefore, understanding how South African mobile operators responded to COVID-19 and the aftermath of the pandemic is critical, not only from a social and economic perspective, but also in the context of financial sustainability in the telco industry.

### 2.4.3 Perspectives of financial sustainability in different types of organisations

This section explores the variety of perspectives on financial sustainability evident in different organisational contexts, namely, non-profit organisations and the public and private sectors. In discussing the various perspectives, the aim is to gain a broad and rich understanding of how different scholars grapple with financial sustainability in different research contexts before focusing on mobile telecommunications in South Africa.

#### 2.4.3.1 Financial vulnerability in a non-profit organisation

From the not-for-profit perspective, the focus has been on financial vulnerability construed in terms of financial performance as a proxy (Naser, 2002). From this perspective, scholars identify four accounting ratios that can be used to indicate financial vulnerability: (1) few revenue sources, (2) insufficient net assets, (3) low administrative costs, and (4) low income from operations (Gleißner *et al.*, 2022). Another perspective on NPOs is to focus on financial distress, which evokes the challenge of determining which variables best explain the likelihood of financial distress.

The indicators of financial distress include (1) insolvency risk, which depicts how an organisation is unable to pay its debts as they become due, which would necessarily affect its ability to provide services, and (2) financial disruption as an indicator of potential early warning signs of future insolvency evident in a sharp drop in net assets. Funding disruption is about significant loss of funding, and an organisation will, at some point, be forced to reduce or eliminate services. Lastly, (3) an indicator of programme disruption relates to an organisation that reduces the funds it allocates to programme expenses, as it necessarily disrupts or reduces its mission-based services. Interestingly, the not-for-profit perspectives are clear in specifying the time aspect, duration, or quantification for each of the relevant dimensions. Clearly, traditional scholars in the non-profit sector have focused on financial vulnerability models.

In the context of non-governmental organisations (NGOs), Naser (2002) defines financial sustainability as the ability of the organisation to develop and sustain diverse

resources over a long period that would serve the interests of stakeholders without the financial support of donors. Donors can be viewed as social investors who are willing to accept a lower-than-expected financial return through donations that form part of the equity (Bhuiyan *et al.*, 2020). Abraham (2003) argues that the financial sustainability and accountability of non-profit organisations (NPOs) are driven by both internal needs and external demands, as they try to balance their mission with financial responsibility, while challenges experienced by NPOs differ from those of for-profit organisations. However, what remains common between for-profit companies and NPOs is the need to balance income and expenditure for the organisation to be profitable and maintain satisfactory liquidity with budgetary solvency in order to be financially sustainable. Furthermore, Abraham (2003) suggests that there are four operational criteria that determine the financial health model for NPOs: low administrative costs, diverse and multiple revenue concentration, low or negative operating margins, and inadequate equity balances. Some scholars, such as Bowman (2011), have examined financial sustainability and financial capacity in NPOs with a clear emphasis on the long and the short term. This perspective adopts not only the notion of financial capacity, but also the view that financial sustainability underscores the idea of resilience.

#### 2.4.3.2 Financial sustainability in the private sector

The for-profit perspective of financial sustainability relies primarily on accounting measures such as profitability, cash flow, and leverage ratios as predictor variables (Keating, Fischer, Gordon, & Greenlee, 2005). In South Africa, both the private and public sectors struggle with forever-increasing resource constraints. Even though the South African government is claiming levies from South African mobile operators, the telco industry is privatised, and the mobile operators included in this research are part of the private sector (Faccio & Zingales, 2017). Poverty alleviation needs the financial collaboration of both the private and public sectors. Morduch, Haley, and Robert (2002: 28) point out that poverty exists when the community is 'economically active, but financially constrained'. Therefore, debates about financial sustainability are critical, especially in global economies where the scarcity of resources remains a continuous struggle. All organisations are required to add value to their shareholders, as well as their stakeholders, as part of good corporate governance in the communities where they operate (Alobari *et al.*, 2019). Mobile operators are also expected to fight

against and alleviate poverty in South Africa. Whether it be an SME, NGO, NPO, private or public, telco, or government-owned entity, the business needs to be profitable in order to be financially sustainable. In fact, Adeyemi (2019) asserts that business profitability leads to a strong sustainable enterprise. Even though the telco industry is different from other industries, all industries have one thing in common apart from being expected to be profitable in order to add value to their stakeholders: they also have investors who monitor their financial performance very closely. The senior leadership is more interested in profitability than market share (Parra-Bernal & Alves, 2017; Edeling & Himme, 2018). Chen *et al.* (2021) concur that profitability is one of the key specific determinants of financial leverage for an organisation, and investors closely monitor it when making investment decisions.

Financial sustainability is a vital part of corporate sustainability for the organisation, which must negotiate the trade-offs between risk and return, as the higher the projected growth, the higher the financial risk exposure that the organisation is required to mitigate in order to be sustainable (Sulimany *et al.*, 2021). One of the root causes of the bankruptcy and collapse of an organisation emanates from poor internal controls, inadequate risk management, and incompetent leadership that neglects good corporate governance structures, with no financial sustainability improvement plans (Adeyemi, 2019). Organisations that neglect social welfare matters expose themselves to risk because there is a correlation between social issues and business profitability, leading to a strong sustainable enterprise (Adeyemi, 2019). From the social enterprise perspective, in the context of Central and Eastern Europe, financial sustainability can be achieved by integrating the socially disadvantaged and excluded into the workplace (Staicu, 2018). To ensure financial sustainability, most of the social enterprises in Central and Eastern European countries do not solely depend on one source of income, but have a hybrid revenue stream deriving from both public and private donors (Staicu, 2018). For example, a social enterprise will have public contracts from public authorities for a specific project, such as employment subsidies for young or disabled people, and market-based revenue or private contracts, such as sponsorships.



#### 2.4.3.3 Financial sustainability in the public sector

In the public sector, financial sustainability is defined by the ability of the sector to fulfil its mission and meet service delivery expectations with satisfactory liquidity and budgetary solvency (Hendrick, 2011; Tsindeliani *et al.*, 2019). In South Africa, the financial sustainability of the public sector is governed by the Public Finance Management Act 1 of 1999, which drives ethical and effective leadership (Government Gazette, No. 19814). Principle 1 of King IV defines ethical and effective leadership as the key principles of corporate governance, and the leadership must demonstrate integrity, fairness, transparency, competency, and accountability (IDSA, 2016). Navarro-Galera, Rodríguez-Bolívar, Alcaide-Muñoz, and López-Subires (2016) measure financial sustainability through income statements, arguing that an income statement is the best tool to assess any risk exposure in local government associated with services rendered, revenues generated, and debt incurred.

Financial sustainability, stakeholder value, and corruption reduction are driven by fiscal transparency (Moore, 1995). There is a significant relationship between financial sustainability, financial transparency, and the level of corruption among government officials (Puron-Cid *et al.*, 2019). As mentioned before, Criado and Gil-Garcia's (2019) investigation discovered that, for the government to improve financial sustainability and mitigate public sector corruption, smart digital technology had to be used to implement fiscal transparency and stakeholder value goals. Financial sustainability is one of the important factors that affect the share price of the organisation, whether it be private or public (Sulimany *et al.*, 2021). It is not only about how productive the sectors are; Christen, Rhyne, Vogel, and McKean (1995) argue that there is no correlation between sustainability and productivity. Sustainability requires more financial self-sufficiency. Piot-Lepetit and Nzongang (2014) suggest that financial self-sufficiency is a prerequisite for sustainability. Financial self-sufficiency requires a strong and determined profitability mission where generated revenue sufficiently covers the expenditure of the institution (Bhuiyan *et al.*, 2020). Apart from profitability, investors measure an organisation by its good corporate governance, and if they are not satisfied with the governance of the enterprise, they will sell their assets (Srivastava & Kathuria, 2020). Risk governance is a critical aspect of financial sustainability, as it forms part of risk management, which is one of the financial sustainability measurement pillars (Gleißner *et al.*, 2022).

In summary, the financial sustainability and accountability of NPOs are driven by both internal needs and external demands (Abraham, 2003). In the public sector, fiscal transparency drives financial sustainability, stakeholder value, and corruption reduction (Moore, 1995). Risk management and corporate governance are critical strategic determinants in an organisation for investors to measure the financial sustainability of the entity (Srivastava & Kathuria, 2020). For the organisation to be financially sustainable, whether it be an NPO, NGO, private sector, or public sector organisation, it must balance income and expenditure for the organisation to be profitable and maintain satisfactory liquidity with budgetary solvency.

## **2.5 Conceptual similarities and differences between sustainability and financial sustainability**

The concept of sustainability is broad, and this section will provide conceptual differences and similarities between financial sustainability and sustainability. Sustainability can be defined as the replacement of what was used and the repairing of what was damaged to ensure that we leave the planet in a better condition than when we found it (Hult *et al.*, 2018). As previously indicated, the concept of sustainability changes its meaning, as it constantly evolves (Bateh *et al.*, 2013). The concept of financial sustainability is not familiar to all governments, and the challenge is that states interpret the concept of financial sustainability in the public sector differently, since not all countries separate public and private finances. In general, a universal initiative can be used to elevate the financial stability of a country (Tsindeliani *et al.*, 2019). Financial sustainability incorporates economic, social, technological, and environmental aspects, while sustainability covers the triple bottom line of economic sustainability, environmental sustainability, and social sustainability (Goodland, 1995; United Nations General Assembly, 2005; Aminpour *et al.*, 2019).

### **2.5.1 Merits and criticisms of financial sustainability**

Financial sustainability depends on multiple components, and rather than only considering performance and good governance of an organisation, it includes the financial resilience and economic stability of the country. The creativity that promotes

financial resilience such as fintech and the implementation of an RMF might threaten financial sustainability due to the new fiscal policies and currencies that would need to be approved by the various stakeholders, such as the World Bank, Financial Services Board (FSB), and other governance institutions to ensure compliance (Zaman, 2023). Currently, there is no one-size-fits-all methodology used to define, measure, and calculate financial sustainability, as there are various formulas used to determine financial sustainability, depending on the industry or firm that is evaluated and the audience that needs the results. For example, when investors want to make decisions, they evaluate financial ratios such as EBITDA, net profit margin, ROA, ROE, and ROI (Marx, 2010). Alobari *et al.* (2019: 4035) measure financial sustainability 'through the use of ROA', while Gitman (2006: 65) suggests that ROA is the same ROI and, furthermore, defines ROI as a 'measure of management's effectiveness in generating profits with its available assets'.

Scholars such as Chen *et al.* (2021) and Gleißner *et al.* (2022) evaluate and measure financial sustainability through capital structure, market returns, and risk management. Capital structure focuses on financial behaviour and financial reporting of the financial status of firms (Modigliani & Miller, 1958; Aggarwal, 1981; Fama & French, 2002; Faulkender & Petersen, 2006; Titman & Tsyplakov, 2007; Chakraborty, 2010; Chen *et al.*, 2021). The emerging stock market for Indian firms uses capital structure theories to explore decisions made (Chakraborty, 2010). Titman and Tsyplakov (2007) present a dynamic model that allows a firm to adjust its investment choices and capital structure after exploring the cross-sectional variation in debt ratios and endogenising the investment choice of the firm. Therefore, the use of various financial indicators and different ratios in calculating and measuring financial sustainability prevents the standardisation of a single financial sustainability measurement capability. The researcher, adopting the use of financial indicators such as EBITDA, net profit margin, ROA, ROE, and ROI ratios to measure the financial sustainability of the South African telco industry, may assist investors to analyse the performance of South African mobile operators and make investment decisions. According to Marx (2010), EBITDA, net profit margin, ROA, ROE, and ROI ratios are key fundamental financial evaluators for investors to analyse and make decisions. Even though there are different views regarding the financial indicators used to measure financial sustainability, the researcher believes that it is the best decision to analyse these financial indicators, as

they assist in evaluating the competitive strategies of the telco industry, in designing a financial sustainability model for the South African telco industry, and in better understanding the costing model of the mobile operators evaluated.

## **2.6 The dimensions of financial sustainability**

There are various dimensions of financial sustainability such as economic, social, technological, and environmental, but it is important for a scholar of financial sustainability not to confuse dimensions of sustainability in general and financial sustainability in particular (Goodland, 1995; United Nations General Assembly, 2005; Aminpour *et al.*, 2019). According to Goodland (1995), there are three paradigms of sustainability that have an impact on financial capital, human well-being, and social capital, namely, economic sustainability, environmental sustainability, and social sustainability. Maynard, Vidigal, Farage, Zandonadi, Nakano, and Botelho (2020) concur with Goodland (1995) that sustainability is the integration of actions focused on three pillars: environmental, social, and economic. Before specifically delving into dimensions of financial sustainability, it is prudent to delve into the dimensions of sustainability in general.

### **2.6.1 Economic sustainability**

Economic sustainability cannot be achieved without the adoption of the SDGs, as they cultivate new economic thinking in countries (Van Niekerk, 2020). In the past 20 years, the Millennium Development Goals (MDGs) focused on improving economic, social, and environmental sustainability during the years 2000 to 2015, and now the Sustainable Development Goals (SDGs) focus on 2015 to 2030 (United Nations, 2015). In the context of South Africa, a lot has been achieved since the abolition of the apartheid regime to uplift the economic, social, and environmental position of the country and previously disadvantaged communities. For example, the apartheid government used communication as part of its controlling strategy, and today, the communication industry is not only connecting millions of people, but the industry is also one of the most important economic contributors through tax, job creation, and reduction of the unemployment rate.

The South African telco industry must strike a fine balance between innovation, corporate governance, and financial sustainability in order to lead in digital and financial inclusion as an active participant in the SDGs. In 2019, the Vodacom Group contributed a total of R20.4 billion in tax collected, and of the R20.4 billion tax collected, R11.7 billion was directly contributed to the South African economy after R69.1 billion in revenue had been generated (Vodacom, 2020). The MTN Group contributed a total of R30 billion in tax during the same year (2019) in the countries in which it operates, of which R4.6 billion was directly contributed to the South African economy after R45.4 billion in revenue had been generated (MTN, 2020). Therefore, the South African government has done well in aligning itself with Sustainable Development Goals 8 and 10, which relate to the reduction of inequalities and economic growth. Adopting sustainable strategies such as energy efficiency and waste reduction through recycling initiatives can lead to cost savings (Cook, 2015). To reduce global inequality, of necessity, public policy, business models, and community need to be integrated, and to improve the SDGs, these three aspects should be supported by 'social covenants' (Van Niekerk, 2020: 1). Lastly, from an economic perspective, to obtain positive results and maintain business strategies in order to maximise economic efficiency, the management of profits and losses is critical (Maynard *et al.*, 2020).

### 2.6.2 Social sustainability

Even though social sustainability is a challenging paradigm as a key dimension of sustainability in general, it is more concerned about inequality, justice, power, well-being, and values (Hale, Legun, Campbell, & Carolan, 2019). There is a significant positive relationship between sustainable economic performance, environmental performance, and social performance (Bosse, Phillips, & Harrison, 2009). Social sustainability considers how social goals are executed, looking at philanthropy, fair labour practices, basic conditions of employment, health and safety, diversity, human rights, and community engagement (Alsayegh *et al.*, 2020). Companies with sound ESG goals tend to have strong market and financial performance (Zhou *et al.*, 2022). Some companies use ESG goals and social corporate governance as non-systemic risk mitigation strategies (Mishra & Modi, 2013; Albuquerque *et al.*, 2019), while certain businesses are using ESG approaches as part of their competitive strategy to gain market share and a good reputation (Alsayegh *et al.*, 2020).

Human resource practitioners are active contributors to social sustainability development. According to the study conducted by Mukhuty, Upadhyay, and Rothwell (2022), there are various human-capital-related barriers such as a digital skills gap, change resistance, and employment, leadership, and organisational culture challenges that need to be addressed in order to achieve sustainable Industry 4.0 development. Fatourehchi and Zarghami (2020) identify a gap in social sustainability research focusing on the construction industry, and their research then develops an assessment framework for managing sustainable construction in residential buildings to ensure social sustainability. Social sustainability affects everyone across the globe, whether it be through industries and/or communities. Mobile operators are contributing significantly to social sustainability through diverse services, network connectivity, and emerging technologies. For example, for the year ended 31 March 2023, Vodacom processed \$364.8 billion in M-PESA transactions and provided R272.8 million in funding for over 1 287 small- and medium-sized enterprises via VodaLend (Vodacom, 2023). Additionally, MTN processed R221.3 billion in fintech transactions and invested R280 million in training and upskilling employees (MTN, 2023).

### 2.6.3 Technological sustainability

Technology is one of the internal resources that the RBV theory elucidates as driving innovations and sustainability, including also the financial sustainability of businesses, along with human capital, financial knowledge, and capital structure (Albert, 2023). Jamwal, Agrawal, Sharma, Kumar, and Kumar (2021) developed the sustainability framework and concur that information, technology, supply chains, and organisational, social, economic, and environmental factors are key enablers and pillars of sustainability. According to Principle 12 of King IV, information and technology must be governed in a manner that supports the organisation in achieving its strategic objectives (IDSA, 2016). Corporate governance should be used as a mitigating strategy to protect the assets and other resources of organisations (Thraya, Lichy, Louizi, & Rzem, 2019).

Evolving technology allows society to explore various commercial options and opens incredible opportunities for a business to trade online, which is mostly known as e-

commerce (Bird & Gendron, 2005; Hong, Xu, Chen, & Yin, 2018). To improve financial sustainability and mitigate public sector corruption, smart digital technology must be used to implement fiscal transparency and stakeholder value goals (Criado & Gil-Garcia, 2019). As previously indicated, evolving technology drives industry players to ensure creativity in order to remain competitive and relevant in the market because, without innovative ideas, the business cannot survive the contemporary issues of this age (Hong, Xu, Chen, & Yin, 2018; Nene & Moraka, 2023). Among the challenges with which the telco industry is battling are evolving technology and changes in customer behaviour that make it challenging for the industry to maintain sustainable growth. This is evident in advanced technology and smartphones where mobile operators continuously experience a decline in voice and SMS revenue as subscribers move from traditional SMSs to message applications and other over-the-top (OTT) services such as the social media tools WhatsApp, Twitter, Facebook, WeChat, and Skype, to name just a few (Pierce, 2018).

#### 2.6.4 Environmental sustainability

In the domain of sustainability, the environment is a key dimension. Manrique and Martí-Ballester (2017: 1) analyse 'the effect of corporate environmental performance on corporate financial performance in developed and developing countries', and they concur that there is a relationship between corporate environmental performance and corporate financial performance. Alsayegh *et al.* (2020) explore the relationship between corporate environmental performance and ESG practices and then note reasons for poor economic performance. They, furthermore, highlight that the environmental practices budget depends on the core functions of the business; therefore, when the production costs of the environmental activities increase, the budget of the business unit might be exhausted, leading to poor economic performance. To supersede the current developmental trends and enhance the quality of environmental concerns, life balance is a necessity in order to implement sustainable development goals (Vu, Chan, Lim, & Chiu, 2017).

The scholars use the terms 'ESG', 'CSR', and 'economic, governance, social, ethical, and environmental (EGSEE) sustainability' interchangeably, while the sustainability context remains the same (Rezaee, 2016; Jain, Jain, & Rezaee, 2016). Even though

businesses are using ESG strategic capabilities to improve their competitive performance, focusing too much attention on environmental sustainability development can increase operational costs (Roxas, Ashill, & Chadee, 2017; Danso, Adomako, Amankwah-Amoah, Owusu-Agyei, & Konadu, 2019). Danso *et al.* (2019), furthermore, suggest that companies can improve their reputation by implementing strong environmental policies. Therefore, regardless of South African mobile operators being private companies, they can implement strong environmental policies and publish them as part of stakeholder engagement. As part of corporate governance, corporate performance, corporate identity, and corporate reputation, all stakeholders must be kept informed about sustainability matters (Okoye *et al.*, 2017; Effiong *et al.*, 2019; Nyagadza *et al.*, 2019; Sulimany *et al.*, 2021). To create a competitive advantage, South African mobile operators must adopt both the stakeholder theory and the shared value theory, as they promote transparency. Transparency includes the disclosure of information to all stakeholders (Alsayegh *et al.*, 2020).

## **2.7 Criticisms of financial sustainability as a multidimensional phenomenon**

As previously indicated in section 2.4.1, when articulating the differences between financial sustainability and financial resilience, it was noted that financial sustainability was a multidimensional phenomenon. The measures of financial sustainability remain fragmented, as there are multiple financial indicators, risk dimensions, and financial ratios that are currently being used to define, measure, and calculate financial sustainability, depending on the audience that is targeted for the financial insights. For example, Navarro-Galera *et al.* (2016) suggest that the income statement is the best tool to measure financial sustainability in local governments because it exposes three critical dimensions, namely, services, revenues, and debt. However, Alobari *et al.* (2019: 4035) measure financial sustainability 'through the use of ROA'. Gitman (2006: 65) suggests that ROA is the same as ROI. Furthermore, financial sustainability can be measured by using three indicators that are critical to reducing insolvency risks: risk management, sustainability management, and risk governance (Gleißner *et al.*, 2022). Risk management and corporate governance are critical for the evaluation of capital market returns. McLaren and Struwig (2019) empirically tested various financial ratios, namely, financial performance, liquidity, asset management, debt management, and reserves ratios, as indicators of financial sustainability at South



African universities. As can be seen and as was mentioned before, there is currently no standardised methodology that is being used to define, measure, and calculate financial sustainability, as various formulas are used to determine financial sustainability, depending on the industry or firm that is being evaluated and the audience that needs the results.

Financial sustainability is a multidimensional phenomenon that can be explored by evaluating, analysing, and measuring multifaceted financial performance indicators, composite indices, and ratios (Satyasai & Kumar, 2020). Financial sustainability is directly influenced not only by the unassailability of the corporate finances of a business, but also by corporate governance (Kliestik *et al.*, 2020). Corporate governance is a crucial factor for economic, social, and environmental sustainability, as it supports the integrity of internal decisions and drives accountability to ensure that the strategic objectives of the organisation are achieved accordingly (Al-Faryan, 2020; Van Vuuren, 2020). Organisational culture also plays a pivotal role in achieving sustainable organisations (Mukhuty *et al.*, 2022). Financial sustainability affects all organisations and businesses, whether they be private or public sector, as all businesses pursue economic improvement without jeopardising future resources while in the process of meeting current needs (Filho, 2015; Ben-Eli, 2018; World Bank, 2020).

## **2.8 The measurement of financial sustainability in the organisation**

Gleißner *et al.* (2022), in their recent article entitled 'Financial sustainability: Measurement and empirical evidence', suggest measures of financial sustainability and examine its association with capital market returns. The measure is positioned at the intersection of sustainability management, risk management, and risk governance. Furthermore, Gleißner *et al.* (2022) propose conditions to measure financial sustainability that focus specifically on four elements: (1) real growth of the firm that prevents its shrinkage or liquidation over time, (2) a significant probability of firm survival, (3) an adequate level of risk exposure by the firm, and (4) an attractive risk-return profile for the owners. Any researcher interested in exploring financial sustainability needs to be familiar with these four conditions in addition to internal and external risk governance approaches, as these are aligned with existing approaches

to rating, risk management, simulation, company valuation, and management control. There is a need for scholars to establish and develop a link between sustainability and risk management that expands the financial sustainability literature by including a theory-driven selection of four conditions of financial sustainability. Clarity on these four conditions is significant, as there is no established theory of financial sustainability so far.

Any scholarly attempt to measure financial sustainability should initially acknowledge that the concept of sustainability has been researched for decades in terms that refer to both a *time dimension* and a *scope dimension*. In respect of the time dimension, sustainability is not a snapshot event to be understood, but rather a long-term view. Accordingly, financial sustainability suggests that companies must be financially managed to 'ensure present financial success without jeopardising future financial success, including the success of future generations' (Günther & Günther, 2017: 5). To measure financial sustainability, several risk measures are required as indicators of financial sustainability. In addition to profitability, liquidity, and risk, sustainable investments also consider the criteria of the environment, social affairs, and good corporate governance (ESG). The central requirement of sustainability is, therefore, 'the unlimited, long-term satisfaction of future needs' (Brundtland, 1987: 41).

Consequently, the goal of financial sustainability is similar to that of long-term, future-oriented value creation (or value preservation). It is noteworthy that Navarro-Galera *et al.* (2016) suggest that the income statement is the best tool to measure financial sustainability in local governments because it exposes three critical dimensions, namely, services, revenues, and debt. Gleißner *et al.* (2022) propose that financial sustainability measurements be linked to the evaluation of capital market returns because financial sustainability is a crucial control mitigating any risk to which investors and shareholders might be exposed, resulting in sound investment decisions. Thus, Gleißner *et al.* (2022) measure financial sustainability using three indicators that they believe to be critical in reducing insolvency risks: risk management, sustainability management, and risk governance.

There are contextual factors that influence financial sustainability in both opposite and negative ways. Puron-Cid *et al.* (2019) define the negative factors as ideology, fiscal

centralisation, unemployment, and population, while tax and government expenditure limits are positive. Various scholars concur that, in both developed and developing markets, the financial sustainability of the organisation affects its financial performance (Amouzesh, Moeinfar, & Mousavi, 2011; Przychodzen & Przychodzen, 2013; Rahim, 2017; Subbareddy & Reddy, 2017; Laskar & Maji, 2018). However, the geo-economic, political, and social dynamics of advanced economies differ from the dynamics of developing economies (Manrique & Martí-Ballester, 2017). The challenges associated with financial sustainability differ between developed and developing markets and are more severe when it comes to developing markets (Sulimany *et al.*, 2021).

The research depicts how different researchers have actually measured financial sustainability. For example, Marwa and Aziakpono (2015) measure financial sustainability by using total expenses and total revenue ratios. Alobari *et al.* (2019: 4035) measure financial sustainability 'through the use of Return on Assets (ROA) and Operating Self Sufficiency (OSS)'. EBITDA, net profit margin, ROA, ROE, and ROI ratios are key fundamental financial evaluators for investors to analyse and make decisions (Marx, 2010). It is important to reiterate that, in this study, a single financial ratio will not be used independently to measure financial sustainability. The study proposes various financial indicators to measure the financial sustainability of the South African telco industry. In selecting the indicators, it is vital for scholars to be fully aware that there is disagreement about the definitions of these financial indicators. For example, Gitman (2006: 65) defines ROI as a 'measure of management's effectiveness in generating profits with its available assets', which is the same as ROA. If ROI provides similar functionality as ROA in financial sustainability, then, based on the definition provided by Alobari *et al.* (2019: 4035) indicating that financial sustainability is measured 'through the use of ROA and OSS' must also consider the ROI. Therefore, the researcher concluded that there was a positive correlation between ROA and ROI, making these financial indicators a significant tool for measuring financial sustainability.

In addition, the ROA measures 'the return earned on the common stockholders' investment in the firm' (Gitman, 2006: 69). Marwa and Aziakpono (2015) use ROA to measure profitability of savings and credit co-operatives in Tanzania. Bhuiyan *et al.* (2020) claim that financial sustainability is the combination of multiple variables such

as financial self-sufficiency (FSS), operational self-sufficiency (OSS), and operational efficiency (OE), where operational resources are efficiently utilised. Traditional economists normally focus on economic growth rates when assessing the efficacy of economic policy initiatives, where the most effective measurement is ‘the change in per capita GDP growth’ (World Bank, 1994: 32); Onyeiwu (2022) agrees with this. Jamwal *et al.* (2021) measure financial sustainability in the banking industry using profitability and market return. Therefore, sustainability plays a critical role in governments, in public and private sector enterprises, and in for-profit and non-profit organisations in order to successfully provision funds to serve the poor and achieve the set service delivery objectives locally and provincially.

Some researchers use financial performance as a proxy for financial sustainability. Financial sustainability measurement goes beyond capital market returns and risk management (Gleißner *et al.*, 2022). To comprehensively measure the financial sustainability of the South African telco industry, the financial indicators shown in Figure 2.4 were used to evaluate the competitive strategies and costing model of the top three mobile operators that were studied, as they are the leading market players in South Africa.

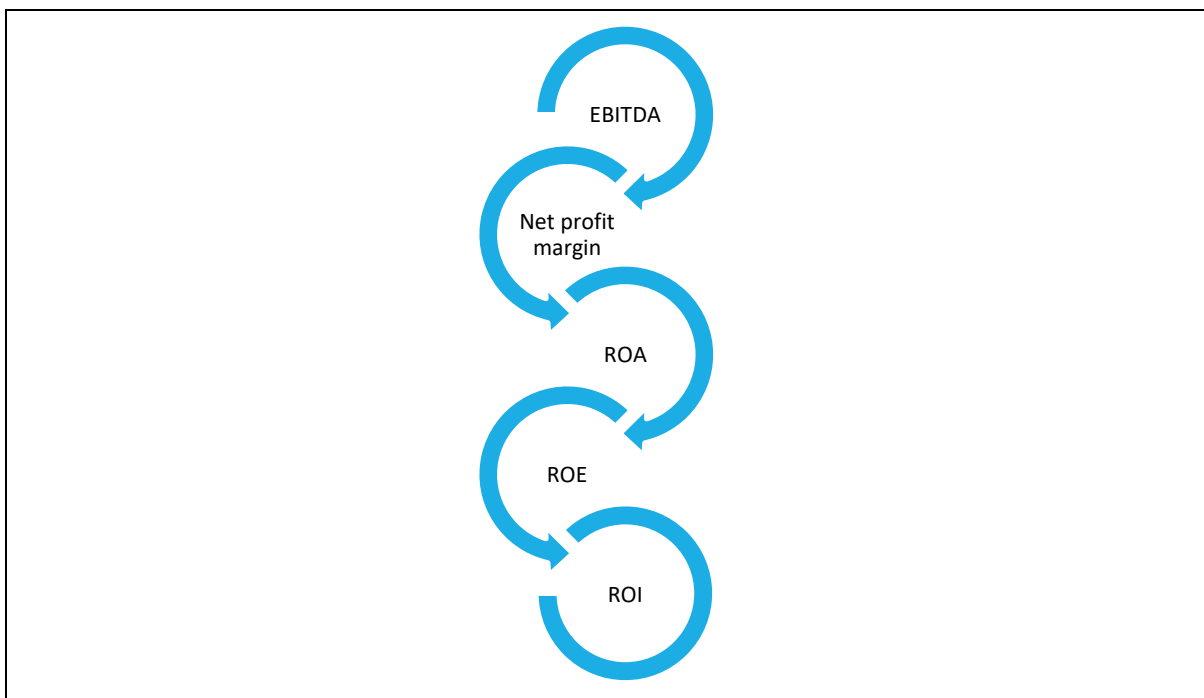


Figure 2.4 South African telco industry financial sustainability measurements

Source: Own compilation

McLaren and Struwig (2019) conducted an empirical study and propose five groups of ratios, namely, financial performance, liquidity, asset management, debt management, and reserves ratios, as a theoretical framework for South African universities. There are also studies that focus on the '... role of education and ICT in promoting environmental sustainability in Eastern and Southern Africa' (Shobande & Asongu, 2022: 1). As previously mentioned, Adelowotan (2021) examines the sustainability of South African SMEs in the 4IR. Other studies focus on sustainable economic development in other countries such as India and explore other industries such as tourism and energy (Atsu *et al.*, 2021; Pradhan *et al.*, 2021; Musakwa & Odhiambo, 2022).

The proposed financial sustainability measurement model in Figure 2.4 is better than the financial sustainability measurement suggested by Navarro-Galera *et al.* (2016) because the model in the current study incorporates financial indicators that are in both the income statement and the balance sheet, which are the overall financial statements of the organisation. Navarro-Galera *et al.* (2016) only measure financial sustainability through the income statement. The financial indicators that are in the income statement and balance sheet can be broken down as follows:

1. EBITDA and net profit margin are generated from the income statement.
2. ROA, ROE, and ROI emanate from the balance sheet.

The measurement of financial sustainability in the South African telco industry remains inadequate if critical financial indicators and fundamental ratios are not included as financial sustainability dimensions. Therefore, the proposed financial sustainability measurement model is more comprehensive and will add value to the South African telco industry when mobile operators are assessing their financial sustainability.

## **2.9 Models and frameworks of financial sustainability**

While it is clear that there is an economic pillar of sustainability that addresses the unsustainable way in which products and services are currently produced, the current study focused on the perspective of organisations and companies and not on the macroeconomic sustainability perspective of a country. As there are a variety of

models of financial sustainability, it is salient to understand how scholars view and assess the financial sustainability of for-profit and non-profit organisations. Gleißner *et al.* (2022) are among the scholars who are surprised that the definition of financial sustainability, defined as the way in which firms are financially managed to assure that current financial success does not jeopardise future financial success, including the success of future generations, is not present or common in the literature. A few models of financial sustainability have been selected for discussion in order to understand the multiple dimensions of financial sustainability, the antecedents of financial sustainability, and also the notion of financial vulnerability and its key conditions and measures. Understanding the models of financial sustainability is key to enriching our conceptual understanding before situating financial sustainability in the mobile telecom industry.

Kakati and Roy (2021) suggest that, for an organisation to be viewed as financially sustainable, it must display the following three prominent dimensions:

1. Generate enough revenue to cover all business expenses and operational costs.
2. Have the ability to pay present and future debt or obligations.
3. Be able to renew and maintain assets.

They used these three prominent dimensions to develop a financial sustainability model, depicted in Figure 2.5.

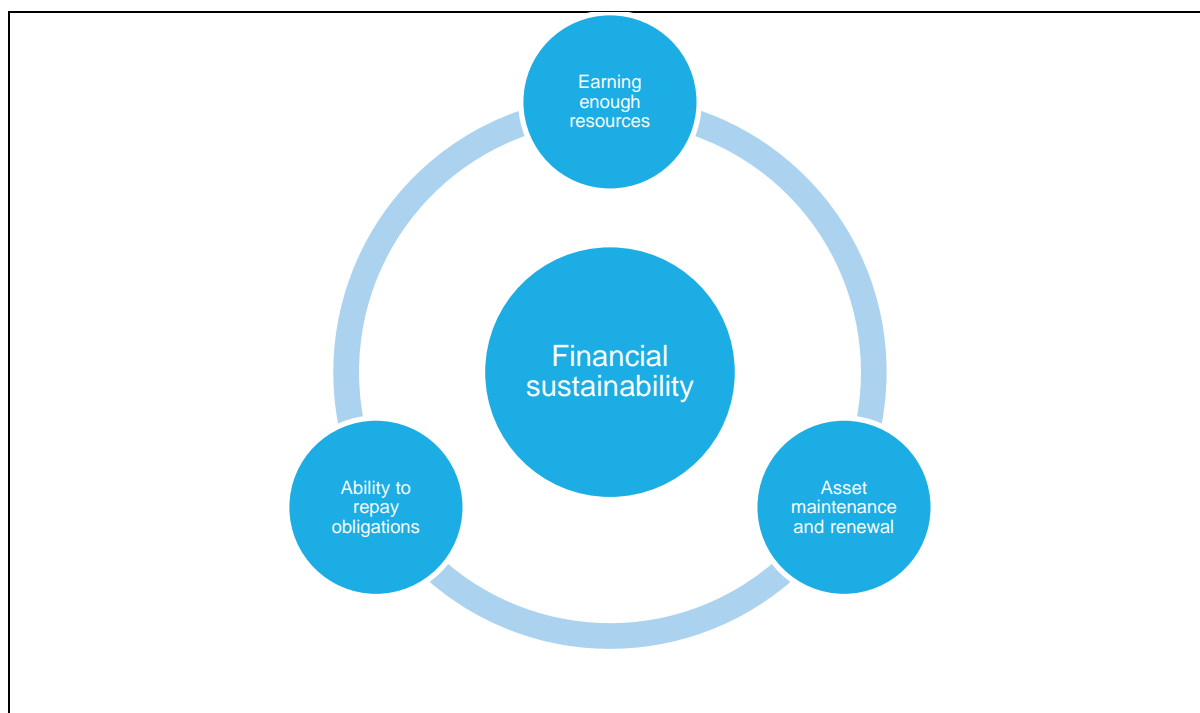


Figure 2.5 Financial sustainability model  
 Source: Kakati and Roy (2021: 50)

Assets investment, cash injection, and capital structure assist the business to develop sustainable capacity and increase its revenue (Imhanzenobe, 2020; Chen *et al.*, 2021). Bowman (2011: 39) suggests that balancing financial sustainability with the strategy of the organisation drives 'both short-term and long-term objectives to develop resilience and increase profitability'. The financial sustainability model developed by Bowman (2011) is salient for scholars of financial sustainability, as it brings to the fore the aspect of business resilience, sustainability, and longevity.

Dolores *et al.* (2020: 1) developed a 'dynamic model for the financial sustainability of the restoration sponsorship' after extensive comparisons between static and dynamic models. They conclude that both static and dynamic models are useful tools for company policy and business practice; however, static models increase the profitability of a company immediately, while, in dynamic models, the first profit can only be recognised after a year. As previously mentioned, Titman and Tsyplakov (2007) present a dynamic model that allows a firm to adjust its investment choices and capital structure after exploring cross-sectional variations in debt ratios and endogenising the investment choice of the firm. According to the Modigliani-Miller

theory, the cost of capital exposes the organisation to insolvency risk (Miller, 1988). Marwa and Aziakpono (2015) point out that, to achieve financial sustainability in developing countries, especially in Tanzania, an alternative form of financing the poor must be adopted for a financial co-operative business model.

Nyamsogoro (2010: 1) investigated the 'financial sustainability of rural microfinance in Tanzania', where a linear model was used to analyse the research results, and it was found that sustainable microfinance would deepen the financial system and provide sustainable services to the poor. In the case of savings and credit co-operatives in Tanzania, a linear regression model was used to explore the impact of ROA, efficiency scores, savings, and credit co-operatives on financial sustainability in developing countries, and the results suggest that the financial co-operatives model is more efficient than standard microfinance (Marwa & Aziakpono, 2015).

### 2.9.1 Origin and core elements model of financial sustainability

According to the framework developed by Jamwal *et al.* (2021), the enablers of sustainability consist of information, technology, supply chain, and organisational, social, economic, and environmental factors. Gleißner *et al.* (2022) investigated and developed a model showing the impact of sustainable banking regulations using profitability and market return as measurements. The classification of market return is characterised by a capital adequacy ratio, leverage ratios, a deposit ratio, and a loan ratio, while ROA and ROE are used to quantify profitability. The integration of knowledge management, impression management, and stakeholder theory provides a solid and sound financial sustainability theoretical framework. Without a doubt, the telco industry requires a strong competitive strategy, compliance with regulations, network infrastructure, a costing model, and stakeholder management to remain financially sustainable and contribute to social development. There is a direct correlation and a strong relationship between financial sustainability and the successful achievement of sustainable development goals (Sulimany *et al.*, 2021; Ziolo, Bak, & Cheba, 2021). Figure 2.6 depicts the proposed telco financial sustainability framework of the study.



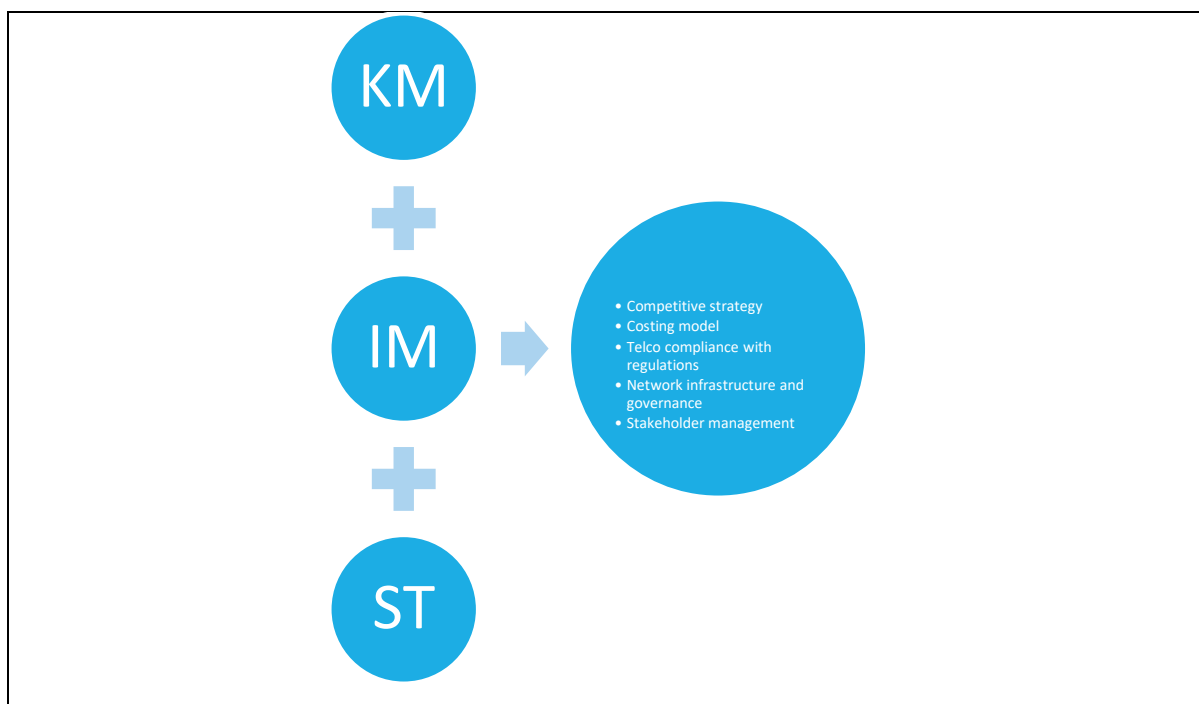


Figure 2.6 Proposed telco financial sustainability framework  
 Source: Own compilation

The researcher used a triangulated framework to incorporate academic theories, industry analysis, and strategic methods in order to explore the investigated phenomena. Since there is a gap in the scholarly literature covering the studied phenomena and telco insights, it was important to use multifaceted methods to complement and address the identified limitations in the literature during the current and previous Nene (2019) master's research, which is highly recommended by Bosomworth (2014) when articulating the advantages of the triangulated framework. Lastly, the researcher found that the triangulated approach fit perfectly for this study, since the data was collected in a similar triangulated approach and, most importantly, the study applied a mixed research methodology. The application of triangulation provided the researcher with some flexibility and reduced subjectivity related to the judgements made during the research process; however, the study applied mixed purposive sampling (Suri, 2011). Furthermore, triangulation was used to collect data from four segments, and this approach assisted the researcher to drive objectivity, truth, and the validity of the research (Fusch & Ness, 2015). Chapter 4 will provide extensive detail about data collection, while Chapter 5 will present the research findings.

The triangulated, theoretical framework is articulated in Table 2.2, where a summary and practical application of the PESTEL model to the South African telco industry will specifically be demonstrated after exploring various academic theories, the business literature, and strategic methods to ensure the richness of the study.

Table 2.2 summarises the insights of Chapter 2 and demonstrates how the PESTEL model is applied to assess the factors affecting the financial sustainability of the South African telco industry. Therefore, the literature review of the study explores the challenges identified, with the research problem in mind, in order to develop an appropriate research design. There are several factors to consider when developing a suitable research design, such as the philosophical view in addressing the research effort, the research methodology, and the research method to be adopted when collecting, analysing, and interpreting data (Creswell, 2014; Levitt *et al.*, 2018).

Table 2.2 The practical application of the PESTEL model to the South African telco industry and triangulated theoretical framework

<b>PESTEL model</b>	<b>Application</b>
Political	The government maximises revenues by restricting mobile operators from releasing spectrum, and this raises costs and competition for operators, as they build more towers to strengthen their network. However, the capital investment will not be sustainable if the community continues to vandalise the infrastructure.
Economic	The tax paid by mobile operators contributes to the GDP of the country, while their installed infrastructure forms part of the investment in the economic growth of the country, as they connect millions of South Africans and reduce the unemployment rate.
Social	Apart from the quality of service that mobile operators are expected to deliver to their customers, all the COVID-19 initiatives that will be presented in section 6.2.1.2 and Table 6.1 demonstrate the commitment of mobile operators to society and the well-being of the South African community.

Technological	4G and 5G spectrum scarcity prevents mobile operators from accelerating the 4IR/5IR, closing the digital divide, and promoting financial inclusion.
Environmental	Mobile operators must practise due diligence when installing towers to ensure that they provide a healthy and safe working environment for their employees and promote social health in order to protect South African dwellers.
Legal	As for all South Africans, mobile operators are expected to adhere to all regulatory requirements, including competition laws.

*Source:* Own compilation

### 2.9.2 Strengths and weaknesses of the model of financial sustainability

Setting up financial sustainability goals, targets, and a framework does not guarantee compliance, profitability, and financial sustainability (Ozili, 2022). Both static and dynamic models of financial sustainability can be adapted to any business unit or industry and can support any strategic objective that the organisation is driving. For example, Dolores *et al.* (2020) conducted an empirical study testing both static and dynamic models of financial sustainability, focusing on sponsorship as a brand marketing strategy for the organisation to promote its brand while supporting social sustainability initiatives. They conclude that both static and dynamic models of financial sustainability are useful tools for company policy and business practice. Titman and Tsyplakov (2007) present a dynamic model that allows a firm to adjust its investment choices and capital structure. The Modigliani-Miller theory elucidates the cost of capital, capital structure, and insolvency risk (Miller, 1988). Furthermore, financial sustainability can be calculated using various financial indicators and multiple models. For example, Marwa and Aziakpono (2015) use the co-operative business model to determine financial sustainability, while Nyamsogoro (2010) uses microfinance services to explore financial sustainability.

To determine the investment choice of a firm, investors consider the variation in debt ratios and endogenising (Titman & Tsyplakov, 2007). Marwa and Aziakpono (2015) suggest that the financial co-operatives model is more efficient than the standard microfinance one. However, Chen *et al.* (2021) argue that investors are interested not

only in the capital structure of the organisation, but also in other important economic variables such as the profitability of the organisation. Table 2.3 provides a summary of the advantages and disadvantages of the chosen financial sustainability theories, namely, impression management (IM), knowledge management (KM), and stakeholder theory (ST).

Table 2.3 Advantages and disadvantages of chosen theories

No.	Code	Advantages	Disadvantages
1.	IM	Brand consciousness, positive market response, and share price increase.	Negative market response and share price decline.
2.	ST	Accountability, compliance, and good corporate governance.	Authentic information might not be shared.
3.	KM	Internal knowledge sharing and training, business continuity, and competitive advantage.	Competitive disadvantage and business resilience high risk exposure.

Source: Own compilation

Some businesses care more about profitability than observing all the dimensions of sustainability (Oláh *et al.*, 2020). In the context of South Africa, the most important aspects that stakeholders evaluate for JSE-listed companies include compliance with the King IV report, codes of ethics, corporate governance, and financial sustainability (Van Vuuren, 2020). Corporate governance improves transparency, increases economic stability, reduces fraud, and drives growth and market efficiencies (Al-Faryan, 2020). Innovation, competitiveness, profitability, and value-add are also considered important elements of the performance of a business (Magnusson, Matthing, & Kristensson, 2003; Ghalem, Chroqui, Okar, & Semma, 2016). The profitability of an organisation is an important economic variable and one of the key specific determinants of financial leverage of a firm that investors monitor closely apart from capital structure (Chen *et al.*, 2021). Some senior leadership is more concerned with, and interested in, profitability above market share (Parra-Bernal & Alves, 2017; Edeling & Himme, 2018). Other measures of financial sustainability are financial ratios such as ROA and ROI (Alobari *et al.*, 2019; Chen *et al.*, 2021). Kakati and Roy (2021)

measure financial sustainability by the ability to pay debt and have sufficient cash flow to cover operational costs.

## 2.10 Enablers of financial sustainability

In the domain of financial sustainability, which is distinct from sustainability in general, it is important to understand that there are specific dimensions or pillars of financial sustainability. With the NPO sector in mind, Leon (2001) identifies pillars of financial sustainability. Leon (2001) suggests that an organisation, first and foremost, has a long-term commitment in order for it to achieve financial sustainability. In a slightly different vein, Gleißner *et al.* (2022) propose four measures of financial sustainability: (1) an acceptable overall level of earnings risk exposure, (2) firm growth, (3) an attractive earnings risk profile, and (4) the survivability of the company. The major pillars of financial sustainability include income diversification, strategic and financial planning, effective administration, sufficient income generation, and sound financial management (Leon, 2001; Bhuiyan *et al.*, 2020). Drawing from the work of Gleißner *et al.* (2022), it is seen that (1) level of risk and earning, (2) firm growth, and (3) financial capacity for resilience are key aspects of financial sustainability.

It is salient to also think of corporate governance when understanding financial sustainability. In terms of financial sustainability, good corporate governance is a good indicator in terms of maximising shareholder value and profitability (Alobari *et al.*, 2019). Stakeholder theory confirms that there is a positive relationship between shareholder value and financial sustainability (Sulimany *et al.*, 2021). Thraya *et al.* (2019) suggest that corporate governance should be used as a mitigating strategy to protect the assets and other resources of an organisation. Okoye *et al.* (2017) view corporate governance as an alignment of various stakeholders with a single interest in terms of achieving the objective of the organisation of fulfilling and enhancing shareholder value. As part of good corporate governance and regulatory requirements, all mobile operators must disclose and publish their annual reports that show the financial sustainability of the organisation for the information of various stakeholders such as investors, government, and customers who may have an interest in these in order to comply with the Corporate Laws Amendment Act 24 of 2006 (South Africa, 2006; Bosiu, Nhundu, Paelo, Thosago, & Vilakazi, 2017).

It is equally important to bear in mind that financial reporting plays a crucial role in stakeholders' perceptions of financial sustainability. This is because knowledge is one of the incredible commodities that will always be in demand (Nakash & Bouhnik, 2021). Sustainability reports are regarded as the most direct impression of an organisation, since the managers disclose and report information descriptively in order to manage public impressions (Neu, Warsame, & Pedwell, 1998; Opferkuch, Caeiro, Salomone, & Ramos, 2021). The share price and investor and market reactions are mostly driven by business impression. Impression management results in biased reporting due to investor rationality, and this leads to cash flow predicaments, as investors ignore biased reporting (Merkl-Davies & Brennan, 2011; Srivastava & Kathuria, 2020). Organisations need impression management strategies to build a strong brand, and the perception of an organisation is evaluated by both internal and external stakeholders, as they associate themselves with the corporate brand (Nyagadza *et al.*, 2019). Nyagadza *et al.* (2019) conclude that there is a relationship between internal stakeholders' corporate brand perceptions and brand storytelling. Previous studies indicate that strong financial reporting by organisations can generate greater value for shareholders (Sulimany *et al.*, 2021). However, Effiong *et al.* (2019) highlight the higher significant effects of financially related indices of an industry on the cash flow, economic value, market value, and ROI. The major pillars of financial sustainability include income diversification, strategic and financial planning, effective administration, sufficient income generation, and sound financial management (Leon, 2001; Bhuiyan *et al.*, 2020).

### **2.11 Barriers to the financial sustainability of an organisation**

Evolving technology drives industry players to ensure creativity to remain competitive and relevant in the market because, without innovative ideas, the business cannot survive the contemporary issues of this age (Hong *et al.*, 2018; Nene & Moraka, 2023). However, stringent regulations and the high cost of maintaining network infrastructure are among the barriers to the financial sustainability of South African mobile operators. For example, in South Africa, ICASA regulates price changes and product administration to protect customers while providing competition oversight of the South African telco market (Faku, 2019; McLeod, 2019). Regulation requirements set up by

ICASA limit South African mobile operators from efficiently implementing defensive strategies, as each mobile operator must report any new products or price changes within prescribed timelines before going to market. For example, the reporting of any new products or price changes used to be done within 14 days; then, during the COVID-19 pandemic, ICASA adjusted the price administration requirement to one day (ICASA, 2022). Therefore, the creativity of South African mobile operators must fall within the boundaries set by regulators and the laws of the country.

Government decisions and regulations have an impact on not only South African mobile operators, but also both local and international telco markets. Subsequently, these decisions and red tape significantly influence the performance of mobile operators, contributing to the macroeconomic challenges that the industry is experiencing (Fitch Solutions, 2019). Furthermore, to drive competition, the interconnect cost is one of the highly regulated areas and is used by government through charging small operators a lower cost compared to big operators (Fan & Xiao, 2015; Ng & Yi Young, 2019). In the European Union (EU), the wholesale roaming rates charged by the network operators are below the price caps regulated by the EU, while the actual cost of providing the service is 10 times higher than the roaming revenue (Ng & Yi Young, 2019). Lastly, the government's conflict of interest, poor policy, and dual jurisdictional structure (the Ministry of Communications and Digital Technologies and ICASA's statutory authority), have made it ineffective, sometimes allowing monopolistic behaviour, leading to barriers to the financial sustainability of South African mobile operators (Horwitz & Currie, 2007).

## **2.12 Competitive strategy and competitor intelligence system**

This section will be divided into two streams, starting with exploring the origin of the concept of strategy and then diving into Mintzberg's five Ps strategy where the meaning of competitive strategy, Porter's generic competitive strategy, the impact of technologically innovative strategy, and complete strategies used by telco operators in different market segments will be explored.

### 2.12.1 The origin of the concept of strategy

According to Mintzberg (1987), the definition of strategy was developed in the 1860s by General Ulysses Grant, regarding it as a structure to deploy resources in order to win the battle. It was later reviewed by Professor Rumelt in the 1980s, where strategy creates a viable position through sustainable competitive methods. Yadav (2022) suggests that the term 'strategy' was initially never used in business, but was first used in politics and war. Yadav (2022), furthermore, states that the concept of strategic management first emerged in the 1950s and 1960s. However, due to the increasing complexities of the business market and the intensifying competitive environment, each organisation had to position itself, understand the importance of a planning perspective, and draw patterns that could be developed into action in order to build meaningful strategy (Mintzberg, 1987; Yadav, 2022). To legitimately discuss everything about organisations and collectively articulate all the aspects that are relevant for progress, competitive advantage and adaptation can never be enough (Starbuck, 1965). Therefore, strategy can be defined as a process of transformational actions that emerge as the organisation evolves, regardless of the business nature or industry (Mintzberg, Ahlstrand, & Lampel, 2020).

### 2.12.2 Mintzberg's five Ps of strategy

'... [Y]ou cannot see ahead unless you can see behind, because any good vision of the future has to be rooted in an understanding of the past' (Mintzberg *et al.*, 2020: 126). The work of Henry Mintzberg, a Canadian academic and author on business and management, is very interesting when it comes to the nature of strategy because it reveals the complexity and variety of perspectives on strategy (Mintzberg, 1987). Mintzberg developed the five Ps of strategy, which revealed that strategy could be conceived of in various ways, namely, as a plan, pattern, ploy, position, and perspective, depicted in Figure 2.7.



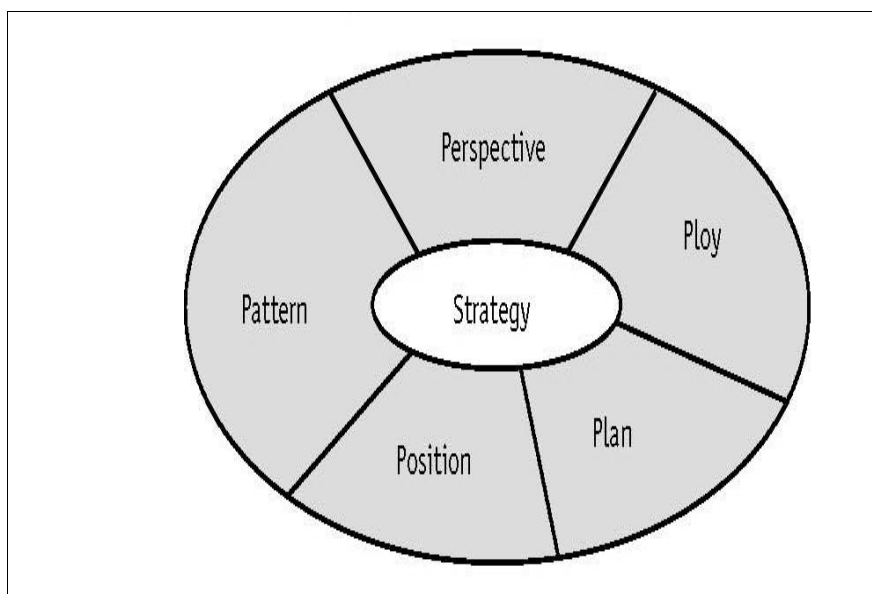


Figure 2.7 The five Ps of strategy  
 Source: Adapted from Louw and Venter (2013: 16)

The five Ps of strategy were derived from how Mintzberg saw that people viewed and defined strategy from various world views: some viewed strategy as a 'plan', some as a 'ploy', 'position', 'pattern', or 'perspective' (Mintzberg, 1987: 11). The definitions exist independently, as these strategic management processes are independent, even though there is interrelationship that could be considered (Yadav, 2022). For example, some scholars consider strategy as a perspective on a plan, while others believe that strategy as a plan and pattern drives competitive advantage of the strategy as a perspective and position (Lapierre, 1980; Mintzberg, 1987).

Strategy is a deliberate plan of action that can be either specific or a generic ploy to be used in order to gain competitive advantage (Mintzberg, 1987). These actions can be either intended or not intended, but for the strategy to be meaningful, the patterns must be realised. Strategy is a pattern with collective and consistent past behaviour that can be used as a case study to build competitive advantage (Mintzberg *et al.*, 2020). Patterns can be used to develop a plan of action. Strategy can be seen as a plan that provides a clear direction into the future with clear actions to be taken in order to achieve future success (Mintzberg *et al.*, 2020). Strategy is a position decided on, and taken by, an organisation in order to remain competitive (Mintzberg, 1987). However, Mintzberg, furthermore, indicates that strategy is not only about the position chosen by an organisation, but that it is also about the business paradigm that

becomes a driving force perspective that is collectively shared by all stakeholders to ensure organisational success. For example, corporate governance and risk management play an important part in strategic management among all organisations and stakeholders (Aziz *et al.*, 2015; Gleißner *et al.*, 2022). As mentioned before, according to Adeyemi (2019), one of the root causes of the bankruptcy and collapse of an organisation emanates from poor internal controls, inadequate risk management, and incompetent leadership that neglects good corporate governance structures, with no financial sustainability improvement plans. Therefore, for South African mobile operators to strengthen their competitive advantage and be financially sustainable, they can optimise the Mintzberg five Ps of strategy.

#### 2.12.2.1 Meaning of competitive strategy

Strategy can be defined in various ways depending on the school of thought one is from, for example, the 'top management's plans to attain outcomes consistent with the organisation's missions and goals' (Wright, Pringle, & Kroll, 1992: 3). Strategic management processes are a collection of the decisions made by the executive team in order to achieve the objectives of the organisation and gain a competitive edge (Yadav, 2022). Competitive strategy does not happen outside the strategic thinking, planning, and strategic communication of top leadership or executives and decisions filtered to all stakeholders for the success of the organisation (Gulbrandsen, 2015). According to Steyn (2004: 168), successful corporate communication is 'the outcome of a strategic thinking process by senior communicators and top managers taking strategic decisions with regard to the identification and management of, and communication with, strategic stakeholders'.

There is a direct dependency between strategic leadership and competitive strategy, since strategic leadership significantly affects competitive strategy and business performance; however, competitive strategy does not have any significant effect on business performance (Priadana *et al.*, 2021). Whether it be an SME or a private or public enterprise, strategic leaders are charged by stakeholders with reaching sustainable organisational outcomes such as good corporate governance, financial sustainability, and the management of competitive strategy (O'Shannassy, 2021). Applying knowledge management theories when developing competitive strategy is paramount. Knowledge management provides businesses with guiding principles on

how to gain a competitive advantage (Rahimli, 2012; Bouhnik & Marcus, 2015). As the business evolves, it is imperative for the organisation to evaluate its competitive advantage in order to identify prominent partners that will shape its competitive position and determine the direction of future activities that will promote efficiencies and increase profitability (Santalova, Soklakova, & Balabanova, 2020).

Governance is a critical element of strategic management, as it drives the decision of consumers to be loyal to the brand, allowing the organisation to enjoy competitive superiority and continue to buy products or services in a way that will increase profits and be financially sustainable (Soegoto & Karamoy, 2020). For example, poor customer service and poor product quality will not encourage customers to be loyal to a brand, even when prices are low or discounted. However, a combination of low prices, good quality, and excellent service will definitely improve customer satisfaction, increase sales, increase profits, and improve brand dominance as a superior competitor. There should not be any disconnect or contradiction between the cost leadership strategy and differentiation strategy, as they both drive sustainable competitive advantage (Subrahmanyam & Azad, 2019). Yoshikuni and Albertin (2018) suggest that the effective use of a strategic information systems will improve corporate performance and lead to a strong competitive strategy, as it enables strategic planning. Effective strategic planning processes drive the strategic position of the organisation, whether it be brand differentiation or cost leadership (Porter, 1990). The generic strategies defined by Harvard professor Michael Porter might not be successful for all businesses, as some businesses might fail to strike a balance between cost strategy, differentiation strategy, and focus strategy (Abdolshah, Moghimi, & Khatibi, 2018). However, those businesses that can find harmony and balance in Porter's generic strategies should succeed.

#### 2.12.2.2 Porter's generic competitive strategy

As mentioned before, according to Xie *et al.* (2022), in Asia, banks can achieve financial sustainability through revenue stream diversification. Revenue stream diversification is part of strategy diversification, which equips businesses to expand their blueprints and maintain a sustainable partnership with their respective stakeholders and gain market share (Porter, 1987). Xie *et al.* (2022) highlight that financial sustainability is achieved through efficient revenue stream diversification as

well as a clear vision of financial performance. Anderson, Reckhenrich, and Kupp (2013: 58) state that successful strategy involves the establishment of an organisational direction integrating five key strategic pillars, namely, 'vision, customer and industry insight, leveraging competencies and weaknesses, consistent implementation, and a drive towards continuous innovation and renewal'; various other scholars, such as Abell (1980), Porter (1983), and Maidique and Patch (1988), concur with this.

There is a lot that influences consumer behaviour, such as geographic location, age, culture, and traditions, which have a significant impact on how the market responds, over and above environmental, social, technical, and political factors that create opportunities for competitive changes. As technology evolves, new products and services appear that improve efficiencies, and consumer trends and preferences change, transforming telco profitability (Muthu & Thangavelu, 2019). From a macroeconomic challenges perspective, there are various other factors that affect the financial sustainability of the telco industry, such as consumer behaviour. However, understanding market dynamics and customers' behaviour, which influences business buyers' decision-making procedures and supplier relationships, is pivotal to ensuring competitive advantage and a sustainable market (Hegde, 2022). The shift in customer behaviour, supplier relationship, and producer competition also shifts the bargaining power of the supplier and that of the buyer as well. Even though economics helps consumers to make decisions, the labour theory of value and supply and demand synthesis determines the price (Nicholson & Snyder, 2019).

Porter's generic strategy has proven to be the most effective tool for providing evidence that pursuing his strategic management methodology leads to a stronger competitive advantage, regardless of the industry to which these methodologies are applied. For example, Ali and Anwar (2021) explored the effects of Porter's generic strategies on competitive advantage in Erbil's banking sector and discovered that cost leadership led to a more competitive advantage than differentiation strategy. The cost leadership strategy might have a direct beneficial impact on competitive advantage; however, that will not be the case in the telco industry, as the industry dynamics are completely different and maintaining the infrastructure in a telco is very expensive.

When analysing the competitive rivalry among the existing competitors in the industry, Cell C spent an average of R283 million monthly capital investment on the mobile network from 1 January 2016 until 31 December 2016, while Telkom spent an average of R161 million monthly capital investment on the mobile network from 1 April 2016 until 31 March 2017 (Muller, 2022). The investment made by the mobile operators in the network infrastructure is a clear indication of the commitment they have to their brand and customers, as capital expenditure investment is designed to improve network service. Furthermore, to remain competitive, MTN invested more than R30 billion (about \$2.4 billion) over a period of three years on network improvement in South Africa to ensure that South Africans would experience excellent network connections without any citizen being deprived of connectivity (Moeng, 2018). Vodacom spent R2 055 million capital expenditure in South Africa during the year that ended in March 2020 and budgeted to spend more than R9.1 billion in the 2021 financial year in order to expand and increase network capacity and resilience (Vodacom, 2020). Therefore, the high cost of maintaining network infrastructure is the reason that there are not too many new rivals in the South African telco industry, leaving no threat of new entrants. Lastly, to conclude Porter's five forces framework analysis for the mobile operators studied, the stringent regulations related to government control of the spectrum result in this industry being highly regulated (Faccio & Zingales, 2017); this is a further reason that there is not much threat of new entrants and competitive rivals among the existing competitors in the telco industry.

#### 2.12.2.3 Impact of technological innovation on competitive strategy

As the technological, social, and environmental needs increase, the challenges associated with competitive resources, such as digitisation, also increase, and we cannot expect the government to provide all the innovation; everyone has a role to play in ensuring a sustainable economy (Nazari *et al.*, 2022). Mobile operators are not exempt from the challenges emanating from economic and technological changes. For example, when MTN and Vodacom were formed in 1994, the available technology was 2G, and now technology has evolved to 5G. This evolving technology presents mobile operators with both challenges and unlimited opportunities, diversifying products and services, which allow customers to choose from various offerings, such as 5G, IoT, and 4IR (Höller *et al.*, 2014; Fotouhi *et al.*, 2019).

In South Africa, during the outbreak or emergence of the COVID-19 pandemic, there was a conspiracy theory that 5G was the root cause of COVID-19, resulting in towers belonging to MTN and Vodacom being burnt down by community members in KwaZulu-Natal (KZN), leading to poor network connectivity, dropped calls, and poor customers complaining (Chabalala, 2020). The vandalism of the infrastructure of mobile operators leads to not only poor customer service, but also revenue leakages, as poor connectivity, dropped calls, and poor customer service are the main reasons for customers porting over their numbers to other operators and, sometimes, switching back to their original mobile operator if the service improves (Onuigbo, Onoh, & Inyama, 2021; Nene, 2023). Furthermore, the release of the 5G spectrum provides a great competitive advantage for mobile operators and allows them to expand their services and products to new portfolios. For example, optimising on the new technology, mobile operators can design, market, and offer M2M and IoT portfolios contributing to the 4IR through more personalised solutions, that is, service smart metering and e-call services not only to the automotive industry, but also to smart cities, and, thus, increase revenue (IDATE & ETNO, 2017; Fitch Solutions, 2019). Therefore, evolving technology presents a threat of product or service substitutes while allowing mobile operators to be more innovative.

However, as much as new technology is giving mobile operators a competitive edge, there are environmental disadvantages and exposure to risks that need to be mitigated to ensure best practice and a sustainable environment. The role of regulators becomes critical, as they need stringent regulations to mitigate the environmental health risks associated with wireless technologies such as 2G, 3G, 4G, and 5G, as these technologies pollute the environment in a similar manner to smoking and could contribute to diseases such as infertility, developmental defects, brain cancer, neurodegeneration, electro-sensitivity, and addictions (Russell, 2018). Jun and Moon (2021: 1) define sustainability as 'development that meets the needs of the present without compromising the ability of future generations to meet their own needs'.

#### 2.12.2.4 Competitive strategies used by mobile operators in different market segments

Three generic strategies, namely, the low-cost strategy, customer focus, and brand or differentiator, help businesses to focus and gain greater competitive advantage in various dimensions (Porter, 1980). Regardless of the strategy chosen by mobile

operators to compete and remain financially sustainable, however, macroeconomic factors affect how consumers spend money on telco services. Technology upgrades and the economic globalisation that comes with technological advancement and variation in customer tastes have increased competition among mobile operators, exposing the telco industry to dynamic competition instead of perfect competition (Meena & Geng, 2022). The first movers are those organisations that decide to make a move first, and their actions are visible to others (Rilke, Danilov, Weisel, Shalvi, & Irlenbusch, 2021). Vodacom was the first to launch 4G in the South African telco market (Fitch Solutions, 2019). First-mover advantage status can be gained through various aspects such as making the first move in the market and dominating in brand, market share, and products or services (Suarez & Lanzolla, 2005; Leiblein, Chen, & Posen, 2021).

Growth strategy drives the business to efficiency and financial sustainability through market growth, product development, organic growth, integration, and diversification (Louw & Venter, 2013; Božić *et al.*, 2021). As a part of both the Vodacom Group and the MTN Group, ecosystem growth and digital strategy mean that they do not only offer fixed-line and mobile services. They are agile and focused on the evolving technology driving data inclusion, as they exploit more opportunities by offering both lifestyle and mobile financial services within the footprints where they operate (MTN Group Limited, 2016; Vodacom, 2020). Vodacom is the dominating mobile financial service provider in the Tanzanian market, and in South Africa, Vodacom is also leading with 41.3 million subscribers (Vodacom, 2020).

According to Dolores *et al.* (2020), organisations are using a sponsorship strategy to communicate their brand and gain public trust. Cell C has been a catalyst of change in South Africa, as it has been involved in various initiatives through sponsorships and social investments. It strongly believes in acts of kindness and compassion, demonstrated by sponsoring the South African Ruby Legends, the Cell C Sharks, and the Cell C Inanda Africa Cup horsemanship tournament in 2017, 2018, and 2019 (Cell C, 2020c). Figure 2.8 depicts a financially sustainable organisation with a positive margin and manageable expenses that do not supersede revenue, while Figure 2.9 presents the opposite. The private sector generates its revenue through sales of products or services (P/S), while NPOs heavily rely on donations, social enterprises

on subsidies, and NGOs on sponsorships. The general expenses to run a business will include the cost of sale, operation expenses, and taxation (tax).

The accounting principles traditionally divide costs into two, one being fixed costs that remain fixed for a certain period of time and the other being variable costs that change frequently based on production volume, production levels, and organisational behaviour (Shubita, 2019). Sustainability reporting has evolved in such a way that it no longer focuses only on corporate social responsibility, but should also provide objective information that will allow stakeholders to make reliable decisions about the performance of the organisation, both financially and non-financially (Opferkuch *et al.*, 2021). Figures 2.8 and 2.9 provide a visual depiction of the concepts of sustainable and unsustainable organisations. The word “Donati” in Figure 2.8 and 2.9 below refers to donations while “Subsidi” refers to subsidies.

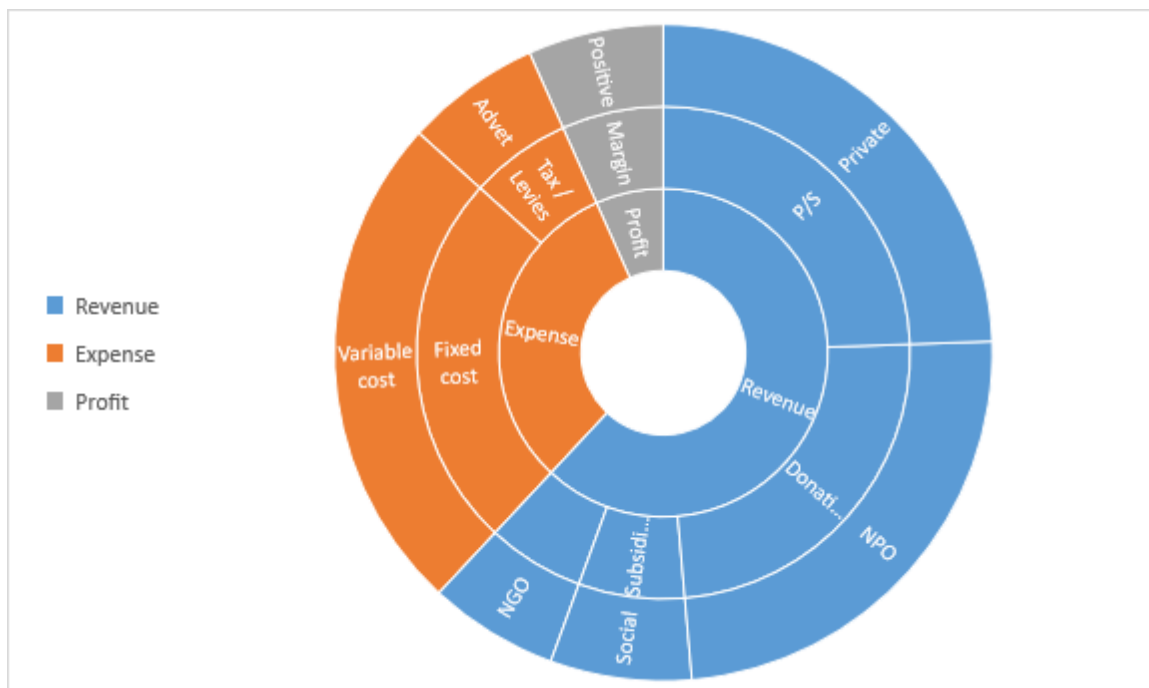


Figure 2.8 The conceptual framework of a sustainable organisation  
Source: Own compilation

To maximise shareholder value and profitability, the major pillars of financial sustainability such as income diversification, strategic and financial planning, effective administration, sufficient income generation, and sound financial management must be visible in the strategy of the organisation (Leon, 2001; Alobari *et al.*, 2019; Bhuiyan



*et al.*, 2020). If these major pillars of financial sustainability are missing, the organisation is likely to operate in a negative margin and make a loss year on year, as illustrated in Figure 2.9. The word “Divide” in Figure 2.9 below refers to dividends while “Spons” refers to sponsorship, “Rev” refers to revenue and “Neg” refers to negative income or margin.

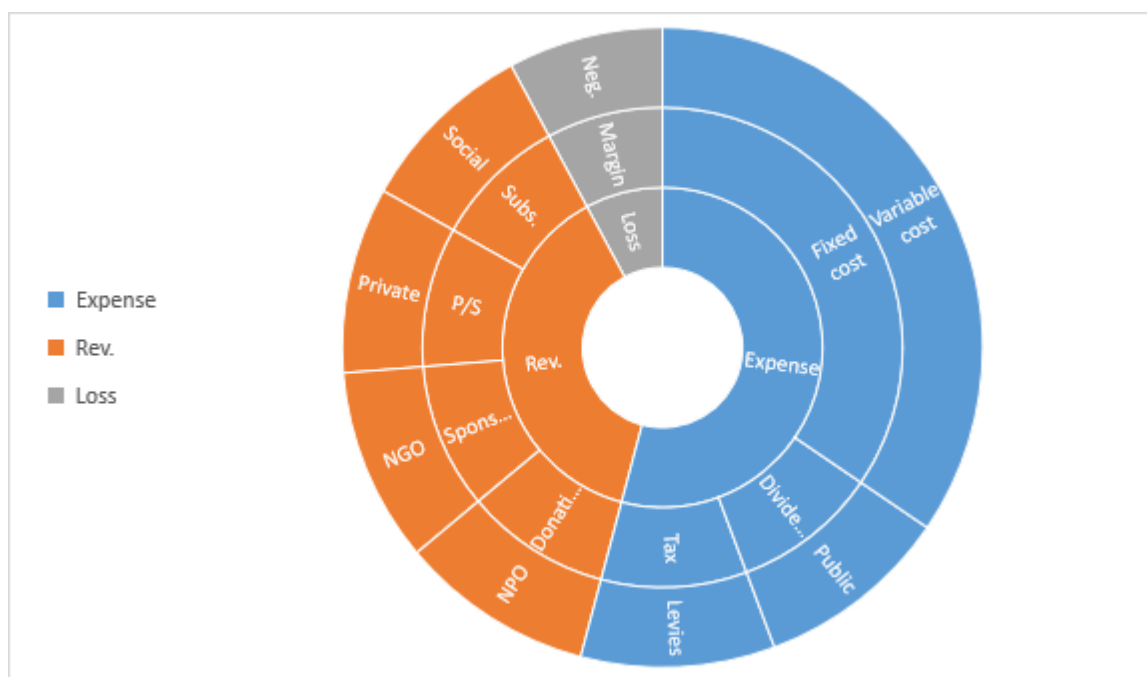


Figure 2.9 The conceptual framework of an unsustainable organisation  
Source: Own compilation

Figure 2.9 represents unsustainable organisations, as expenses supersede income or revenue, resulting in a negative margin and operating at a loss. In the banking industry, the total debt ratio represents a significant negative market return and banking profitability (Gleißner *et al.*, 2022). As mentioned, the private sector sells products or services to make an income or gain revenue, while NGOs depend on sponsorship, and the revenue of NPOs comes from donors; however, the organisations depicted in Figure 2.9 above are not financially self-sufficient, as the generated revenue does not sufficiently cover expenditures. This could be a result of poor strategic and financial planning, maladministration, and/or poor financial management. According to Bhuiyan *et al.* (2020), financial self-sufficiency requires a strong and determined profitability mission where generated revenue sufficiently covers the expenditure of the institution. In the South African telco context, Cell C is a perfect example, and its competitive strategy demands a review, since it has been making a loss year on year. The full

competitive strategy for the top three South African market players will be analysed in Chapter 3 when exploring the South African telco industry landscape.

#### 2.12.2.5 Impact of a competitive environment on financial sustainability

South African mobile operators must capitalise on the evolving technology to ensure creativity in order to remain competitive, as industry players will be required to enhance their products in order to remain relevant in the market and be financially sustainable (Nene, 2019). In the absence of innovative ideas, a business cannot survive the contemporary issues of this age and will never be sustainable (Hong *et al.*, 2018). The digital economy has changed the dynamics of market competition for many businesses (Muthu & Thangavelu, 2019). Even though mobile operators are facing challenges, evolving technology presents unlimited opportunities and allows customers to choose from various services to drive the profitability of mobile operators (Fotouhi *et al.*, 2019).

Deregulation diminishes government control and monopolistic policies (Özden-Schilling, 2016). A study conducted by De Silva, Weerasekara, Dias, and Siyambalapitiya (2023) discovered that deregulation of the energy industry in the USA, India, Singapore, Ethiopia, Nigeria, and Sri Lanka addressed regulatory challenges and increased fair competition. In South Africa, the telco industry is regulated by ICASA aiming to protect customers and allow fair competition among mobile operators; however, regulatory policies are not effective and have a negative impact on the financial sustainability of mobile operators (Faku, 2019; McLeod, 2019). The efficiencies and inefficiencies of the regulations and the laws of the country where the business operates contribute to the financial sustainability of the industry. In South Africa, the telco regulator has been hampered by political imperatives, and this is evident in the ineffectiveness of issuing spectrum to mobile operators (Howell & Potgieter, 2022). Government monopoly affects fair competition, fair pricing, service quality, innovation, and technological advancements (De Silva *et al.*, 2023).

The deregulation of the industry lowers the cost of doing business, making it more affordable, increases competition, and attracts potential new investors to drive the financial sustainability of the industry (Urpelainen & Yang, 2019). Therefore, the role of the government, the effectiveness of the regulations, and policymakers are critical

to achieving liberalisation in the South African telco market through healthy competition in order to drive affordable network connectivity and eradicate the digital divide (Gillwald, 2005; Baca-Feldman *et al.*, 2019). The digital divide hinders digital penetration and financial inclusion, as previously indicated, and one cannot measure the actual intensity of fintech usage to determine a financial inclusion index (Satyasai & Kumar, 2020). The digital divide must be closed and a digital economy fostered in order to grow the economy of South Africa, increase the productivity of mobile operators, and achieve financial sustainability (Jung, 2020).

### **2.13 Tradition in previous research on financial sustainability**

This section will present a summary of previous research on financial sustainability in international contexts and in South Africa.

#### **2.13.1 Previous research on financial sustainability in international contexts**

Firstly, there is research on financial sustainability that has focused on multiple indicators of financial performance as a proxy of financial sustainability. For example, Marwa and Aziakpono (2015) investigated the financial sustainability and profitability of saving and credit co-operatives in developing countries with a close look at the Tanzanian market and discovered that credit co-operatives and saving played a significant role in providing financial services to low-income earners and poor communities while mitigating the credit market risk. In a different vein, Xie *et al.* (2022) investigated a green pathway for financial institutions in Asia aiming to achieve financial sustainability and noted that financial institutions such as banks could achieve financial sustainability through revenue stream diversification. These two studies reveal that profitability and revenue stream diversification have been part of the efforts to measure financial sustainability.

Secondly, there is also research that has focused on the role of regulation in influencing national-level financial sustainability. For example, Tsindeliani *et al.* (2019) investigated the financial sustainability of the Russian Federation by examining the existing patterns and features of the Russian tax system and measuring these against the 'Doing Business' methodology covering the international tax practices of prominent

states such as France, Germany, Greece, Ireland, Luxembourg, the Netherlands, Norway, the UK, the USA, Sweden, and Switzerland. They, furthermore, suggest that in order to achieve the financial sustainability of the Russian Federation, legal acts can be optimised by integrating sustainable development indicators into the tax system (Tsindeliani *et al.*, 2019). Kim, Batten, and Ryu (2020) investigated the financial stability of Organisation for Economic Co-operation and Development countries and discovered that bank diversification mitigated financial crisis risk, but did not reduce market volatility; however, the market responded positively to bank income diversification.

In their paper 'Financial Sustainability – An annotated bibliography', Kakati and Roy (2021) point to several studies in the public sector that have explored financial sustainability in European countries such as England, Spain, and Italy, where three dimensions are classified as measures to assess financial sustainability. Amani and Fadlalla (2015) and Imhanzenobe (2020) found that financial ratios such as the net profit ratio and ROA were important variables in measuring financial sustainability. Gleißner *et al.* (2022) conducted empirical research and discovered that financial sustainability was under-represented in both scholarly and sustainability management reporting. These scholars propose four variables to measure the financial sustainability of the organisation: (1) the survivability of the organisation or the ability of the company to provide a service, (2) firm growth preventing insolvency over time, (3) an attractive earnings risk profile, and (4) the overall level of earnings risk exposure. Marwa and Aziakpono (2015) measured financial sustainability by using total expenses and total revenue ratios. Stein, Wiedemann, and Bouten (2019), in their 'Framing risk governance' research, suggest that future research should explore the relationship between risk management design and financial sustainability, considering the implementation and dimensions of the risk governance approach. Furthermore, Gleißner *et al.* (2022) propose that future research explore the relationship between financial sustainability, ecological factors, differences between certain groups opposed to strategic investors, and social sustainability.

As previously indicated that various scholars such as Zamanian and Hardiman (2005), Timotijevic and Barnett (2006), Kundu *et al.* (2010), Birks *et al.* (2017), Faccio and Zingales (2017), Lin (2018), Russell (2018), and Aminpour *et al.* (2019) have explored

the dimensions of sustainability in the telco industry in both developing and developed countries, but not in the context of South Africa. Therefore, whether it be the private or public sector, financial sustainability forms an integral part of the strategy of organisations in all countries.

### 2.13.2 Previous research on financial sustainability in South Africa

It is noteworthy that existing researchers such as McLaren and Struwig (2019) have empirically tested financial ratios such as financial performance, liquidity, asset management, and debt management, as well as reserves ratios, as indicators of financial sustainability at South African universities. The current studies on financial sustainability in the telco industry have focused more on liberalisation costs and benefits (Hodge, 1999), challenges to the adoption of big data (Malaka & Brown, 2015), and the relationship between customer satisfaction and service (Shava, 2021). Mbanje (2022) developed the cost, productivity, and profitability framework to evaluate the impact of business process outsourcing in Southern Africa, focusing on the operational performance of the South African telco industry.

There is also research on South African SMEs that examines the financial sustainability of the country through innovation, which leads to job creation and the distribution of income (Adelowotan, 2021). In South Africa, SMEs are the key drivers of the financial sustainability of the country, as they eradicate unemployment and provide economic growth (Msomi & Olarewaju, 2021). However, there are challenges as well, such as access to finance and accounting skills, that hinder the financial sustainability of SMEs, resulting in them failing to contribute to the economic growth of the country (Msomi & Olarewaju, 2021). According to Feuerstein (1990) and Fitch Solutions (2019), the telco industry is one of the leading contributors to African economic growth, and it has been growing around the world since the 1980s. There are direct and indirect factors, from both internal and external environments, that affect the financial sustainability of organisations. In the context of South Africa, to achieve financial sustainability in the public sector, finance directors and accounting officers must adhere to the Public Finance Management Act 1 of 1999 and prevent wasteful expenditure deriving from unauthorised or fruitless and irregular expenses (Government Gazette, No. 19814).

## 2.14 Chapter conclusion

This chapter has adopted both abductive and deductive approaches when exploring research theories and building the literature review. The reason for choosing these two approaches when developing the research theory is in line with the recommendations provided by Saunders *et al.* (2015), as the researcher does not know of all the challenges associated with financial sustainability experienced by the South African telco industry. The chapter has provided a view of the evolution of the telco industry and has, furthermore, provided a South African perspective, highlighting the role that this industry plays in the global economy. The study proposes a much better and more comprehensive financial sustainability measurement than the existing model suggested by Navarro-Galera *et al.* (2016). The proposed South African telco industry financial sustainability measurement model, given in Figure 2.4 incorporates the financial indicators that are in the financial statements, namely, the income statement and the balance sheet. Navarro-Galera *et al.* (2016) only measure financial sustainability through the income statement, neglecting financial indicators that are on the balance sheet. Therefore, the proposed financial sustainability measurement model will add value to the South African telco industry when assessing financial sustainability, and this model could be applicable to other industries as well. The chapter has, furthermore, progressed and considered the sustainability and/or financial sustainability definitions provided by Hollensbe *et al.* (2014), Filho (2015), and Ben-Eli (2018), as they provide similar contexts, which harmonises the literature review. Therefore, sustainability or financial sustainability conceptualises the idea of current improvement that does not jeopardise future resources.

A gap has been identified in the theoretical arguments and empirical evidence presented by scholars such as Brennan (2011), Rahimli (2012), Spear and Roper (2013), Tseng and Lee (2014), Bouhnik and Giat (2015), Bouhnik and Marcus (2015), Okoye *et al.* (2017), Effiong *et al.* (2019), Nyagadza *et al.* (2019), Srivastava and Kathuria (2020), Nakash and Bouhnik (2021), and Sulimany *et al.* (2021). The theoretical arguments and empirical evidence presented by these scholars do not integrate all three theories, namely, impression management theory, knowledge management, and stakeholder theory, and these theories currently operate

independently. Furthermore, contradicting arguments have been articulated, and the researcher's voice has also been expressed throughout the chapter. Additionally, new frameworks and definitions have been provided, such as the definition of the term 'contemporary business environment'. Similar to other organisations across the globe, South African mobile operators are also required to act responsibly, invest in the community, and participate in the expansion of the economy of the country (Božić *et al.*, 2021).

Financial sustainability evaluation and measurement must not only focus on capital structure, market returns, and risk management; they must also go beyond these in order to ensure efficiencies (Chen *et al.*, 2021; Gleißner *et al.*, 2022). Using financial indicators such as EBITDA, net profit margin, ROA, ROE, and ROI ratios to measure the financial sustainability of the South African telco industry assists investors in analysing the performance of South African mobile operators and making investment decisions (Marx, 2010). Principle 17 of King IV governs responsible investing, while Principle 14 drives transparency (IDSA, 2016). Therefore, the proposed financial sustainability framework and measurement model will add value to investors and to mobile operators as the investing organisations. Lastly, corporate governance is a critical aspect of strategy, effective risk management, and efficient operation for successful performance. The next chapter will analyse the telco industry and explore South African telco strategies and a costing model.

## **CHAPTER 3: THE DYNAMICS AND NATURE OF LOCAL AND INTERNATIONAL TELCO SERVICES**

### **3.1 Introduction**

The purpose of this chapter is to provide an overview of telco services, examining the liberalisation transformation from a monopoly, deregulation, and privatisation, in order to understand the telco industry evolution. A resource-based view (RBV) of the companies studied, competition in the industry, and factors affecting sustained competitive advantage will be evaluated by exploring firm agility, alertness, accessibility, decisiveness, swiftness and flexibility, new product development, innovation, and technology distribution. Furthermore, the chapter will examine customer loyalty and retention, telco service quality, and competitive advantage. After that, the chapter will define service quality as a multidimensional concept while considering the dimensions of service quality that affect financial sustainability in the telco industry, reliability, dependability, availability, flexibility, simplicity, and assurance. Lastly, it will conclude by considering the impact of the competitive environment on financial sustainability, the impact of disruptive change on the strategic performance of mobile operators, and the conceptual framework guiding the study.

### **3.2 Organisational analysis and key players in the South African telco industry**

The telco industry is driven by two major elements, namely, fixed-line and mobile phone services. The fixed-line service connects two fixed locations through wireless broadband, while mobile phones use cell towers to transmit data and do not use a broadband connection (Ng & Yi Young, 2019). Recently, most telco operators in sub-Saharan Africa have deepened their strategies by offering emerging digital services, such as gaming, music, and mobile financial services (for instance, insurance, e-commerce, and mobile banking services), in order to expand their scope, grow the business, and generate more revenue (Fitch Solutions, 2019). For example, Vodacom is a dominant mobile financial services provider in the Tanzanian market, and it was the first to launch 4G in the South African telco market. According to Rilke *et al.* (2021), the organisation that decides first and whose action is visible to others is the first mover. First-mover advantage status can be gained through various aspects such as



making the first move in the market and dominating as a brand, in market share, and in products or services (Suarez & Lanzolla, 2005; Leiblein *et al.*, 2021).

In South Africa, Telkom leads the fixed-line market, while Vodacom and MTN dominate the mobile space, followed by Cell C. Telkom was established in terms of the Post Office Act 44 of 1958, and it enjoyed a monopoly during the apartheid government years (Thornton *et al.*, 2006). After apartheid, the new political dispensation dealt with Telkom's monopoly and exclusive power to conduct telco services by introducing stringent regulations allowing access to the industry. Chapter 5 will provide a practical and quantitative view of South African telco industry competition. Thornton *et al.* (2006), furthermore, explain that Telkom's exclusivity rights came to an end on 7 May 2002, and in March 2003, Telkom sold 27.7% of its shares to the public.

Both Vodacom and MTN differentiate themselves through their innovation and diverse products that add value to South African consumers, which is what makes them the top two market players and financially sustainable. For example, both the Vodacom Group and the MTN Group do not offer only fixed-line and mobile services; as a part of their ecosystem growth and digital strategy, they are agile and focus on the evolving technology driving data inclusion, and they exploit more opportunities by offering both lifestyle and mobile financial services within the footprints where they operate (MTN Group Limited, 2016; Vodacom, 2020). This example highlights almost all of the growth strategy pillars that drive a business to efficiency and financial sustainability: market growth, product development, organic growth, integration, and diversification (Louw & Venter, 2013; Božić *et al.*, 2021). Table 3.1 depicts the key strategic pillars of the Vodacom Group, the MTN Group, and Cell C and the factors enabling each segment, highlighting the uniqueness of each mobile operator while indicating where there are some similarities.

Table 3.1 The strategic pillars of the top three South African telco market players

<b>Corporate strategy</b>	<b>Vodacom</b>	<b>MTN</b>	<b>Cell C</b>
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<b>Market growth</b>	Vodacom is a leading South African mobile operator operating in various international countries such as the Democratic Republic of the Congo (DRC), Kenya, Lesotho, and Tanzania, to name just a few.	MTN operates in 19 countries and leads the sub-Saharan African market share, as it continues to invest in its network in countries such as South Africa, Uganda, Zambia, Swaziland, Namibia, Ghana, and Nigeria.	Cell C operates only within South Africa and, through its turnaround strategy, is driving to be more an MVNO than an MNO. This is driven through asset realisation and interconnect roaming with the other two market players, where the organisation allows its customers to roam or use the Vodacom and MTN networks, depending on the signed agreement. For example, on 27 January 2021, MyBroadband (2021) reported that Cell C post-paid customers were being migrated to Vodacom and prepaid customers to MTN. It is understandable that Cell C is reducing the cost of maintaining network infrastructure such as towers while focusing more on customer service.
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<b>Product development</b>	It holds a diverse portfolio, including the Safaricom joint-venture M-PESA ecosystem, and digital and data services, including the IoT.	It pursues a digital strategy by offering mobile financial services, called Mobile Money, and video streaming while maintaining Global System for Mobile Communications (GSM) services.	It drives digital technologies to ensure financial inclusion and improve education; it is strong in voice and data services.
<b>Organic growth</b>	For both mobile operators, each operating company has its own strategy that is aligned with the group strategy to ensure performance, compliance with the laws and regulations of the country, and the financial sustainability of the organisation in the country where it operates.		The organisation wants to be the leading MVNO in South Africa, the innovative disrupter that leverages its telco platform with a superior customer experience, and a digital solutions provider.
<b>Integration</b>	All three mobile operators partner with various device manufacturers, such as Huawei, Nokia, Samsung, and Apple, to ensure a '[s]uperior customer experience' and make '[t]he customers' lives a whole lot brighter' while connecting for '[a] better future' and preventing any unnecessary inconvenience. For example, the greatest asset that all three mobile operators have is a network that can be accessed through a SIM card, which requires a device or platform to work. Therefore, wherever the SIM card is sold, there must also be devices available, about which the customer needs to make sound decisions, such as which make and model of handset to choose from.		

<p><b>Diversification</b></p>	<p>The key strategic pillars for Vodacom consist of financial services, best technology, and digital content platforms.</p>	<p>MTN allows ordinary communities to participate in MTN Zakhele Futhi shares. It drives its revenue through a non-voice strategy, as it pursues a digital strategy, and mobile data and lifestyle services, such as gaming and music.</p>	<p>Cell C promotes economies of scope by signing roaming agreements with other mobile operators in order to reduce cost, dominate as an MVNO, and explore new products.</p>
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Source: MTN Group Limited (2016); Fitch Solutions (2019); Vodacom (2020); MyBroadband (2021); Cell C (2020)

An analysis of the key strategic pillars of the Vodacom Group, the MTN Group, and Cell C provides a clear indication that the mobile operators are on the journey of transforming the traditional South African telco industry into one that is more focused on financial and digital services. For example, data inclusion, ecosystem growth, and digital strategy are key contributors and channels in the 4IR/5IR. This transformation highlights economies of scope, as the mobile operators move or exit from certain products that are no longer generating much revenue while entering more prominent and diverse adventures to increase and sustain revenue. Helfat and Eisenhardt (2004) suggest that economies of scope provide the organisations with the ability to diversify their products and/or market share by reducing the cost of non-productive products or businesses and entering another or shifting resources between productive products. Agasisti, Egorov, and Maximova (2021) allude to cost savings while producing multiple or different outputs. The dynamic nature of the telco industry demands flexibility and creativity due to evolving technology and cataclysmic change, as we are living in unprecedented times. Therefore, it is pointless for mobile operators to retain a section of the business or a product that does not add value or generate revenue.

It is interesting to note that all three mobile operators value excellent customer experience, quality networks, and digital transformation. From the three generic strategies, namely, focus, cost leadership, and differentiation, proposed by Michael Porter in 1980, both Vodacom and MTN are more focused on, and have greater differentiation through, their diverse products and international market share, while Cell C is more focused on and pursues cost leadership, as its key focus is on reducing the cost of maintaining network infrastructure as it transitions from MNO to MVNO while focusing on customer service as well. Therefore, the researcher believes that Vodacom, MTN, and Cell C are using diversified strategies to focus and gain greater competitive advantage in the telco industry and maintain financial sustainability. Porter (1987) advises that a diversification strategy allows businesses to expand their blueprints and maintain a sustainable partnership with their respective stakeholders to ensure market growth and competitive advantage. The next section will explore and analyse the internal strengths and weaknesses of the top three market players as well as their external opportunities and threats.

### 3.2.1 South African telco sector SWOT analysis

To conduct an industry analysis of the financial sustainability of the South African telco industry, a strengths, weaknesses, opportunities, and threats (SWOT) analysis was done to better understand the strategic insights of the mobile operators studied. A SWOT analysis was specifically selected to assist in identifying and evaluating the strengths, weaknesses, opportunities, and threats of the top three market players in the South African telco industry in order to get more strategic insights and internal analyses, including regarding their performance (Valentin, 2001; Chen *et al.* 2021). Santalova *et al.* (2020) emphasise that it is important not only to focus on threats and opportunities, but also to assess the degree of influence they both have on the strategy of the organisation and their level of importance to determine the probability of the risk. Furthermore, a SWOT analysis is a great matrix to evaluate the internal reviews of strengths and weaknesses, as well as the external opportunities, of an organisation, and it is flexible enough to be used with other frameworks such as the PESTEL framework, RBV, and Porter's five forces framework (Benzaghta, Elwalda, Mousa, Erkan, & Rahman, 2021). Lastly, the organisational analysis was expanded by exploring the vision, mission, strategic intent, and corporate values of each organisation.

Specifically, it is important to understand the SWOT analysis of the top mobile phone operators in South Africa before a critical analysis of the industry is presented. According to Thamrin and Pamungkas (2017), the SWOT analysis was developed at Stanford University by Albert Humphrey between 1960 and 1970 in order to help companies in the United States with strategic planning. The SWOT analysis identifies and evaluates the strengths, weaknesses, opportunities, and threats of the organisation in contemporary strategic management theory, especially the resource-based view, with the intention of providing immense strategic insights and internal analysis (Valentin, 2001). The board of directors of the organisation plays a critical role in strategic planning and the evaluation of business performance, even though the execution of the strategy involves everyone in the organisation. However, investors expect strategic performance from the executive team (Mottaghi, 2019). Benzaghta *et al.* (2021) highlight that a SWOT analysis is a powerful approach in evaluating the strategic position of an organisation. Phadermrod, Crowder and Wills

(2019) suggest that a SWOT analysis is often criticised due to its static nature. Table 3.2 provides a high-level view of the SWOT analysis for Vodacom, MTN, and Cell C in order to determine the root cause of the financial performance presented in section 1.2.2.1, Figure 1.2.

Given the organisational-level analysis and understanding of the top mobile operators, it is critical for researchers and organisational leaders and managers of mobile phone operators to understand the financial sustainability of the South African mobile telco industry in the contemporary business environment if they are to devise appropriate strategies to drive the innovation and growth of each mobile operator and create employment opportunities in the South African economy. To adequately understand the competitive structure of the South African telco industry and assess its profitability, it is insightful to use Michael Porter's five forces framework for the industry analysis. Michael Porter, a Harvard Business School professor, created a framework to analyse the level of competition in a particular industry. Porter's five forces are helpful when analysing and understanding specific aspects of the industry, namely, the threat of new entrants, competitive rivals among existing competitors in the industry, the threat of product or service substitutes, the bargaining power of the supplier, and the bargaining power of the buyer (Porter, 1987). Each of the five forces is discussed below to illuminate the telco industry and its competitive dynamics in South Africa.



Table 3.2 SWOT analysis for the top three South African telco market players

No.	Strengths	Weaknesses	Opportunities	Threats
<b>SWOT analysis for Vodacom</b>				
1.	Vodacom's brand is strong and is dominant in sub-Saharan Africa, where it operates in South Africa, Lesotho, Mozambique, the DRC, and Tanzania, giving it the first-mover's advantage (Fitch Solutions, 2019; Vodacom, 2020; Rilke <i>et al.</i> , 2021).	The intellectual property dispute between Mr Kenneth Makate and Vodacom (Pty) Limited regarding the oral agreement for the 'Please call me' service that has been dragging on since 1999 might damage Vodacom's reputation in the future (Njokweni, Mketsu, & Cwele, 2019).	Vodacom has a great opportunity to expand its operation to other African countries such as Ethiopia.	Vodacom Tanzania suspended services to 2.9 million customers from January 2020 following the Tanzania Communications Regulatory Authority (TCRA) requirements to enforce biometric data collection on customer registration (Vodacom, 2020).

2.	<p>The new M-PESA joint venture with Safaricom contributed 30.4% in profits during 2020, and it is the second biggest telco market in Africa, generating R16.2 billion in total revenue, with 38.2% of Vodacom's customer base accessing the M-PESA ecosystem, which is growing at 22% a year (Vodacom, 2020).</p>	<p>The cost incurred to obtain and fulfil the group's customer contract increased by 38% when comparing 2019 and 2020 (Vodacom, 2020).</p>	<p>Opportunities exist for Vodacom to expand M-PESA to other African markets outside Kenya where it dominates (Vodacom, 2020).</p>	<p>There are high regulatory costs and ambiguous tax legislation in some of the countries where Vodacom operates. According to the Vodacom (2020) financial report, it was reported that several legal and regulatory cases, including taxation matters, were still pending against the Vodacom Group.</p>
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3.	In South Africa, Vodacom leads with 41.3 million subscribers (Vodacom, 2020).	Vodacom lost 1.9 million customers in 2020 from a base of 43.2 million in 2019 (Vodacom, 2020).	As much as Vodacom was the first mobile operator in South Africa to launch 4G in 2012, there are still more opportunities to accelerate digital services and IoT services across the footprint (Fitch Solutions, 2019).	
4.	In 2019, Vodacom created 7 641 employment opportunities and spent R16.4 billion on employees in salaries and benefits (Vodacom, 2020). Furthermore, Vodacom paid R1.6 billion in various forms of employment taxes on behalf of the 5 620 South African employees.	In 2020, Vodacom reported R22 492 million in international revenue (Vodacom, 2020), while MTN Nigeria alone reported R57 980 million (MTN, 2021). Therefore, even though Vodacom is strong in the South African market, it is not so in the international market, as MTN dominates.		

5.	<p>In 2019, as an economic contributor and player in the countries in which it operates, the Vodacom Group contributed a total of R20.4 billion in tax collected, of which R11.7 billion was directly contributed to the South African economy after R69.1 billion revenue had been generated (Vodacom, 2020).</p>	<p>For the past five years, Vodacom’s revenue has been far less than MTN’s. At the end of the 2020 financial year, Vodacom reported R90.7 billion (Vodacom, 2020), while MTN reported R179 billion (MTN, 2021).</p>		
<p><b>SWOT analysis for MTN</b></p>				

1.	The MTN Group leads market share in many countries in sub-Saharan Africa where it operates (MTN, 2018; Fitch Solutions, 2019).	Out of 19 operating companies (Opcos), only two opcos contribute over 70% of revenue, that is, MTN South Africa and MTN Nigeria. Both countries face political and economic challenges (MTN, 2018). According to the 2020 financial results, Vodacom led with R69 593 million in revenue in South Africa (Vodacom, 2020), while MTN reported R45 473 million (MTN, 2021).	There are vast opportunities available for MTN to diversify its revenue, such as investing in digital content and collaborating with other businesses (MTN, 2018).	Even though MTN dominates in sub-Saharan Africa, the operating landscapes are gradually becoming more and more competitive (Fitch Solutions, 2019).
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<p>2.</p>	<p>MTN continues to maintain a strong international footprint as it drives a growth strategy in 19 countries, as indicated previously in the organisational analysis (MTN, 2018; Fitch Solutions, 2019).</p>	<p>The MTN Group experienced declining results in the Middle East Internet Holding (MEIH) S.A.R.L. e-commerce joint venture due to the impact of COVID-19 on the online booking platform for household services, business, and transportation (MTN, 2020).</p>	<p>Fitch Solutions (2019) agrees that there are opportunities for prominent growth in digital services, such as gaming and lifestyle, mobile data, e-commerce, and Mobile Money.</p>	<p>The PESTEL model is a reality at MTN due to political instability and active economic conflict in some of its international markets, resulting in exiting markets, such as Afghanistan, Syria, and Yemen, and these conflicts directly affect legal and regulatory matters (MyBroadband, 2018b; Fitch Solutions, 2019).</p>
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3.	As a JSE-registered company, MTN enjoys a strong subscriber base of 279.6 million as at December 2020 across its footprint and possesses a strong and dynamic executive management team that focuses on strengthening corporate governance to ensure the sustainability of the organisation (MTN, 2020).	Market coverage is largely the prepaid market. The disadvantage of the prepaid market is that it mostly holds low consumer spending power compared to post-paid or contract customers. Consequently, this has hindered growth in some of the markets, as certain services can only be offered to contract subscribers (MTN, 2018; Fitch Solutions, 2019).	Innovative initiatives are great opportunities for MTN to increase its service revenue and remain relevant in the market (MTN, 2018; Fitch Solutions, 2019).	
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4.	In 2019, MTN created 19 288 employment opportunities and spent R10.6 billion on staff costs (MTN, 2020). Furthermore, to balance the skill set, ensure innovation, and promote diversity, the 19 288 people included 58 nationalities.	The weakness of the local currency in key countries of operation reduces revenue after being converted into ZAR, and the stronger the USD, the higher the network expenditures that the operator bears to maintain the infrastructure (MTN, 2018; Fitch Solutions, 2019).		
5.	In 2019, the MTN Group contributed a total of R30 billion in tax collected in the countries in which it operates, of which R4.6 billion was directly contributed to the South African economy after R45.4 billion in revenue had been generated (MTN, 2020).	Regardless of the strong revenues over the past five years, the share price of MTN has been below that of Vodacom. For example, as at 31 March 2020, Vodacom was valued at R117.01 per share (Vodacom, 2020), while MTN was valued at R61.44 per share as at 31 December 2020 (MTN, 2021).		



<b>SWOT analysis for Cell C</b>				
1.	It has a strong brand and was rated as number 37 in the top 50 South African brands. Innovation is a strength, as Cell C pioneered digital services, with a key focus on the customer experience and unique products.	For the past three years, Cell C has been operating at a loss, and this is not financially sustainable for the mobile operator. It reported a R656 million net loss after tax in 2018, an R8.03 billion net loss after tax in 2019, and a R5.5 billion net loss in 2020 (BusinessTech, 2020; Cell C, 2021).	As Cell C transitions from being an MNO to an MVNO, it has an opportunity to negotiate better opportunities and/or partner with one of the other two rivals, since they own the allocated spectrum from which both Vodacom and MTN can benefit.	Emerging companies such as Rain disrupt the market, and similar to other mobile operators, Cell C is also affected by geopolitical challenges.
2.	New leadership drives a liquidity platform, the transition from telco to techco, the reduction in network expenses, and the move to being more of a wholesale aggregator through Vodacom and MTN roaming agreements (Cell C, 2021).	Based on the financial results of the past three years, as stated in the first point above, Cell C might not be in a position to successfully compete with its rivals due to cash flow issues.	Going forward, Cell C will be saving R171 million on wages and salaries (Cell C, 2021).	Weak performance of the South African rand (ZAR) compared to the United States dollar resulted in a R237 million foreign exchange loss during the year 2020 (Cell C, 2021).

3.	Focusing on a profitable customer base, by the 2020 financial year, Cell C had a subscriber base of 12.5 million (Cell C, 2021).	When comparing January with December 2020, Cell C's customer base decreased from 13.5 million to 12.5 million.	As a going concern, Cell C has a great opportunity to expand its footprint to neighbouring African countries once it has sorted out the cash flow challenges.	
4.	As part of cost-efficiency, at the end of the 2020 financial year, Cell C saved R215 million through staff restructuring under section 189 of the Labour Relations Act and R40 million from stores that were closed (Cell C, 2021).	Due to the organisational redesign, Cell C had to lay off over 150 employees and closed over 100 stores, reducing the headcount from 2 600 to 1 340 employees (Faku, 2020; Cell C, 2021).		

<p>5.</p>	<p>As part of corporate governance, Cell C is a catalyst for change in South Africa, as it is involved in various initiatives through sponsorship and social investment, and it strongly believes in acts of kindness and compassion. For example, Cell C sponsored the South African Ruby Legends, the Cell C Sharks, and the Cell C Inanda Africa Cup horsemanship tournament in 2017, 2018, and 2019 (Cell C, 2020c).</p>	<p>Cell C is not listed on the JSE and only operates within the South African judicial area.</p>		
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Source: Own compilation

### 3.2.2 SWOT matrix

A SWOT matrix is the result of a SWOT analysis after evaluating both internal (strengths and weaknesses) and external (opportunities and threats) factors that affect the performance of the organisation or industry (Verboncu & Condurance, 2016). Preparing a SWOT analysis is a tedious exercise, even though it provides insights into the strategy used by the unit or organisation analysed. The SWOT matrix is built on the SWOT analysis, where the data gathered during the analysis can be either qualitative or quantitative; the qualitative data requires sentiment analysis to categorise the text into negative or positive responses before it is segmented into the SWOT matrix (Thamrin & Pamungkas, 2017). This section will present strategic decisions and the result of the internal and external analysis of the top three South African mobile operators, before providing recommendations on how each mobile operator can capitalise on strategic processes according to how the researcher understands the main strengths, weaknesses, opportunities, and threats of each company. This will be achieved through the expansion of the SWOT analysis articulated in section 3.2 and, in Table 3.3, present the SWOT matrix of the study. The numbers 1 to 5 relate to the five themes, namely, (1) market share, (2) strategy choice, (3) customer base, (4) employment opportunities, and (5) economic contribution.

Table 3.3 SWOT matrix for the top three South African telco market players

External factors that can be used as an internal advantage	Opportunities O1, O2, and O3	Threats T1 and T2
Strengths S1, S2, S3, S4, and S5	OS (offensive strategy) O1S1, O2S2, O1O2S2, and O3S1	TS (adjustment strategy) T1S1, T2S1, and T1T2S1
Weaknesses W1, W2, W3, W4, and W5	OW (defensive strategy) O1W1, O2W1, O1O2W1, and O3W3	TW (avoidance strategy) T1W1, T2W1, and T1T2W1

Source: Own compilation

S1, S2, S3, S4, and S5 represent strengths 1 to 5, retrospectively attached to the above-mentioned themes linked back to the SWOT analysis articulated in section 3.2;

W1, W2, W3, W4, and W5 represent weaknesses 1 to 5 retrospectively; O1, O2, and O3 represent opportunities 1 to 3; and T1 and T2 represent threats 1 and 2.

Gurel and Tat (2017) label the SWOT matrix as a two-by-two matrix, as it creates a structure for strategic decisions within the organisation while providing a road map to the specific goals, including both the internal and external environment, by focusing on positive and negative aspects. Table 3.2 encapsulates the SWOT analysis, which interlinks with the overall SWOT matrix results presented in Table 3.3. Wugang (2016) defines the link between opportunities and strengths (OS) as an offensive strategy, between opportunities and weaknesses (OW) as a defensive strategy, between threats and strengths (TS) as an adjustment strategy, and between threats and weaknesses (TW) as an avoidance strategy. Offensive and defensive strategies are competitive strategies, mostly used to attract customers and increase market share (Jafari, Omran, & Jahani, 2020). The offensive strategy is used to outshine competitors, while the defensive strategy is used to attract and retain customers. The main objective of a defensive strategy is to prevent customer churn (Martín-Herrán & Sigué, 2019). The telco industry is a highly competitive business environment and, to increase market share, each mobile operator must consider strengthening its customer base; it is cheaper to retain existing customers than to acquire new customers. Yet, Fruchter and Sigué (2009) strongly recommend that the priority should be given to a defensive, over an offensive, strategy in order to drive profitability. Therefore, the adopted strategic choice and marketing strategy are critical for the success and financial sustainability of the organisation in order to continue to offer more employment opportunities and contribute to the South African economy.

Market share can be contextualised as a volume-based or monetary-based fraction of the absolute total market share over the relative market share (Edeling & Himme, 2018). Market share is one of the very important metrics for top management, even though some senior leadership is more concerned about, and interested in, profitability than market share (Parra-Bernal & Alves, 2017; Edeling & Himme, 2018). In this study, market share refers to the footprint where Vodacom, MTN, and Cell C operate. To determine whether the organisation contributes to the economy, one needs to evaluate the role it plays in reducing the unemployment rate, in contributing to GDP, and in export (Bing & Kun, 2019). The top three mobile operators contribute to the South

African economy. Other industries, such as tourism, contribute to foreign exchange, employment, investment, GDP, and visitor exports (Hieu & Yen, 2019). The following points conclude the SWOT matrix analysis, summarising Table 3.3 and providing more insights.

1. S1 represents the Vodacom, MTN, and Cell C market share strengths. Both Vodacom and MTN are strong in sub-Saharan Africa where they operate, while Cell C's brand is strong in South Africa, as it only operates within the South African jurisdiction.
2. W1 represents weaknesses in the market share of each mobile operator. The analysis reports a high reputational risk exposure for Vodacom due to its over two-decade-long litigation. The revenue-generating operations of MTN are facing high geopolitical risks, while Cell C has been experiencing cash flow challenges for the past three years.
3. O1 represents the available opportunities for each mobile operator to expand its market share, and the analysis reveals that all three mobile operators have an opportunity to become part of a joint venture and/or partner with other mobile operators in order to reduce costs and increase revenue as they transition from a telco to a techco.
4. T1 represents the market share threats to which each mobile operator is exposed. All three mobile operators are exposed to geopolitical, regulatory, and high levels of competition challenges.
5. S2 represents the strength of strategic choices. Both Vodacom and MTN are using a growth strategy, while Cell C is using a diversified strategy, where a low-cost strategy was also observed.
6. W2 represents weaknesses deriving from the selected strategic choices made, and all three mobile operators must drive cost-efficiencies to remain financially sustainable.
7. O2 represents opportunities available for each mobile operator to capitalise on its strategy, where, in the themed data, O1 is not different from O2.
8. T2 represents threats from the strategic choices that each mobile operator makes, where all three are experiencing political, economic, social, technological, environmental, and legal challenges within the countries where they operate.

9. S3 represents customer base strength, while W3 represents weaknesses or decreases in the customer base, and O3 represents the opportunity each mobile operator has to expand or maintain its existing customer base.
10. S4 represents unemployment reduction and sustainable employment opportunities that each mobile operator has to offer to South Africans, and W4 represents weaknesses that threaten the employment opportunities each mobile operator might offer.
11. Lastly, S5 represents the role played by each mobile operator in strengthening and contributing to sustainable economic growth, while W5 is its opposite.

### **3.3 The shift from a monopoly to the liberalisation of mobile phone service markets**

The interest in the current study was inspired by the complexity of the telco industry and the history of its monopoly. In the 1940s, there was no freedom of communication, as the telco industry was politically controlled for selfish gains, and communication channels were opened exclusively to serve specific regions (Kang, 1987; Beyersdorf, 2015). In 1941, there was no freedom of communication, as the physical facilities were completely inadequate, with very minimal network capacity, and few countries had broadcasting capacity (Kang, 1987). In South Africa, the government monopoly and political interference in the telco industry influenced the strategic alliances and cost leadership of mobile operators. The cost of connectivity is extremely high due to the scarcity of spectrum, as the government regulates telco competition laws and owns the spectrum (Robb & Paelo, 2020). After apartheid, the new political dispensation dealt with Telkom's monopoly and exclusive power to offer telco services by introducing stringent regulations that allowed access to the industry with a focus on competition.

South Africa is one of the countries within the SADC that has transformed the telco industry from a monopoly, and it dominates in high-quality data, voice, SMS, roaming, and interconnect services (Robb & Paelo, 2020). The transformation and evolution of the South African telco industry are evidence of the freedom of communication access promised by the ANC government during the dawn of democracy in 1994. Cell C disrupted the South African telco market in 2001 after Vodacom and MTN had been

formed in 1994 (MTN, 2018; Loom, 2019a; Loom, 2019b; Nene, 2019; Brederode, 2023). Since Cell C first launched its product in 2001, focusing on a low-cost strategy, it has built a strong subscriber base over the years and has become a strong competitor for Vodacom and MTN (Loom, 2019b; BusinessTech, 2020; Cell C, 2021). When MTN and Vodacom were formed in 1994, 2G was the available technology; now, the technology has evolved to 5G. The latest technologies, such as 4G and 5G, allow telco customers to connect to the mobile Internet at enormous speeds that supersede fixed broadband technologies (Dagli & Jenkins, 2016). Therefore, evolving technology presents mobile operators with a competitive edge and opportunities to diversify their products and services, allowing customers to choose from various offerings such as fixed broadband, 5G, IoT, and 4IR (Höller *et al.*, 2014; Fotouhi *et al.*, 2019).

The telco industry has turned some of the telco competitive advantages from 1994, such as strategic alliances and cost leadership, into competitive challenges, as the industry has moved away from a monopoly to a market that is open to all mobile operators, growing into local and international markets, bringing various products and fintech services (Faccio & Zingales, 2017; Magliozzi, 2017; Zaman, 2023). As previously indicated in Chapters 1 and 3, the top three market players dominate the market and have proven to be the leading mobile operators in the South African telco industry. However, Cell C does not have all the marketing advantages that are possessed by both Vodacom and MTN, as it only operates in South Africa, and it also does not offer some of the services offered by both Vodacom and MTN. For example, Cell C does not offer fintech services, while Vodacom holds a diverse portfolio, including the M-PESA joint venture with Safaricom, which drives fintech, and MTN offers its Mobile Money services (Fitch Solutions, 2019). However, fintech services might threaten financial sustainability due to new fiscal policies and currencies that need to be approved by various stakeholders, such as the FSB and other governance institutions, to ensure compliance (Zaman, 2023).

### 3.3.1 Monopoly and financial sustainability in the market

In South Africa, the apartheid government used communication as part of its controlling strategy. The telco policy favoured a monopolistic telco environment,



resulting in immense communities being deprived of communication access, which is one of the basic rights for all South Africans (Ali, 2010). A monopoly limits service providers. Telkom was established in terms of the Post Office Act 44 of 1958, and it enjoyed a monopoly during the apartheid government (Thornton *et al.*, 2006). Market and competitive advantages were completely different from those in 2023, as Telkom not only enjoyed a monopoly in South Africa during the apartheid regime, but financial sustainability was also guaranteed, as there was no competition until 1994 when both Vodacom and MTN were formed. On the one hand, when Vodacom was formed, it was a joint venture between Telkom with a 50% share, Vodafone with a 35% share, and VenFin with a 15% share (Brederode, 2023). On the other hand, MTN operated as M-Cell in 1994 and was the first independent communications network in South Africa (MTN, 2018; Nene, 2019).

The monopoly, in the decades prior to the 20<sup>th</sup> century, opened communication channels to serve specific regions exclusively (Kang, 1987; Beyersdorf, 2015). However, the telco industry has evolved, moving away from a monopoly, and it is now competitive enough for South African mobile operators to trade internationally and compete against international companies such as Orange, Orascom, and Globacom (Faccio & Zingales, 2017; Magliozzi, 2017).

### 3.3.2 Deregulation, privatisation, and financial sustainability

The history of government monopoly and oversight of state-owned entities affected fair competition, fair pricing, service quality, innovation, and technological advancements (De Silva *et al.*, 2023). The advancement of technology has played a crucial role in driving the deregulation and liberalisation of state-owned entities in South Africa, such as Telkom. Government regulations and fiscal policies applied to the telco industry are ineffectual, resulting in hindrances to growth and market distortions (Matheson & Petit, 2021; Katz & Jung, 2023). The model of microeconomic theory includes an economic agent, the consumer, the producer, monopoly, choice, and decision-making under uncertainty (Osborne & Rubinstein, 2020). Market competition, government monopoly, and politics affect telco competition rules and the prices and financial sustainability of mobile operators (Faccio & Zingales, 2017).

Deregulation diminishes government control, supervision, and monopolistic policies (Özden-Schilling, 2016). For example, De Silva *et al.* (2023) highlight that, in the USA, India, Singapore, Ethiopia, Nigeria, and Sri Lanka, the deregulation of the energy industry has led to lower energy prices, addressed regulatory challenges, and increased fair competition. Furthermore, the deregulation of the energy industry has made energy more affordable, increased competition, attracted new potential investors, and driven financial sustainability (Urpelainen & Yang, 2019).

### 3.3.2.1 The role and impact of government in the market as a regulator

Accountability and transparency are key principles of governance best practice, while sound governance reflects the strength and sustainability of the management in an organisation (Zhou *et al.*, 2022). The King IV report sets out the code for sound corporate governance, and companies listed on the JSE must publicly disclose their adherence to the compliance principles set by King IV (Van Vuuren, 2020). In any country, corporate governance improves transparency, increases economic stability, reduces fraud, and drives growth and market efficiencies (Al-Faryan, 2020). Corporate governance is a crucial factor for economic, social, and environmental sustainability, as it supports the integrity of the internal decisions and holds governing bodies accountable as they support organisations in achieving their strategic objectives (Al-Faryan, 2020; Van Vuuren, 2020). Van Vuuren (2020) examined whether corporate governance and financial statement disclosure by JSE-listed companies were sufficient to confirm compliance with King IV principles and discovered that, in some companies, corporate governance was just a tick-box exercise. The cases of Steinhoff International Holdings N.V. (trading as Steinhoff), Tiger Brands Ltd, and Tongaat Hulett Ltd are perfect examples of misalignment between what the businesses reported and their economic, social, and environmental impact because of their non-compliance. Steinhoff manipulated financials while declaring in its published financial reports that it complied with corporate governance requirements and responsibly managed its assets in a sustainable manner at both divisional and group level (Naudé, Hamilton, Ungerer, Malan, & De Klerk, 2018; Van Vuuren, 2020). Tiger Brands Ltd, trading as Tiger Brands, assured stakeholders in its annual reports of company commitment to sound corporate governance and alignment with King IV principles in order to support its strategy and new operating model (Van Vuuren, 2020). However, between January 2017 and June 2018, the World Health Organization (WHO) reported

an outbreak of listeriosis, a deadly disease, that killed more than 200 people (Hunter-Adams, Battersby, & Oni, 2018). Subsequently, in 2018, after an extensive investigation by the South African former Minister of Health, Dr Aaron Motsoaledi, he announced that the source of listeriosis was the processed meat plant owned by Tiger Brands (Department of Health, 2018). Furthermore, the WHO reported that this was the largest listeriosis outbreak that had ever been reported (Hunter-Adams *et al.*, 2018). In the case of Tongaat, after a forensic investigation and internal discussions between the company auditors, JSE Limited, management, and legal advisors on 10 June 2019, the JSE was requested by the Board of Tongaat Hulett Ltd to suspend the company listing with immediate effect, as Tongaat needed to restate the March 2018 financial statements that had an impact on the mid-year financial position released on 30 September 2018, which was no longer appropriate (Tongaat, 2019). Regardless of the Tongaat Board declaring value creation to all stakeholders by elevating the importance of governance and compliance with King IV and confirming the effectiveness of best practice principles in the daily activities of the company, the reality was different. Therefore, this study will contribute to the body of knowledge by providing a telco corporate governance perspective, as previous studies have examined other industries, but not telco best practice, and by exploring how the telco industry makes money.

According to King IV principles, all governing bodies, including South African mobile operators, are expected to be good corporate citizens (IDSA, 2016). Principle 13 of King IV states that the organisation must adhere to all the laws and regulations of the country where it operates and comply with all industry-related legislation (IDSA, 2016; Nene, 2019). In South Africa, the governing body that regulates telecommunication matters is the Independent Communications Authority of South Africa, known as ICASA. ICASA's mandate is stated in the Independent Communications Authority of South Africa Act 13 of 2000 and the Electronic Communications Act 36 of 2005; it was previously governed by the Postal Services Act 124 of 1998 and the Broadcasting Act 4 of 1999 (Government Gazette, No. 28743). In the context of the study, apart from issuing spectrum to mobile operators, ICASA is also responsible for ensuring that consumers are protected and that there is healthy competition in the telco industry. According to Naidoo, Kaplan, and Fransman (2005), ICASA was established in July 2000 in terms of the Independent Communications Authority of South Africa Act after

merging two previous regulators and taking over their functions. The two organisations that were merged into ICASA were the South African Telecommunications Regulatory Authority (SATRA) and the Independent Broadcasting Authority (IBA). The next two subsections of the study will present a thorough exploration of the levels of compliance of South African mobile operators and the implications of non-compliance with ICASA regulations and other government legislation, taking a close look at the performance of Vodacom and MTN as the top two market players in South Africa.

i. The compliance of South African mobile operators

The telco industry grapples with not just government processes and regulatory demands, but also evolving technology and shifting customer behaviour, and these factors collectively present challenges to sustaining growth within the industry (Fotouhi *et al.*, 2019; Rahmoun, 2020). Evolving technology drives industry players to ensure creativity to remain competitive and relevant in the market, for without innovative ideas, the business cannot survive the contemporary issues of this age (Hong *et al.*, 2018). With the advancement of technology and smartphones, mobile operators experience a continuous decline in voice and SMS revenue as subscribers move from traditional SMS to message applications and other over-the-top (OTT) services, such as social media tools like WhatsApp, Twitter, Facebook, WeChat, and Skype (Pierce, 2018). Yet, mobile operators are expected to reduce data costs, as is seen from the #DataMustFall campaign. Despite the year-on-year performance decline in both voice and SMS revenues, Vodacom, MTN, Cell C, Telkom, Rain, and Liquid Telecom are still required to pay both direct and indirect taxes, such as corporate tax and import duties, to SARS.

The effectiveness of the regulations is critical in achieving the liberalisation and efficient allocation of spectrum and resources in the market, through healthy competition, in order to drive affordable network connectivity (Gillwald, 2005; Faku, 2019; McLeod, 2019). Other services offered by ICASA include protecting consumers, imposing licence conditions on telco operators, managing and controlling the effective use of the spectrum, and creating competition among telco operators. The role of government to support telco operators in granting licences to new network operators is imperative, as this promotes competition among existing operators (Bucheli & Salvaj, 2014). Fotouhi *et al.* (2019) concur that evolving technology presents mobile

operators with challenges and unlimited opportunities and allows customers to choose from various services.

Operators must ensure that they remain informed about new regulations and are aligned with various regulatory standards and government department requirements to prevent finding themselves in hot water for non-compliance. For example, on 7 August 2017, ICASA amended the End-User and Subscriber Service Charter Regulations and ordered operators to comment regarding customer service depletion and arguments about data usage (Government Gazette, No. 41030). Furthermore, the current study investigates and extensively analyses the impact of recent decisions made by the Department of Communications and other South African regulatory bodies regarding the performance of mobile operators. Aizenman and Jinjarak (2005) and Ng'ang'a (2017) focus on the performance of a business as an evaluation of its efficiency. Magnusson *et al.* (2003) and Ghalem *et al.* (2016), however, consider various aspects, including innovation, competitiveness, profitability, and value-add, among the elements related to the performance of a business. On 7 May 2018, Notice 233 of 2018 was issued, amending the End-User and Subscriber Service Charter Regulations in terms of section 4, read with section 69(3), of the Electronic Communications Act 36 of 2005, instructing mobile operators to send messages to customers to notify them when their data usage reached 50%, 80%, and 100% depletion of data bundles (Government Gazette, No. 41613). These amendments were a response to customer complaints about the high bills or bill shocks they received from mobile operators on their mobile lines. The amendments were made to ensure that customers were not billed at out-of-bundle rates, unless they opted in or responded to mobile operator messages and accepted proceeding with Internet connectivity after depleting their in-bundle data.

The negative implication of the End-User and Subscriber Service Charter Regulations is evident in the performance of the top two leading mobile operators, as they were forced to reduce their out-of-bundle data rates and apply the data usage regulations in order to comply with the South African regulator. For example, the 2019 mid-year results for MTN SA showed a 1.9 million decline in its subscriber base, its EBITDA margin decreased by 1.9 percentage points (pp), and prepaid service revenue also decreased by 5.5% (MTN, 2019). The 2019 mid-year results for Vodacom showed a

decline of 3.6% in average revenue per user (ARPU), service revenue declined by 1.2% to R12.6 billion, and enterprise service revenue declined by 3.7% (Vodacom, 2019; Vodacom, 2020). Such a high decline in revenue for mobile operators demonstrates the impact of government decisions on the South African telco industry for prepaid and enterprise customers, who are more price sensitive than fixed-line customers. From the 2019 mid-year results for both mobile operators, they vigorously stated that the decline was a result of the implementation of the End-User Subscriber Service Charter regulations by ICASA and the reduction in out-of-bundle (OOB) tariffs on data services that came into effect on 1 March 2019 (MTN, 2019; Vodacom, 2019). It is clear that the End-User Subscriber Service Charter regulations required by ICASA and the reduction of OOB tariffs on data services were driven by the #DataMustFall campaign.

#### ii. Non-compliance of South African mobile operators

The South African telco industry is required to comply with ICASA regulations, the Protection of Personal Information (POPI) Act 4 of 2013, and the Electronic Communications Act 36 of 2005 (South Africa, 2013). MTN and Vodacom are not the only organisations that have found themselves in hot water with the regulator. For example, in 2018, the Communications Authority of Kenya imposed a fine of \$4.47 million on Safaricom, accusing it of unfair competition, after Elige Communication Ltd had laid a complaint indicating that Safaricom was blocking its calls. Safaricom, however, denied these accusations, and it claimed that the lines had been deactivated due to a type of subscription fraud known as SIM box (Sesinye, 2018). SIM box is an illegal way of terminating international voice traffic to a locally licensed operator on another network, using a local interconnection link. Normally, the SIM-boxers route and terminate these voice calls through the Internet. These syndicates use a machine to conduct their business at the expense of the mobile operators, as they buy SIM cards and pretend to be normal subscribers (Morrow, 2017).

### **3.4 The resource-based view of a firm and competition in the telco sector**

The resource-based view (RBV), pioneered by Jay Barney (1991), states that the internal resources and capabilities of a business are critical for profit and competitive

advantage in the private sector. The RBV theory is an analytical tool that guides organisations in sustaining their competitive advantage through the exploitation of core competencies and main resources (Albert, 2023). Resources can be segmented into various aspects such as tangible and intangible resources and financial, physical, technological, and human resources. In the field of management and organisational sciences, the RBV elucidates how critical competencies can cultivate a competitive advantage in a very dynamic environment (Kero & Bogale, 2023). However, the traditional RBV has not explicitly explained why and how certain businesses have a competitive advantage and others not. To address rapidly changing environments, organisations are required to be agile enough to adapt, build, and integrate both internal and external competencies. By so doing, organisations will be advancing dynamic capabilities when deducing from the RBV. The dynamic capabilities theory was developed by Teece (2018) to elucidate how companies managed the two contradictory imperatives of agility and resilience and how value creation happened. In essence, creating, extending, or modifying the resource base are key elements that distinguish ordinary from dynamic capability (Bornay-Barrachina, López-Cabrales, & Salas-Vallina, 2023). Dynamic capability drives innovation and uniqueness and develops a valuable competitive advantage.

Heterogeneity and immobility are not sufficient, and sustainable competitive advantage factors, such as the positive performance and competitive edge of the organisation, lie in its unique capabilities (Barney, 1991). The RBV provides a competitive-edge baseline, as the competitive edge of an organisation depends on both tangible and intangible resources available within the organisation (Wernerfelt, 1995). Tangible resources are physical in nature and exist to increase productivity, making it easy to manage and control, while intangible resources are soft resources, such as quality service, intellectual property, human intelligence, innovative products, and company reputation (Khan, Atlas, Ghani, Akhtar, & Khan, 2020). The success of the telco industry requires mobile operators to possess both tangible and intangible resources. Tangible and intangible resources will include financial, technological, personal, and organisational resources (Powmya, Abidin, & Azizi, 2019). To transform competitive strategy into a sustainable competitive edge, the organisation must have diverse and competent internal resources supporting the full value chain of the enterprise, and the RBV effectively drives the competitive edge of the organisation

(Omayio, 2017). However, Porter (1987) suggests that, for an organisation to gain a strategic position, it must optimise aspects that differentiate it from its rivals.

Abdolshah *et al.* (2018) argue that the generic strategies defined by Michael Porter might not be successful for all businesses, as some businesses might fail to strike the balance between cost strategy, differentiation strategy, and focus strategy. However, there should not be any disconnect or contradiction between cost leadership strategy and differentiation strategy, as they both drive sustainable competitive advantage (Subrahmanyam & Azad, 2019). Therefore, those businesses that can find a harmony and balance in Porter's generic strategies should be competitive and sustainable. Furthermore, to increase ROA and be financially sustainable, a cost leadership strategy is better than a differentiation strategy in the manufacturing and hotel industries (Bhattarai, 2018). The RBV assumes that the competitive advantage of an organisation depends on its resources, while the resources owned by the company are viewed as key assets and strategic capabilities (Kamardi, Mahdiraji, Masoumi, & Jafari-Sadeghi, 2022).

Understandably, different industries might react differently to the application of Porter's generic strategies, since industry dynamics may be completely different and, thus, may not possess similar competitive advantages. For example, the telco industry is very complex and highly regulated, and maintaining infrastructure in a telco is very expensive. However, investment in telco networks is crucial in order to close the digital divide, foster the digital economy, and infuse performance (Jung, 2020). Ali and Anwar (2021) discovered, after exploring the effects of Porter's generic strategies on competitive advantage in Erbil's banking sector, that cost leadership had more of a competitive advantage than a differentiation strategy. However, in contrast, the RBV explains the capability of resources in an industry by linking various dimensions with service quality (Al-Gasawneh, Anuar, Dacko-Pikiewicz, & Saputra, 2021). Therefore, how an organisation manages its resources will determine its market position and its opportunities to improve its performance (Kamardi *et al.*, 2022).



### 3.5 Factors affecting sustained competitive advantage in the telco sector

Competitive advantage can be defined as the ability of a business to create better economic value than competitors; this process can be sustainable, although it is sometimes not sustainable (Kamardi *et al.*, 2022). Huang, Dyerson, Wu, and Harindranath (2015) regard the concept of competitive advantage as an RBV approach because, if the company has unique, valuable, and irreplaceable resources, then it has a sustainable competitive advantage. Competitive advantage drives cost-efficiencies (Gürlek & Tuna, 2018). To win competitive advantage, companies must balance their strategy with environmental, social, and economic dimensions, for competitive advantage is not only about profitability (Gürlek & Tuna, 2018; Darvish, Archetti, & Coelho, 2019).

The telco industry is continuously facing evolutionary challenges on the African continent, as well as across the globe, due to evolving technology, global market competition, and microeconomic pressure. In South Africa, since the birth of democracy in 1994, a lot has changed, not only in the political, economic, social, technological, environmental, and legal landscape, but also in terms of competition in the telco industry, fiscal policies, and regulation (Pearce & Robinson, 2007; Louw & Venter, 2013; Nene, 2019). The next sections will closely evaluate the agility, alertness, accessibility, decisiveness, swiftness and flexibility, new product development, and innovation and disruptive technology of telcos and then later explore customer loyalty and customer retention.

#### 3.5.1 Firm agility

Firm agility can be defined as the process followed by an organisation to dynamically respond and react to unprecedented changes, threats, and environmental opportunities (Gligor & Holcomb, 2012). An agile firm adjusts external operations and adapts its operations quickly by implementing flexible solutions to respond to business disruptions (Tse, Zhang, Akhtar, & MacBryde, 2016). Agile firms can be identified by how swiftly the organisation deals with unexpected and unplanned change, and this can be used to determine whether the organisation is well equipped to transform changes into opportunities (Sharifi & Zhang, 1999). COVID-19, as well as the

restrictions that came with the pandemic, allowed the telco industry to make the working-from-home model a success through network connectivity. Subsequently, Veligura *et al.* (2020) incorrectly claim that, following the working-from-home model after the COVID-19 pandemic, there are 294 million Internet users in Africa. This researcher rejects this analysis, as it is unfounded and lacks scientific accuracy. In 1996, Africa's mobile penetration rates grew, and subscriptions increased to a massive 645 million compared to one million subscriptions in 1994 (Jahanbakht, Mostafa, & Veloso, 2022). Furthermore, 'by 2010, the number of computers on the Internet had surpassed the number of people on the earth' (Gershenfeld & Vasseur, 2014: 28). In addition, Johnson (2022) indicates that 62.5% of the global population, which is 4.95 billion, are connected and using the Internet across the globe.

When combining the subscriber base for the top three South African telco market players, the numbers already exceed Veligura *et al.* (2020)'s account of 294 million. For example, in January 2020, Vodacom Tanzania suspended services to 2.9 million customers following Tanzania Communications Regulatory Authority (TCRA) requirements to enforce biometrics on customer registration, while, in South Africa, Vodacom is leading with 41.3 million subscribers (Vodacom, 2020). With 20 years' experience in the industry, this researcher is convinced that Vodacom Tanzania did not suspend the entire subscriber base, as some numbers are classified, such as politicians, medical services, and investigating units. Furthermore, the researcher rejects the 294 million Internet users in Africa account stated by Veligura *et al.* (2020) because, in South Africa, the Cell C subscriber base was 12.5 million by the 2020 financial year (Cell C, 2021), and MTN had 279.6 million customers across the footprint as at December 2020 (MTN, 2021). When adding up Vodacom, Cell C, and MTN customer numbers alone, without consolidating other operators in various African countries, the total subscriber base for these top three market players in South Africa is equivalent to 333.4 million. Therefore, the telco industry is the driver of efficiencies and agility.

in 1993, the term 'agility' was coined by Goldman and Nagel (1993), and it means to move swiftly, quickly, and easily (Womack, Jones, & Roos, 1990). According to Gunasekaran (1999), agility is a more amenable blueprint for a business to determine its readiness to change in emergencies and uncertain scenarios. Agile manufacturing

is designed to collect data at every stage of the process, improve the competitiveness of the organisation, and accommodate changes in the markets (Nagel & Dove, 1991; (Tonday, Katore, Raut, Rathod, & Morwal, 2021). However, there are different dimensions that affect the agility of a firm, such as regulation and the laws of the country where the business operates. For example, in South Africa, the telco industry is regulated by ICASA, whose task is to protect customers and allow for fair competition among mobile operators (Faku, 2019; McLeod, 2019). The combination of developed and underdeveloped institutions, fiscal policies, government interference in economic exchanges, and an ineffectual judicial system have a direct impact on the agility of a firm (Bai, Sheng, & Li, 2016; Shou, Zheng, & Zhu, 2016). In the context of the South African telco industry, the perfect example of ineffective fiscal policies and government interference would be the management of spectrum release. Unfortunately, South African mobile operators cannot substitute or switch regulators and/or competition authorities, as ICASA has been set up by legislation in the country. In South Africa, over the past 20 years, ICASA has been hampered by political imperatives, and this is evident in the ineffectiveness of issuing spectrum to mobile operators (Howell & Potgieter, 2022).

#### 3.5.1.1 Alertness

According to Sautet (2022), the alertness concept was developed by Israel Kirzner in 1967; subsequently, the theory of human action was published, which focused on entrepreneurial aspects and the market process. Alertness is the process where entrepreneurs are always scanning horizons, searching for places to stake their innovative ideas, until they find a competitive market (Kirzner, 1979). Alertness has been associated with the paradigm of discovering and recognising new opportunities (Fiet, Norton Jr, & Clouse, 2013). Establishing mobile operations requires a large investment and is very expensive; however, some entrepreneurs who had capital during the late 1990s also joined the telco industry when they started some of the mobile operators (Jahanbakht *et al.*, 2022). The capital investment made by Vodacom, MTN, Cell C, and Telkom between 2016 and 2017 in South African telco infrastructure can be seen in the millions of rand spent by South African mobile operators, demonstrating their commitment to increasing network capacity and ensuring that South Africans have access to an excellent network (Moeng, 2018; Vodacom, 2020; Muller, 2022).

Several researchers are increasingly associating alertness with entrepreneurial opportunities because 'the entrepreneur is at all times scanning the horizon, as it were, ready to make discoveries' (Kirzner, 1997: 72). However, Lanivich, Smith, Levasseur, Pidduck, Busenitz, and Tang (2022) discovered emerging trends in nomological alignment, misinterpretation, and inconsistencies in the concept of alertness and its measurement. In the context of the South African telco industry, Rain is the perfect example of the alertness paradigm, as, in 2018, this data-only network provider discovered and recognised the opportunity to be a low-cost data provider in a market where data cost was very expensive (Fiet *et al.*, 2013; Moyo, 2023). Since 2016, the price of data has been a contentious topic in South Africa, resulting in various stakeholders responding differently, to the extent of the formation of the #DataMustFall movement in September 2016 (MyBroadband, 2020a). The cost of data connectivity is low in other Southern African countries such as Zambia and Tanzania, even though the quality of data connectivity is poor (Robb & Paelo, 2020). South Africa is different from Zimbabwe, where the cost of data connectivity is high and the quality of connectivity is very poor; however, in South Africa, the cost of data connectivity is high and the network quality is also high, as South African mobile operators have invested in the best technology while partnering with world-class suppliers such as Huawei, Ericsson, and ZTE (Pongratz, 2023). Furthermore, Vodacom and MTN spent billions of rand in capital expenditure in order to expand and increase network capacity and resilience, as their mandate is to ensure that South Africans experience excellent network connection (Moeng, 2018; Vodacom, 2020).

#### 3.5.1.2 Accessibility

The origin of the accessibility concept can be traced back to regional economic planning and location theory from the 1920s (Geurs & Östh, 2016). Hansen (1959: 73) defines accessibility as 'the potential of opportunities for interaction' and reflects the opportunity for transit. Accessibility is a tool used to quantify and monitor proposed policies on land use (Iacono, Krizek, & El-Geneidy, 2010). Accessibility provides the freedom for people to freely participate in the economy and consider other aspects such as affordability, acceptability, and availability to ensure that needs are met (Curl, 2018; Jamei, Chan, Chau, Gaisie, & Lättman, 2022). There are four dimensions of

accessibility, namely, land use, temporal, transport, and individual components (Geurs & Van Wee, 2004; Jamei *et al.*, 2022).

Universal communication access requires a greater level of investment, and community payphones promoted the drive for universal access in most developing countries (Sey, 2008). Even though there has been an improvement in communication access, not all communities in rural areas have access to wireless telephony and Internet services due to expensive telco infrastructure and sustainability problems (Parkinson, 2005; Fitch Solutions, 2019). The lack of communication access not only deprives communities of a human right, which is the freedom of expression, but it also creates a digital divide, deepens inequality, and increases digital literacy vulnerabilities (Baca-Feldman *et al.*, 2019). According to Kass-Hanna *et al.* (2022), digital literacy is one of the key drivers of financial resilience, including financial literacy. The digital divide hinders digital penetration and financial inclusion, and it is not possible to measure the level of fintech usage to determine the financial inclusion index (Satyasai & Kumar, 2020). According to Jung (2020), it is critical to close the digital divide and foster the digital economy in order to increase the productivity of a country and achieve sustainable growth. To ensure the operational success and financial sustainability of a telco, mobile operators should adopt a methodology that incorporates all the dimensions of quality and ensure that customer satisfaction is a high priority (Rahmoun, 2020). Financial inclusion is critical for financial sustainability, which is a multidimensional phenomenon that drives both social and economic equality (Eizaguirre *et al.*, 2019; Purvis *et al.*, 2019; Satyasai & Kumar, 2020).

#### 3.5.1.3 Decisiveness

Decisiveness is about the quality of decision-making (Coffeng, Van Steenberghe, De Vries, Steffens, & Ellemers, 2023). According to Moser (1990) and Adair (2007), decision-making is the process of selecting and choosing the most logical, beneficial, and optimal option among many presented options and all available alternatives, after collecting relevant information and evaluating the outcomes in order to reduce all doubt and uncertainty. Decision-making can be influenced by the nature of a leader or leadership style. For example, Li, Liu, and Luo (2018) suggest that informed leadership behaviours benefit decisiveness and increase the decision-making process. Participative leaders are open-minded and allow team members to express

themselves and their ideas and use the suggestions to improve decisions made (Coffeng *et al.*, 2023). Another leadership style, called empowering leadership, is classified by decision quality and knowledge sharing (Srivastava, Bartol, & Locke, 2006; Meyer, Burtcher, Jonas, Feese, Arnrich, Tröster, & Schermuly, 2016).

Öztekin and Bayraktar (2019) conducted a study to determine how decisiveness, curiosity, self-efficacy, and interdependent self-construal related to future hopefulness among senior students and discovered that interdependent self-construal, self-efficacy, and decisiveness were the determinants of hopefulness, while curiosity did not have any impact on hopefulness. An organisation that is led by an indecisive leader can never be agile, as it needs to gather unrealistically solid evidence before making any decision, and this has an impact on organisational efficiencies (Ishida, 2008). The telco environment requires mobile operators to be flexible and agile in order to respond to market demands and remain competitive. Currently, both the Vodacom Group and the MTN Group do not only offer fixed-line and mobile services, but, as a part of their ecosystem growth and digital strategy, they have made a decisive decision to be agile, as they respond to evolving technology and drive data inclusion in the markets where they operate (MTN Group Limited, 2016; Vodacom, 2020). For example, both the Vodacom Group and the MTN Group employ decisive strategies to exploit more opportunities by offering both lifestyle and fintech services in the areas where they operate. The results of this decisive strategy are spectacular, as Vodacom processed \$364.8 billion in M-PESA transactions in the year ended 31 March 2023 (Vodacom, 2023), while MTN processed R221.3 billion in fintech transactions (MTN, 2023). Furthermore, Vodacom holds a diverse portfolio, including the joint venture with Safaricom for the M-PESA ecosystem to drive fintech, while MTN offers the Mobile Money mobile financial service (Fitch Solutions, 2019).

#### 3.5.1.4 Swiftness and flexibility

Swiftness is part of agility and a continuation of the decisiveness phase, focusing on the requirements needed to implement the agreed-on decisions and an agile change management process (Tondy *et al.*, 2021). According to Gligor (2016) and Gligor, Gligor, Holcomb, and Bozkurt (2019), swiftness is one of the five dimensions of the agile supply chain, followed by flexibility, alertness, accessibility, and decisiveness. Of the five dimensions of supply chain agility, swiftness refers to the 'ability to implement

decisions quickly', while flexibility is the 'ability to modify its tactics and operations to the extent needed to implement its strategy' (Arya & Kumar, 2023: 253). However, Jindal, Sharma, Sangwan and Gupta (2021) identify seven dimensions of supply chain agility and classify accessibility, alertness, flexibility, and swiftness as the four key determinants of agility. Their seven dimensions of supply chain agility are information technology (IT) infrastructure, supplier and customer information, analytical capabilities, human resources, managerial decisiveness, operational flexibility, and timeliness of change.

Flexibility can be a challenge in any business depending on the initiator of change management, and it can be resisted by both employees and employers, especially if the implementation presents uncertainties or if the company processes are not consistent (Ogueyungbo, Maloma, Igbinoba, Salau, Maxwell, & Hezekiah, 2019). Employees are valuable assets in an organisation, and their satisfaction increases internal performance, loyalty, and customer satisfaction (Ansari, 2021). With evolving technology, all businesses are required to be flexible and agile if they are to be relevant and competitive, and that can only take place if the organisation is in a position to swiftly transform changes into opportunities (Sharifi & Zhang, 1999; Tse *et al.*, 2016). The success of the organisation to swiftly transform changes into opportunities depends on decisive leadership; indecisive leadership and failure to apply agility will hinder the efficiencies of an organisation (Ishida, 2008). From the seven dimensions of supply chain agility identified by Jindal *et al.* (2021), flexibility is divided into managerial decisiveness and operational flexibility.

Wairimu, Chege, Muli, and Ndolo (2022) investigated and explored the nexus between dynamic retail agility capability and resilience in the retail sector and discovered a heretofore unknown relationship between supply chain agility and statistical resilience capability in the retail sector. However, they suggest that flexibility, swiftness, responsiveness, learning orientation, and visibility have a positive correlation with supply chain agility, which is statistically significant for the retail industry. The supply chain is one of the telco end-to-end business process flows that contributes to the profitability and financial sustainability of mobile operators (Wairimu *et al.*, 2022). The concept of supply chain management was developed in the 1980s, and since then, various scholars have highlighted the importance of integrating the business

processes fully end to end to ensure efficiency and financial sustainability (Tonday *et al.*, 2021). Brusset and Teller (2017) state that any supply chain that is flexible enough to deliver goods and services in unstable and agile environments possesses resilience and can be classified as a resilient supply chain. Lastly, a well-managed supply chain process creates job opportunities, improves quality of life, and reduces pollution while focusing on mobility, product integration, purchasing, storage, product tracking, planning, and forecasting (Tonday *et al.*, 2021).

### 3.5.2 New product development

In South Africa, during the apartheid regime, massive communities were excluded from access to communication, which is a basic right in South Africa, and telco policy favoured a monopolistic telco environment (Ali, 2010). As previously indicated, in the decades prior to the 20<sup>th</sup> century, communication channels were exclusively opened to serve specific regions (Kang, 1987; Beyersdorf, 2015). The evolution of the South African telco industry is evidence of the freedom to access communication channels promised by the ANC government at the dawn of democracy in 1994. The South African government imposed universal service obligations on mobile operators as part of the legislative framework to manage and eradicate the serious backlog in basic communication services and ensure that communication would be accessible to all (Lewis & Lewis, 2020).

As indicated in Section 3.5.1.2 the drive for universal access in most developing countries was done through community payphones (Sey, 2008). As part of post-democracy policy and legislative frameworks, network coverage roll-out, connectivity targets, fixed lines, and community service obligations were obligatory for all mobile operators, allowing the government to accelerate connectivity access to all South Africans, including the previously disadvantaged (Lewis & Lewis, 2020). Community phones were one of the products and services adopted by the government to ensure that low-income subscribers had access to communication channels and mobile network capabilities (Jahanbakht *et al.*, 2022). Crouch (2009) developed a 'deep engagement' method to sustain public technology planning in overcoming the digital divide. Development and product adaptations, such as fixed-line access, broadband, voice over Internet protocol (VoIP), community payphones, Me2U airtime transfer,



fibre to home (FTH), and fibre to business (FTB), stimulated demand from high- and low-income subscribers and required that mobile operators improve their network capabilities and capacity (Jahanbakht *et al.*, 2022). In different countries, community payphones are known by different names; for example, in Bangladesh, they are known as village phones, while some communities in South Africa call them public phones or phone shops, even though the term 'community payphones' is also known in South Africa (Sey, 2008).

The public phones aggressively drove voice usage, and mobile operators reported an increase in voice revenue. However, the innovation and disruptive technology that allowed OTT services to dominate and the increase in telco competition have meant that mobile operators are experiencing a continual decline in voice and SMS revenue (Pierce, 2018). Smartphones and social media are not only advantageous to mobile users through allowing the integration of multiple applications; they are also beneficial to mobile operators, as they increase data usage and, subsequently, data revenue. Xiang, Lin, Wang, Li, and Xu (2020) notes that many businesses have increasingly used and allowed smartphones to be part of their business strategy. Adi, Heripracoyo, and Simamora (2021) suggest that social media can be an effective digital marketing tool for rural tourism in Indonesia. Entrepreneurs can optimise the use of digital marketing strategies by promoting their innovative products and services, targeting each phase of the customer journey (Barbosa, Saura, & Bennett, 2022). Digital marketing includes smart application channels such as social media, website search engines, email marketing, and online advertising (Kurdi, Alshurideh, Akour, Alzoubi, Obeidat, & Alhamad, 2022).

### 3.5.3 Innovation and disruptive technology

As pointed out, the telco industry is continuously facing evolutionary challenges on the African continent and across the globe due to evolving technology, global market competition, and microeconomic pressure. In advanced economies, the telco industry has been associated with economic growth (Roller & Waverman, 2001). The digital transition of telco services continues to evolve as technology evolves; however, access to communication for poor customers who are isolated in rural areas remains an issue, as they are negatively affected by the remote areas in which they live (Baca-

Feldman *et al.*, 2019). According to Zaw (2019), the majority of villages in Myanmar remain behind, with poor telco connectivity, as fixed-line telephone services remain low. This is still the case in most South African villages. For example, in the researcher's village, network coverage still depends on 2G, resulting in poor connectivity, high dropped-call rates, and no Internet access. However, in urban areas, mobile operators optimise communication channels, based on smartphones and advanced technology, to expand their M2M and IoT portfolios (IDATE & ETNO, 2017; Fitch Solutions, 2019). According to Onuigbo *et al.* (2021), poor connectivity, dropped calls, and poor customer service are the main reasons why customers port their numbers and change mobile service providers. Additionally, the digital economy has changed the dynamics of competitive advantage, making product and service life cycles unsustainable, as advancing knowledge and technology lead to shorter lifespans (Muthu & Thangavelu, 2019).

Smartphones have increasingly formed part of business strategy and play an important role in the lives of mobile data users by allowing multiple software applications to be installed on the phones (Xiang *et al.*, 2020). Advanced technology, such as smartphones and social media, can be used as part of a digital marketing strategy. For example, Adi *et al.* (2021) conducted a study on rural tourism in Indonesia and suggest that social media can be an effective marketing tool to promote and market rural tourism destinations, as there are many cultural sites of which tourists may be unaware, along with the unknown extraordinary natural beauty of a country. Evolving technology and modern technological evolution, which are happening faster than they used to, have drastically transformed business dynamics, especially in the area of marketing (Kurdi *et al.*, 2022).

#### 3.5.4 Customer loyalty and customer retention

Customer loyalty is one of the methods used to determine customer satisfaction (Zameer, Wang, Yasmeen, & Ahmed, 2019). Customer satisfaction and customer delight confirm a level of customer loyalty (Alzoubi, Alshurideh, Kurdi, & Inairat, 2020). Several scholars have conducted various studies regarding customer satisfaction and customer loyalty in different industries. For example, Phi, Thanh, and Viet (2018) conducted a study using four- and five-star hotels in Ho Chi Minh City, Vietnam, to

determine the effects of service quality on customer satisfaction and customer loyalty. In a multicampus higher education system in Spain, Gallifa and Batallé (2010) investigated aspects that affected student perceptions of service quality, and Rahmoun (2020) investigated the factors affecting customer behaviour in the Tunisian telco industry, where service quality was identified as one of the critical factors used to judge customer satisfaction.

Customer loyalty is the result of good quality service (Nyan, Rockson, & Addo, 2020). According to Ansari (2021), there is a strong relationship between service quality and customer satisfaction, customer retention, and customer loyalty. Alzoubi *et al.* (2020) address the main factors affecting customer delight, considering service quality, service price fairness, service value, and service recovery in the telco industry. The key objective of an organisation in achieving high levels of customer satisfaction is to encourage customers to repeat purchases and increase business call back in terms of sales, with customer retention leading to customers advertising the business to others, such as family and friends (Famiyeh, Asante-Darko, & Kwarteng, 2018).

Arora and Narula (2018) explored the linkage between customer satisfaction, service quality, and customer loyalty and discovered that service quality influenced customer satisfaction. In Vietnam, Nguyen, Nguyen, Nguyen, and Phan (2018) evaluated the determinants of customer satisfaction and loyalty in a life insurance setting, where they concluded that employees' training and marketing efforts had a great influence on customer satisfaction. Phi *et al.* (2018) concur with Stamenkov and Dika (2015) and Arora and Narula (2018) that customer satisfaction and customer loyalty have a direct impact on service quality. According to Hart, Heskett, and Sasser (1990), the recruitment of a new customer costs up to five times as much as retaining a current customer. Even though Hadden, Tiwari, Roy, and Ruta (2007) do not quantify the recruitment cost of a new customer, they concur with Hart *et al.* (1990) that customer retention costs are much lower than the cost of attempting to acquire new customers, even though the companies are spending large amounts of resources to retain the existing customer base. Therefore, customer retention is quite critical for a business.

Happy customers are more likely to come back and spend their money on the services and products of an organisation, leading to increasing sales that will boost profitability

and influence the overall financial sustainability of the company (Alzoubi *et al.*, 2020). Customers' behaviour and assumptions affect the profitability of an organisation (Ansari, 2021). Furthermore, loyal and happy customers are good brand marketers, as they are likely to spread positive messages about the products, the services, and the organisation by word of mouth (Alzoubi, Abdo, Al-Gasaymeh, & Alzoubi, 2019). To achieve customer retention, which will drive sustained competitive advantage, mobile operators must invest in customer loyalty strategies, as it is not possible to create a sustained competitive advantage without first creating customer loyalty (Muthu & Thangavelu, 2019). Lastly, satisfied customers increase repeat purchase behaviour, increase sales, and increase company profitability, resulting in financial sustainability (Alshurideh, Masa'deh, & Alkurdi, 2012).

### **3.6 Telco service quality and competitive advantage**

Kotler (1994) developed a triangle model for meeting customer expectations and suggests that both internal and interactive marketing activities should be considered because employees are internal customers who need to be taken care of and to be motivated enough to serve external customers. Therefore, not only external marketing forces, that is, the 4Ps, namely, place, product, price, and promotion, are important, but internal dimensions are also important and must be considered. However, Grewal (1996) deemed Kotler's (1994) triangle model incomplete, since businesses were continuously implementing new technologies in order to meet customers' expectations, and proposed that technology be added as a third dimension. Subsequently, a pyramid model of service marketing linking 'Company-Technology, Technology-Employee, and Technology-Customer' was developed, focusing on efficiencies of marketing to gain effective market share (Grewal, 1996: 3). The quality circle and cause and effect in the structure of the pyramid model (QC-CE-PYRAMID) are excellent methods to achieve an efficient and effective quality information system (Ansari, 2021).

Al-Gasawneh *et al.* (2021) investigated the effects of customer relationship management dimensions on service quality using the RBV theory and discovered that knowledge management, customer focus, and technology had a positive impact on service quality. Telco service quality and competitive advantage depend completely

on the capital investment made by each mobile operator to ensure that customers have access to excellent network connections. This section will explore the key concerns for service quality in the telco sector and define service quality as a multidimensional concept. In addition, it will also explore the dimensions of service quality that affect financial sustainability in the telco sector and consider the descriptions of reliability/dependability, availability, flexibility/choice, simplicity, assurance, and security.

### 3.6.1 Key concerns for service quality in the telco sector

According to the study conducted by Ampomah (2012) into the telco industry in Ghana, there are five main factors that have an impact on customer satisfaction: brand image, service quality, customer perception toward the company and its employees, price fairness, and service recovery. Customer satisfaction has a direct impact on the profitability of the organisation, as happy customers will spend more on the products and services offered (Dagli & Jenkins, 2016). Customer satisfaction is influenced by customer perception. According to Patterson (1997), customer delight is the best measure of customer retention, and the higher the customer delight, the higher the customer retention rate.

Rahman (2014) conducted a study in the telco industry and presumed that customer satisfaction could be classified as one of the measures and indicators of service competitiveness, service innovativeness, service consistency, service reliability, signal coverage, quality of the offering, reasonable price, customer demand fulfilment, value-added services, brand value, and the contribution the operator made to society. The investment made by mobile operators in network infrastructure is a clear indication of the commitment they have to all their stakeholders, as capital expenditure (capex) investment is designed to improve network service quality and allow the operator to be more competitive in the market. In their empirical study conducted within the Egyptian mobile telco industry, Abd-Elrahman and Ahmed Kamal (2022) classify network coverage as one of the seven dimensions affecting telco service quality.

In South Africa, Cell C spent an average of R283 million monthly in capital investment on the mobile network from 1 January 2016 until 31 December 2016, while Telkom

spent an average of R161 million monthly in capital investment on the mobile network from 1 April 2016 until 31 March 2017 (Muller, 2022). For MTN to remain competitive, the mobile operator spent more than R30 billion (about \$2.4 billion) over three years on network improvements in South Africa to ensure that South Africans would experience excellent network connections without any citizen being deprived of connectivity (Moeng, 2018). Vodacom spent R2 055 million in capital expenditure in South Africa during the year ended March 2020 and budgeted to spend more than R9.1 billion in the 2021 financial year in order to expand and increase network capacity and resilience (Vodacom, 2020). Therefore, the availability of good network coverage is a key concern for service quality in the telco sector to ensure that subscribers have access to communication channels and exercise the constitutional right of freedom of expression.

### 3.6.2 Defining service quality as a multidimensional concept

Service quality is a multidimensional concept because it includes multifaceted variables such as customer satisfaction, service quality, and customer loyalty. In the telco industry, service quality cannot be the only measure of customer loyalty, however, and customer satisfaction must also be taken into account (Nyan *et al.*, 2020). According to Maxham (2001: 11), service failure can be defined as 'any service-related mishaps or problems (real and/or perceived) that occur during a consumer's experience with the firm'. When establishing a business or defining service quality, knowledge, experience, and expertise are vital for new adaptive searches to be competitive (Levinthal & March, 1981; March, 1991). Industry pre-entry knowledge of subject matter experts builds strong organisational capabilities and develops competitive advantages (Jahanbakht *et al.*, 2022). The capabilities of the organisation are a fundamental aspect of its strategic advantages (Dunning & Rugman, 1985; Dunning, 1988; Zaheer, 1995). However, the new market adaptive search is greatly influenced by pre-entry knowledge (Huber, 1991; Dencker, Gruber, & Shah, 2009). Stamenkov and Dika (2015) developed a sustainable e-service quality model using the Macedonian banking industry and vigorously state that sustainable e-service quality must continually deliver high-quality services while maintaining customer satisfaction and customer loyalty. Ansari (2021) explored the integration of service quality as an innovative approach to profitability and employee loyalty in the telco

industry and concluded that internal service quality had an impact on how employees interacted with suppliers and customers, while product service quality drove customer loyalty. Therefore, service quality drives customer satisfaction and loyalty.

Market pre-entry experience improves external stakeholder engagement, increases collaboration during product exploratory searches, and, most importantly, eliminates the challenges associated with integrating new knowledge (Henderson & Clark, 1990; Weick, 1995). Innovative and entrepreneurial leadership was demonstrated by South African mobile operators during experimentation with, and development of, the network. For example, before MTN built 160 base stations in rural areas of KZN, it had initially invited Vodacom to be a partner in the project; however, Vodacom declined the offer, indicating that there were operational challenges (Jahanbakht *et al.*, 2022). Even though Vodacom predicted limited market prospects, the 160-base-stations adventure became the busiest proportion of MTN's entire South African network. Pre-entry training on network design, network equipment, tower construction, and the geographic market played a pivotal role in steering the project to succeed (Jahanbakht *et al.*, 2022).

### 3.6.3 Dimensions of service quality that affect financial sustainability in the telco sector

There is an inconsistency in the actual number of service quality dimensions. Some authors recommend five, while others recommend more. For example, the five dimensions of service quality, namely, reliability, responsiveness, assurance, empathy, and tangibles, were introduced by Parasuraman, Zeithaml, and Berry (1988), who proposed them as a perfect methodology for measuring service quality. Later, these dimensions became a fundamental aspect of the SERVQUAL model. Al-Gasawneh *et al.* (2021) investigated the impact of customer relationship management dimensions on service quality in the Jordanian hotel industry and concluded that the five dimensions of service quality were reliability, responsiveness, tangibility, empathy, and assurance. However, Abd-Elrahman and Ahmed Kamal (2022) conducted an empirical study investigating the relationship between relational capital and organisational performance within the Egyptian mobile telco industry identifying seven dimensions affecting telco service quality, namely, reliability, tangibles,

responsiveness, empathy, assurance, convenience, and network. A description of each dimension is provided in Table 3.4.

Table 3.4 Dimensions affecting telco service quality

No.	Dimension	Description
1.	Reliability	The company must deliver excellent service to customers within a defined service-level time period.
2.	Tangibles	The physical appearance of the company must be aligned with the type of services rendered, and employees must conduct themselves professionally.
3.	Responsiveness	Service levels are defined, and the company communicates with clients when services, systems, or networks are down. Employees are always willing to attend to clients and offer assistance.
4.	Empathy	The company puts customers first and acts in the best interests of stakeholders.
5.	Assurance	Customers trust the brand and service delivered. Employees are knowledgeable and polite and possess adequate skills.
6.	Convenience	Customers have the flexibility to change services. The company is accessible and continuously provides sufficient information to all stakeholders.
7.	Network	Network coverage is good, resulting in no dropped calls.

Source: Abd-Elrahman and Ahmed Kamal (2022)

From the seven dimensions affecting telco service quality listed in Table 3.4, three will be covered in this study, namely, reliability, assurance, and convenience, which is classified as flexibility or choice. Stamenkov and Dika (2015) recommend that additional quality and service fairness domains such as SERVQUAL should be integrated into sustainable service quality. In total, this study will explore six dimensions of service quality that affect financial sustainability in the telco sector, namely, reliability or dependability, availability, flexibility or choice, simplicity, assurance, and security.



### 3.6.3.1 Reliability/Dependability

The reliability of the information given to customers is one of the criteria defined by Rahmoun (2020) for customers to assess and judge the quality of Tunisian telco services. The company must deliver the excellent service that was promised to customers within a defined service-level period (Abd-Elrahman & Ahmed Kamal, 2022). Oraedu (2019) investigated the structural behaviour of service quality dimensions on the relationship quality in an emerging telecom market and discovered a mismatch in existing research results, as some quality indicators required a level of improvement for the service provider to improve its relationship quality. Therefore, the service rendered by mobile operators must be reliable.

Dependability means different things in different industries. For example, in the automotive industry, dependability refers to a multifactor phenomenon where the success of autonomous driving is dependent on the integration of IoT technology (Veledar, Damjanovic-Behrendt, & Macher, 2019). In computer security, safety, and reliability, digital dependable identities are crucial for cyber-physical systems and provide assurance for engineers (Reich, Schneider, Sorokos, Papadopoulos, Kelly, Wei, Armengaud, & Kaypmaz, 2020). Dependability is a key enabler of the development of intelligent systems that provide automatic reasoning based on cloud interactions, ensuring risk management assurance (Veledar *et al.*, 2019). Furthermore, digital dependability provides runtime reliability, real-time reliability estimates, and risk assessment for safety assurance (Aslansefat, Nikolaou, Walker, Akram, Sorokos, Reich, Kolios, Michael, Theocharides, Ellinas, & Schneider, 2022).

### 3.6.3.2 Availability

Good network coverage must be available to all telco subscribers (Abd-Elrahman & Ahmed Kamal, 2022). Poor connectivity and dropped calls increase customer churn, as some customers port their numbers and change mobile service providers in order to get better network signals (Onuigbo *et al.*, 2021). As technology evolves and big data emerges, telco services are becoming more accessible and in demand. However, similar to any scientific discipline, the data must be secure and protected at all times, and the biggest threat in the telco industry is cybercrime and subscription fraud (Zuhe, 2017; Narayanan & Lee, 2023). In scientific disciplines, Tedersoo, Küngas, Oras, Köster, Eenmaa, Leijen, Pedaste, Raju, Astapova, Lukner, and Kogermann (2021)

highlight aspects of high ethical standards when dealing with scientific data, even though data sharing is a scientific practice.

Regulation, data governance, and security policies must be observed and adhered to uncompromisingly (Rahmoun, 2020). As much as telco products and services are required to be always available to customers, when it comes to personally identifiable information and subscriber usage data, this information cannot be made available to anyone, as it will violate the POPI Act (South Africa, 2013). The South African telco industry is growing rapidly, and demographic factors play a significant and critical role in ensuring that customer service contributes to customer satisfaction (Shava, 2021). When customers complain about fraud or have been defrauded, they need the assurance that their dispute will be resolved as quickly as possible (Abd-Elrahman & Ahmed Kamal, 2022). According to Koi-Akrofi, Koi-Akrofi, Odai, and Twum (2019), the top five global fraud methods between 2013 and 2017 were subscription fraud, private branch exchange (PBX) hacking, account takeover or identity theft, VoIP hacking, and dealer fraud.

#### 3.6.3.3 Flexibility/Choice

The flexibility of mobile operators to design new products and services is convenient for customers, as this provides customers with the flexibility to choose from a diverse range of products and services (Abd-Elrahman & Ahmed Kamal, 2022). Government regulations such as MNP also provide customers with the flexibility to switch their telephone numbers from one mobile operator to another, and this feature gives customers the power to use the same number across different service providers (Prasad, 2020). However, MNP saturates the telco industry, making it difficult for mobile operators to predict churn volumes and to properly manage their customer base when customers are able to choose to move their numbers to a competing mobile operator (Alboukaey, Joukhadar, & Ghneim, 2020). The flexibility to choose from a diverse range of products and services allows customers to enjoy value for money, where 'value is what customers are willing to pay' (Belmiro, Bintang, & Bakti, 2021: 854). In conclusion, flexibility, as a dimension of service quality, ensures that a company is accessible and continuously provides sufficient information to all stakeholders and that customers have the flexibility to change services (Abd-Elrahman & Ahmed Kamal, 2022).

#### 3.6.3.4 Simplicity

In South Africa, it took 20 years to issue spectrum to mobile operators, as the regulator was hampered by political imperatives (Howell & Potgieter, 2022). The scarcity of sufficient spectrum increases the cost of doing business, resulting in mobile operators passing the cost to end users, making the cost of connectivity extremely high (Robb & Paelo, 2020). Sometimes, it is the 'simplicity that is the real beauty' (López-Salas & Antonietti, 2021: 2824).

The absence of simplicity for mobile operators to operate in the telco industry can be a burden, increasing the cost of doing business and causing them to become unsustainable (Urpelainen & Yang, 2019). Bureaucracy, regulations, poor spectrum allocation, and other red tapes can lead the industry to deficiencies, discourage investment decisions, and/or increase corruption, as some investors may be required to pay officials a facilitation fee or bribe to obtain permits and operating licences (Jung, 2020). According to Narayanan and Lee (2023), poor security controls increase fraud risk exposure.

#### 3.6.3.5 Assurance

To maintain sustainable growth in the telco industry, mobile operators must invest in the well-being and career development of their employees, involve them in the strategic initiatives of the organisation, and keep communication channels open to ensure acceptable levels of satisfaction (Ansari, 2021). Investing in the skill development and training of employees assures customers that their queries will be attended to and their requests understood.

There are special skills required in the telco industry, and sometimes, most mobile operators hire senior resources from other countries. Zaw (2019) asserts that senior telco engineers are very scarce in Myanmar. Investing in appropriate training programmes improves employee productivity and reduces the cost of acquiring resources from abroad (Prongjit, 2006). Training is also critical for organisational performance (Kraiger, McLinden, & Casper, 2004) because when employees are knowledgeable and polite and possess adequate skills, customers trust the brand and the service delivered to them (Abd-Elrahman & Ahmed Kamal, 2022).

### 3.6.3.6 Security

In the automotive industry, security and safe engineering focus on automotive infrastructure, and runtime dependability must be established (Veledar *et al.* 2019). It is important to note that the success of autonomous driving is dependent on the integration of IoT technology, which is provided by the telco industry, and data must be protected at all times. IoT protocols are dependent on cyber-physical system infrastructure for the improvement of safety (Reich *et al.*, 2020). Poor security controls and bad policies of mobile operators expose customers to cybercrime and fraud (Narayanan & Lee, 2023). In South Africa, mobile operators are not only required to comply with ICASA regulations, but also need to adhere to other government legislation such as the POPI Act 4 of 2013 (South Africa, 2013). The POPI Act governs the protection of personal information. On 25 May 2018, the General Data Protection Regulation (GDPR) was introduced as the new legal framework for all EU countries, which takes precedence over national laws (Regulation, 2018).

## **3.7 Impact of disruptive change on the strategic performance of telco organisations**

The dynamic nature of the telco industry demands flexibility and creativity due to evolving technology and the digital economy. The evolving technological changes demand flexibility, as product and service lifespans are shorter in the digital economy (Muthu & Thangavelu, 2019). Furthermore, evolving technology has also allowed society to explore various commercial options, and e-commerce is adding value to many businesses (Bird & Gendron, 2005; Hong *et al.*, 2018). Many businesses are optimising such incredible technological opportunities, not only to increase revenue, but also to increase the business landscape through e-commerce (Alexander, 2017). In addition, businesses might optimise economies of scope and produce multiple products or develop different services to remain competitive (Agasisti *et al.*, 2021). Economies of scope provide the flexibility for companies to diversify their product by reducing the cost of non-productive products or shifting resources between productive products (Helfat & Eisenhardt, 2004).

Some disruptive changes are good for mobile operators, and some are not. For example, Arya and Kumar (2023) suggest that the rolling out of 5G in India will increase competitive advantage for businesses, especially e-commerce companies. Evolving technology is adding value to many businesses, making e-commerce a successful business environment (Bird & Gendron, 2005; Hong *et al.*, 2018). This is even though technological changes have changed service lifespans, making them shorter in order to be relevant in the digital economy (Muthu & Thangavelu, 2019).

It is not only evolving technology, the digital economy, and e-commerce that are bringing disruptive changes to the strategic performance of the telco industry and adding value to many businesses (Bird & Gendron, 2005; Hong *et al.*, 2018; Muthu & Thangavelu, 2019). Abrupt regulatory and fiscal policy changes and statutory requirements also add to the complexity of a sustainable telco industry, affecting the strategy and performance of mobile operators (Nene & Moraka, 2023). As part of good corporate governance, mobile operators are expected to comply with all the laws of the country where they operate. For example, in February 2018, in the annual South African budget speech, which was delivered by Malusi Gigaba, who was the Minister of Finance of South Africa, an increase in VAT from 14% to 15%, effective from 1 April 2018, was announced (Department of the National Treasury, 2018; Nene, 2023). The Minister of Finance indicated that the VAT rate had been static since 1993 and that, compared to raising other taxes, a 1% VAT increase was necessary and less harmful to South African economic growth (Department of the National Treasury, 2018; Nene, 2023). The South African telco industry was not exempt from these changes, and it had to implement the changes to ensure compliance, as VAT is a liability transaction due to SARS (Nene, 2023). In South Arabia, as part of corporate governance, companies are required to also adhere to the religious teachings of the prophet Muhammad (Al-Faryan, 2020). Thus, the role played by the government, interference in economic fiscal policies, and an ineffectual judicial system have a direct impact on the agility and financial sustainability of a firm (Bai *et al.*, 2016).

### **3.8 Chapter conclusion**

In line with the model of microeconomic theory suggested by Osborne and Rubinstein (2020), this chapter has explored the RBV theory to clearly understand the agents,

consumers, choices, decision-making in uncertain environments, and monopolies that affect the flexibility of the telco industry. The RBV theory was also adopted when developing the conceptual framework for this study. There are many factors affecting a sustainable competitive advantage in the telco industry, such as evolving technology, global market competition, microeconomic pressure, fiscal policies, and government regulations. Currently, government regulations, standards, codes, and fiscal policies applied to the telco industry are ineffective, resulting in market distortions and hindering the financial sustainability of the industry (Matheson & Petit, 2021; Katz & Jung, 2023).

The dynamic nature of the telco industry demands flexibility, agility, alertness, swiftness, and creativity throughout the value chain and end-to-end process flow in order to remain relevant and competitive in the technological market. The South African telco industry can only gain a competitive advantage in the technological market through decisive leadership (because of indecisive forces), agility, flexibility, swiftness, and efficiencies (Ishida, 2008). To respond swiftly to the digital economy and contribute to closing the digital divide, mobile operators must be alert and design products and services with shorter lifespans that will be accessible to customers (Muthu & Thangavelu, 2019). The participation of mobile operators in closing the digital divide with services such as fintech presents an opportunity not only to increase revenue, but also to increase the business landscape through e-commerce and promoting financial resilience (Alexander, 2017; Zaman, 2023). For the future fit of the competitive market, sustainable organisations will be driven by the ecosystem and e-commerce. To conclude the analysis of the top three South African mobile operators that dominate the South African telco market, the literature suggests that, for all three mobile operators to remain financially sustainable, they must drive cost-efficiencies. Furthermore, they must capitalise on their strengths and available opportunities presented in the SWOT analysis and SWOT matrix in order to increase profitability. However, investors are not only interested in the capital structure of the organisation, as they also consider other important economic variables such as the profitability of the organisation (Chen *et al.*, 2021). Based on the industry analysis conducted in this chapter, it is evident that, for mobile operators to remain competitive, strategy diversification is crucial rather than a low-cost strategy, as the industry is highly dynamic.

## CHAPTER 4: RESEARCH METHODOLOGY

### 4.1 Introduction

The previous chapter provided a discussion of the dynamics and nature of local and international telco services, and this chapter provides the methodology used to explore the financial sustainability of the South African telco industry. Following the research onion guidelines proposed by Saunders *et al.* (2019), this chapter defines the research philosophy, ontology, epistemology, and methodological stance of this study. Furthermore, this chapter articulates the research approach, methodological choice, research design, research strategy, and data collection and analysis. Finally, the chapter presents ethical considerations and a chapter conclusion. Figure 4.1 provides a summary of the research design and methodology of the thesis; and below are the descriptions of the codes used in the diagram:

- QLT refers to qualitative,
- QNT refers to quantitative,
- 10 refers to the number ten,
- JSE refers to Johannesburg Stock Exchange and
- 3-lation refers to triangulation

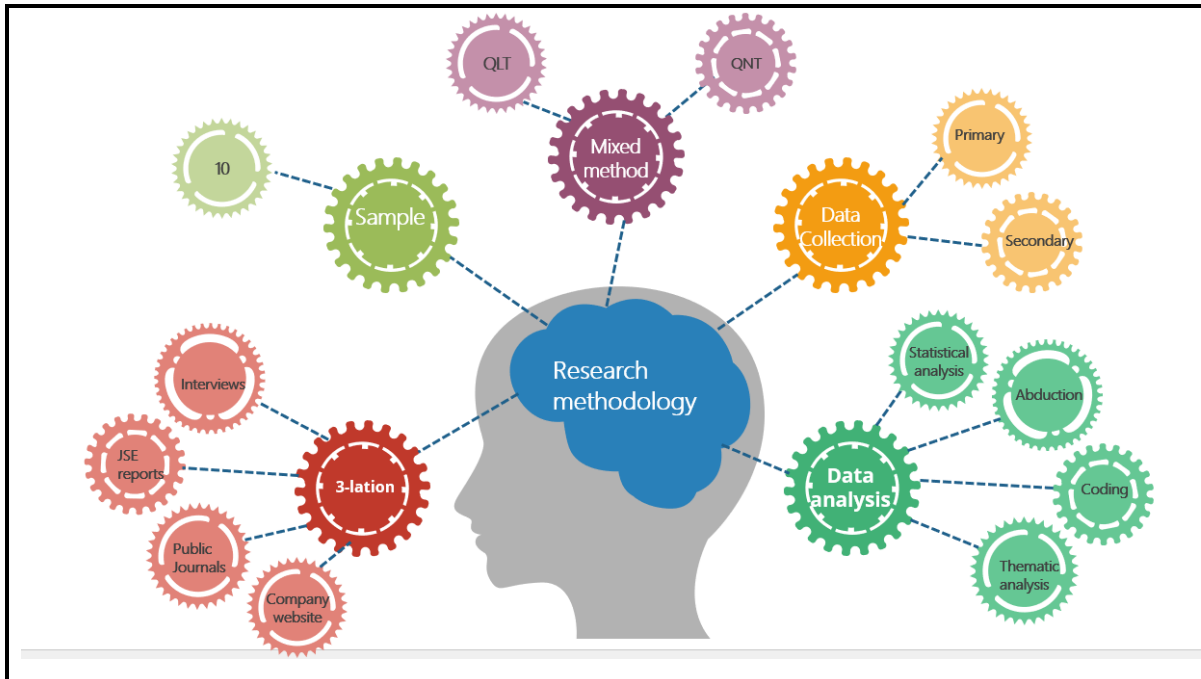


Figure 4.1 Thesis research design and methodology  
 Source: Own compilation

## 4.2 Research paradigm

In Chapter 1 Section 1.8 from page number 30 the researcher indicated further details expanding the research paradigm will be presented in Chapter 4 Section 4.2. Saunders, Lewis, and Thornhill (2009: 118) define a paradigm as a 'way of examining social phenomena from which particular understandings of these phenomena can be gained and explanation attempted'. In scientific research, paradigms play a substantial role, as they provide guidance on the research process (Babbie, 2007). Guba and Lincoln (1994: 107) define a paradigm as 'a set of basic beliefs (or metaphysics) that deals with ultimates or first principles' that represent the nature of the 'world' – the individual's beliefs that are simply accepted by faith. The research paradigm is the researcher's world view and shapes him/her in terms of how the research should be conducted and what methodological abstract to explore when collecting, analysing, and interpreting the data (Kivunja & Kuyini, 2017). Since the current study applied mixed methods, the researcher adopted pragmatism in order to use both positivist and interpretivist methodologies. The adoption of both positivism and interpretivism as the research paradigm assisted in testing the phenomenon and allowed for a greater understanding of the financial sustainability of the South African telco industry in the



contemporary business environment in a structured manner. A paradigm, furthermore, consists of methodological assumptions about theories, a frame of reference, and ways of working according to which a group operates and views 'the social and organisational world' (Saunders *et al.*, 2015: 132). Lastly, a paradigm is a theoretical framework or basic belief system that projects an understanding of the reality of the world and studies it in pursuit of four major assumptions, namely, ontology, epistemology, methodology, and methods (Rehman & Alharthi, 2016).

#### 4.2.1 Ontology

It is critical to identify the ontology at the beginning of the research process, as it drives the selection of the research design through epistemology, which directly affects the research approach, research strategy, and methods of data collection and analysis (Don-Solomon & Eke, 2018). The researcher's philosophical standpoints and ontology are driven by the understanding of the telco industry after 20 years of work experience where there has been no single standardised product, regulated service, or shared infrastructure across all South African mobile operators, with no unified marketing strategy that allows them to share revenue proportionally. For this reason, the study investigated such phenomena. The researcher, without any interruption or imposing her own philosophical and ideological assumptions, allowed participants to share their points of view.

Ontology is the philosophical assumptions about reality that drive the researcher to investigate a social phenomenon, and these philosophical assumptions orient the researcher's thinking about the significance of the research problem, research questions, and research contribution (Kivunja & Kuyini, 2017). Crotty (1998) describes these assumptions as axiological assumptions, where the researcher's beliefs and values influence the researcher's world view and research during the research project. Newman (2019) suggests that ontological assumptions are assumptions about the existence of reality and consciousness of self or the world. He, furthermore, explains that ontological assumptions play a critical role in a thesis by providing research strategies that explicitly articulate the theoretical framework and the research method (Newman, 2019). After examining existing theoretical frameworks, the researcher's ontological assumption was to integrate three theories (impression management

theory, knowledge management, and stakeholder theory) that existed independently to develop the theoretical framework for the current study.

The theoretical framework of the study presented in Chapter 2 can be perceived and used as a reference for mobile operators in transforming the financial sustainability of the telco industry. The framework was developed after the literature analysis and exploration of the empirical study on how to manage the challenges that directly or indirectly affect the financial sustainability of the South African telco industry in the contemporary business environment. The theoretical framework developed in this study integrates impression management theory, knowledge management theory, and stakeholder theory, taking from the work done by scholars such as Brennan (2011), Rahimli (2012), Spear and Roper (2013), Tseng and Lee (2014), Bouhnik and Giat (2015), Bouhnik and Marcus (2015), Okoye *et al.* (2017), Effiong *et al.* (2019), Nyagadza *et al.* (2019), Srivastava and Kathuria (2020), Nakash and Bouhnik (2021), and Sulimany *et al.* (2021). However, there is a need to integrate these three theories, namely, impression management theory, knowledge management, and stakeholder theory, simultaneously because these theories currently independently focus more on the following:

1. Impression management (IM) theory: brand storytelling, corporate reputation, marketing, and corporate communications (Merkl-Davies & Brennan, 2011; Spear & Roper, 2013; Nyagadza *et al.*, 2019; Srivastava & Kathuria, 2020).
2. Stakeholder theory (ST): corporate governance, corporate performance, corporate identity, and corporate reputation (Okoye *et al.*, 2017; Effiong *et al.*, 2019; Nyagadza *et al.*, 2019; Sulimany *et al.*, 2021).
3. Knowledge management (KM) theory: business dynamics, commodity, competitive advantage, and resource development (Rahimli, 2012; Tseng & Lee, 2014; Bouhnik & Giat, 2015; Bouhnik & Marcus, 2015; Nakash & Bouhnik, 2021).

Financial sustainability is an important topic, not only because it communicates the results of organisational strategy and its legitimacy, but also because it emanates from the key financial determinants in which various stakeholders are interested (Božić *et al.*, 2021). Financial sustainability refers to the capacity of an entity to uphold and sustain its financial standing over an extended period (Sontag-Padilla *et al.*, 2012). Financial sustainability is achieved through efficient revenue stream diversification and

a clear financial performance vision (Xie *et al.*, 2022). McLaren and Struwig (2019) empirically tested the financial ratios of financial performance, liquidity, asset management, debt management, and reserves ratios as indicators of financial sustainability at South African universities. Navarro-Galera *et al.* (2016) measure financial sustainability through the income statement and not what is on the balance sheet. However, the proposed financial sustainability measurement model in this study considers the financial indicators that are on both the income statement and the balance sheet and, furthermore, considers other external factors that affect the financial sustainability of an organisations, such as ESG aspects and stakeholder impression. The assessment of these financial indicators and factors in this section aids in assessing the financial sustainability within the telco industry. Therefore, the proposed model will add value when assessing the financial sustainability of the South African telco industry, and this model may be applicable to other industries as well. In addition, to ensure financial sustainability and strengthen customer preference, it is imperative for South African mobile operators to offer attractive packages and competitive discounts and also to invest in customer service.

#### 4.2.2 Epistemology

Epistemological assumptions focus on human knowledge, while ontological assumptions deal with realities experienced during the research (Belcher, Rasmussen, Kemshaw, & Zornes, 2016). The assumptions guide the researcher in drafting the research question, selecting the research methodology to be used, deciding on how to collect the data, and interpreting and presenting the research findings (Saunders *et al.*, 2015). Carson, Gilmore, Perry, and Gronhaug (2001) and Don-Solomon and Eke (2018: 3) define epistemology as a relationship between the researcher and reality and how it is known or captured, and it is concerned with the questions 'What do you know?' and 'How do you know it?'. Furthermore, the researcher builds a rapport with the interviewees to develop trust and exercises self-reflexivity should follow-up interviews be required (Goulding, 2002).

The epistemological question leads a researcher to investigate 'the possibility and desirability of objectivity, subjectivity, causality, validity, generalisability' (Patton, 2002: 134). Epistemological questions inspired this study to investigate and understand the

financial sustainability of the South African telco industry in the contemporary business environment and design a financial sustainability model for the industry. The researcher has been working in the telco industry for 20 years and fully understands the global telco industry with its complexities and challenges. In South Africa, the telco industry is regulated by the Independent Communications Authority of South Africa (ICASA), and at present, there is no regulated service developed by all mobile operators or single infrastructure owned by all mobile operators for which they share revenue proportionally to improve collaboration and innovation that will create a unique and competent industry skill set. Based on what the researcher knows about the telco industry, her epistemological assumptions are as follows:

1. The absence of a regulated service, product, or infrastructure is a problem because it limits open innovation and does not promote revenue stream diversification and collaboration among South African mobile operators.
2. A standardised product, service, or infrastructure will improve efficiencies, promote collaboration among mobile operators, and drive 4IR/5IR innovations and TBL.
3. A standardised product, service, or infrastructure can contribute greatly to the telco industry and change the narrative of how the industry makes a profit and sustains itself for its own survival and that of its stakeholders.

Don-Solomon and Eke (2018) suggest that ontology and epistemology are not necessarily a scholarly dilemma, but rather complementary maxims that work together to enable a better understanding of the true fundamentals of business research. However, reflexivity considers ontology, epistemology, and methodology (Hoque, Parker, Covalski, & Haynes, 2017). Research methodology consists of the research design, research methods, the process followed to investigate the phenomenon, data gathering, sampling, and data analysis (Kivunja & Kuyini, 2017).

#### 4.2.3 Methodology

To examine the financial sustainability of the South African telco industry in the current business environment, the study applies a mixed research methodology with a targeted sample base of 10, of whom nine were interviewed. However, 10 interviews were conducted, as there was a follow-up interview with one of the executives who participated. Alotaibi (2019) conducted a multiple-case study in the Saudi telco

industry exploring foresightful strategic planning and organisational flexibility, which considered the turbulent economic conditions of the country, where publicly available company documents were analysed; nine interviews were completed at three of the sampled companies. A major characteristic of mixed-methods research is the authentication of the trustworthiness and credibility of the research findings while assuring the validity of the case study by drawing a meaningful conclusion from the sample (Creswell & Miller, 2000; Lincoln *et al.*, 2011; Levitt *et al.*, 2018). Since the unit of analysis in this study is multiple cases, a mixed methodology was the best strategy of enquiry to be used, as it allows in-depth, triangulated data collection using multiple sources, which ensures a comprehensive research strategy and provides flexibility during the data analysis stage (Creswell, 2013). Multiple-case studies provide the flexibility that enables comparisons, which allows researchers to test whether the research findings can be replicated by other researchers and produce the same results and/or draw a contrasting conclusion when comparing research findings (Eisenhardt, 1989).

Reflexivity is the researcher's awareness and acknowledgement of the beliefs and objects that affect and influence the research processes and outcomes (Hoque *et al.*, 2017). Reflexivity not only promotes the researcher's self-awareness, but also acknowledges the partnership between the researcher and the participants (Narayanasamy, 2015), as reflexivity challenges researchers to question their own thinking and motives that lead to actions and to learn to examine their own viewpoints and beliefs with the same scrutiny as would apply to the beliefs of others (Haynes, 2012; Saunders *et al.*, 2019). The researcher applied reflexivity very well, as there was a need to conduct a follow-up interview with one of the executives who participated in the study, and the follow-up interview was a success. However, Berger (2015: 220) suggests that reflexivity is the 'turning of the researcher lens back onto oneself to recognize and take responsibility for one's own situatedness within the research and the effect that it may have on the setting and people being studied, questions being asked, data being collected and its interpretation'. To account for reflexivity, the researcher has maintained her independence and high standard of professionalism throughout the research process. In conclusion, reflexivity refers to the researcher's

reflection on the process through which data was collected and interpreted (Hoque *et al.*, 2017).

To get valuable, in-depth insight, published financial statements from the websites of the cases studied were used to gather and evaluate quantitative data, which was triangulated with multiple other data sources such as the JSE and business reports and/or journals using textual analysis methods. Thematic analysis was used to analyse the primary data and find trends in the identified patterns, while secondary data was extracted from the business literature, the websites of the companies that were analysed, and the financial reports from the JSE. The greatest contribution of the research would be to allow the reader to make an informed decision based on the information presented in the research study (Saunders *et al.*, 2015).

#### 4.2.3.1 Research sample selection

The interviews were conducted with the executive team from the participating companies because of their greater exposure to telco strategic priorities compared to that of lower-profile employees. The selection of the executive team was only based on their vast experience and maturity in the industry. Due to the extensive experience of the executive team, knowledge of the industry, and maturity in strategy, saturation was reached on the sixth interview, even though 10 interviews were conducted. Studies have previously been conducted in the telco industry where the researchers have focused on a specific target sample and interviewed fewer than 10 candidates. For example, Alotaibi (2019) conducted a multiple-case study where publicly available company documents were analysed and only nine interviews were completed at three of the major companies in the Saudi telco industry. The major mobile operators in the Saudi telco industry are the Saudi Telecom Company (STC), Kuwaiti Company (Zain), and Mobily (Alotaibi, 2019). In addition, Castillo, Fabbri, and Saez-Trumper (2017) interviewed only nine experienced professional community managers on the use of social media research and obtained meaningful results. The next topic and sub-topics will outline the most critical aspects of the diagram in Figure 4.2; the research design, research methodology, research strategy, research approach, data collection, and sampling will be briefly articulated. The data analysis will be presented in section 4.15.

### 4.3 Research philosophy

In Chapter 1 Section 1.8, the researcher indicated a full account of the research philosophy will be provided in Chapter 4 Section 4.3. The researcher must be aware of his/her philosophical commitments when selecting the research strategy, as this directly affects what is done and how the research investigation should be conducted (Johnson & Clark, 2006). Saunders (2016) suggests that the research philosophy provides a clear view of how the data should be collected, depending on the nature of the study, and for the research to be taken seriously; the researcher must explicitly indicate why a particular method was selected.

To design a coherent research project, which includes the research philosophy, support for mixed methods, research strategy, data collection techniques, and analysis, the study adopted the research onion recommended by Saunders *et al.* (2019); see Figure 4.2.

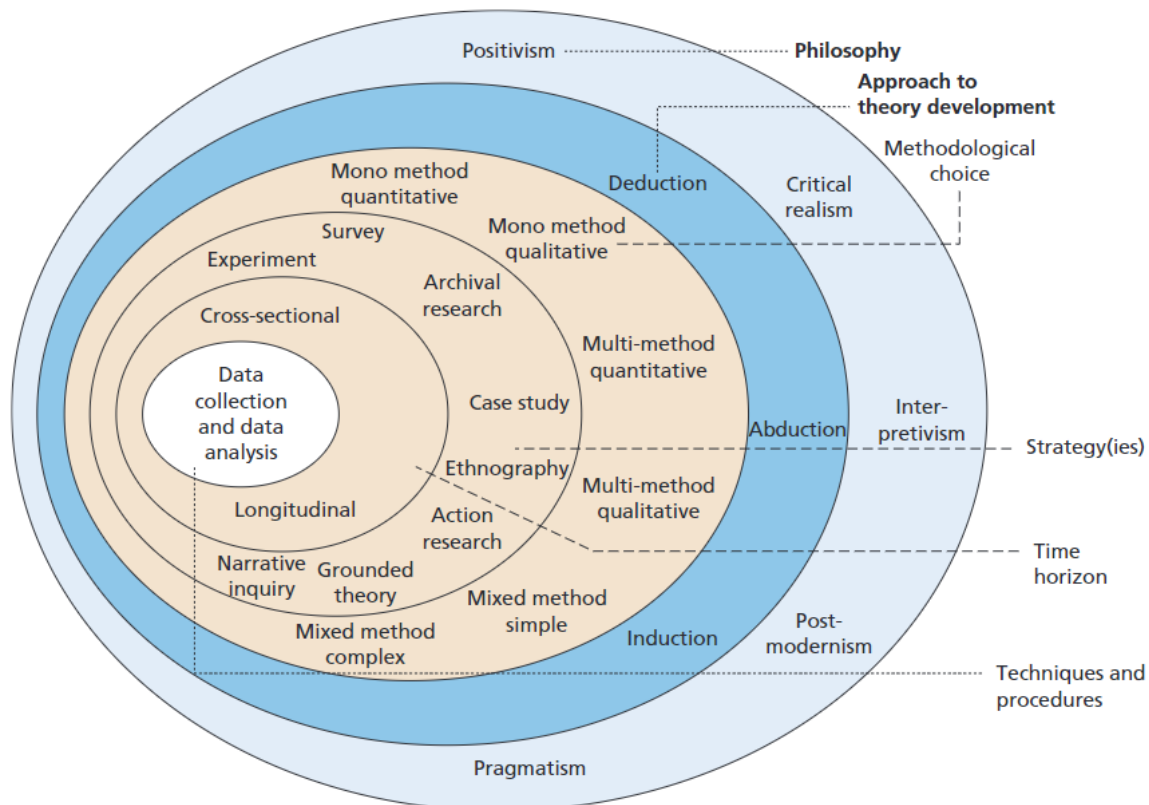


Figure 4.2 Research process onion  
Source: Saunders *et al.* (2019: 130)

Figure 4.2 provides the overarching key elements required to develop sound research knowledge and what the researcher is expected to do when embarking on research to answer specific research problems in a researched field (Saunders *et al.*, 2019).

#### 4.3.1 Positivism

Saxena (2019) argues that separating positivism and interpretivism does not eloquently justify the methodological and philosophical pluralism found within business research, and although critical realism is projected as a third way for business research, it is not a panacea for all business research (Mingers, 2004; Fleetwood, 2005). Don-Solomon and Eke (2018) suggests that a researcher's epistemological and ontological stance can also be defined as positivism. In the current research, the adoption of both positivism and interpretivism supports the study as a mixed-methods one, which is a study that combines both quantitative and qualitative approaches. One of the reasons the current study adopted a positivist approach was to increase the accuracy of the study, as it aimed at an objective phenomenon identified by deductive logic (Ekman, Thilenius, Thompson, & Whitaker, 2020).

#### 4.3.2 Pragmatism

Ryder (2005) considers pragmatism as a kind of postmodernism, while Netroba, Bilyk, Oliiar, Martsikhiv, and Stoliarchuk (2020) suggest that pragmatist ideas and postmodernism stimulate an impetus towards new philosophical ideas. The reality is that philosophical ideas depend on one's creativity and experience. The researcher concurs with Rydenfelt (2021) that realism cannot be divorced from one's thoughts and reality from one's behaviour, and commitment depends on reality. If one cannot intellectually use his/her knowledge and experience, well, then, one is just a collector of information, as an individual's mental actions are stimulated by whatever motivates his/her mind (Netreba *et al.*, 2020). For this reason, the researcher used her telco industry prescience to design meaningful research objectives and research questions, conduct interviews, personally analyse the quantitative data that provided the financial insights in Chapters 1 and 2, and develop themes from the qualitative data collected from the research field. Postmodernism is applicable in various disciplines, but it is



mostly used by scholars for intellectual philosophical arguments and discussions, whereas pragmatism is a combination of both positivism and interpretivism (Danwanzam, Saleh, & Stephen, 2019). The adopted research philosophy for this study is pragmatism because mixed methods were used.

#### 4.3.3 Interpretivism

Interpretivism was also adopted due to the complexity of the phenomenon being researched and the small sample that was used to perform the in-depth qualitative analysis. Positivists frequently use quantitative data to test a hypothesis and primarily rely on deductive logic, while interpretivists use qualitative data to develop patterns and look for meaning and follow inductive logic (Saxena, 2019). Interpretivism is aligned with the qualitative method.

#### 4.4 Research approach

Saunders *et al.* (2015) state that there are three main approaches that a researcher can adopt when developing a sound literature review: an abductive approach, a deductive approach, and an inductive approach. Table 4.1 describes each approach suggested by Saunders *et al.* (2015) and additionally elaborates on when each approach can be used.

Table 4.1 Approaches to developing research theory

	<b>Abduction</b>	<b>Deduction</b>	<b>Induction</b>	<b>Practical application</b>
Logic	In abductive inference, known premises are used to generate a testable conclusion.	In deductive inference, when the premises are true, the conclusion must also be true.	In inductive inference, known premises are used to generate conclusions.	Little is understood about how the telco industry makes a profit and sustains itself for its own survival and that of its stakeholders. Due to the complexity of the telco industry in South Africa, there is no single product or service standardised across all South African mobile operators, nor a unified marketing strategy that allows them to share revenue proportionally, nor a single infrastructure owned by all mobile operators to improve collaboration and innovation that will create a unique and competent industry skill set. Financial sustainability is achieved through efficient revenue stream diversification and a clear financial performance vision (Xie <i>et al.</i> , 2022).

Generalisability	This involves generalising from the interactions between the specific and the general.	This involves generalising from the general to the specific.	This involves generalising from the specific to the general.	Only the government has the power to auction off the right to use the spectrum, resulting in frustration for mobile operators, as they had waited for over a decade before the new allocation was assigned. This is an obvious case of government impeding sustainability through the long-awaited spectrum allocation in South Africa. The regulator, ICASA, finally auctioned spectrum to mobile operators after 18 years; the regulator raised over R14.4 billion in March 2022 from the proceeds of the spectrum auction (Fitch Solutions, 2022).
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Use of data	Data collection is used to explore a phenomenon, identify themes and patterns, locate these in a conceptual framework, and test this through subsequent data collection.	Data collection is used to evaluate propositions or hypotheses related to an existing theory.	Data collection is used to explore a phenomenon, identify themes and patterns, and create a conceptual framework.	The impact of government control and its monopoly over the right to use the spectrum increases the capital expenditure of mobile operators, since they have no other choice than to invest in infrastructure such as towers, spectrum, data centres, sites, and base transmitter stations (BTSs). For example, Vodacom spent R2 055 million on capital expenditure in South Africa during the year ended March 2020, while MTN invested more than R30 billion (about \$2.4 billion) over the past three years in network improvements in South Africa (Moeng, 2018; Vodacom, 2020).
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*Source: Saunders et al. (2015)*

The recommendations made by Saunders *et al.* (2015) regarding literature development were adhered to in Chapter 2, and two of the three approaches were adopted during the development of the literature review to ensure that the literature review was comprehensive. Since there is a gap in the integration and simultaneous use of impression management theory, knowledge management, and stakeholder theory, the study adopted both abductive and deductive approaches in order to explore the research theories and build the telco industry financial sustainability theoretical framework. An abductive approach logically makes inferences from a known premise to generate testable and appropriate conclusions, while incorporating existing theory, in order to build and generate new theory or modify existing theory (Saunders *et al.*, 2015). Abduction holds that data collection is used to 'explore a phenomenon, identify themes and patterns, locate these in a conceptual framework and test this through subsequent data collection' (Saunders *et al.*, 2015: 145). The PESTEL model and the RBV were the best frameworks for investigating and analysing the financial sustainability of the current South African telco industry. Applying the PESTEL model and the RBV assisted in analysing the industry standard and made it easy to generate grounded study literature. An abductive approach assisted in generating codes and themes during the coding process in the development of hypotheses and categories to explore to understand the financial sustainability of this industry. The themes were grouped and reported according to their significance, value added to the study, new insight into the body of knowledge, and response to the research questions. The research approach followed did not leave any gaps when addressing the research objectives, as the abduction approach supports both quantitative and qualitative reasoning in empirical research (Zelechowska, Zyluk, & Urbanski, 2020).

#### **4.5 Research methodological choice**

There are three available research methods from which a researcher can choose when considering the strategies and processes to be used to investigate the phenomenon being researched. These three research methods are quantitative, qualitative, and mixed-methods research, the latter being a combination of quantitative and qualitative methods (Creswell, 2014). Furthermore, these three methods use distinct designs that are not limited to theoretical frameworks and philosophical assumptions that assist the researcher in answering the research questions (Creswell,

2009; Denzin & Lincoln, 2011; Mouton, 2017). The difference between quantitative and qualitative research is that quantitative research can be evaluated in terms of quantities, employing volumes or amounts (Holloway, 2005; Creswell, 2014), while qualitative research is more 'concerned with [a] qualitative phenomenon' (Kothari, 2004: 3) and provides a detailed and complete description of the research topic that is being investigated (Holloway, 2005; Creswell, 2014). As indicated in Chapter 1 Section 1.7 that a full description of the mixed method as a research methodological choice will be presented in this section. Mixed-methods research 'goes beyond the boundaries of triangulation which utilises a number of research techniques in the same research design' (Romm & Ngulube, 2015: 127).

#### 4.5.1 Mixed methods

The study applied a mixed research method approach in order to answer the research questions and fully understand the financial sustainability of the South African telco industry in the contemporary business environment, as the impact can be either positive or negative. The use of mixed-methods research was suitable in this case because it had strong methodological implications for the study since the data collected from mixed methods can produce rich information through research analysis and lead to stronger conclusions than those that can be reached from a single method (Greamer, 2018). Furthermore, mixed methods adopt both positivism and interpretivism, aligning with a pragmatist research philosophy.

Levitt *et al.* (2018) highlight that, apart from using philosophical assumptions or theoretical models to inform the research designs and integrating both qualitative and quantitative research methods, the main characteristics of mixed methods are as follows:

1. The procedures followed and the research design methodology are distinct, as triangulating data sources allows the researcher the flexibility to simultaneously apply qualitative and quantitative research methods.
2. To respond to the overarching research objectives and hypothesis and to answer the research questions, only a mixed-methods approach collects and analyses both qualitative and quantitative data simultaneously, with the intention of generating new insights.

The mixed-methods characteristics mentioned assisted in attaining in-depth and good qualitative insights, which assisted in meeting the research objectives and quantitatively measuring EBITDA, net profit margin, ROA, ROE, and ROI in order to better understand the status of the financial sustainability of the South African telco industry in the contemporary business environment. The use of qualitative, thematic analysis assisted in exploring data beyond the participants' responses and in understanding the reality of the challenges experienced by the telco industry in South Africa (Braun & Clarke, 2006; Davis, 2013; Finfgeld-Connett, 2014).

Public journals, telco industry-based white papers produced by the big five global audit firms, company financial statements, and JSE reports for the top mobile players in the South African telco industry were also used to collect quantitative data. The big five global audit firms are Accenture, Deloitte Touche Tohmatsu Limited (Deloitte), Ernst & Young (EY), KPMG, and PricewaterhouseCoopers (PwC) (Cappelli & Tavis, 2016; Fernandez-Feijoo, Romero, & Ruiz, 2016). Furthermore, to collect qualitative data in the study, semi-structured interviews were conducted, and saturation was reached on the sixth interview (Fusch & Ness, 2015). Of the 10 interviews conducted, one was a follow-up interview. However, the initial target was 10 participants, all executives in the telco industry. As previously articulated, the selection of the executive team was based only on their vast experience and maturity in the industry as compared with the junior employees. The executive team members were perfect participants to be interviewed during the fieldwork, as they had greater exposure to telco strategic priorities than lower-profile employees because they were able to bring to light how the challenges experienced by the telco industry in South Africa directly or indirectly affect the financial sustainability of the South African telco industry in the contemporary business environment. The current study answered the research questions and met the research objectives accordingly.

In addition, the mixed-methods research was used to evaluate the financial sustainability of the South African telco industry and identify themes and patterns from the qualitative data collected from the research field. The selection of this method allowed flexibility, and the triangulated data collection methods led to sound and in-depth quantitative and qualitative analysis. According to Mouton (2017), the research

methodology provides insight into the methodological structure of the research process that the researcher followed when executing specific research tasks such as data collection. The research methodology enlightens the research design that was used for sampling, data collection, and data analysis (Kothari, 2004; Saunders *et al.*, 2015).

#### **4.6 Research design**

The research design provides the specific direction that a research study will follow, and from the three research methods identified by Creswell (2014), namely, qualitative, quantitative, and mixed methods, the mixed-methods approach is applied to this scientific enquiry. Research design links the empirical or non-empirical research questions with the philosophical assumptions (Creswell, 2009; Denzin & Lincoln, 2011; Mouton, 2017). Empirical questions provide a supporting structure to obtain factual or objective research evidence, while non-empirical research is steered by analysing only existing theories without collecting any further data (Van Wyk, 2012; Mouton, 2017). The current study conducted empirical research, examining the financial sustainability of the South African telco industry in the contemporary business environment and exploring how the telco industry made its financial decisions. Tlili *et al.* (2019) explored integrated financial reporting using evidence from the South African context, while Moloï and Iredele (2020) conducted empirical research examining the value and relevance of financial reporting by JSE-listed companies.

Strategies of enquiry include the type of research design, such as exploratory, experimental, or descriptive studies, and are driven by the selected research methodology (Van Wyk, 2012; Creswell, 2014; Fetters & Freshwater, 2015). This study applied an exploratory research design rather than one of the other strategies of enquiry, as the research problem is definitely understood since little is understood about the way the industry makes a profit and sustains itself for its own survival and that of its stakeholders. The strategies of enquiry are driven by the selected research methodology (Van Wyk, 2012; Creswell, 2014; Ngulube, 2015). An exploratory research design is sometimes referred to as an analytical study, as it is structured so as to identify any variables contributing to the research problem (Van Wyk, 2012; Ngulube, 2015).



#### 4.6.1 Research design construction

In constructing a research design, other strategies of enquiry, an interpretation framework, and specific research methods of sampling, data collection, and data analysis are discussed, with the intention of answering the research questions (Creswell, 2009; Denzin & Lincoln, 2011; Mouton, 2017). In Chapter 1 Section 1.7, the researcher highlighted that the research design construction will be explicitly articulated in this section. The current study is empirical in nature, as both primary data and secondary data were analysed in order to explore paradigms in the study and evaluate, understand the financial sustainability of the telco industry in the contemporary South African business environment, and develop a model to measure the financial sustainability of the South African industry. Kothari (2004: 4) defines empirical research as a type of experimental research where the researcher works through probable results to construct a hypothesis and 'then works to get enough facts (data) to prove or disprove his hypothesis', as the researcher seeks facts first-hand, directly from the original source. Empirical research allows the researcher to explore the phenomenon and distinguish between research problems and real-life problems in order to generate hypotheses for future research (Mouton, 2017). Figure 4.3 depicts the study research design. It completes the discussion of the research design and its construction. The next section will discuss mixed-method design classifications and unpack the most commonly used design.

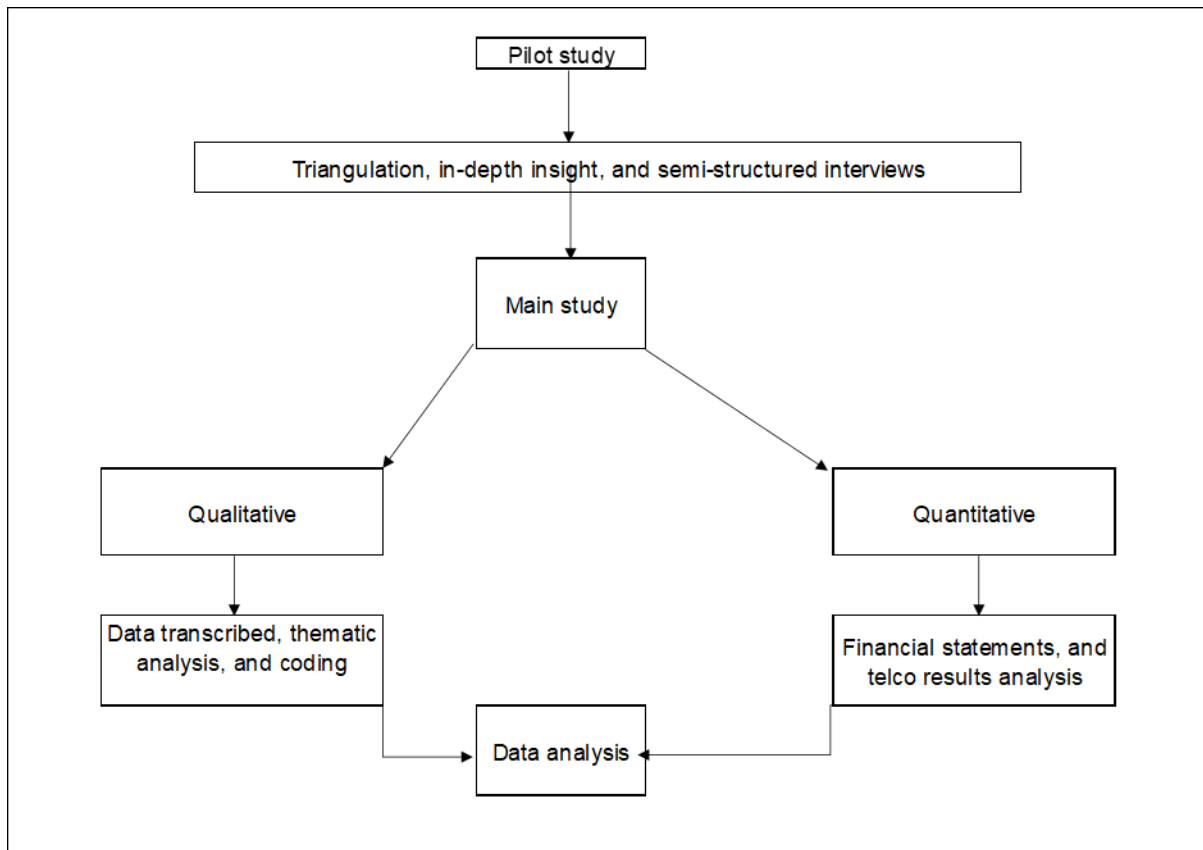


Figure 4.3 Research design

Source: Creswell (2009); Denzin and Lincoln (2011); Mouton (2017)

#### 4.6.2 Mixed-method design

In Chapter 1 Section 1.7, the researcher highlighted that the mixed-method design will be explicitly articulated in this section. This study adopted a mixed-methods design in order to draw a contrast between the quantitative statistical results deriving from the financial statements of the cases studied and the qualitative findings. According to Creswell *et al.* (2003), there are four major types of mixed-methods designs: the explanatory design, the embedded design, the exploratory design, and the triangulation design. They, furthermore, state that the most commonly used and advanced approach when mixing methods is the triangulation design. The purpose of this design is 'to obtain different but complementary data on the same topic' (Morse, 1991: 122) in order to best understand the research problem. Shenton (2004) highlights that the application of triangulation validates the research data and strengthens measures of trustworthiness. Table 4.2 provides various mixed-method

designs, common variants, and disciplines where these methods can be best used. However, it is important to note that the list is not exhaustive.

Table 4.2 Mixed-method design classifications

Author	Mixed-method designs	Discipline
Greene <i>et al.</i> (1989)	Initiation	Evaluation
	Expansion	
	Development	
	Complementary	
	Triangulation	
Morse (1991)	Simultaneous triangulation	Nursing
	QUALITATIVE + quantitative	
	QUANTITATIVE + qualitative	
	Sequential triangulation	
	QUALITATIVE → quantitative	
	QUANTITATIVE → qualitative	
Creswell <i>et al.</i> (2003)	Sequential explanatory	Educational research
	Sequential exploratory	
	Sequential transformative	
	Concurrent triangulation	
	Concurrent nested	
	Concurrent transformative	
Creswell <i>et al.</i> (2004)	Instrument design model	Primary medical care
	Triangulation design model	
	Data transformation design model	

Source: Greene *et al.* (1989); Morse (1991); Creswell *et al.* (2003); Creswell *et al.* (2004)

In data collection, the researcher should be mindful of the importance of data triangulation (Denzin & Lincoln, 2011). Denzin (2009, cited in Fusch and Ness, 2015), argues that triangulation is critical in enhancing the reliability of results, especially when applying multiple external methods to collect data, in enhancing multiple datasets, and in the analysis of the data. To enhance the objectivity, truth, and validity of the research, triangulation was used to collect data from four segments (Fusch &

Ness, 2015). The next section will discuss the research strategies employed during the research phase.

#### 4.7 Research strategy

Since the unit of analysis in this case was multiple cases, a mixed-methods methodology was the best strategy of enquiry to be used, as it allowed in-depth data collection using multiple sources to triangulate a comprehensive research strategy; it also provided flexibility during the data analysis stage (Creswell, 2013). The research strategies for the three available research methods are characterised by various aspects as depicted in Table 4.3 (Creswell, 2009; Creswell, 2014; Levitt *et al.*, 2018).

Table 4.3 Research methods

<b>Quantitative</b>	<b>Qualitative</b>	<b>Mixed methods</b>
<ul style="list-style-type: none"> <li>▪ Experimental designs</li> <li>▪ Non-experimental designs, such as surveys and factorial research</li> </ul>	<ul style="list-style-type: none"> <li>▪ Narrative research</li> <li>▪ Case study</li> <li>▪ Grounded theory</li> <li>▪ Ethnography</li> <li>▪ Phenomenology</li> </ul>	<ul style="list-style-type: none"> <li>▪ Sequential</li> <li>▪ Transformative or multiphase</li> <li>▪ Concurrent</li> </ul>

*Source:* Creswell (2009); Creswell (2014); Levitt *et al.* (2018); Nene (2019: 112)

From the various strategies of enquiry mentioned above, the study adopted a multiphase strategy. A multiphase mixed-methods triangulation design was used to measure the financial sustainability of the South African telco industry in the contemporary business environment, validate the research data, and strengthen measures of trustworthiness. The multiphase mixed-methods approach allowed for triangulated data collection while investigating phenomena, adopting both qualitative and quantitative methodological frameworks to answer the research questions. Where there is limited to no evidence of the context, multiphase mixed-methods research uses multiple-case studies and sources of evidence to authenticate a phenomenon (Yin, 2014; Saunders *et al.*, 2015). Therefore, a multiphase mixed-methods approach was suitable for this study, as it allowed the researcher to conduct several mixed-methods case studies because there were six cases studied, namely, Vodacom, MTN, Cell C, Telkom, Rain, and Liquid Telecom, even though the industry analysis focused

on the top three mobile operators that dominated the South African telco market share, that is, Vodacom, MTN, and Cell C. These multiple-case studies 'may go back and forth between quantitative, qualitative, and mixed methods studies, but they build on each other to address a common program objective' (Creswell, 2014: 278).

The published financial statements from the websites of the cases studied were used to gather and evaluate quantitative data and then triangulate it with multiple data sources such as from the JSE and business reports or journals, using textual analysis methods. For qualitative data, interviews were conducted with the executive team members from the participating companies because of their greater exposure to telco strategic priorities compared to lower-profile employees. To develop insightful research theories and determine whether the findings could be replicated across cases, each case study was evaluated and analysed separately (Remenyi, 2012; Saunders *et al.*, 2015). Creswell (2014) defines the multiphase mixed-methods approach as a mixed-methods sequential or convergent approach, which can sometimes include only qualitative or quantitative designs to achieve the research objectives and evaluate the programme of interventions to answer the research questions.

#### **4.8 Target population**

There are four primary mobile network providers in South Africa: Vodacom, MTN, Cell C, and Telkom. However, the top three biggest market players are Vodacom, MTN, and Cell C. To determine the financial sustainability of these mobile operators and understand market growth and their financial viability, their financial statements published on the websites of the companies, business journals, and JSE reports were extensively analysed. The top three market players were selected because of their dominance in the South African telco market as the leading mobile operators. Vodacom started as a service provider that provided mobile phones and other services, such as mobile voice, SMS, and data; today, it is the leading market player in the South African telco industry, connecting over 43 million people across South Africa (Dyble, 2021). The MTN Group Limited (MTN Group) is a leading African service provider of communication services, both mobile and fixed services, offering cellular network access and business solutions (MTN, 2016; MTN, 2018). Both Vodacom and

MTN were founded during the notable and historic year of 1994 when democracy was realised in South Africa. When MTN started operating, it was the first independent communications network in South Africa (MTN, 2018). Both Vodacom and MTN are also listed on the South African stock exchange, known as the Johannesburg Stock Exchange (JSE), in the Industrial – Telecommunications sector. Vodacom was listed first on the JSE in 2009, and it has been leading telco innovation in South Africa, resulting in R70 billion in revenue and R29 billion worth of earnings before interest, taxes, depreciation, and amortisation (EBITDA) during the 2020 financial year (Loom, 2019a; Vodacom, 2020). MTN holds R22 billion worth of EBITDA, with over 30.2 million subscribers in the South African market (MTN, 2018). In 2001, Cell C disrupted the South African telco industry when it launched its product; it took market share from the incumbents and became a competitor network (Loom, 2019b). Over the years, Cell C has built a strong subscriber base, and as of 2019, it had 15.9 million customers (BusinessTech, 2020; Cell C, 2021).

#### **4.9 Unit of analysis**

The unit of analysis is an investigated phenomenon, event, entity, process, or object that addresses the fundamentals of the research questions (Yin, 2014; Saunders *et al.*, 2015; Gorichanaz, Latham, & Wood, 2018). Units of analysis can consist of various elements such as artefacts, discourses, events, individuals, and practices, which can be studied to explore phenomena in an empirical enquiry, where the intention is to provide insights and measurements related to the specific object of the research (Akremi, 2020). Babbie (2016: 97) describes the ‘unit of analysis’ concept as ‘the what or who being studied’. In this study, the unit of analysis was ‘the South African telco industry’, and the companies researched are referred to as ‘cases’, and individuals in the study are referred to as ‘participants’; it was the individuals who provided the qualitative data to study the phenomenon under investigation.

To analyse the second unit of analysis, that is, the annual reports of the companies and JSE reports, quantitative analysis was used. The data was validated by comparing the financial results extracted from the company websites with the data gathered from business journals and JSE-published results for the listed companies. The full details of the analysis will be presented in the next chapter, Chapter 5. However, all units

analysed in this study provided insights that contributed to the study literature and addressed the research questions and research objectives, leading to a clear understanding of the financial sustainability of the South African telco industry in the contemporary business environment.

#### **4.10 Research sample**

The population can be defined as the total collection of units or pieces that can be used to determine the measurement of the outcome (Blumberg, Cooper, & Schindler, 2008). Kothari (2004) defines 'population' as any targeted and selected objects considered in the field of enquiry. The selected population for this research included diverse professionals holding various executive positions within mobile operators in South Africa. It is important to note that not all mobile operators approached (Vodacom, MTN, Cell C, Rain, Telkom, and Liquid Telecom) granted permission to be included in the study, and that led to challenges during the research period.

The majority of education studies use small qualitative samples justified by having reached saturation and without any sampling strategy (Vasileiou, Barnett, Thorpe, & Young, 2018). Some of the mobile operators only granted the researcher permission to use the publicly available information for quantitative analysis, industry analysis, and insights, while other mobile operators granted permission for both interviews and the use of publicly available information. In qualitative research, there are no strict rules for determining sample size; however, the richness of data collected from the participants and data adequacy are what determine the quality of the research (Morse, 1995; Tuckett, 2004). Due to the statistical formulas used in quantitative research, the sample size is larger than that in qualitative research, as qualitative relies on smaller samples (Morse, 1995; Leavy, 2022). In explanatory sequential research, both quantitative and qualitative samples are collected from the same study population, with quantitative data collected first, and later, participants are recruited for qualitative data gathering (Creswell, 2015).

### 4.11 Sampling methods

Multiple-cases cross-analyses assisted in identifying important patterns suitable for synthesis, providing rich information and an in-depth understanding of the phenomenon (Patton, 2002; Tafur-Arciniegas & Contreras, 2018). A multiple-case study increases the external validity, as the study is carried out in more than one company (Bressanelli, Perona, & Saccani, 2019). Mora, Deakin, and Reid (2019) concur with Bressanelli *et al.* (2019) that multiple-case study analyses enable the testing of the validity of the phenomenon. The secondary data was collected from various sources, such as the websites of the mobile operators, business journals, and JSE annual results. After collecting the data from both primary and secondary sources, the analysis of the data was carried out in two stages:

1. Data integration from the cross-case analysis
2. An individual analysis of each case study

As part of corporate governance, the details of company executive teams are available on the websites of the companies, and company annual reports are published on the company websites and are available from the JSE for listed companies. Therefore, it was not too difficult to reach out to the listed companies, but the researcher really struggled with the non-listed companies, and she had to use LinkedIn to connect and introduce herself. It would have been much better if the researcher had had an existing rapport through her professional networks (LeRoux & Medina, 2023). Initially, the researcher thought things would be very easy because she was familiar with the industry, but the reality proved to be different, and some mobile operators thought the researcher was a corporate spy, since she was working for a competitor during the time of the research. However, in the letters sent to the gatekeepers and prominent participants, the researcher made it clear that the research project was outside her work duties and strictly focused on an academic perspective that was guided by the research ethics code of conduct of the university. Therefore, the cases studied were assured that there was no conflict of interest in the research project. Some mobile operators were very receptive to the approach made by the researcher, were willing to take part in the study, and were keen to see the research findings. Throughout this process, the researcher maintained her independence as a researcher and divorced herself completely from her role as a telco subject matter expert to ensure the



credibility of the study, with no conflict of interest, which was clearly indicated in the letters sent to the gatekeepers and prominent participants.

#### 4.11.1 Purposive sampling

Sampling decisions and sampling strategy are determined by the research purpose, the research method or methods used in the study, and the research questions to be answered (Leavy, 2022). Purposive sampling allows a qualitative study to identify important patterns suitable for synthesis, analyse relevant factors, and provide rich information that is important across multiple cases while providing an in-depth understanding of the phenomenon (Patton, 2002; Tafur-Arciniegas & Contreras, 2018). Purposive sampling was used to select participants who could provide an in-depth understanding of, and insight into, financial sustainability in the selected mobile telephone operators (Denzin & Lincoln, 2011; Benoot, Hannes, & Bilsen, 2016). Purposive sampling is also known as a judgement or purposive sampling, since it is based on the premise of seeking out the best cases and knowledgeable participants who are willing to participate in the study in order for the study to produce the best data and sound research results (Mweshi & Sakyi, 2020). Generally, convenience sampling is adverse to the aims of qualitative methods (Padgett, 2017). To gain in-depth knowledge about a specific phenomenon, rather than making statistical inferences, with clear criteria and rationales for inclusion, researchers use purposive sampling for qualitative research to select atypical cases and, sometimes, to select typical cases (Mweshi & Sakyi, 2020). In applying purposive sampling in this study, the inclusion and exclusion criteria were the following: (1) the participant had to be in a strategic position and, thus, be someone who understood the industry and the financial sustainability of the organisation; (2) he/she had to have a minimum of five years' experience in his/her strategic leadership position; and (3) he/she had to be willing and able to share his/her experience of leading an organisation during the turbulent times linked to the COVID-19 pandemic. With these inclusion and exclusion criteria in mind, one needed to be mindful of the fact that executive or top management teams were usually small and also difficult to access; as such, emphasis on depth in data collection was critical. However, purposive sampling is driven by the evidence collected to determine the best cases for the study and to produce meaningful research results (Patton, 2015). Purposive sampling is a sampling strategy used to

achieve the appropriateness of the research, and this sampling method can be used for both qualitative and quantitative research, depending on the research questions to be answered (Patton, 2015; Creswell & Poth, 2018). To appropriately and adequately answer the research questions, public journals, business literature, company financial statements, and JSE reports were used for the top three mobile players in the South African telco industry. Furthermore, a five-year-on-year trend that was analysed from the quantitative data provided insights that will be presented in Chapter 5. Pecoraro (2016) defines insight as a mental vision and understanding of thoughts, motives, and feelings and the ability to recognise or realise the problem at hand. The purposive sampling method provided in-depth, efficient, and rich results that explained telco strategies and revealed facts about the industry (Toytok & Doğan, 2022). Therefore, mixed purposive sampling provided an in-depth analysis of, and insights into, the phenomenon under investigation in order to meet the research objectives and answer the research questions.

#### 4.11.2 Sampling of individual participants

There were six cases studied: Vodacom, MTN, Cell C, Telkom, Rain, and Liquid Telecom. The selection of the cases studied was based on the market dominance of both MVNOs and MNOs in the South African telco industry. An invitation was sent to all selected cases to determine their willingness to participate in the study, and both negative and positive feedback was received. However, in some cases, approval to use the name of the company and its publicly available data was received, even though the gatekeeper rejected the request to take part in the interviews with the executive team in his/her organisation. Where a positive response was received to the request to use publicly available data and to participate in the interviews to collect primary data, the research interviews were scheduled immediately. The executives who participated were between the ages of 42 and 54 years, with a combined telco industry experience of 120 years. In total, the participants had 205 years of experience, with 85 years outside the telco industry. The participants in this study were diverse; eight out of the nine participants were males, and only one was a black female. Of the eight males, one was black, three were Indian, and four were white.

All 10 transcribed interviews and analyses were saved on OneDrive from the researcher's laptop. Only the researcher has access to this network drive, and it is protected through a username and password that only the researcher knows.

The study targeted the following members of the executive teams of the cases studied as the study population: chief regulatory and corporate affairs officer, chief transformation and strategy officer, chief financial officer (CFO), chief executive officer (CEO), and chief operating officer (COO) because of their level of maturity and exposure to strategic telco challenges. Initially, contact was made through a telephonic engagement with all targeted mobile operators, which was followed by an email; depending on the organisational structure of each case, most engagements were routed via the company secretary, and in some cases, the engagements were held with the strategy and research executive.

It was difficult to secure interviews with the executive teams across all the cases studied, and the engagements and planning took two months before the initial interviews were conducted. The first interview was conducted on 05 May 2021 and the last interview was conducted on 28 August 2023. Due to executive commitments and emergency board meetings, some interviews had to be postponed several times, and some participant interviews had to be cancelled completely. Two to three candidates were interviewed from each case studied.

#### **4.12 Sample size**

The number of clusters of participants included in a study and what criteria had to be used to select them were not the only critical aspects to consider when finalising the sample size. There were various other aspects to be considered in decision-making, such as the expertise of the participants and the circumstances under which the selection took place (Onwuegbuzie & Leech, 2005). The study adhered to recommendations from Morse (1994), Morse (1995), Creswell (2013), and Tuckett (2004) regarding sample size. Morse (1994) suggests a minimum of six participants, while Creswell (2013) recommends between five and 25 interviews. However, Morse (1995) and Tuckett (2004) emphasise that there are no strict rules for determining sample size in qualitative research. Instead, the quality of the research depends on

the adequacy and richness of the data collected from participants. By conducting 10 interviews, the study aimed to ensure data adequacy and richness while also meeting the minimum recommendations proposed by Morse (1994). Additionally, the follow-up interview allowed for deeper exploration of specific themes and clarification of ambiguities identified during the initial interviews. The participants in this study, who had a helicopter view of the entire organisation with a minimum of 16 years' experience, were in a position to articulate clearly any relevant information regarding sustainability. The people in the upper echelons of any organisation are responsible for the long-term direction and sustainability of the organisation.

Over the decades, various scholars such as Hodgkinson and Sparrow (2002), Carpenter, Geletkanycz, and Sanders (2004), Hambrick (2007), Bromiley and Rau (2016), and Wang, Holmes, Oh, and Zhu (2016) have reviewed the progress of upper echelons theory (UET) and concluded that this theory is one of the most influential perspectives in strategic management studies. Hambrick and Mason's (1984) UET explains how executives' experience and characteristics shape their perceptions, choices, views, and actions in ways that significantly affect the performance of the organisations. Smith, Hill, Wallace, Recendes, and Judge (2018) highlight the importance of executive cognition, personality, and the CEO's impact on the performance of the organisation. Hoskisson, Chirico, Zyung, and Gambeta (2017), and Simsek, Heavy, and Fox (2018) expand UET theory to strategic interfaces, risk management, and organisational transformation. Therefore, interviewing only executives to explore the determinants of the financial sustainability of the South African telco industry was important to meet the research objectives and for the success of this study while ensuring that the research questions were answered.

Overall, the decision to conduct 10 interviews, which included the follow-up interview, was guided by a desire to achieve data saturation, where no new information or insights would emerge from subsequent interviews. All nine participants were executives from various South African mobile operators. Five of the participants were qualified chartered accountants (CAs); of these, two also held a Master's in Business Leadership and one a Master's in Business Administration; a fourth participant had a Master of Social Science and the fifth a PhD in Molecular Biology, specialising in Bioinformatics. Two participants did not provide a precise university level, one

participant just indicated that, after completing a university degree, he had become an entrepreneur, owning a digital company for five years, and the ninth participant was a computer engineer who had also run his own e-commerce platform for three years. The executives who participated were CEOs, CFOs, strategy and research executives, COOs, chief technology officers (CTOs), financial directors, and financial executives. This approach is aligned with Morse (1995) and Tuckett (2004), who emphasise the importance of data adequacy and richness in qualitative research rather than adhering strictly to predetermined sample size recommendations. Since the executive team members were exposed to sensitive and classified information that influenced corporate decisions and the performance of an organisation, only a maximum of three executives were interviewed per case studied. Tian (2022) argues that various dimensions influence corporate decisions such as socio-economic backgrounds, formal education degrees, major subjects, gender, age, tenure, and individual experiences. However, Hambrick and Mason's (1984) UET suggests that, as much as a formal educational background is important, an executive's knowledge and skill set significantly affect the performance of the organisation and influence corporate decisions. Therefore, the selected participants had a helicopter view of the entire industry with extensive knowledge, experience, and skill to clearly articulate any relevant information regarding the sustainability of the telco industry.

The semi-structured interviews were conducted, and the saturation was reached at six interviews. Kothari (2004) describes an interview as an oral engagement or a verbal method of collecting data from participants, either telephonically or through a personal, face-to-face meeting. Due to COVID-19, all the interviews were conducted online via Microsoft Teams and Zoom videoconferencing platforms. Saturation is very important in research, whether a study applies a quantitative, qualitative, or mixed-methods approach (Fusch & Ness, 2015). Saturation is reached when it becomes 'counter-productive' because the 'new' discovery does not necessarily add substantial evidence to the study (Strauss & Corbin, 1998: 136). Mason (2010) suggests that it is imperative to consider the concept of saturation when considering the sample size in qualitative studies. However, Rowlands, Waddell, and McKenna (2016) caution about redundancy, as saturation is reached once enough information has been collected and can allow the replication of the study (Morse, 2015). Mpofu (2021) highlights the inconsistencies in defining saturation; hence, there is an element of objectivity in the

selection of sample size, which is very important in a study. Even though in-depth insights can be gained from 12 interviews, saturation is, however, reached at six interviews (Guest, Bunce, & Johnson, 2006). Even though the targeted sample size for the qualitative data collection in this study was 10 participants, however, the alignment and reality of UET meant that saturation was reached after six interviews. Guest, Namey, and Chen (2020: 2) define saturation as the ‘point in data collection and analysis when new incoming data produces little or no new information to address the research question’. The integrity of the research and the ‘composition and depth of data and fit with theory’ are the most important elements in sampling decisions, not only sample size (Roy, Zvonkovic, Goldberg, Sharp, & LaRossa, 2015: 243). Based on the researcher’s experience in the research field, the researcher agrees with Roy *et al.* (2015) that sample size is not an important factor, but that research integrity is the core concern. For example, during the researcher’s master’s research, 10 participants were interviewed because the targeted sample consisted of employees in various positions, and they brought various views. In this study, the sample only focused on the executive teams, and the responses provided similar content and/or themes across the cases studied. Therefore, continuing with interviews would have been counterproductive, as the research results would have produced redundant themes.

#### **4.13 Data collection**

Data collection is a process the researcher undertakes, which starts with the decision to identify who the participants are, how to reach them, and when and where to collect the data (Talbot, 1995; Creswell, 2014; Levitt *et al.*, 2018). It is important to emphasise the processes and procedures followed in data collection (Yin, 2014). Creswell (2014) and Greamer (2018) point out that data collection includes gathering research evidence through primary or secondary data sources. Data extraction can be either semi-structured or unstructured – after the researcher has purposefully selected the research site. Semi-structured data contains text and is organised, while unstructured data results from open-ended interviews and contains information collected from places such as the Internet and social media (King, 2018). In this study, the research sites targeted were South African mobile network operators (MNOs) and mobile virtual network operators (MVNOs) that opted to participate in the research; some MNOs and

MVNOs only allowed publicly available information to be used and authorised their financial reports to be analysed in order to answer the research questions. The data collection process for this study started immediately after the ethics clearance certification had been awarded in March 2021 (reference number 2021\_CEMS\_BM\_110).

To allow flexibility during the data collection process and allow the use other available typologies, such as explanatory, sequential explanatory, and convergent approaches, the study followed a mixed-methods research approach (Langos, 2014; Ngulube, 2015; Nene, 2019). While controlling the efficiency of sampling, the study used four triangulation segments to ensure that comprehensive and in-depth information was obtained (Kothari, 2004; Saunders *et al.*, 2015; Levitt *et al.*, 2018). The study used a combination of financial statements, business literature, and focused and non-directive interviews. Since the researcher is close to the phenomena of the study, in the next chapter the qualitative results are presented before the quantitative results.

#### 4.13.1 Interview data

The first set of data was collected from the research field by interviewing the selected participants; the interviews were guided by the interview protocols of the University of South Africa (Unisa) and Unisa's College of Economic and Management Sciences Research Ethics Committee. Due to COVID-19 pandemic policies, the interviews were conducted through Microsoft Teams and Zoom videoconferencing platforms. Section 4.14 discusses measures of trustworthiness and articulates how ethical considerations were met while achieving the objective of the study. The fourth and last dataset was collected from the transcribed interviews and field notes made during the interviews. Field notes made during an interview can capture the researcher's personal impressions and assist in reflecting on what happened during the interview (Remenyi, 2012; Saunders *et al.*, 2015). Furthermore, field notes can be used to highlight learning points, evidence contradicted by the interviews, evidence supported by the interviews, clues regarding new lines of enquiry, sources of documents, and newly uncovered sources of data (Remenyi, 2012).

The second triangulation segment was used to ensure that comprehensive and in-depth information was obtained while controlling the efficiency of sampling. The study envisaged the use of a combination of financial statements, the business literature, and focused and non-directive interviews (Kothari, 2004; Saunders *et al.*, 2015; Levitt *et al.*, 2018). A clear vision of the study and proper planning assisted in ensuring that the research objectives were met and that the research questions were answered, without any ambiguity. Research interviews provide in-depth and good insights in a qualitative case study (Tseng, Verhoef, De Jong, Kouwenhoven, & Van der Hoor, 2007; Greamer, 2018). Both focused and non-directive interviews complemented the research interviews when exploring the participants' views of the financial sustainability of the South African telco industry in the contemporary business environment (Maguire & Delahunt, 2017).

#### 4.13.2 Documents

The third set of data was collected through the business literature, and it was analysed in Chapters 2 and 3. Whether structured or unstructured, data collected from various platforms is commendable when deriving insight, explaining the phenomenon, and making a theoretical contribution to the study discipline (Kar & Dwivedi, 2020). The fourth set of data was sourced from annual reports from both the JSE and the websites of the companies; this data was used to analyse trends in the financial results over the past five years for the cases studied. A year-on-year comparison of the financial results was performed to ensure the accuracy of financial trends and sound analysis. The use of various analytical approaches such as multi-layer, autoregressive moving-average models and independent component analysis ensured accuracy (Nowak, Nowak, Radzikowski, Grulkowski, & Walkowiak, 2021). Furthermore, the decision to perform a five-year financial analysis was to ensure that the data was still available and not yet archived. The next sections provide a detailed explanation of the data instruments used in this study.

#### 4.13.3 Researcher as an instrument

Even though there were challenges during the research journey, as previously highlighted, the researcher's experience in the sector proved invaluable during this



phase of the research. This experience provided the researcher with a deep understanding of the intricacies, challenges, and dynamics of the industry, allowing for a more comprehensive and insightful analysis of the research findings. Additionally, the researcher's background facilitated rapport-building and trust with participants, which are crucial in qualitative research. A good knowledge of the telco industry assisted in drafting meaningful interview questions, which aided the drive in answering the research questions, meeting the search objectives, as well as maintaining professionalism and driving the interviews towards a successful output that met scientific measurement standards. Lastly, being familiar with the research industry and conducting virtual interviews saved a lot of time and money, especially those expenses associated with the research such as traveling costs, research facilitation, and other administration costs.

Very much like the unit of analysis or a participant in the research, the researcher is a product of the social structures of his or her own society. Hesse-Biber (2013) highlights the significant role of belief systems, experiences, and emotions in the knowledge creation process. She emphasises the importance of introspection and critical reflection on one's own lived experiences, enabling researchers to understand and examine how their social background and assumptions influence the research process. To prevent bias, the researcher maintained her independence and professionalism without using her own judgement, experience, or beliefs to influence the research; this accounted for reflexivity in the research process. With this reflexivity, the researcher was able to ask relevant questions from her own experience so that they could be validated or dismissed by the participants. What is reported in this study are the views validated by the participants as a way of avoiding the potential bias that might arise from being an insider researcher. Trafford and Leshem (2012) suggest that detailing the process used or followed to collect and analyse data step by step helps the reader to appreciate the work, effort, and time spent on the research. They, furthermore, state that a clear data analysis process and procedure provide authenticity to the research, as the reality of the events and the researcher's experience are scientifically crafted and shared in the research.

#### 4.13.4 Critical incident technique

Burget, Bardone, and Pedaste (2017) define research as a systematic investigation conducted in order to determine facts and reach new conclusions. The study sought to understand the reality of the challenges experienced by the telco industry in South Africa. In addition, it sought to determine how these challenges directly or indirectly affect the financial sustainability of the South African telco industry in the contemporary business environment. Von Schomberg (2013) views research as an innovative and ethical way of finding the truth, where researchers become mutually responsive to others during a transparent innovation process with the intention of acquiring an in-depth understanding of the phenomena. Despite the fact that the researcher had been working in the telco industry for 20 years, the researcher exercised self-reflexivity in the research field and allowed participants to share their points of view without interrupting them. For ethical reasons, it was important for the researcher to be transparent during the interview sessions and not to impose her own philosophical and ideological assumptions on the participants, to ensure that facts about the financial sustainability of the South African telco industry in the contemporary business environment were obtained and that all the research questions were answered.

Saunders *et al.* (2015) suggest that research is not only about the investigation of a phenomenon and data collection; the research must also be relevant, contribute to problem solving, and add value to social transformation. The topic of this research was selected because of its relevance to, and practicality in, modern society, since the telco industry is one of the critical industries offering essential services through connecting the world. For example, during the 2020 global pandemic, the telco industry proved to be one of the most essential operations across the globe, as most industries, both local and international, had to operate remotely, and increasing participation in the working-from-home model was made possible by mobile operators through high levels of Internet connectivity (Wang, Liu, Qian, & Parker, 2021). Pellissier (2008) suggests that pure research leads to theoretical developments, regardless of whether the research possesses practical connotations or not. The study adopted both abductive and deductive approaches to allow flexibility in exploring impression management, knowledge management, and stakeholder theories when developing an effective telco industry financial sustainability theoretical framework.

Consequently, EBITDA, net profit margin, ROA, ROE, and ROI were identified as critical measures of financial sustainability in the South African telco industry. According to Belcher *et al.* (2016), the main research principles include the following characteristics: legitimacy, credibility, social significance and applicability, effectiveness, relevance, integration and reflexivity, criteria of inclusion, and fair representation of stakeholder interests, which add to traditional criteria for scientific rigour and assess the actual anticipation.

#### 4.13.5 Interview guide

To gain insight into the financial sustainability of the South African telco industry in the contemporary business environment, a semi-structured interview guide was used to facilitate the interviews and understand the views of the executive team participants (Esterberg, 2002; Greamer, 2018). When formulating the interview guide, Unisa's research measurement standard and the study objectives were used as guidelines to ensure that the research questions were answered without deviating from the research principles. The identified participants were only from the executive team from various South African mobile operators, and as previously articulated, the selection of the executive team was based on their vast experience and maturity in the industry. In addition, the selection of the executives to participate in the research study was to strengthen the validity of the research data, since the senior executive teams had the most comprehensive understanding of the business strategy of their respective mobile operators and, thus, possessed accurate telco strategy insights (Tallon, Kraemer, & Gurbaxani, 2000; Ekman *et al.*, 2020). Due to the extensive experience of the participants, their knowledge of the industry, and their maturity in strategy, saturation was reached on the sixth interview, even though 10 interviews were conducted. Data saturation can be reached by means of several methods (Fusch & Ness, 2015). In qualitative research, saturation has become the gold standard and guides purposive sample sizes (Guest *et al.*, 2006). The scheduled period for the interviews to be conducted was two months; however, due to challenges in getting appointments with the executives of the cases studied, the last interview took place in September 2023. Therefore, the data collection process took approximately two years, as the planning and the engagements with the cases studied took longer than the planned two months to conduct 10 interviews.

For reasons of anonymity, the researcher will not indicate which South African mobile operators participated in the research or from which companies primary data was collected. The interview guide was followed, and all conversations were tape-recorded; field notes were also taken during the course of the interviews, even though these were virtual engagements. As previously indicated, all the interviews were conducted online using Microsoft Teams and Zoom videoconferencing platforms. To ensure the anonymity of the participants in the voice recordings, the participants' names and organisations where they worked were not mentioned during the interview sessions, and the male participants were addressed as "Sir" while the female participants were addressed as "Ma'am". The researcher clearly explained to the participants and approvers of the research that they would receive no compensation for their participation. This was vigorously stated in the research approval application letters that were sent out to the gatekeepers and in the interview request application letter that was sent out to the participants.

#### 4.13.5.1 Objectivity of the interview guide

Qu and Dumay (2011) suggest that, to prevent disappointing results, researchers must have some expertise in the relevant research topic in order to design a sound interview guide, ask informed questions, and not waste any opportunity to gather critical information that will assist in answering the research questions. Subsequently, as suggested by Korstjens and Moser (2018), the interview guide was developed to ensure high-quality data, professionalism, objectivity, and transparency during the data collection process and throughout the study. As previously indicated in section 4.13.5 when formulating the interview guide, Unisa's research measurement standard and the study objectives were used as guidelines to ensure that the research questions were answered without deviating from the research principles or exposing the study to subjectivity.

A sound interview guide was designed in order to understand the financial sustainability of the South African telco industry in the contemporary business environment. After drafting the semi-structured interview guide, it was reviewed by the study supervisors and edited by a professional language editor in order to ensure the objectivity of the interview (Gibbert & Ruigrok, 2010). The interview guide assisted in

driving consistency across the interview sessions and improved the interviewer's skill during the data collection process (Tseng *et al.*, 2007; Greamer, 2018). The research interviews were an opportunity to test the interview guide and determine whether it was well written and covered all the areas and issues of importance in the study (Hesse-Biber, 2013; Nene, 2019). As indicated in section 4.13.3, the objectives of the study were used as a guideline to ensure that the research questions were answered without deviating from the research principles when formulating the interview guide (Nene, 2019). Furthermore, to improve the reliability of the study and maintain consistency, all participants were asked the same questions as set out in the interview guide (Banister *et al.*, 2006; Greamer, 2018; Nene, 2019).

The semi-structured interview guide that was used is attached as Appendix C. The transcripts of the interviews were subjected to qualitative analysis, as discussed in the upcoming sections 4.13.6, in order to address the primary research objective of the study, which was to analyse the financial sustainability of the South African mobile telco industry using Vodacom, MTN, and Cell C, as they dominated the market. Furthermore, the interview guide assisted in addressing the following secondary research objectives, while the last objective was addressed through quantitative analysis:

1. To evaluate the impact of the competitive environment on the financial sustainability of the South African telco industry according to the executives from the mobile operators.
2. To investigate the influence of regulation on the financial performance of mobile operators.
3. To understand how mobile operators in South Africa responded to the COVID-19 pandemic and explore the impact on the telco industry according to the mobile operators investigated.

Lastly, to identify patterns, find trends, and determine key themes in the data, thematic analysis was conducted (Maguire & Delahunt, 2017; Nene, 2019). Table 5.4 provides the results of the thematic analysis, highlighting the key themes and patterns identified during data analysis.

#### 4.13.6 In-depth Interviews

A letter requesting an interview appointment was sent to each participant via email, and a copy is attached as Appendix A. Some participants accepted the invitation and granted a 45-minute session, while other participants allowed interviews to be for an hour; each session was used optimally to ensure that insights were gathered from each interview session. According to Greamer (2018), it is valuable to conduct interviews at the participants' workplace, as this improves the contextual richness of the interview and reduces any distractions from the participants' work schedules. Since people were working from home, all interviews were conducted during working hours, and participants' work email addresses were used to invite them to the interview session. Saunders *et al.* (2015) suggest that semi-structured interviews grant the participants an opportunity to elaborate on their responses, giving an in-depth explanation that allows the researcher to further probe the answers provided during the interview session.

To get a qualitative view of the financial sustainability of the South African telco industry in the contemporary business environment, the interviews were conducted with nine of the 10 identified participants from the various mobile operators. However, the total number of interviews was 10, as one interview was a follow-up interview with one of the executives. As previously indicated in Section 4.2.3 that Alotaibi (2019) conducted a multiple-case study using three of the major companies in the Saudi telco industry to explore foresightful strategic planning and organisational flexibility, considering the turbulent economic conditions of the country, where publicly available company documents were analysed; nine interviews were conducted at the three participating companies. In September and October 2016, Castillo *et al.* (2017) interviewed only nine experienced professional community managers. These professionals had three or more years of experience, whereas the interviewed candidates from this study each had over 10 years of experience in the telco industry, producing more meaningful insights from the interviews and answering all the research questions. Therefore, continuing with interviews would not necessarily have meant adding any substantial evidence or presenting new discoveries to the study; in fact, it would have been counterproductive, as the participants were providing similar insights (Strauss & Corbin, 1998).

To prevent data redundancy, the researcher followed the guidelines provided by Rowlands *et al.* (2016) and Morse (2015) to stop collecting more data once enough information had been collected and, thus, allow for the replication of the study. It was phenomenal and informative to discover insights about the telco industry and the challenges that South African mobile operators were experiencing. To answer all the research questions and meet the research objectives during the exploration of the phenomena and considering the complexity of the telco industry, a mixed-methods research methodology appeared to be appropriate and was preferred because it allowed flexibility during the data collection phase and went beyond the boundaries of triangulation (Romm & Ngulube, 2015). Furthermore, it sought an understanding of the identified consciousness in relation to the context in which the topic under investigation occurred through procedures such as surveys, structured instruments, explanations, and rationalisation (Banister *et al.*, 2006; Fetters & Freshwater, 2015).

All interviews were conducted virtually using Microsoft Teams and Zoom videoconferencing platforms, and each session lasted approximately 50 minutes to an hour; all interviews were recorded using a technical recording device. The interview questions were shared in the meeting invitation to ensure that the participants came prepared for the interview session and to prevent any time from being wasted, since it was difficult to get hold of the participants due to their executive duties and busy schedules. Gray, Wong-Wylie, Rempel, and Cook (2020) investigated strategies to improve quantitative research interviews, and the participants suggested that, in order to manage their personal schedules, interview sessions had to be limited to an hour to prevent fatigue and that the interview questions had to be sent to participants prior to the interview session. During the research planning and data collection preparation phase, Malmqvist, Hellberg, Möllås, Rose, and Shevlin (2019) shared written information about the research study with the participants, detailing interview techniques. Therefore, sharing the interview questions prior to the interview session is commendable to manage participants' time and to ensure that the participants concentrate on the research agenda questions and answer all the respective questions. Before the beginning of each interview, signed and/or recorded consent was obtained from each participant. After reading the consent form, some participants preferred to give their consent on the recording before the interview commenced

instead of signing the form, while other participants signed the consent forms. Since the interviews were conducted virtually, it was important to allow flexibility, and most importantly, the interviews were recorded using a technical recording device, not on the virtual interview platform. To comply with Unisa interview protocols and Unisa's College of Economic and Management Sciences Research Ethics Committee guidelines, the researcher chose not to use the Microsoft Teams and Zoom platforms to record the interviews in order to ensure that the researcher was the only person who had an original copy of the interviews; this was done to ensure research integrity and the anonymity of the participants. A copy of the informed consent form is attached as Appendix B. All interviews were recorded and transcribed using the professional services of Way With Words. A confidentiality agreement was signed by the transcription company, and a copy of this agreement is attached as Appendix D. Interviewing the executive team strengthened the validity of the research data (Tallon *et al.*, 2000; Ekman *et al.*, 2020). After completing the fieldwork, each set of interview notes, the recording, and all physical documents were locked in a secure safe to which only the researcher had a key. Electronic documents were saved on a secure network drive from the researcher's laptop, and only the researcher knows the username and password needed to connect to this drive. The anonymised data, transcriptions, and interview notes are available on request for research purposes.

#### **4.14 Measures for achieving trustworthiness**

Measures of trustworthiness in mixed-methods research are those aimed at ensuring the trustworthiness of qualitative data and can explain how the reliability and validity of quantitative data are obtained during the research process. The researcher must maintain the integrity of the study by ensuring the anonymity of the participants and organisations studied to ensure confidentiality (Healey & Rawlinson, 1994, cited in Saunders *et al.*, 2015). Graneheim and Lundman (2004), Blumberg *et al.* (2008), and Saunders *et al.* (2015) state that measures of trustworthiness focus on the ability of, and methods used by, the researcher to access data, gain participants' insight through their experience of the investigated phenomenon, and analyse the data to deduce the participants' intended meaning. They, furthermore, explain that measures of trustworthiness indicate the ability of the research instrument to produce consistent research findings, regardless of the data management process used and the



reperformance time of the analysis of the same data source. For researchers to successfully meet measures of trustworthiness, they must possess certain behaviours, knowledge, experience, and skills, such as a clear understanding of the research field, multidisciplinary knowledge, familiarity with the subject, experience in research, and interviewing skills (Miles & Huberman, 1994; Saldaña, 2015). Therefore, the researcher's 20 years of experience in the telco industry, her analytical skills as a governance, assurance, and risk management practitioner, her experience in performing mixed-methods studies, drafting and conducting interviews, and understanding financial statements, and her being a qualified financial management graduate who could analyse both qualitative and quantitative data added value, eliminated frustration during the research process, and saved both time and money. Her ability to draft the research interview questions, conduct research interviews, and manually analyse data was tested during the master's process. Lastly, as a director and founder of a governance, assurance, risk, and advisory firm, one of the researcher's roles, supported by a human resources team, is recruitment, when it is necessary. Drafting assessments that will test the competency of candidates and preparing interview questions for the selection of the best candidate are not a challenge. Therefore, due to having both professional and academic experience, conducting academic interviews came naturally, without any bias or conflict of interest, as the researcher knew how to conduct herself as a professional.

#### 4.14.1 Measures to ensure trustworthiness in qualitative data

In qualitative research, measures of trustworthiness include conformability, credibility, dependability, and transferability (Schwandt, Lincoln, & Guba, 2007). The conformability, credibility, dependability, and transferability of qualitative studies and their outcomes are the pillars of trustworthiness (Shenton, 2004; Schwandt *et al.*, 2007; Madondo, 2021). In mixed-methods research, one of the major characteristics that authenticate the trustworthiness and credibility of the research findings, while allowing the researcher to draw a meaningful conclusion from the sample population, is validity (Creswell & Miller, 2000; Lincoln *et al.*, 2011; Levitt *et al.*, 2018). Validity is a scientific measurement that adequately provides the empirical evidence of the theoretical rationales that are presented in different settings (Messick, 1989; Bond, 2003). Mohamad, Sulaiman, Sern, and Salleh (2015: 165) define reliability as 'the

testing methods for stability and consistency'. To accurately examine the phenomenon and maintain the trustworthiness of the mixed-methods findings, the study identified consistencies and inconsistencies when analysing the financial sustainability of the South African telco industry in the current business environment (Gibbs, 2007; Anney, 2014; Tricker, 2015). Below is a discussion of the measures of trustworthiness of the qualitative data in the research.

#### i. Confirmability

Confirmability is the ability and capacity of other researchers to verify the researched findings, as the data is analysed, interpreted, and presented in a manner that can be easily understood by others (Baxter & Eyles, 1997). Confirmability is equivalent to research objectivity in the quantitative paradigm (Guba, 1981, cited in Madondo, 2021). All the data collected for this study during the research period is owned by Unisa, and the researcher believes that it will be kept safe according to the standards of ethics of the university. The research process was transparent and auditable to allow other researchers to corroborate and confirm the research results and to test whether they reached similar conclusions when following a similar approach. Therefore, to allow other scholars to audit the results of this study and use them in future explorations, it is crucial to keep all the data received from the participants to ensure that the results can be confirmed in order to verify the trustworthiness of the study and prove that the enquiry was not simply a fabrication.

Apart from adhering to the Protection of Personal Information (POPI) Act 4 of 2013, it is very important to protect the research data (South Africa, 2013). Madondo (2021) suggests that the researcher should triangulate recording methods to ensure various methods of backing up the data and making use of electronic platforms such as iCloud. Tedersoo *et al.* (2021) emphasise adherence to research ethics processes when dealing with scientific data. Therefore, in addition to the fact that the data is owned by Unisa, after completing the fieldwork, each set of interview notes, the recordings, and all physical documents were locked in a secure safe to which only the researcher has the key. To protect participants' identities, promote the confidentiality of the research, and adhere to the POPI Act, the research notes did not record the participants' personal details. The participants were not required to declare or provide their

personal details during the interview session in order to maintain confidentiality and protect their privacy. Even when other researchers need to explore the outcomes of the study, anonymity will promote protecting participants' identities, as the study values the confidentiality of the participants, and they will not be traceable, as pseudonyms are used when reporting the results in Chapter 5.

## ii. Credibility

Credibility is the 'internal and external validity of quantitative paradigm' (Guba, 1981, cited in Madondo, 2021: 123). Credibility is one of the aspects of qualitative literature that addresses validity and proves the trustworthiness and authenticity of the study (Creswell & Miller, 2000; Fusch & Ness, 2015). In qualitative research, credibility is one of the instruments that provides the ability to reach the research objective while connecting the qualitative outputs of the research and the reality experienced in the research field (Madondo, 2021). Jones (2017) suggests that, in mixed-methods research, the authenticity of the research can be proven through data collection, references, and scientific analysis. The results of this study provided an in-depth understanding of the phenomenon investigated, which was portrayed credibly; in addition, the researcher possessed extensive experience in the setting of the industry being studied (Creswell, 2014; Levitt *et al.*, 2018). Credibility addresses the research objectives and provides an assurance of, and a level of confidence in, the authenticity and truth of the research findings (Guba & Lincoln, 1994; Anney, 2014).

The data gathered from the interviews specifically addressed the research objectives, with the intention of answering the research questions. To follow the recommendations made by Weber (1990), the supervisors were consulted during the sampling and coding of the transcribed interviews; the transcriptions were checked to ensure that they matched the actual audio records, ensuring the adequacy and transparency of the collected and processed data received from the transcriber. Madondo (2021) suggests that qualitative research should be conducted according to the academic research rules to allow acceptable levels of credibility. As previously indicated, in this study, triangulation was used to collect data from various data sources to strengthen the credibility of the research and test the consistency or validity of the information or data received.

The application of triangulation provided flexibility and reduced the subjectivity of judgements made during the research process (Suri, 2011). Furthermore, triangulation was used to collect data from four segments, and this approach assisted the researcher to drive the objectivity, truth, and validity of the research (Fusch & Ness, 2015). The quantitative data was collected from the financial results published on the websites of the companies, business journals, and JSE reports, while the qualitative data was collected through research interviews. Triangulation was critical to enhance the reliability of the results through the use of multiple datasets and the analysis of the data, since the researcher applied multiple external methods to collect data (Denzin, 2009, cited in Fusch & Ness, 2015).

### iii. Dependability

Dependability considers both variability and factors related to the phenomenon while outlining the responsibility of the researcher to declare, prove, and document that the research process followed was logical and traceable (Lincoln & Guba, 1985). Dependability is linked to reliability in the quantitative paradigm (Guba, 1981, cited in Madondo, 2021). Bitsch (2005: 86) describes dependability as 'the stability of findings over time'. For member checking the researcher shared the results with both supervisors to validate if the key themes were sound enough to meet the research objective and answer the research questions. Furthermore, the research results were shared with an independent evaluator who is outside the telco industry to audit the process, accuracy, and credibility of the research results.

To provide dependability, the researcher followed the suggestion provided by Yin (2014) to document all data collection processes and procedures in the study to ensure that other researchers could test the logic or repeat the steps the researcher followed during the data collection process; hopefully, they will get the same results or be close to the researcher's claims. All data collected from the research field was made available when reporting the results of the study; this included participants' signed ethical consent forms, interview audio recordings, transcribed interview data, and interview notes (Moraka, 2013). Furthermore, this research achieved dependability through reliable record keeping, and various strategies (such as an audit trail and stepwise replication) were used to ensure that multiple researchers analysing the study records would obtain the same research results (Chilisa & Preece, 2005). Lastly,

ethical considerations included requesting approval for the research from Unisa's College of Economic and Management Sciences Research Ethics Committee; this approval was granted before primary data collection took place in the research field.

#### iv. Transferability

Transferability focuses on validating 'the extent to which findings can be transferred to other settings or groups' (Pollit & Hungler, 1999: 717, cited in Moraka, 2013: 108). Tobin and Begley (2004) and Bitsch (2005) agree that transferability applies to qualitative research and refers to the ability and ease with which the research results can be successfully transferred to other contexts, with a sound and meaningful interpretation. However, Guba (1981, cited in Madondo, 2021) suggests that transferability can be associated with generalisability. The results of this study meet the requirements for external validity, so anyone interested in transferability will have a strong baseline for the assessment of the financial sustainability of the telco industry in the contemporary South African business environment (Merriam, 1988).

The study conducted by Bosiu *et al.* (2017) showed that MTN and Vodacom were among the top 20 South African companies listed on the JSE. According to the Corporate Laws Amendment Act 24 of 2006, as part of good corporate governance and regulatory requirements, all mobile operators must disclose and publish their annual reports, which show the financial sustainability of organisations, that various stakeholders such as investors, government, and customers who may have an interest in these can check (South Africa, 2006; Bosiu *et al.*, 2017). These reports include income statements and balance sheets, which were used in the analysis of the secondary data to better understand the financial sustainability of the South African telco industry in the current business environment. Madondo (2021) suggests that researchers should not transfer the research output from one research context to another because reality, understanding, and knowledge are continuously evolving. The study adhered to transferability outlines, as the financial records of the mobile operators are independently audited and are transparent, as they are published on the websites of the companies and by the JSE (for listed companies), and their respective stakeholders can hold them accountable (Mmako & Jansen van Rensburg, 2017). Lastly, to maintain the transferability of the qualitative data, the researcher followed the interview techniques endorsed by Creswell (2014) during each interview session.

Furthermore, the researcher made sure that the interview guide did not contain any leading questions, allowed each interviewee enough time to clarify his/her responses, and made notes during each interview session to ensure that she did not just depend on a tape recorder.

#### 4.14.2 Reliability of quantitative data

Anney (2014) suggests that quantitative researchers should consider validity and reliability to ensure the authenticity and trustworthiness of the enquiry. Reliability alludes to 'the extent to which a research instrument yields the same results on repeated trials' (Alshenqeeti, 2014: 44). To adequately provide the reliability of the quantitative data, the researcher provided the research audit trail in Appendix F where all the figures extracted from the financial statements of the studied companies. Furthermore, the researcher provided calculations and formulas that were used to determine some of the financial variables such as Net Profit Margin and ROI used to design the financial sustainability model in line with the research objectives. In cases where the researcher is subject to any kind of bias, the research interviews may have poor reliability, become notoriously unreliable, and lose credibility when drawing comparisons between datasets or when the study is audited (Brewerton & Millward, 2001). Even though the researcher was consulting at some of the cases studied, there was no conflict of interest, as the research project was completely independent from the researcher's scope of duty; there was absolutely no bias throughout the research process, and the research findings are a true reflection of what was collected from the research field. Triangulation was used to collect data in this study, as suggested by Shenton (2004); the application of triangulation was used to validate the research data. Therefore, the integrity of both the research and the researcher cannot be questioned.

#### 4.14.3 Validity of quantitative data

Dörnyei (2007) points out that validity serve to guarantee the results of the participants' responses, while Alshenqeeti (2014) suggests that validity and reliability are some of the significant research considerations in the quantitative findings of any scientific research. Alshenqeeti (2014) contextualises validity by highlighting the degree to which research emulates the specific concepts that the research aims to investigate.

It is strongly advisable for researchers to consider both internal and external validity in order to determine whether the research measures what it is supposed to measure (internal validity) and whether the findings are generalisable (external validity) (Berg, 2007). In this study, the validity of the secondary data used can be confirmed through the annual reports from both the JSE and the websites of the cases studied. Furthermore, both Vodacom and MTN are audited by external auditors which provide independent assurance as the fourth line of defense in the combined assurance framework. In quantitative research projects or in the positivist paradigm, trustworthiness is the equivalence of reliability and validity (Madondo, 2021). After following Unisa's research policy, process, and procedures, the researcher can confirm that both validity and reliability were considered to ensure the authenticity and trustworthiness of this research.

#### **4.15 Data analysis**

The definition of data analysis provided by Coldwell and Herbst (2004) is similar to that provided by Marshall and Rossman (1990: 111), who define data analysis as a 'process of bringing order, structure and meaning to the mass of collected data'. Data collection should consider the maturity and substantive evidence needed to make sound and suitable evaluations or judgements (intended and unintended) about the research (Peersman, 2014). To ensure the credibility of the research findings, understand the phenomenon, and answer the research questions, the study used the published financial statements for the cases studied to gather quantitative data, triangulated this with multiple other data sources such as JSE and business reports and journals, using textual analysis methods, and evaluated and sorted them by categories and themes (Corbin & Strauss, 2008; Peersman, 2014). The quantitative data was analysed statistically and some of the analyses were presented in Chapter 1, while the comprehensive results will be presented in Chapter 5 where the comprehensive research findings for both qualitative and quantitative are reported. Furthermore, qualitative data was analysed thematically. Qualitative thematic analysis was used to analyse the first unit of analysis, namely, the transcribed audio interviews. Maguire and Delahunt (2017: 3352) define thematic analysis as the 'process of identifying patterns or themes within qualitative data'. The thematic analysis assisted in exploring data beyond the participants' responses and in understanding the reality

of the challenges experienced by the telco industry in South Africa and how these challenges directly or indirectly affect the financial sustainability of the South African telco industry in the contemporary business environment (Braun & Clarke, 2006; Davis, 2013; Finfgeld-Connett, 2014).

The thematic analysis interpreted the interview data with nine executives from various South African mobile operators. The interviews were scheduled and conducted from 16 April 2021 to September 2023. The secondary data, which consisted of the financial statements of the top three South African telco market players for the years 2016 to 2020, was also analysed. The decision to perform a five-year financial analysis was previously articulated in section 4.13.2, which was to ensure that the data for the financial statements was still available, had not yet been archived, and provided a meaningful long-term strategic view to baseline the sustainability of the South African telco industry. The five-year analysis assisted in examining the financial sustainability of the researched cases to test the financial sustainability of the South African telco industry and to present insights that achieved the research objectives.

The financial statements were analysed using Excel in order to determine the financial sustainability of the cases studied. For member checking the results were shared with both the supervisors and the independent evaluator to audit the process, accuracy, and credibility of the research results. To measure the financial sustainability of South African mobile operators, the data was analysed using statistical analysis focusing on the following key variables:

1. Earnings before interest, taxes, depreciation, and amortisation (EBITDA)
2. Net profit margin
3. Return on total assets (ROA)
4. Return on equity (ROE)
5. Return on investment (ROI)

Data analysis involves searching for patterns in the data collected during a qualitative case study (Yin, 2014). The method of data analysis should be specified when the research is planned, indicating how statistical, descriptive, causal, and inferential analysis will be explored (Kothari, 2004; Peersman, 2014; Saunders *et al.*, 2015). Thematic analysis was used to analyse the primary data that was collected from the



selected participants. The thematic analysis provided flexibility when exploring the lessons learned from the research cases explored through a qualitative research methodology (Maguire & Delahunt, 2017). Qualitative data collected through interviews was transcribed and analysed to identify themes, summarise the data, and make sense of the data (Clarke & Braun, 2013; Finfgeld-Connett, 2014). One of the characteristics of good data management is ensuring quality in data analysis (Peersman, 2014). Data processing includes coding, classification, editing, formulation, and the use of percentages (Kothari, 2004; Saunders *et al.*, 2015). Furthermore, the quantitative analyses were sent through to data analysis experts to reperform the analyses and test the selected themes. Since it had taken over two years to collect the data, some participants had left the cases studied, and the researcher did not have new contact details. Therefore, the research themes were not shared with the participants, and this presents a good future research opportunity. This mixed-methods approach was valuable, as it aligned and supported valid and reliable interpretations in this study. The following subsections report on how the coding was performed on the qualitative data in order to finalise the qualitative analysis.

#### 4.15.1 Coding

Coding can be used for various aspects; however, Richards and Richards (1991) and Fusch and Ness (2015) suggest that it is mostly used for qualitative analysis. Charmaz (1983: 111-112) defines coding as 'simply the process of categorizing and sorting data' in such a way that codes are described as serving to 'summarize, synthesize, and sort many observations made out of the data'. In this study, coding was used to transform data into symbols, tables, and graphs, which could be calculated and presented in the form of themes and trends (Kothari, 2004; Saunders *et al.*, 2015). It is imperative to run a sample test on the coded text in order to ensure that coding consistency is achieved (Weber, 1990). This was another reason why the quantitative analyses were sent through to data analysis experts in order to reperform the analysis and test the selected themes. Allowing professional data analysis experts to reperform the analyses and test the selected themes tested and increased the conformability of the study.

Charmaz (2001, cited in Saldaña, 2015: 3) describes coding as the 'critical link' between data collection, data analysis, and deduced explanation of meaning. Thematic coding of the transcribed data was done manually to methodically group the responses received from all nine participants in order to maintain consistency and eliminate discrepancies when analysing data gathered from the participants (Etikan, Musa, & Alkassim, 2016). To adhere to the suggestions of the thematic framework process and identify text with a common theme, graphs, charts, and/or percentages were presented after refining the analysis to better understand the behaviour and encapsulate the experience and circumstances of the participants (Gibbs, 2007). This was achieved by identifying emerging analytical themes and conceptualising the assessable data, starting with the first interview, before proceeding to the next, and continuing until all 10 interviews had been completed. DeSantis and Ugarriza (2000) emphasise the importance of ensuring the accuracy of the research findings through the interpretation of quantitative data and successfully identifying codes and themes. To ensure the accuracy of the coded results, the researcher manually coded the transcribed audio interviews in order to quote participants verbatim. Furthermore, the researcher followed Saldaña's (2015) coding advice; he strongly recommends manual coding for complex data, since coding software concatenates and merges qualitative data. Hence, when coding manually, one can specify and extract codes consistently without losing the deduced textual meaning.

For the initial coding, the participants' exact words were used (Saldaña, 2010). There are various types of electronic coding software, such as NVivo and ATLAS.ti, that produce good results; however, manual coding allowed the researcher to immerse herself in the data, as telco analyses are very complex (Hilal & Alabri, 2013). After completing the analysis, text narratives were built from the identified themes in order to synchronise all coded text with similar ideas that expressed a similar phenomenon or provided a similar explanation (Sinkovics, Ghauri, & Penz, 2008). The themes assisted in sorting, organising, and reporting the research findings in an appropriate way and in a condensed meaning unit (Graneheim & Lundman, 2004). Qualitative data consists of subjective words, and the data analysis seeks to understand the phenomenon by pursuing themes, patterns, and categories (Grosshans & Chelimsky, 1992; Hilal & Alabri, 2013). Qualitative thematic analysis was used to analyse the second unit of analysis, namely, the transcribed audio interviews. According to

Maguire and Delahunt (2017), thematic analysis is the 'process of identifying patterns or themes within qualitative data'. The thematic analysis assists in exploring data beyond the participants' responses (Braun & Clarke, 2006; Finfgeld-Connett, 2014; Nene, 2019). Braun and Clarke (2006), Davis (2013), and Nene (2019), furthermore, define two levels of themes that serve to both reflect reality and untangle the surface of 'reality', namely, latent and semantic themes. Latent themes are not limited by the views of the participant, as they explore beyond what was said by examining assumptions and ideas and conceptualising the ideologies that are theorised to shape the semantic content. However, semantic themes focus only on what was said by the participant (Braun & Clarke, 2006; Maguire & Delahunt, 2017; Nene, 2019). In order to identify themes and patterns, the researcher adopted latent themes to analyse the transcribed primary data collected from the field, which were subjectively interpreted by a process of coding.

Below are the steps followed when analysing the data for this study:

1. All ten interviews were completed first before submitting the data to the transcribers.
2. After completing the interviews, a secure account was created on the transcriber's website to which all audio-recorded interviews were uploaded and, subsequently, transcribed verbatim into written text in a Word document.
3. The researcher downloaded and saved both transcribed documents and financial reports on the H: drive of her personal computer where all other research documents are kept safely.
4. Both qualitative data and quantitative data were analysed by the researcher herself. The financial statements were analysed using Excel after extracting the financial reports for the South African mobile operators being investigated from their websites, business journals, and JSE annual results, while the transcribed data was manually coded.
5. The researcher read through the transcribed text data, divided patterns into segments, and labelled them with codes in order to reduce redundancy. Finally, pertinent themes were identified.
6. For the purpose of member checking the research results were shared with both the supervisors and the independent evaluator to audit the process, evaluate the quantitative analysis and test the selected themes.

7. An independent coder who was in a different field was asked to review and audit the coded results in order to strengthen the credibility of the data analysed.

The key pillars of trustworthiness that are suggested by Shenton (2004), Schwandt *et al.* (2007), and Madondo (2021) for qualitative studies, namely, conformability, credibility, dependability, and transferability, were extensively discussed in section 4.14. Furthermore, the reliability and validity of both the quantitative and qualitative research were also comprehensively covered under measures to ensure research trustworthiness.

#### **4.16 Ethical considerations**

Research ethics aim to ensure the credibility and dependability of the research findings (Madondo, 2021). The researcher had experience in the telco industry of over 20 years and was a full-time employee of one of the biggest mobile operators in South Africa before opening her own assurance, governance, and risk advisory consulting firm. Therefore, the researcher had extensive telco experience and understood telco protocols. However, the research project was independent and fell outside the researcher's work portfolio and scope of work. The researcher can confirm that the integrity of the research was maintained. The researcher fully understands the requirements of the university, the context, and the implications of the POPI Act. Therefore, the ethics policies of the companies included in the sample were observed, and the researcher's independence as a researcher was maintained in order to prevent a conflict of interest when analysing the data and reporting the data. To the best of the researcher's ability, the researcher avoided inappropriate research practices such as fabricating information, compromising the research design, describing the research problem to suit the researcher's hidden agendas, cautiously misapplying statistical analysis, misinterpreting results, and/or hiding information to protect a corporate point of view (Mouton, 2017). In the proposal for this study, the researcher pledged to strive for the highest ethical standards while conducting the research and can confidently declare that integrity and compliance with ethics policies were maintained (Yin, 2014).

The study did not present any risk to any persons or organisations because personally identifiable information was not requested from the participants during the interview sessions, and the participants remained anonymous. The information collected during the interviews was only used for study purposes in order to achieve the research objectives and answer the research questions. To gain further insight into the financial status of the mobile operators, the researcher used only publicly available information and not private data, as this was sensitive information. To ensure that the participation of the participants was voluntary, the researcher requested that the participants sign a written consent form before the commencement of each interview session. However, some of the participants requested to provide their consent on the voice recording during the interview session; both the researcher and participants agreed to this process, since the interviews were virtual, using Microsoft Teams and Zoom. As previously indicated, a copy of the informed consent form is attached as Appendix B. Being guided by the ethical code of conduct of the University of South Africa (Unisa), the researcher applied to Unisa's College of Economic and Management Sciences Research Ethics Committee (ERC) for permission and ethics clearance to do the study. The ethics clearance certification was awarded in March 2021 with ERC reference number 2021\_CEMS\_BM\_110; only then did the researcher start planning and engaging with the cases selected for data collection. The ethics clearance certificate is attached as Appendix E.

Furthermore, the researcher adhered to the recommendations made by Kothari (2004), Fusch and Ness (2015), and Levitt *et al.* (2018) regarding the responsibilities of the interviewer during the interview session to ensure that an atmosphere of trust and confidence was created during the interview proceedings so that the participants would feel comfortable. The researcher also explained to the participants that, if they were to feel uncomfortable or lose interest in participating in the study, they could end their participation at any given point. For the integrity of the research, both the participants and sampled mobile operators were protected from any harm, since the study did not aim to explore sensitive issues or experiences. As the research progressed, the researcher kept the audio interviews, interview notes, and consent forms in a safe place along with other research documents. For security reasons, after completing the research, the research data will be governed by Unisa. However, the researcher's audio device and research notes will be locked in a physical security

cabinet to which only the researcher has the key. To ensure the protection of the research data and compliance with the POPI Act, access to the premises where the security cabinet is located is controlled via a security code, the apartment has a security alarm, and the premises are under the surveillance of security personnel 24 hours a day, seven days a week. The electronic data will be kept on the researcher's network drive, which is protected by Microsoft Azure and can only be accessed with a password and a PIN, which are only known by the researcher. Furthermore, the researcher's laptop also requires two-factor authentication to access documents on it. Therefore, the data will be safe, secured, and protected.

The researcher used an interview guide to ensure the consistency of the interviews in the research field during the data collection period. A copy of the interview guide is attached as Appendix C. As previously indicated, the interviews were audio-recorded in order to maintain the integrity, professionalism, traceability, and auditability of the research. For confidentiality reasons, the transcriber, independent researcher results reviewer, and language and technical editors were required to sign confidentiality agreements. As previously indicated, the confidentiality agreements were signed, and copies of these agreements are attached as Appendix D. In the research, all participants were protected not just from harm, but also from any use of deception; there was no misinterpretation of information. Lastly, participants in this study were selected equitably to avoid unfairly including or excluding groups of people, as inclusion was only based on South African strategic exposure and experience for value-add to the thesis (Yin, 2014). The study was guided by the Unisa research ethics policy. Permission was requested and received from all gatekeepers.

#### **4.17 Chapter conclusion**

This chapter has articulated the study paradigms that provided guidance to the research process, as suggested by Babbie (2007); it has also highlighted the study assumptions and reports on the research design, research method, and research strategies. This chapter has summarised the process and ontological and epistemological positions of the study, which were analysed in Chapters 2 and 3, while providing the background to the later chapters. Furthermore, the chapter has provided the direction of the research enquiry, which stimulates and ensures the extension of

knowledge, giving life to research (Imenda, 2014; Adom, Hussein, & Agyem, 2018). Lastly, this chapter has provided all the systematic processes followed in the study to explore and acquire in-depth knowledge about the research problem, research questions, and research approach and has included scholarly discussions to make the research findings more meaningful, as the study contributes to the body of knowledge.

The selection of mixed-methods research allowed flexibility during data collection and went beyond the boundaries of triangulation, as it embraced several research techniques in the same research design to ensure that the research questions were answered (Romm & Ngulube, 2015). The researcher agrees with Greamer (2018) that the data collected through mixed-methods research produces rich information for research analysis and that stronger conclusions can be drawn than those that can be reached from a single method. The use of mixed-methods research was suitable in this study because it had strong methodological implications for the research. Lastly, the chosen research approach did not leave any gaps when addressing the research objectives, as it was based on the abduction approach, complementing both quantitative and qualitative reasoning in empirical research (Zelechowska *et al.*, 2020).

This chapter has encapsulated the research ontology. Madondo (2021) defines ontology as the nature of reality in research. Following the recommendations provided by Trafford and Leshem (2012), this chapter has detailed all the steps of the processes used and followed by the researcher to collect and analyse data in order to help the reader appreciate the journey of the study. The step-by-step articulation of the process followed to collect data and the procedure adhered to during data analysis will provide a clear view for the reader of the effort and time spent on the research and, most importantly, provide proof of the authenticity of the study (Trafford & Leshem, 2012). The chapter has, furthermore, presented the in-depth process followed to analyse data through coding and has reported on measures followed to ensure trustworthiness, ethical considerations, study limitations, and the delineation of the study. The conclusion of the data analysis chapter, thus, provides the background of data dissemination to ensure that the research findings are independently reported. The researcher can confirm that the next chapter will report the research findings without any subjectivity, as the researcher maintained her integrity as a researcher throughout the study process and adhered to Unisa's research guidelines. The entire study was

governed by Unisa's College of Economic and Management Sciences Research Ethics Committee, and all the research processes, procedures, and policies of the university were observed without any deviation, as the consequences of non-compliance could lead to the termination of the researcher's academic career. Lastly, the POPI Act was observed in the data collection and processing and will continue to be observed when reporting the research findings in Chapter 5.



## **CHAPTER 5: RESEARCH RESULTS AND FINDINGS**

### **5.1 Introduction**

The previous chapter provided the research methodology and data process walk-through where the step-by-step process that was followed to collect the data was explained. This chapter presents the research findings by means of a thematic analysis of the primary data and a statistical analysis of the secondary data. In order to provide more context for the study and insights while answering the main research question, this chapter presents the results for the primary data before those for the secondary data.

The description of the analysis of the primary data starts by providing participants' profile overviews in terms of their age, gender, and work experience, followed by a thematic analysis emanating from the analysed interviews. Therefore, the primary data leads to qualitative research findings, while the secondary data leads to quantitative research findings. Triangulation was used to collect the data, and the secondary data was collected from public journals, business articles, company financial statements, and JSE reports; these were used to perform the quantitative analysis. Subsequently, from both qualitative and quantitative research findings, a financial sustainability model to measure the South African telco industry is developed. This chapter then ends with a summary.

### **5.2 Qualitative findings**

This section consists of multiple themes analysed after the fieldwork from the cases studied had been completed.

#### **5.2.1 Profile of the participants**

This section provides the profiles of the participants who were interviewed during the fieldwork. All nine participants were executives from various South African mobile operators; five of them were qualified chartered accountants (CAs), of whom two also had a Master's in Business Leadership and one a Master's in Business Administration;

the fourth participant had a Master of Social Science and the fifth a PhD in Molecular Biology, specialising in Bioinformatics. Two participants did not provide a precise university level, and one indicated that, after doing a university degree, he had become an entrepreneur, owning a digital company for five years. The ninth participant was a computer engineer who had also run his own e-commerce platform for three years. The executives who participated were CEOs, CFOs, strategy and research executives, COOs, CTOs, financial directors, and financial executives.

To preserve anonymity, the researcher will not provide the low-level analysis mapping roles to a participant's position, qualification, or age, nor indicate which South African mobile operators participated and/or where primary data was collected. However, the analyses presented in Table 5.1 and Figures 5.1 to 5.3 will provide an overview of the participants' profiles, made up of age, gender, race, and work experience.

Table 5.1 Participants' age profile

<b>N = 9 (3 missing)</b>	<b>Mean</b>	<b>Standard deviation (SD)</b>	<b>Minimum</b>	<b>Maximum</b>
Participants' age	48	5.15	42	54

Source: Own compilation

The average age of six of the nine participants was 48 years; three participants did not provide their age. It was interesting to observe that males dominated the executive positions, as all the participants were executives from various South African mobile operators. Out of the nine participants, three executives' age could not be recorded, as it was not provided and was not available from the company profile.

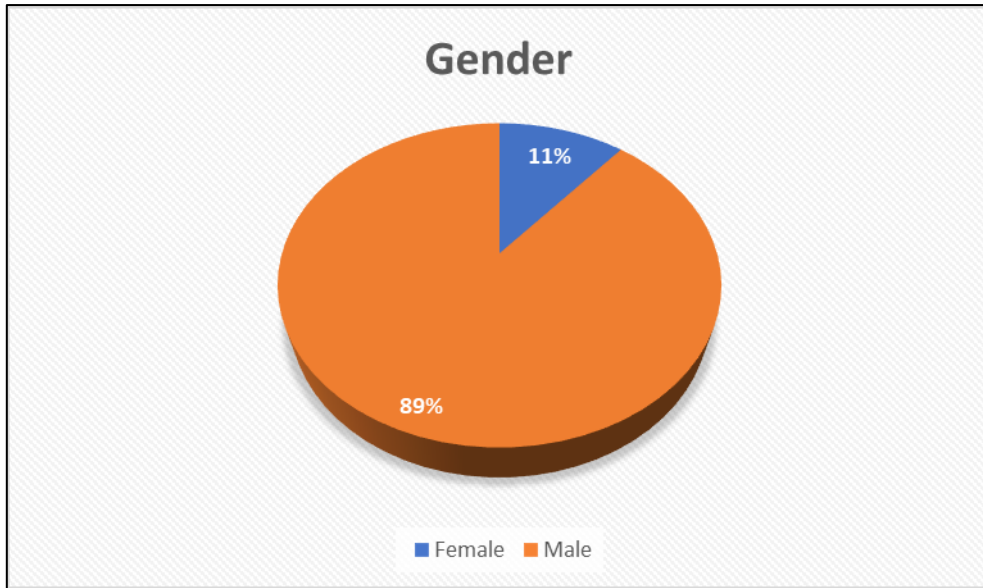


Figure 5.1 Participants' gender profile  
*Source: Own compilation*

The focus when selecting participants was not on gender, race, or age; it was strictly based on a helicopter view of the entire industry, seeking participants with extensive knowledge, experience, maturity in developing and implementing strategy, and skill to clearly articulate any relevant information regarding the sustainability of the telco industry. The participants of this study were diverse, as eight out of the nine participants were males, and only one was a black female. Of the eight males, one was black, three were Indian, and four were white.

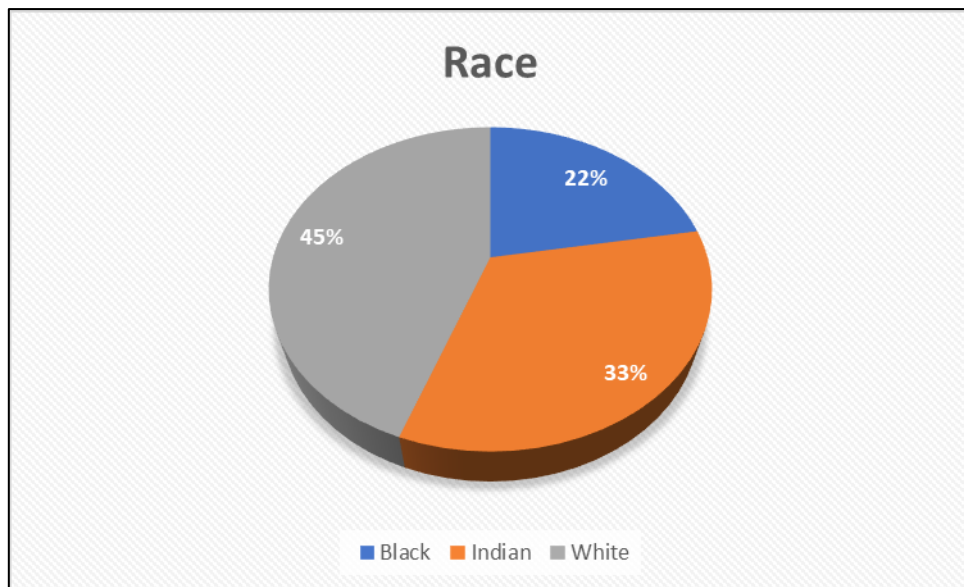


Figure 5.2 Participants' race profile  
*Source: Own compilation*

The analysis presented in Figure 5.2 does not necessarily reflect a complete view of South African telco executives, however, and the executives represented only a portion of all executives, as mixed, purposeful sampling was used. As previously indicated in Chapter 4, mixed, purposeful sampling provided flexibility to the researcher, reduced subjectivity in the judgements made during the research process, and increased sample credibility. The details captured from investor relations data and other publicly available information for the cases studied revealed that black executives made up over 22% of the total executive population. Figure 5.3 gives a summary of the participants' work experience.

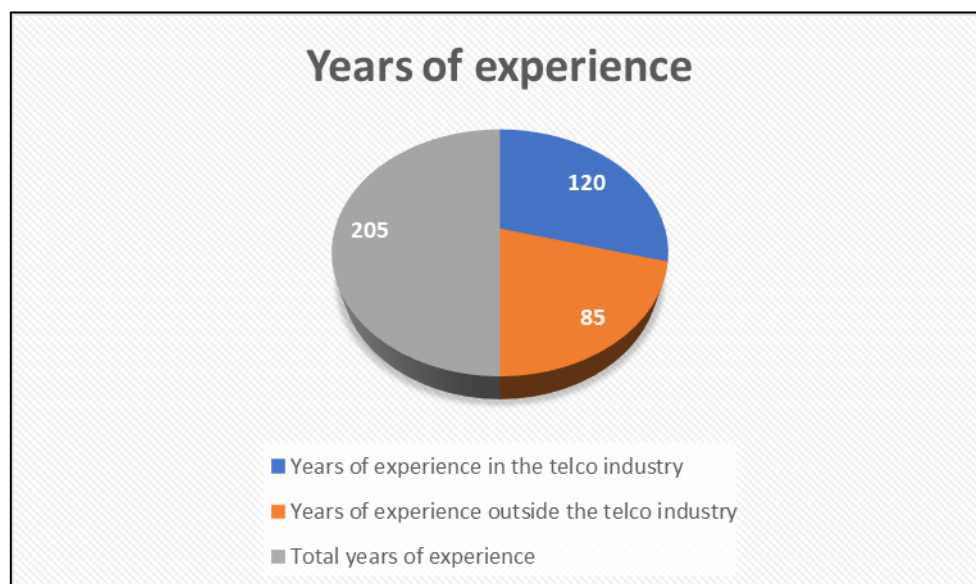


Figure 5.3 Participants' work experience  
*Source:* Own compilation

Understanding that an individual's experience does not warrant truthfulness, the researcher only recruited participants from executive teams based on their helicopter view of the industry. The total experience possessed by all participants was 205 years, with 120 years in the telco industry and 85 years of non-telco experience. The greater amount of work experience each participant had in a specific industry allowed him/her to have more insight into that industry and to understand critical performance factors. The 120 years of experience in the telco industry did not consist only of South African experience and talent, however, as some of the participants had worked in the

European telco market. Below is the split of each executive's years of experience in Table 5.2.

Table 5.2 Participants' years of experience

<b>Executive pseudonyms</b>	<b>Years of experience in the telco industry</b>	<b>Years of experience outside the telco industry</b>	<b>Total years of experience</b>
Executive 1	15	10	25
Executive 2	20	3	23
Executive 3	20	1	21
Executive 4	4	20	24
Executive 5	7	18	25
Executive 6	7	10	17
Executive 7	17	12	29
Executive 8	17	8	25
Executive 9	13	3	16
<b>Total experience</b>	<b>120</b>	<b>85</b>	<b>205</b>
<b>Average</b>	<b>13</b>		<b>13</b>
<b>Minimal in telco</b>	<b>4</b>		<b>4</b>
<b>Greatest in telco</b>	<b>20</b>		<b>20</b>

Source: Own compilation

On average, the participants' experience was 13.3 years in the telco industry, with a minimum of four and a maximum of 20 years as presented in Table 5.2 above. It is a pleasure to report that the 205 years of experience of the participants provided the maturity and exposure to strategic telco challenges that the study sought to investigate. Saturation was reached after six interviews had been analysed, answering the research questions, satisfying the validity and reliability requirements of the study, and meeting the research objectives. To test and validate the logic and soundness of the responses of the participants, the research results were shared with both the supervisors and independent evaluators who were inside and outside the telco

industry. The independent evaluators assessed the results based on geo-economics and telco strategies.

### 5.2.2 Data from interviews

This section summarises the interview data collected from the fieldwork and provides insights into how the analyses were structured. The interview guide, which is provided in Appendix C, was divided into five categories: background demographic questions, financial sustainability, competitive advantage, industry best practice, and a closing section that ensured that all key research questions had been answered. Where the research questions were not precisely answered, follow-up and sub-questions were asked of the participants. Table 5.3 depicts each interview guide category and its purpose, linking it to the research objectives that would directly assist in answering the research questions. Table 5.4 presents the identified key themes that were mapped to each research objective.

Table 5.3 Interview guide category and its purpose

<b>Interview guide</b>	<b>Purpose</b>	<b>Research objective</b>
Background demographic questions	1. To understand participants' ages, qualifications, job descriptions, and years of experience both within and outside the telco industry. This is the interview section that assisted in providing the overview presented in section 5.2.	
Financial sustainability	1. To analyse the financial sustainability of the South African mobile telco industry by understanding the key factors that have an impact on financial sustainability, its challenges, and remediations implemented by the mobile operators to mitigate these predicaments and risks to ensure financial sustainability.	<ol style="list-style-type: none"> <li>1. The primary objective was to analyse the financial sustainability of the South African mobile telco industry using Vodacom, MTN, and Cell C as the market dominators.</li> <li>2. To evaluate the impact of the competitive environment on the financial sustainability of the South African telco industry according to the executives from the mobile operators.</li> <li>3. To investigate the influence of regulations on the financial performance of mobile operators.</li> </ol>

Competitive advantage	<ol style="list-style-type: none"> <li>1. To evaluate the impact of the competitive environment on the financial sustainability of the South African telco industry according to the executives from the mobile operators.</li> <li>2. To understand the impact of the COVID-19 pandemic on the 2020 strategy of South African mobile operators and how they responded to it.</li> <li>3. To understand the strategic game plan that has been followed over the past five years by the mobile operators who participated in the study and their competitive view.</li> </ol>	<ol style="list-style-type: none"> <li>1. To evaluate the impact of the competitive environment on the financial sustainability of the South African telco industry according to the executives from the mobile operators.</li> <li>2. To investigate the influence of regulations on the financial performance of mobile operators.</li> <li>3. To understand how mobile operators in South Africa responded to the COVID-19 pandemic and explore its impact on the telco industry according to the mobile operators investigated.</li> </ol>
Industry best practice	<ol style="list-style-type: none"> <li>1. To understand the business environment and industry best practices that affect the financial sustainability of South African mobile operators.</li> <li>2. To understand the impact of the arbitrage risk experienced by mobile operators and how they are mitigating it, as this fraud risk directly affects the financial sustainability of the mobile operators.</li> </ol>	<ol style="list-style-type: none"> <li>1. To evaluate the impact of the competitive environment on the financial sustainability of the South African telco industry according to the executives from the mobile operators.</li> <li>2. To investigate the influence of regulations on the financial performance of mobile operators.</li> </ol>



Closing	1. To understand the overall financial sustainability of the South African telco industry.	1. To evaluate the impact of the competitive environment on the financial sustainability of the South African telco industry according to the executives from the mobile operators.
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*Source: Own compilation*

Table 5.4 Identified key themes

<b>Research objectives</b>	<b>Themes</b>
<b>A. Themes on the financial sustainability of the top mobile operators in South Africa</b>	
To analyse the financial sustainability of the South African mobile telco industry using Vodacom, MTN, and Cell C as the market dominators.	A1. Clarity of mission to government as a key stakeholder
	A2. Strategic flexibility in turbulent times
	A3. Strategic innovation and growth in an adjacent market
	A4. Investment in network infrastructure for quality and spectrum
	A5. Managing ambidexterity
	A6. Dealing with the risk of bypass
<b>B. Themes on the impact of the competitive environment on the financial sustainability of the South African telco industry</b>	
To evaluate the impact of the competitive environment on the financial sustainability of the South African telco industry according to the executives from the mobile operators.	B1. Market complexity and dynamics putting pressure on financial sustainability
	B2. Re-enforcing collaboration for resilience
	B3. Pressure of building individual and organisational capacity for the future
	B4. Dealing with the difficulties of spectrum scarcity and its consequences
<b>C. Themes on the influence of regulations on the financial performance of mobile operators</b>	
To investigate the influence of regulation on the financial performance of mobile operators.	C1. Regulation through spectrum allocation
	C2. Regulation through price control
	C3. Regulation through collaboration with stakeholders
<b>D. Themes on the impact of the COVID-19 pandemic and how mobile operators in South Africa responded to the pandemic</b>	
To understand how mobile operators in South Africa responded to the COVID-19 pandemic and	D1. Accelerated digitisation of mobile operators
	D2. Increased data revenue

explore the impact on the telco industry according to the mobile operators investigated.	D3. Exploiting market opportunities for data revenue growth
	D4. Change in operating strategy
	D5. Injecting a sense of urgency

*Source:* Own compilation

Direct quotations from the participants' feedback linked to every identified theme will be provided in section 5.2.3. Based on the research findings, a proposed model and framework to measure the financial sustainability of South African mobile operators are presented in section 5.4, followed by the chapter summary. Section 5.4 will then conclude the mapping of the research objectives. The next section provides a comprehensive thematic analysis.

### 5.2.3 Thematic data analysis

Boyatzis (1998: 4) defines thematic analysis as 'a way of seeing' and 'making sense out of seemingly unrelated material' while developing a narrative from the texts of interest, a definition with which Nguyen (2019) concurs. According to Maguire and Delahunt (2017), thematic analysis provides flexibility when exploring what is learnt from the research in a qualitative research methodology. As the researcher progressed and evolved, she realised that developing a sound narrative required skill and technique to ensure a scientific writing style. The researcher agrees with Braun and Clarke (2006) that thematic analysis can be used as a method that drives the identification of patterns and allows the researcher to analyse qualitative data to understand the meaning of a dataset.

The next section of the findings reports on the analysis of the primary data collected from the research field by means of interviews in order to answer the research questions and meet the research objectives. Thematic analysis assists in exploring data beyond participants' responses (Braun & Clarke, 2006). Before the commencement of the interview session, each participant was requested to sign a written consent form, attached as Appendix B, in order to declare that his/her participation was voluntary. Some of the participants read the consent form and

requested to provide their consent statement on the voice recording before the interview commenced. The interview guide was used to ensure the consistency of the interviews during the data collection phase in the research field.

The main themes identified meet both the primary and secondary research objectives. The primary objective was to analyse the financial sustainability of the South African mobile telco industry using Vodacom, MTN, and Cell C as the dominant players in the market. To protect the identity and anonymity of the participants, the companies for which they worked, and the products offered by the mobile operators that participated in the research, the pseudonyms Product X and Mobile Operator A or B will be used for the participants' direct quotations where identifiable information was presented during the research interview. In the next sections, an in-depth analysis of the fieldwork will be provided using the identified themes and direct quotations from the participants.

#### A. Themes on the financial sustainability of the top mobile operators in South Africa

Six themes will be presented, with an in-depth analysis that answers the primary research objectives. The themes are the following: A1) clarity of mission to government as a key stakeholder; A2) strategic flexibility in turbulent times; A3) strategic innovation and growth in an adjacent market; A4) investment in network infrastructure for quality and spectrum; A5) managing ambidexterity; and A6) dealing with the risk of bypass.

##### A1. Clarity of mission to government as a key stakeholder

The main question that was asked of the participants was *'What is the financial sustainability of the South African telco industry in the contemporary business environment?'*. This question was asked to understand the determinants of financial sustainability in the South African telco industry and to ensure that the primary research question was answered. From the feedback received from the participants, it was clear that the government was one of the key stakeholders for the telco industry to be financially sustainable. Below are direct quotations from the participants regarding the mission of government related to the financial sustainability of the South African telco industry.

*'It's a great question. I think the telecom industry continues to offer something that is very, very unique. Because you're at the intersection of technological change. You are in an industry that is absolutely mission critical.'* (Participant 1)

*'I think that the industry can be sustainable with the right tools in place or at least the right pillars in place; skills being one of them as I said. Capital availability and infrastructure as I said are important. The support of the government in order to be able to do what needs to be done in the industry. I think that taking the country perspective in mind as opposed to the company perspective in mind it's quite important for the government. Because if we take a company perspective in mind then we're going to be narrow. We will not be able to move the country forward whereas the companies that are in the industry that we are in are pivotal to moving the country forward. So, it's really two-dimensional that one needs to look at this. I think that the topic of sustainability, yes it can be sustainable because of the... Of its role in the economy. The industry does need um, give, and take from a cooperation perspective with our government.'* (Participant 5)

*'The SA government has been criticised for the slow pace in implementing digital migration (the first deadline missed was June 2015 and still not implemented) and delays/failure to release high demand spectrum due to delays in policy formulation/finalisation. Experts advise that the implementation of digital migration would have released much needed valuable spectrum that the telecommunications need.'* (Participant 7)

*'...So, I think, we haven't moved as quickly as we needed to when... And then when government started moving, they moved... They put in place certain requirements that didn't fundamentally make work for the operators.'* (Participant 6)

*'And, what you want to make sure, is that you have reskilling and opportunities for everybody to work in that space. You know, from an industry and from a government regulatory point of view, you just need to make sure that, if you're losing jobs in the telco space, that you're picking it up in other spaces, and you're making sure that the skills are available for that.'* (Participant 4)

*'We are of course participating in the current spectrum auction and we are trying to ensure that the conditions for the spectrum auction are set in a way that we have access to 5G, which is going to be mission critical for the survival and long-term sustainability of the company.'* (Participant 1)

*'The second mitigation is to work with government and to collaborate with them as much as we possibly can so that they can understand why we need the spectrum and, and to participate in that auction process to acquire enough spectrum to pass the, you know, to avoid network densification and unnecessary wasteful capital expenditure to densify the network.'* (Participant 2)

The participants highlighted the mission of the government as a key stakeholder in the financial sustainability of the South African telco industry and further raised concerns about the spectrum allocation framework.

#### A2. Strategic flexibility in turbulent times

It was interesting to get a complete view of the strategy of each mobile operator and understand the involvement of the board of directors in driving organisational strategic objectives. The sub-questions that were asked of the participants were about the fundamental challenges associated with financial sustainability experienced by South African mobile operators and mitigation strategies applied by the mobile operators to mitigate these predicaments and risks to ensure financial sustainability. These questions were an extension of the main question related to the financial sustainability of the South African telco industry, and the questions were asked to ensure that the primary research question was adequately answered.

*'I would definitely say that overall, the macro-economic outlook of South Africa remains very poor by international comparison. So, for the industry as a whole and hence also for the operator I represent to grow in the current environment er, ahead of inflation, or at least in line with inflation is going to be very, very challenging. Simply because um, economic development and hence demand is not, not growing enough. So, those are probably the most salient aspects.'* (Participant 1)

*‘So small operators have the biggest risk because of the financial sustainability... Is crucial...Especially in these kinds of markets. So I’m sure small operators not being able to invest for the future, especially in these days...Like, I mean, if you, if you take it, like, a small operator in Nigeria, Ghana, Cameroon space. They wouldn’t be, they wouldn’t be keeping investments because, I mean, that’s, that’s a lie for that issue for them... if they keep investing, like, in connectivity more and more or OTT solutions like us more and more, eh, it wouldn’t be sufficient enough budget for them to, to left for even paying salaries.’ (Participant 9)*

*‘...but a new function was created by the board to drive strategy and transformation for the South African operation...’ (Participant 2)*

*‘Open Access Wholesale infrastructure business division that services licenced retailers (including Internet Service Providers (ISPs) and mobile operators) by providing them with telecommunication backhaul; enterprise Business division that services large corporates with their connectivity and IT needs; and property division that manages the organisations real estate portfolio and manages the organisation’s Masts & Towers (M&T) business. The M&T business services (mainly) mobile operators by providing the passive mast and towers infrastructure.’ (Participant 7)*

*‘...and then, obviously the big thing is around our network strategy, like I mentioned. In terms of rather having built, rather than building a network, you know, we’re a significant wholesaler aggregator in our capacity, by buying this from the other operators.’ (Participant 3)*

*‘Mobile Operator B’s strategy includes digital service platforms, which include home, and residential internet revenues. Which include corporate revenues, and to go for the business, enterprise business and also total digital transformation to cut costs and help the users and the companies that are using the network. So, I think this is an important example of what telcos are trying to do, and make a comeback, if we may call it.’ (Participant 8)*

*‘...I think South Africa as a mobile market is quite unique in a number of respects..., first of all if you look at the geography, on one hand it has a high population*

*concentration in relatively few metro areas... But it also has a very significant land mass, mass that needs to be covered..., you know, compared to the population. So, it's relatively, it is not very densely populated compared to other markets, which makes building quality network expensive and demanding.'* (Participant 1)

*'The second one is obviously the volatility in the economy is also impacting users' behaviours and users' consumption behaviours especially. And in the digital world, in order to provide a better experience and also increase the revenue. You need people to ... You need actually those digital services to be penetrated within the African market. And with that penetration needs also devices first. And the smartphone penetration is very critical...In that manner, but not necessarily only smartphone will be sufficient enough. Also, people who should have, let's say enough, enough income to spend their budgets on digital and that is also another challenge. So having there should be let's say, sustainable increase in smartphone penetration... But more importantly, more importantly, the data consumption should be increasing. That's, that's the major KPI that you can see people are being on digital more and more using the digital services to solve their problems in their daily journey. For instance, like, I mean, you can count all the things, like, has been digitised...Shopping is one of them. And access to information is another one. Socialising is another one or banking or, let's say, money, uh, management is another one even if it's investing or saving or just transactions like payments for anything like utilities. So people should digitise their daily journey and increasingly. So then you can, be more investing or it could be more let's say relevant for the companies or startups to invest more into digital. So then they can sustain their businesses on that, and also the competition could be much better. So in general, I would say the economy.'* (Participant 9)

*'So, if you look at WhatsApp voice or WhatsApp video these, these propositions that rely on basically data as a bearer as a unit cost per minute are you know, much less expensive than traditional circuit switched voice. So, as customers are migrating more and more toward smart phones, then the network effect kicks in that people can, you know, arbitrage the system simply by using WhatsApp calls. And I think in the absence of outright blocking there isn't much operators can do. The implied yield is much lower on, you know, data than you know, data produced um voice compared to circuit switched. This is something we need to economically manage and absorb by, you*



*know, outgrowing or compensating er, overall, with higher data growth to mitigate the voice decline. The voice decline in a sense, is structural. And there are other ways of course of you know, bundling voice minutes into large bundles so that the marginal price of voice basically becomes zero for customers and they don't have an incentive to leave the circuit switched environment.'* (Participant 1)

The participants highlighted various challenges emanating from the macroeconomic outlook of South Africa, which remained very poor when compared with the international perspective. They also noted geographic issues related to South Africa not being very densely populated, making it expensive to build the network. The participants, furthermore, highlighted aggressive connectivity strategies and OTT solutions, digital transformation, smartphones, and economic volatility, which would not be sustainable for smaller mobile operators. The next theme concerns the strategic game plan of mobile operators.

### A3. Strategic innovation and growth in an adjacent market

The main question that was asked in response to this theme was about the strategic game plan that had been followed by participating mobile operators in the past five years and their competitive view. The sub-question was *'Is there anything that you would have done differently in the past five years to ensure that your organisation would remain competitive?'*. Below are direct quotations from the participants regarding the South African telco strategy.

*'And then, of course, when you look at new industry adjacencies like financial services, mobile financial services, digital services, including digital content services, you know that may or may not be within the traditional telco operators. I think these are whole range of the next generation services also data centre services and so forth, that are structurally growing quite fast. And you know data centres of course also have a very positive effect on construction demand.'* (Participant 1)

*'So we believe that if we have the best networks we'll basically have the best service that we could provide to our customers.'* (Participant 6)

*'So, you have the best in what you need to do for enterprise customers coming out of Spain and Italy and Germany, you know to, to Vodacom South Africa. ... what you need to do on mobile money is coming out, Safaricom in Kenya and Ghana to Vodacom in South Africa. You know, what you need to do to compete on, on low and prepaid, a very strong best practice coming out of Tanzania, Mozambique and Eastern Europe. ... I think in terms of harvesting innovation and best practice from other markets and setting up a culture where you inject that into your organisation. I think Vodacom is definitely well positioned there. MTN is, is handicapped by its footprint, but it still has one. Mostly an African Middle East footprint which means a lot of insights on things like mobile money and prepaid and so on. It can be harvested from there to inject into the South African business. So, it's basically building and fostering that culture of learning from other markets and exporting to other markets.'* (Participant 2)

*'I think I would summarise it as the centre piece or the backbone of the, the strategy has been to regain the network performance er, that is second to nobody else in the market. So, we did realise to defend and extend our position you know, we need to have the best network performance in the country. And associated with that, to drive substantial improvements in our overall commercial approach.'* (Participant 1)

*'So, I believe this volatility kills the small operators, but, but creates an opportunity window for the big ones.'* (Participant 9)

*'I think Cell C basically because of years of mismanagement have resulted in a cash flow situation that means that they are going to be an MVNO at best. I do consider them, I think they're going to be part of, part of the landscape, but not as a threat. They simply do not have the money or the customers to do that. I do not consider Liquid or Rain as significant threats. Of course one needs to always keep an eye on them, but both of them are subscale and they're missing key components of the overall capability set that they need to be a serious threat. Telkom is going to be an interesting one to watch. Ah, again they have a lot of fixed infrastructure so they're always going to be a major player in that space. The mobile, the mobile part is very very disruptive, they compete on price, it's not a sustainable strategy to compete on price. Specifically, you don't have the network and the infrastructure to back that up over the long term. So, they are a short-term threat because they are disruptive, they are not a long-term*

*threat because of pricing not being a sustainable, not being a sustainable strategy. You cannot, you cannot cut prices. At some point you need to recover the costs from the customers to pay for your debt, to pay for your network, to pay for your infrastructure, to pay the salaries. And if you can't recover that out of the growth that you're seeing, you know, it, it's simply not sustainable. But Telkom has a lot of fixed assets.'* (Participant 2)

*'So, generally I think the winners of the future will be the ones that you know offer low-cost high-quality data in the best way, both fixed and mobile but you know, mostly on the mobile side and hence the criticality on the spectrum position, because spectrum is a finite resource that you need to produce high-quality data. And of course, the commercial approach to offering data in the market.'* (Participant 1)

*'With other sister companies that, that basically tries things, test new things are with an innovative culture like Vodacom, Vodacom is part of the Vodafone family.'* (Participant 2)

*'And the third plan is obviously also the connectivity. So the telco business is really struggling I would say, either maximising or optimising the connectivity across the Africa. And obviously, it's not only telcos...Uh, seeing that challenge which every challenge has an opportunity behind. The big tech, technology giant is also looking for that opportunity. And today the closest competitors for the telcos are seems like these, um, so-called, uh, the company X...Run by Elon Musk who are really trying to bring their Starlink...Uh, into African continent in order provide internet...Either with the collaboration of the telcos...Or competing against. And that will also change the game in connectivity.'* (Participant 9)

Even though the questions asked were aimed at evaluating the impact of the competitive environment on the financial sustainability of the South African telco industry according to the executives from the mobile operators, it was, however, interesting that the participants incorporated aspects of best practice as the eminence of competitive edge.

#### A4. Investment in network infrastructure for quality and spectrum

This theme provides insight into how the business environment and industry best practice affect the financial sustainability of South African mobile operators. Thus, it answers the first secondary research question: ‘According to the executives from the mobile operators, what is the impact of the competitive environment on the financial sustainability of the South African telco industry?’

*‘Because I mean in the telco industry, you should be investing in between 15 or 20% capex.’ (Participant 9)*

*‘Because it’s a capital intensive business and, and the margins are fairly small and, and they are decreasing into the future which means that these organisations will really, really struggle to generate enough profit from business and to generate cash from the business to be able to fund the business. So, realistically the market is the two to three scale player market and, and only those will, will be able to survive. Now who they will be a different discussion. (Participant 2)*

*‘And then, obviously, investing in the networks to ensure that we have really good quality data so actually investing the capex... and to be able to deliver that data at a certain quality you either have to get more spectrum which allows you to transmit that data or increase capacity in terms of roll out and capex investment in the network and mobile sites.’ (Participant 6)*

*‘... I think the other element on best practice is, is really, you know, as an, as an operator to keep pace with the technology-led developments that are basically coming from a number of directions. I mean, we see a significant acceleration of technological change in the industry ... So, the migration from 4G to 5G is potentially a very expensive and, and complex exercise where the, you know, the, the operators need to adopt the right pace and you know find the right way forward to convert 5G investment into, into profitable investment ... Then um, there is, you know, significant, acceleration of digital capabilities. And that’s also related to areas like, you know, artificial intelligence, machine learning, automation in the broader sense. So, the, the internal process organisation and also the customer interface of a successful operator in five years will look radically different from what it looks like right now. And er, so you, you, you will have to, you know, stay at industry best practice level to defend your*

*position and, and successfully compete. So, you know, those, those are kind of major, you know, technological developments and, and then of course there's also the whole trend of you know, cloudification and virtualisation of telco infrastructure. You know, historically, telco infrastructure has been purpose built fully integrated solutions ..., most of the telco infrastructure that is state of the art today is, is virtualised in the sense that it can run on any hardware machine. It is software-defined. And it can in principle run anywhere. It does not have to be in a switching centre. It could be in a, in a data centre of a hyperscale or somewhere ... players that can fast forward into the future technology architectures have an advantage because they can attain a better cost position. So, from best practice perspective, you know, I think you need to be on top of the game for 5G, for digital transformation, and for cloudification. Those are I think the three megatrends that are relevant here.'* (Participant 1)

*'Yes. So, look, in terms of best practice in the industry, the way I see is it is you need to have quality networks. So, that you can deliver high quality services to your customers. ... And when you do that you protect yourself in terms of financial sustainability. Because you will... Customers want good service. That's one, right. Best practice is also being a responsible citizen. Corporate citizen in the market you are in. So, making sure you're contributing to the economy. Making sure you're contributing to the people, making sure you're paying your taxes. ... and making sure you are compliant with the laws and regulations of that country. ... to me, that's best practice because if you're not doing that you put the entire business at risk. ... And those are the biggest issues to me that need to happen. And then, obviously, making sure that from a customer service point of view we give them what they are looking for and products that they need. ... And those, to me, would be the three biggest things that will then drive the... The financial sustainability of the operator.'* (Participant 6)

*'So then the data will be still private to each other who are messaging. Also to keep the data anonymous whenever it is being shared. So it is more investment into technology... So then it means more capex being spent on the financial side... And, and, but, but obviously, it also could bring some latencies in deliveries since we also need to keep that in mind that we also be, should be compliant with the regulations, compliant with the new data... let's say, legislations so... And to, to keep the data*

*secure, safe, uh, it also needs, needs more time to spend analysis over that. So time and, time and money consuming...* (Participant 9)

The telco industry serves as a catalyst for bridging the digital gap among underserved communities residing in distant, rural regions and advancing the objectives of the digital age such as the Fourth and Fifth Industrial Revolutions by leveraging emerging technologies and enhancing network connectivity. Therefore, good network quality and infrastructure investment are paramount.

#### A5. Managing ambidexterity

Given the significance of telcos in fostering African economic growth, recognising the operational dynamics of the industry is crucial for sustainability. This theme provides insights on how South African mobile operators are managing ambidexterity for their financial sustainability.

*'Customer demand and expectations of lower cost communication services from the, from the user base is, is putting a lot of pressure on which needs to be entertained.'* (Participant 2)

*'In terms of capex and investment requirements, of course the problem lies, I guess, that it is not easy to make the necessary investment to accommodate this kind of an exponential growing demand.'* (Participant 8)

*'...Secondly, to mitigate the macro-economic challenges, we are targeting high-value segments where you know our company is under-represented currently. So, that would be in segments like consumer post-paid and also enterprise You know, where we have an opportunity to grow market share and by growing market share, escape a little bit the macro-economic limitations.'* (Participant 1)

*'So then it means more capex being spent on the financial.'* (Participant 9)

*'Where you basically use the infrastructure of other operators. Because they make huge investments into infrastructure and they're obviously not fully utilised. Uh, so they have capacity. And, by us coming on board, they get a return. But it also, you know,*

*reduces the amount of cash, or capex investment we have to make, to be able to provide services to our customers.'* (Participant 3)

*'I should add you know, generally as an industry challenge, that South African operators lack um, the scale to compete effectively for advanced enterprise services. And er, so there is a risk that um, some of these advanced enterprise services will ultimately then migrate to global you know, hyper-scale cloud players like you know, Microsoft, you know AWS, Google and so forth over time, which would um, you know, take value out of the industry overall.'* (Participant 1)

*'... I'm going to give you my view, in terms of what I think of it. So, I think, in terms of financial sustainability, I mean, there is definitely still a demand for, let's call it, communication services. And, I'm saying communication services, because technology evolves, and you know, the, the, the, the mechanisms which one uses to basically deliver these services, the technology, obviously, has been changing over, you know, many years. And, and, and this one exciting industry, because it doesn't stay, you know, constant. ... technology and innovation are at the core of every telco business. ... but I think in the South African context, I think the challenge that most operators, well, all operators are facing, is that the market is, is kind of saturated. We have economic pressure in terms of, on consumers. In terms of what their disposable income is and, you know, what they can actually afford in terms of communication services. The cost of devices, you know, on new technologies, is almost becoming a barrier because they are quite expensive. Especially smart phones and smart devices that is quite expensive. So, the penetration there, is probably not at the levels one would like. But I think, overall operators are doing is, you know, reassessing their value proposition. Yes, you know, true customers and that is part of how you are going to currently keep your existing customers. Offer new services too ... innovation in what you offer customers in terms of value. ... and actually, grow your revenue. ... I think, what is key now, in the current time, is the digital technologies. I mean, the devices, and I talk ... the smart devices have, you know created new demands for services you can almost do anything from your cell phone and then, obviously, technology has also brought in new players. You know, you've got a lot of smaller niche players that are starting to eat away at your business, ... somebody providing payment solutions, and so forth. So, to me, it is about, what kind of new services, experiences and their new*

*operators can offer to stimulate further customer demand, for their specific services and products. I mean, that is the only way you are going to remain competitive and relevant in the industry. ... it is obvious, if one looks at voice, traditional voice is slowly on the decline. I mean, fixed line voice is, is dead. I mean, you can just look at what's happening with Telkom's numbers on fixed line data is where everything is moving. It is a means to communication; it provides the ability for more online services and apps.'* (Participant 3)

*'That's a big problem. And how we're mitigating, I'm not sure. I think we're... For me, from my own point of view, I would definitely say, it's great to see Mobile Operator B is not seeing, digital services or the entities like us, which I defined them as the future of the company... As a cost can I say, um, as a cost item, but it's seeing it... It is still investing in... So that means Mobile Operator B is very well-positioned for the five or ten years from now because they, they are not panicking out of volatilities in the economies. Which many of course, or many telcos would be seeing it as an immediate cost-cutting action needed and most of the times, it comes to the most they say cost-consuming entities like us. Uh, or they would be maybe slowing down the investments on the coverage and connectivity which is something like saving the near future, but killing the long-term...'* (Participant 9)

*'So, overall, in terms of industry economic sustainability, the level of profitability of industry leaders is actually strong because they have been able to address the high value segments of the market quite successfully. And they have at this point in time, an unassailable network quality and network coverage lead. The followers, the likes of Cell C and Telkom, I think are struggling because they lack scale and they lack the infrastructure base to compete effectively. Then you also have wild cards like Rain that are kind of specialist data-only access networks and that can seem to be doing quite well but are also suffering from congestion at this stage after having grown very aggressively. So, I think overall it's a competitive environment but the economic and the financial conditions of the, of the different players, mimics a little bit the market structure. So, the profitability is highly concentrated among the market leaders and the subscale players are all struggling to be sustainable in the market.'* (Participant 1)



In the saturated market, South African mobile operators are positioning their strategy towards providing more digital technology and increasing innovation, as traditional telco services are on the decline. Therefore, apart from product or service diversification, for survival, South African mobile operators need to review their strategy to ensure sustainability and discontinue the products or services that are not financially viable.

#### A6. Dealing with the risk of bypass

Participants pointed to SIM box as one of the fraud risks with which South African mobile operators were struggling. Below are the views of the participants.

*‘SIM boxing is fraud because it robs the telecom operators of international revenue as they end up receiving local rates for an international call instead of higher international rates. The one advantage to legalising SIM boxing is that it could reduce the differential between international and local rates. The other is that, if regulated properly, it could minimise fraud related to SIM boxing. If SIM box operators are monitored and regulated properly, operators and the fiscus would gain due to minimisation of revenue leakages from the system. The disadvantage is that, if not regulated and monitored properly, it would increase revenue leakage to operators. The cost of regulating and monitoring could also outweigh the benefits gained through regulation.’* (Participant 7)

*‘You referred also to international arbitrage I think South Africa is particularly vulnerable based on current regulation to sim boxing and, and basically grey routing of traffic because I’m not a legal expert but in my understanding, the blocking of rerouted international traffic is legally very difficult. In most other countries of the world, operators can detect illegally routed traffic and block it. And then of course you have a continuous long-term arbitrage opportunity in the industry between circuit-switched voice and IP-based voice.’* (Participant 1)

*‘So, look, I don’t think there are advantages in legalising sim boxes in the country. But, maybe, I’m biased because I work for an operator. But I really think we need to bring traffic into a country through legal things. And this doesn’t just speak to us as an operator and profitability, but the government actually understanding what traffic is coming into the country and how it’s coming into the country. And the other problem*

*with sim boxing is the fact that these sims aren't traceable. So you don't know what people are doing on those sims. I mean, we've got a very, very strict KYC policy in terms of an operator.'* (Participant 6)

*'The arbitrage, really, around fraud in the industry where people see opportunities, or use technology to bypass. Like your SIM boxes. You know, uh, certain, you know ports of call, if I put it, of how, you know, calls originate, terminate in the space.'* (Participant 3)

*'In South Africa you know, that seems to be at least a legal grey area and hence you know, we are seeing you know, grey routing coming in through existing operators even but also through you know, sim box related structures um, as, as well.'* (Participant 1)

*'Yeah, I mean, it should be, it should be regulated. I don't know the details, maybe I can answer it on the paper, later, but it definitely needs to be regulated.'* (Participant 7)

*'In some instances where those are unshared. But we end up with a vision where you have these sim boxes out there, nobody knows where they are, what they're what they're used for, bringing traffic illegally into the country. I don't see any advantages of them. But, I mean, it's lost revenue for the government as well.'* (Participant 6)

*'You know if, if you're routing international traffic away from landing in South Africa you know or converting it into voice over IP so that there's no termination rate, you know, you're doing that via international companies where you don't have to pay tax in South Africa, the government understands how much money that is taking out of South African hands. So, it's why the legislative and the regulatory framework is there. I don't think the government needs to do much more than that.'* (Participant 2)

Fraud is one of the risks that directly affect the financial sustainability of any organisation, including mobile operators. The data collected from the participants provided insights regarding the influence of South African regulators and government on the financial performance of mobile operators.

## B. Themes on the impact of the competitive environment on the financial sustainability of the South African telco industry

This section will report on the feedback received from the participants addressing the following secondary research objective: to evaluate the impact of the competitive environment on the financial sustainability of the South African telco industry according to the executives from the mobile operators.

### B1. Market complexity and dynamics putting pressure on financial sustainability

This theme provides insights into the core of this study, which is financial sustainability. Below are the verbatim quotations from participants sharing their insights about the financial sustainability of the South African telco industry.

*'... financial sustainability, I don't think there's any risk. It's the question around what you do, to remain relevant in the market, which will obviously keep you profitable, and be able to sustain your business through these difficult times.'* (Participant 4)

*'So, in my view, the financial sustainability of telcos in South Africa...Is you need scale and you need to be able to grow the business at a rate that is outstripping inflation. And you need to grow and obviously control your costs at a low point, a cash point. So, if you look at the telco industry, we have got quite a few operators in the South African industry, and it is becoming harder and harder for the smaller operators to stay viable while having to roll out the networks that need to support the growth in data in particular. So, I think, what you will find is on a network side a few key operators, and then you'd have a lot of operators with network sharing coming through that will help to support them and reduce their capex adjustment in their networks. So, I think, you would have a few main network operators with a lot more smaller types of MVNO if you call it that sits on top of it. ... And that's basically how the smaller operators are going to be sustainable in the long run.'* (Participant 6)

*'Yeah, I mean, telco, it has a huge positive potential in Africa. In South Africa and in Africa in general, so when we look at the young population, when we look at the smart phone penetration and also data usage, they are really low. So in terms of demand it is, there is an exponential growth potential.'* (Participant 8)

*'And so, the other element that is unique about South Africa is that the market is bipolar in the sense that there is a very fluent, high-end post-paid and enterprise segment on one hand and then there is a low RPU, very competitive, large, mass, prepaid market on the other end. And you know that level of bipolar concentration is also unique, that you don't see in many other markets.'* (Participant 1)

*'Declining legacy business (e.g. fixed voice, SMS) and the ability of the organisation to contain the impact thereof to the overall profitability of the organisation.'* (Participant 7)

*'For the top two..., definitely...Yes, they are profitable, they are growing and they are making money. But third, it's very challenging. Now, for anything after that, they usually struggle. Not just in the South African environment, basically, in many other jurisdictions. It is difficult for a third operator to actually be financially viable. Unless they become an MVNO, which means, they don't have to do the type of CAPEX investment that is required but will piggyback on the operators. Even we know, only...Only one of the three operators. So, an MVNO, if you are going to be a fourth player or kind of a smaller player in the market, is more viable than a full, a full-blast, kind of, telco.'* (Participant 7)

*'... on the other end of the spectrum I think we, we need to you know, look at you know, the potential disruptive threat originating from the likes of Rain and potentially over time, Liquid Telecom, but also Telkom to some extent... so, these players are trying to disrupt the industry with data-led propositions and data-led networks on the back of spectrum advantages that they hold in, in different disguises. ... Rain and, and Liquid, you know, have access to 5G, spectrum and capability which they are, in the case of Liquid of course, sub-renting so to speak ... to Vodacom but you know they could at some point in time use it themselves ... Rain of course is starting now to roll out more aggressively their own 5G propositions and, so, that is kind of disruptive in nature.'* (Participant 1)

*'I think that Rain and Telkom are a threat. ... because they somehow in a way positioned themselves as a, ... They positioned a proposition that can appeal almost*

*across all the levels of the market. ... And across all the LSM categories, I think they have somehow been able to position themselves in that way. I think that they are a threat, and at the same time an opportunity as well because there's nothing wrong with learning from your competition. ... that is the main competition. ... taking a picture from the market, from our competitors is just part of what happens on a day to day. Clearly the South African market isn't necessarily growing in its entirety at humongous levels. Um and then you have to say, what of that market is actually consuming services etcetera, etcetera? And in what way do they consume those services. So, I think an opportunity is there as you are seeing how the market is evolving, how people's habits, likes and dislikes are evolving.'* (Participant 5)

Evolving technology and market complexity and dynamics put pressure on the financial sustainability of South African mobile operators, especially the smaller ones. This is evident through the volatility of the market, manifesting market bipolarity.

## B2. Re-enforcing collaboration for resilience

In this theme, the participants were asked to indicate which among Vodacom, MTN, Cell C, Telkom, Rain, and Liquid Telecom:

- was a major threat; and
- presented a great opportunity.

Participants were then asked to explain why they held such competitive views regarding the threats and opportunities of the stated mobile operator.

*'Unless they become an MVNO, which means, kind of, they don't have to do the type of Capex investment that is required but will piggyback on the operators.'* (Participant 1)

*'Competition/battle for market share – ensuring that you are effective in dealing with the battle for market share with other competitors.'* (Participant 7)

*'A third unique characteristic is a relatively high level of competitive concentration with the two co-leaders Vodacom and MTN, which has led to you know, the other two operators, you know, Telkom and Cell C, to adopt only a partial network build approach*

*and to rely on national roaming. In the case of Cell C, that has evolved into an outright MVNO relationship now, so it's not a full network-based operator anymore. And that is again a consequence of the high level of concentration.'* (Participant 1)

*'I think, I mean, every one of them are a competitor, but I think, if we look at size wise our business versus the others, I would think, right now, probably Telkom. Telkom is also probably the latest entrant into the mobile consumer space. And one can see them aggressively pushing product. And one, if you look at what they publish in terms of their numbers. So, to me, you know, I would say, if I had to pick one of them that's relevant to us, in terms of size and where we are in terms of our business, would be Telkom.'* (Participant 4)

*'I think, I mean, I wouldn't name, this or that, but as a category, the biggest challenge comes from the operators that invest in digital services, and have a strong fixed, fixed solution. So whoever does this or have these I think we can name it as a big a more bigger threat. And I guess the opportunity also lies in the, not only mobile operators' side but on the fixed internet operators' side because then you can grow inorganically and increase your footprint on fibre if you can make a partnership or an acquisition with one of them. Son the leading organisation in terms of the fibre and also the fixed line, that's Telkom, who was a monopoly for over years in South Africa.'* (Participant 8)

*'Everything's going to go digital. So, you know, the Mobile Operator A and the Mobile Operator B of the world will continue to make money. The big incumbents like ourselves, operator C, will continue to lose money and over time, that will correct itself. Um, and so, that's why, you know, from an industry perspective, we've got to look at ways to make sure that is not destructive to the industry. And, in that I mean that we have opportunities to have access to 5G spectrum and be able to build infrastructure on a collective basis that we can all use, for the good of the industry, and to create employment in other sectors.'* (Participant 4)

*'And again, depending on, on what happens with the, the, the spectrum auction and so on, you know, let's take all of that for granted. I think MTN with all of its network*

*recapitalisation, the modernisation of systems and is probably very well positioned to take a strong leadership role together with Vodacom.'* (Participant 2)

*'All of the organisations listed could be viewed as both a threat (in as far as they are direct competitors for market share in the market segments where we compete) or opportunities (because of possible collaborations/partnerships and some of them are customers – for example for our wholesale business). As an example, because of the different network reach of each of the operators, there are roaming agreements that exist between the operators. Cell C has a roaming agreement with Vodacom. Telkom's mobile division has a roaming agreement with MTN. Whilst Rain is a competitor to Vodacom, they also generate a majority of their revenue from their roaming agreement with Vodacom. Telkom's Mast & Towers business (Swiftnet) provides masts & towers to all mobile operators whilst on the other hand, Telkom Mobile is in direct competition with all mobile operators. Telkom's open access wholesale infrastructure business provides backhaul infrastructure to all mobile operators and ISPs.'* (Participant 7)

*'... I should add you know, generally as an industry challenge, that South African operators lack the scale to compete effectively for advanced enterprise services ... so there is a risk that some of these advanced enterprise services will ultimately then migrate to global you know, hyper-scale cloud players like you know, Microsoft, AWS, Google and so forth over time, which would take value out of the industry overall. ... I think we are looking at partnership, partnership-led growth opportunities with some of the international enterprise players, to strengthen our portfolio and competitiveness.'* (Participant 1)

*'Yes, the, the single one, the single most important one is, you cannot have five infrastructure players in the market. There's just impossible. So, in the last five years, I would have taken a very different view, and would have lobbied, um, the regulatory, uh, authorities around allowing infrastructure sharing. Because it's the most inefficient way to run a business in the telco space. But you know, you've got Mobile Operators A, B, C, D and ourselves, building networks. It is bizarre. So, what you want to do is have, either a one or two network provider, and everybody else rents from that provider using their own spectrum. ... where they're allowed to share spectrum, or, um, to rent*

*spectrum out, there should be a mechanism for doing that, which allows for competition.'* (Participant 3)

*'... it is about how do you partner with other businesses? For example, banks. ... you do not have to become a financial service provider, but we have got the platforms. We have got the technologies to enable them to provide services, in this digital economy, to customers with zero touch... hence the decline in the number of branches, because everyone wants to do everything from behind their desk, or from their laptop, or from their phone.'* (Participant 4)

The telco industry is not only expensive, but also highly competitive, and through collaboration, South African mobile operators can improve their competitive advantage. The feedback provided by the participants affirmed the identification of the research problem that, in South Africa, there was no regulated product or service developed or single infrastructure owned by all mobile operators for which they shared revenue proportionally to improve collaboration and innovation that will create a unique and competent industry skill set.

### B3. Pressure of building individual and organisational capacity for the future

Improving collaboration and innovation in the South African telco industry requires a unique and competent industry skill set in order to build both individual and organisational capacity for the future. Below are the direct quotations from the participants regarding telco future fit for the South African market.

*'Thank you so much. So in summary the traditional skills are no longer relevant in the future. One must continuously upskill themselves and ensure that they remain, also, digital and relevant, as the market changes.'* (Participant 4)

*'I think, again, the industry is at a pivotal point in its life stage in South Africa. The transition to platform organisations is critical for future sustainability and that is a winner-takes-all scenario. So, you know what you're going to have is one organisation out of the three-horse race.'* (Participant 2)

*'...the main strategy is similar to what other mobile operator (B) is trying to do which is being a player in the digital world, not necessarily only providing the data for the*



*OTTs, but also being a, being the OTT player... As well because you're looking at the valuation, looking at the revenue potential. The OTT is running on top of the network that telcos provided...Are potentially going to get the revenue...Right? So for instance, like, if it is five, \$5 billion for a telco when it comes to evolution, uh, you can obviously see, for instance, like, WhatsApp has been sold by, by \$19 billion or 16 as far as I remember... And it was not because WhatsApp was generating revenue, but it was because of the potential value behind the data that they have created, behind the user base that they have reached out which is a new economy. The new economy is not about only revenue...But it is more about how many users that you can keep, uh, in your, in your service that you...Provide. So you can turn it into a revenue anyways...Either by an additional service that you provide or by the data that... So then you can monetise the data. So obviously, telcos already have seen this game is changing...And in order not left behind in the, the competition there or in order to not to be let's say taken advantage of them by the OTTs only, they also wanted to be a player in that world. That's why product Y is in place right now today.'* (Participant 9)

*'The existing investments and policy decisions/commitments that the organisation has made in the past (whether in legacy or new generation technologies) could be regarded as 'financial bets' and commitments that have been made by the company which could be regarded as 'financial risk exposure' for the organisation. Hence the need for the organisation to balance how it phases out the declining legacy business and replaces it with the new growth new generation investments with minimum disruption to the customer experience and profitability of the business.... especially given the limited resources available to the organisation.'* (Participant 7)

*'But there are, there are significant segments that provide, you know, future opportunities, but they also rely on very specialised qualification. So, certainly, the enterprise domain and you know enterprise solutions business, there is enormous demand, and you know, but probably not a lot of supply of, of relevant qualifications in the market but there is definitely a further job you know increase and enrichment opportunity on that side.'* (Participant 1)

*'Now, there's obviously from the financial point of view... The most obvious thing is we need to more invest into data space in order to keep data private...And also, for*

*instance, like in instant messaging, we invested more into encryption...So then the data will be still private to each other who are messaging. Also to keep the data anonymous whenever it is being shared. So, it is more investment into technology...'* (Participant 9)

*'What you will see is smaller operators then not needing an entire network team. But... And that's where you might see jobs decreasing, right. But where remember the telco infrastructure also brings significantly better opportunities.'* (Participant 6)

*'The other big area where we are transforming is our enterprise business unit because business is growing in South Africa and Africa and again it is to capacitate that business. You're going to need a lot of people there, you're going to need a lot of skills there and you're going to need a lot of technical capabilities there. So, that's the other one that we are, that we are transforming from traditional mobile enterprise, let's call it more sophisticated, large business ICT enterprise for South Africa and beyond.'* (Participant 2)

*'...you have to be agile... if you just about look at history, you know, and you can take some of the big players. They have constantly reinvented, I do not say, reinvented themselves, but if you look at their offerings...there is a lot of innovation that has gone behind it in terms of offering.'* (Participant 4)

*'The opportunity is to continue to innovate, reposition, rethink, refresh all the time. I mean in this industry you don't position and walk away, you position, and you stay, and you keep thinking.'* (Participant 5)

*'Yeah, sure, so I would, I would maybe count three major challenges... The first one is actually the number of talents. Like talent acquisition... Or maybe if you would name it as, um, training the talents or the upcoming talents, um, from the, from the colleges, universities... That we can utilise in Africa... Since in any case, it is the human resource that is... Bringing that digital services and then the, the making the difference in between the global competition... Right? So what we are talking about when it comes to digital services, what we are talking about is actually the... It's not... Most of those digital solutions that we are running is not that much different than what global*

*competitors are already running. Either, either you can be pioneer or with a new solution...Or you can make a difference, difference like in content, like in some features... That you provide...So then you can beat the global competition. And that difference, that, uh, approach can only be with the help of the talents that you have. Either it comes from the technology space or from the business mindset. There should be some talents...Uh, motivated, positioned, and, and dedicated into this change. And that, um, is a big challenge in Africa as far as I see because of the, specially the, the educational, um, trends... Doesn't seem like supporting that. That much... Yeah, there, there's not that much in the, let's say, that much youngsters that are under education. And that means, that means in, in, even in five, ten years from now or 15 years from now, we will be still struggling a lot... To find the right talents... In, and, and also get them into these businesses to help. That's the first challenge.'* (Participant 9)

From the research results, it is evident that building both individual and organisational capacity for the future does not only require financial resources, but the telco industry also requires a unique and competent industry skill set for it to remain sustainable.

#### B4. Dealing with the difficulties of spectrum scarcity and its consequences

This theme provides insight into the fundamental problem experienced by mobile operators that has a direct impact on the financial sustainability of South African mobile operators; thus, it answers the following secondary research question: 'What is the influence of South African regulation on the financial performance of mobile operators?'

*'I think the biggest strategic challenge is access to spectrum and specifically access to 5G spectrum. I think there is a concern that with the introduction of the one you know which is basically is based on the idea to have an open access network in addition, to the existing ones in the market that could downgrade the financial conditions of all operators in an adverse way if it is not executed properly. I think that certainly is a concern.'* (Participant 1)

*'So, I think some of the biggest fundamental challenge right now is access to spectrum.'* (Participant 6)

*'But the reality, the cause of that, you know is also just a lack of available spectrum to the operators which is another, which is another function of government. So, I think the lack of co-ordination and alignment in government is, is contributing to a large part, ah, you know, to this situation we find ourselves in.'* (Participant 2)

*'...that's too detailed for me, but, there is always need for new spectrum this is always a big debate between the operators and the regulators. Uh but I'm sure we are on a good track to give the best service to the, to the users and the corporations that use our, use our network.'* (Participant 8)

*'One of the elements that is unique about South Africa is the long-term scarcity of spectrum in other markets of a, you know, comparable level of development, operators historically would have been awarded probably double the amount of spectrum that we have seen in South Africa. And except for the emergency spectrum that was now awarded as part of the COVID campaign you know the last official spectrum award is more than 10 years ago. So, there's spectrum scarcity in the market which has hamstrung, I think, the industry to some extent.'* (Participant 1)

*'Telkom was given a huge competitive advantage because they had a fixed line network and were allocated spectrum. ... and, they also had a shareholding in Vodacom. So, they have a huge advantage over everyone else. And, you know, so, so what happens there is, you had massive barriers to entry. So, any, um, incumbents looking to come in would have to have a really big cheque to compete with Vodacom and MTN, on the mobile side, and Telkom on the fixed-line side. You all know what happened with Viatel. So, I think the issue here is that, until you have this digital migration sorted, and until you level the playing fields, where people have equal, uh, access to spectrum, that allows them to compete, you're not going to have a level playing field and that's the biggest single problem.'* (Participant 3)

All participants from the various mobile operators noted that spectrum allocation was the biggest problem in the South African telco industry, as it was a government monopoly. The next theme will provide more insights into the role of South African regulators and the government in the financial performance of mobile operators.

### C. Themes on the influence of regulations on the financial performance of mobile operators

This section will report on the feedback received from the participants addressing the following secondary research objective: to investigate the influence of regulation on the financial performance of mobile operators.

#### C1. Regulation through spectrum allocation

From the conclusion section of the interviews, to ensure that all the research questions were answered, the participants were asked whether the South African government was doing enough to support mobile operators with spectrum allocation. Below are the direct quotations from the collected data regarding spectrum allocation.

*'Well the competition laws it wasn't... The competition laws when I mentioned it, it wasn't in that context. But what it's important for telcos to have access to infrastructure such as spectrum. So, if it is not available, if it is not available at the required, I will use word bands but at the required frequencies it really does not help the industry, so that is important to be opened up. Because when you look at the other countries in the world the more you have availability as a country or as an operator in a country to spectrum, the more competitive you're able to be, efficiencies etcetera. And you know if you look at everywhere in the world where you have um, a good level of spectrum.'* (Participant 5)

*'And coming back to the spectrum if we had a spectrum in that point in time the cost increase wouldn't have been as big and as we move forward with new technology, so if you look at 5G, for example. You can see another spike in the consumption of data by June. The higher levels because people are going to be consuming data much quicker. I guess spectrum is one.'* (Participant 6)

*'... in the case of Telkom, that may be changing because Telkom has a significant spectrum advantage that may put them medium-term into a more favourable position... and Telkom as I mentioned earlier, while they are economically challenged, and a low margin player in the industry and probably still cross subsidising the growth*

*of their mobile network from profits in other segments ..., historic profits in other segments. They have a very significant spectrum advantage that they are successfully leveraging in the market for you know, price aggressive um you know, data proposition.'* (Participant 1)

*'... And that is the most capital intensive part. The reason why the network is, ah, or a large part why the network is so expensive to build and maintain is the fact that you have to densify. Because there is such a lack of spectrum in the South African market. We, the South African operators, not just my own, South African operators are spectrum staff and that means that they have to build and maintain a lot of towers and a lot of radio equipment to give customers the quality of service they need to do business, to, to communicate and, to provide basic, basic access. So, so that is the single biggest reason why, it is such an expensive, business to run. Now the, the pressure, if you look at the different competitive forces or, impacting on the business.'* (Participant 2)

*'... I mean one has to put in tools, and measures and processes in order to minimise that kind of fraud that happens, system related fraud. Because it's an inherent risk that people are going to try and break in and illegally hijack the usage. So, you want to, you want to ensure you have processes and preventative measures to be able to mitigate that, but it's inherent. And secondly when it comes to things like availability of spectrum, how do you mitigate that? You want to...What you want to do is of course ensure that uh, from a regulatory perspective there is you know clear engagement and understanding of what is at stake in terms of the, not only the telco benefit but the country benefit as well. And being able to demonstrate how availability of spectrum positively impacts the country and what can happen if spectrum was available. Well, I guess the government has started a process and I think they, they have a recognition on what is important. ... I guess the proof's in the pudding.'* (Participant 5)

*'So, I think some of the biggest fundamental challenge right now is access to spectrum. And the delays in the roll out of spectrum. And, obviously, as we grow the business, we have seen significant increases in data. And to be able to deliver that data at a certain quality you either have to get more spectrum which allows you to transmit that data or increase capacity in terms of roll out and capex investment in the network and*

*mobile sites. ... that places a significant, um, strain on the financial viability of the roll out. So, the fundamental issue right now is access to spectrum. So, right now, we are engaging to try to get spectrum. I think everybody's aware, in South Africa, that the spectrum auction has been put out. So, we're participating in it. We're also looking at spectrum through other methods and existing operators and how we can share that. And then, obviously, investing in the networks to ensure that we have, really good quality data so actually investing the capex.'* (Participant 6)

Based on the research results, improvement is required from the side of the government in order to support the financial viability of mobile operators through the auctioning of spectrum, as capital intensive is not financially sustainable.

## C2. Regulation through price control

The role played by the regulators to ensure fair competition and a sustainable market is paramount. This theme contributes to the understanding of the influence of regulations on the financial performance of mobile operators and how product or service pricing affects the competitive market. Below are the direct quotations from the participants related to the key aspects that influence financial sustainability.

*'I think what, I always insist on the fibre, and I mean no fibre is enough, I can tell that, we could, any operator could invest in fibre infrastructure. And also I'm a big fan of native digital services. So, I would launch digital services and better help our users to get the benefit of the connected line.'* (Participant 8)

*'A more sustainable mitigant is to have competitive products that are responsive to what the customers need, investment in quality network, customer centricity (with regard to pricing, product range/flexibility, excellent customer service and network reach) and effective marketing campaigns to promote your products. Customers cannot buy your products if they don't know about them.'* (Participant 7)

*'Two is looking at how we implement those price decreases, um, at what levels we implement them and can we then turn that into elasticity in terms of volume. That's important because if we can do that we can compensate for the decreased pricing, and if we had spectrum it allows to do it at a much cheaper price. I think, that's probably*

*one of the biggest issues that we need to address. I guess, Spectrum is also an issue going forward in terms of managing our risk.'* (Participant 6)

*'... they are not going to realistically have the funds ... to acquire that. So, it basically means then the three main players that I see panning out and are going into the future is Vodacom, MTN and Telkom. ... Telkom is going to be an interesting one to watch. Ah, again they have a lot of fixed infrastructure, so they are always going to be a major player in that space. ... the mobile part is very very disruptive, they compete on price, it's not a sustainable strategy to compete on price.'* (Participant 2)

*'... but I think in terms of, business environment, I mean, obviously, it's highly competitive. ... and I think if you go back through all of what I've said to you, I mean, it's really about, how do you stay relevant, and offering, still offer competitive products in the market, while you are competing against giants? ... So, the giants do grow, ... the giants are a threat to smaller operators like us. ... and then, in terms of industry best practice, ... I think, ... being able to adopt best practice and innovation, requires money.'* (Participant 4)

*'We had a temporary effect on revenue because the price effect kicks in immediately and so, after implementing the changes in pricing we had pressure on revenues.'* (Participant 1)

Data from the participants provided insights on the price and future investment opportunities for South African mobile operators to remain relevant and competitive. For organisations to remain relevant, they need to continuously innovate, and innovation requires lots of money. Therefore, product innovation and price strategy directly support the financial sustainability of the business.

### C3. Regulation through collaboration with stakeholders

In this theme, the participants responded to the sub-question where they were required to explain in detail what could be done in order to mitigate the arbitrage risk experienced by mobile operators.



*'You want to make sure that you can pick it up and deal with it, as it comes up. Because, you know, people find new and creative ways. So, for me, it's about, what is our risk framework, and how we manage that risk framework, is the most important.'* (Participant 3)

*'...a channel of communicating with government and the regulators. All of them have got it and again, you know, whenever government puts a policy, yes, it is practice for the South African government that requires input, from all role players. So those channels are there. It's a matter of whether are they always effective.....Because when you put out policy, you also need a view from the consumer, from kind of...non-governmental organisations, from business in general, that are not necessarily part of the sector. Because those policies influence...Not only just the sector, but it influences the entire business environment.'* (Participant 7)

*'I think the arbitrage or let's call it bypass traffic you know, scams and, and so on, the, the good thing is that government has a very good legislative and regulatory framework to deal with that. From SARS and from the government by bypass traffic operators. And that is the reason why the government has given a legislative framework and, and regulatory framework to make sure that, that our law enforcement agencies and, and the operators can go after people who do that.'* (Participant 2)

*'Another important observation is that, compared to the state of overall economic development in South Africa, the industry, the quality of service in the industry, is extraordinarily strong. In terms of network quality throughput, coverage South Africa has a distinct let's say first-world profile despite the fact that as I mentioned earlier, the economy is more a hybrid economy with very strong developing aspects as well.'* (Participant 1)

The data revealed the need for government policies and regulatory frameworks to be reviewed in order to improve efficiencies and collaboration with stakeholders in order to mitigate any financial risks to which businesses were exposed that would have an impact on their financial sustainability. The next section reports on the impact of the COVID-19 pandemic on the South African telco industry.

#### D. Themes on the impact of the COVID-19 pandemic and how mobile operators in South Africa responded to the pandemic

This section reports on the feedback received from the participants addressing the following secondary research objective: to understand how mobile operators in South Africa responded to the COVID-19 pandemic and explore the impact on the telco industry according to the mobile operators investigated.

##### D1. Accelerated digitisation of mobile operators

The telco industry was classified as an essential service in South Africa during the COVID-19 pandemic. Below is the direct feedback from the participants expressing the impact of COVID-19 on the telco industry.

*'...but I think, what's key now, in the current time, is the digital technologies. I mean the devices, and I talk, I mean, the smart devices have, you know created new demands for services, you know.'* (Participant 3)

*'And that transformation is very tightly linked to the efficiencies. We're looking at how we can digitise and automate as much as we possibly can from, from our business so that we can free up people to redeploy them you know, in some of the new business growth areas that, that we are seeing. So, there's a, a very strong focus to re-skill and rebuild and redevelop you know some of our areas and to move some of our workforce there... but to free them up, I mean if someone was manually doing something, the only way to free them up is to digitise and automate that process if it's technically possible. You know, so, digitising and automating is a critical one for us and that is going to result in that people transformation we drive.'* (Participant 2)

*'No, no, actually I think in general apart from the beginning the COVID-19 helped the operators in terms of accelerating the speed of digitisation. Uh in the whole world, not only in Africa, not in Europe, not in US, everywhere, all the individual users and the companies became aware that they have to digitise.'* (Participant 8)

*'And then, you know, on the digital transformation side, you know, this is a direct effect and an indirect effect. So the indirect effect is that our customers are themselves you*

*know, digitally transforming much faster. And hence, they are lifting a lot of their business processes into the digital domain, which creates more demand for telco services and also new demand, particularly the enterprise domain, for you know, redundancy, for you know, high performing connections, for cloudification of services. So a lot of these trends are accelerating.'* (Participant 1)

*'The, the reason why Standard Bank can work today is because Vodacom and MTN and Telkom is there. The reason where in the lockdown, you know, government can function and, and why Nedbank and, and, and Eskom can function is because Telkom and Vodacom and MTN is there enabling it.'* (Participant 2)

*'And more and more data will be consumed...In Africa. And even, I mean, I think it's, it's a great combination of, um, let's say legacy telco solutions versus the data-based or internet-based digital solutions or OTP solutions that telcos are providing at the same time in a continent...Because of the fact that there's a kind of a half and half, by saying it's split...Between the users who are really well-adapted to digital with their smartphones and ADS race which is like the data consumption.'* (Participant 9)

*'So the usage in data increased, and the usage or the demand for the smartphones also increased. And the corporations even small or big, saw the need to digitise as fast as possible to pick up on e-commerce. So think in general it was, it had a positive impact, after the first six months or so, let's say. But the general environment, economic environment was affected by that, so that's, that's because of, of that initial and also ongoing impact on general macroeconomic conditions, were affected in general. But for telco I feel like it has been an accelerator in digitalisation.'* (Participant 8)

It is understandable how the COVID-19 pandemic accelerated digitisation for the telco industry, as it was the enabler of the working-from-home model by providing Internet connectivity.

## D2. Increased data revenue

This theme is directly linked to the previous one, as the more data used by customers, the more revenue earned by mobile operators.

*'However, on a holistic note, this industry um, because of the services that we provide, connectivity being a core portion of what we do, COVID-19 would have seen an increase in demand of our service. Because of, you know, people uh, are now needing to connect from remote locations to work etcetera. So, there would have been... There was an increase in demand of connectivity services so that definitely we did see.'* (Participant 5)

*'So, people are now consuming more and more data...'* (Participant 9)

*'That's, that's, that's critical, one of the critical things that I have seen. Um, and then the other one maybe I would say, um, it is taking advantage of people stuck at home, so consuming more data, more digital services. Mobile Operator B, I think has seen that it's going to increase...In the near future since the habits won't be coming back. Uh, so, as, as we already see in, in... During the pandemic period obviously the usage or data consumption has picked up...But then it didn't come back to the same point before the pandemic.'* (Participant 5)

With the lockdown and COVID-19 restrictions, people were relying on technology to connect. Subsequently, the more data consumed by customers, the more revenue earned by mobile operators. The next theme reports on opportunities that the pandemic presented to the telco industry.

### D3. Exploiting market opportunities for data revenue growth

Like any other business, the telco industry was also negatively affected by the COVID-19 restrictions. However, below is feedback from Participants 1 and 8, which highlights the significant opportunities that their mobile operators exploited in order to grow data revenue. To uphold the high level of anonymity, 'Product X' will be used when reporting Participant 8's feedback, as not doing so would reveal from which mobile operator this participant was.

*'So, basically the increase in data usage from an economic perspective overcompensating the, the temporary weakness in, in voice. And leading to you know, almost a doubling of data demand within a few months and reaching the data*

*consumption that was originally forecast for the end of the year already in the May-June timeframe.’ (Participant 1)*

*‘So, I would, like Product X is a good example, I would introduce more services of our own to the market to compete with OTTs in their territory instead of trying to defend our territory. I would do a more aggressive attacking service strategy.’ (Participant 8)*

*‘The re-skilling and you know re-building of our talent pool. The other one is basically we are fully aware that we need to become a platform operator. Now a platform operator is to take some of these businesses that we have and to technically enable an environment where any customer can engage with us and with any other supplier and have a seamless and frictionless on-boarding process and a seamless and frictionless way of paying for that content or that services. And for us to do that we have to be digital otherwise you will not be able to scale that business.’ (Participant 2)*

*‘A specific arbitrage opportunity I think originates from the fact that there is a bit of a split market between wireless home connectivity and wireless mobile connectivity. Wireless home connectivity is you know, tends to be structurally less expensive, more affordable because people use of course, large buckets of data. Whereas for mobile usage, operators are still trying to charge a premium. So, if people can use their um, you know, let’s say a sim card that was intended for home usage in a mobile context.’ (Participant 1)*

The pandemic led to a decrease in the traditional revenue generated from voice and SMS services and to an increase in data revenue because of the additional Internet connectivity used. Product X, which is mentioned by Participant 8, would reveal which mobile operator participated in this research, as it is unique, customised, and only offered by this specific mobile operator in the telco market. The next theme will provide insights on how the COVID-19 pandemic changed the operating strategy of the South African telco industry.

#### D4. Change in operating strategy

This theme reflects on and highlights how the COVID-19 pandemic affected the strategy of the cases studied. Below are the direct quotations from the participants.

*'So we changed our strategy slightly where, particularly from a finance perspective, we went into a decision where we wanted to protect liquidity in the business. We then started to put a lot more cost control in place, we would have reduced certain costs. And, I guess, the pandemic also helped, an example, things like travel cost. All of that was automatically reduced because we went into lockdown. The building costs have reduced because we went into lockdown as well.'* (Participant 6)

*'I think the best thing that Mobile Operator B had done for the pandemic was just to allow users and, sorry, allow employees to work...Remotely...And even today it is the same. Which, uh, is mainly about, eh, one of the three crucial points that I have named which one of them is, was, talent acquisition. So it's critical for the talent, especially after the pandemic...to pick or to choose any company who allows remote working or...Hybrid working. And the only companies like Mobile Operator B who allows that will be still acquiring talents.'* (Participant 9)

*'Right, of our customers. And I think also that our... Remember we have customers who are businesses themselves because we run, run business to business and we run business to consumer. So, our customers who are businesses themselves they've also then have had to be on a fast track in terms of whatever plans that they've had for, for call it their digitisation journeys. Their flexibility journeys in terms of employee engagement...'* (Participant 5)

The research results revealed that the operating strategy for the mobile operators had to be flexible to support both customers and employees.

#### D5. Injecting a sense of urgency

Flexibility runs alongside agility, and this theme reflects on how swiftly South African mobile operators have had to deal with the COVID-19 pandemic. Below are the direct quotations from the participants.

*'...disrupted everybody. And not just the telco industry but countries and markets across the world, but particularly to us it did disrupt our strategy, we... when we first*

*came in and we went into hard lockdown we were very uncertain about how would it play out and how would it end, how long it would be.'* (Participant 6)

*'The only thing that Covid did was to inject a sense of urgency. If we did not maniacally focus on efficiencies... Our budget, we would not have been able to sustain our business. The fact that as an organisation we did not have to let anyone go. But, you know, 75% of the businesses in South Africa had to retrench people. Or had to put people on reduced salaries to save it. Because we've been fairly conservative and fiscally disciplined, we never had to.'* (Participant 2)

*'Introducing flexibility on ways of work, places of work etcetera and how they think about infrastructure. Or how they think about where they invest, costs, capital income and infrastructure etcetera. It does then mean that, even us, we then need to think about how... What do we add, what do need to make sure that we are able provide for our customers? As they think about their organisations on an end-to-end basis. So definitely it does.'* (Participant 5)

The data revealed that the telco industry did not lay off or retrench employees within South Africa because of the COVID-19 pandemic (as happened in other industries), as the pandemic affected everyone, not only the industry being researched. This theme concludes the analysis of the data collected from the research field.

The feedback provided by the participants made it clear that the sustainability of the telco industry depended heavily on the success of the economy of the country. The talent acquisition challenge was raised by all nine participants, and this is aligned with the views raised by Zaw (2019) regarding the scarcity of telco skills. The researcher, furthermore, observed that not all nine participants were South African. Therefore, the issue surrounding the telco skill set is a critical concern that higher educational institutions should note. Lastly, all nine participants agreed that the research problem was something that needed to be investigated and highlighted that the root cause of this problem emanated from South African competition laws and suggested infrastructure or spectrum sharing for the industry to be financially sustainable because the cost of running a business in the telco industry was very high. The next section will present the quantitative findings.

### 5.3 Quantitative findings

This section analyses the financial statements of the big three mobile operators in South Africa, namely, Vodacom, MTN, and Cell C, in order to determine which operators use low-cost strategies, customer focus, and/or brand or differentiators. Additionally, it evaluates the impact of each chosen strategy on the performance of the business. The quantitative analysis contributes to meeting the main research objective and, furthermore, assists in addressing the following secondary research objective: to propose a framework for the financial sustainability of South African mobile operators.

#### 5.3.1 A financial overview of Vodacom, MTN, and Cell C

Scholars have provided theoretical and empirical research articulating the financial behaviour of organisations; however, nothing much is understood about how the telco industry makes its financial decisions. There are many financial variables that investors monitor and use to make financial decisions, such as the EBITDA, net profit margin, ROA, ROE, and ROI, depending on the nature of the industry and risk exposure that needs to be considered when making an investment. For example, Chen *et al.* (2021) suggest that, apart from the capital structure, the profitability of an organisation is an important economic variable and one of the key specific determinants of the financial leverage of a firm that investors monitor closely. Therefore, analysing these financial indicators when evaluating competitive strategies in the telco industry and the costing model of the mobile operators evaluated is essential. The competitive strategy of an organisation directly leads to customer satisfaction, which is based on the quality of products and services that provide competitive advantage (Rahmoun, 2020). Competitive advantage exists when an organisation can attract new customers, retain existing customers, and generate more income than what is spent on marketing, the cost of attracting new customers, and retaining the existing customer base (Belmiro *et al.*, 2021).

Financial sustainability is an important business and economic phenomenon and communicates the results of business strategy and its legitimacy (Božić *et al.*, 2021).



This section presents the quantitative results after exploring a financial overview of the three biggest market players, highlighting their market growth and financial viability to determine the financial sustainability of these mobile operators, namely, Vodacom, MTN, and Cell C. As previously indicated in Chapter 4, the top three market players were selected because of their dominance in the South African market and their being the leading mobile operators. EBITDA is one of the critical financial performance indicators in an organisation that is commonly used to measure executive compensation, debt agreements, and the valuation of the financial sustainability of the organisation, as the margin gives a picture of the operational efficiency of the organisation (Rozenbaum, 2019). For debt agreements, EBITDA is the measure of the cash flows of the debtor, which are unaffected by funding choices (Badawi & De Fontenay, 2019). Since the investors and regulators use EBITDA to measure and assess the financial health of an organisation, arguably, then, it can also be used to choose the optimal capital structure. Therefore, the higher the EBITDA margin, the better the performance of an organisation, which attracts more investors. Below is a financial presentation of the top three South African market players, starting with an EBITDA analysis in Figure 5.4 and followed by other critical financial indicators that have been used to develop a financial sustainability model for the telco industry in Table 5.5.

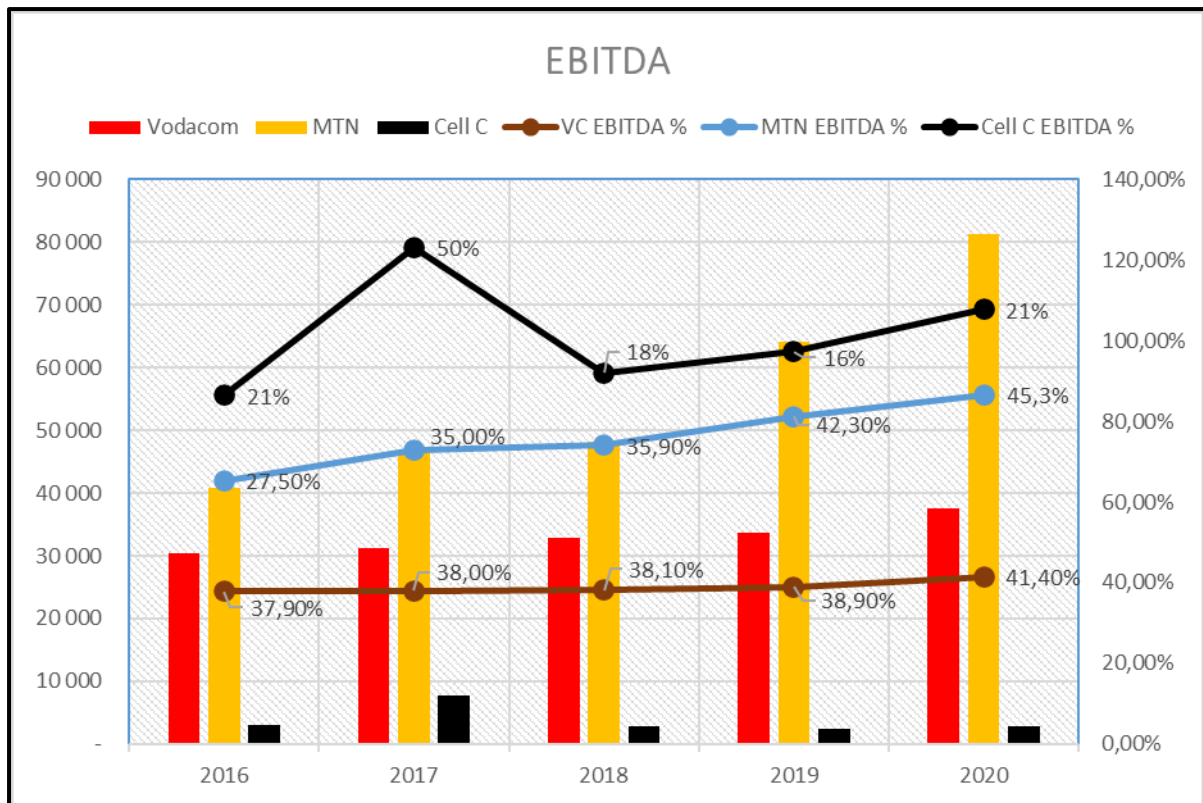


Figure 5.4 EBITDA analysis of the top three market players

Source: Vodacom financial reports (2017, 2018, 2019, 2020); MTN financial reports (2017, 2018, 2019, 2020, 2021); Cell C financial reports (2018, 2020d, 2021)

The presentation in Figure 5.4 illustrates that, in South Africa, even though Vodacom was leading based on 2016 to 2018 EBITDA growth, MTN's results showed a significant growth in 2019 and 2020. Furthermore, the analysed data shows that the MTN Group was leading financially year on year, with over R64 billion EBITDA reported in the 2019 financial year.

The researcher fully understands and agrees with the participants that when you analyse the revenue and profit generated and reported by these three mobile operators in their 2020 financials, in millions, Telkom reported R43 222 with R2 428 profit for the year, while Vodacom and MTN reported R90 746 and R179 361 revenue and R16 644 and R19 647 net profit, respectively (Vodacom, 2020; MTN, 2021; Telkom, 2021). Based on the published financial results of the six mobile operators sampled and the responses received from all participants, the three smaller mobile operators, Cell C, Rain, and Liquid Telecom, are not in a solid position to compete strongly financially with the three big mobile operators, which are Vodacom, MTN, and

Telkom. For example, the responses given by Participants 4, 5, and 7 provided better insights into why the bigger mobile operators continued to generate more revenue and made a profit year-to-year, while some of the mobile operators, such as Cell C, had been making a loss on year on year for the past three years, noting that it had reported a R5.5 billion net loss in its 2020 financial results. The full financial analysis of Vodacom, MTN, and Cell C is presented in Table 5.5.

Even though Cell C, Rain, and Liquid Telecom are not financially dominant in the South African market and, thus, not a threat to the bigger mobile operators, they still disrupt the industry. Since 2001, when Cell C launched its product, telco market share has changed completely (Loom, 2019b). Disruption can be defined as a threat that drives innovation, as it undercuts the moral order and demands social rearrangement (Erikson, 1966; Tavory & Fine, 2020). Khanagha, Zadeh, Mihalache, and Volberda (2018) highlight that it is challenging to respond to industry disruption, as the organisations have to deal with the complexities of the competition, internal strategic choices, resource dependencies, and customers' needs.

The South African telco industry requires more capital intensity. Capital intensity is a percentage of revenue calculated from capital expenditure (Muller, 2022). All nine participants concurred that the industry required a lot of capital intensity, while eight participants indicated that mobile operators were spending more on capital expenditure because of poor government strategy in regulating the spectrum. Lastly, when comparing the South African telco industry with the international market, all nine participants agreed that there was poor economic growth in South Africa, while the industry was very expensive, which was due to poor spectrum allocation by the government, resulting in network recapitalisation, and this made it difficult for the smaller mobile operators to compete. The participants from both small and big mobile operators were clear about the challenges experienced in the South African telco industry. Table 5.5 presents the 2016 to 2020 net profit margin, ROA, ROE, and ROI, since these financial indicators are used to measure the financial health of an organisation.

Table 5.5 Critical financial indicators for the top three market players

<b>Vodacom</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>
Net profit margin	16.10%	16.10%	18.00%	17.90%	18.30%
ROA	920.11%	100.17%	65.75%	56.38%	47.71%
ROE	56.07%	57.08%	22.03%	17.98%	16.63%
ROI	100.27%	116.24%	134.22%	119.87%	125.92%
<b>MTN</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>
Net profit margin	-2.10%	3.42%	7.12%	7.06%	10.95%
ROA	55.05%	52.55%	52.39%	50.10%	51.00%
ROE	140.57%	139.37%	152.52%	175.91%	169.00%
ROI	-8.89%	14.50%	36.71%	32.74%	59.00%
<b>Cell C</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>
Net profit margin	3.69%	26.18%	-46.83%	-25.97%	-39.80%
ROA	92.92%	82.94%	110.85%	170.88%	177.39%
ROE	-125.32%	417.95%	-405.04%	-193.11%	-102.77%
ROI	23.82%	343.41%	-347.40%	441.76%	823.59%

Source: Vodacom financial reports (2017, 2018, 2019, 2020); MTN financial reports (2017, 2018, 2019, 2020, 2021); Cell C financial reports (2018, 2020d, 2021)

The decision to perform a five-year financial analysis as part of the quantitative analysis was to ensure that the data was still available and had not yet been archived. The five-year trend revealed that Vodacom's financial growth had gone from strength to strength, year on year, as it had never reported any net loss, while MTN and Cell C had. MTN reported a net loss of R3 103 million during the 2016 financial year after the \$5.2 billion Nigerian fine that had been imposed by the Nigerian Communications Commission (NCC) in 2015 for failing to disconnect 5.2 million unregistered subscribers in a timely manner; subsequently, MTN agreed to a settlement amount of R3.8 billion, resulting in a -2.10% net loss margin and -8.89% ROI in 2016 (MTN, 2017; Fitch Solutions, 2019). Even though MTN reported a -2.10% net loss margin and -8.89% ROI in 2016, their financial results showed positive ratios thereafter, leading to financial sustainability. However, this was not the case with Cell C.

In 2016, Cell C demonstrated inefficiencies over equity, as it reported -125.32% ROE. These inefficiencies were over assets, equity, investment, and net profit. The net profit margin measures how much profit the organisation is left with after all operating expenses, interest, and income tax have been subtracted (Gallagher & Andrew, 2007). Cell C reported negative margins in 2018 and 2019, with -46.83% and -25.97% net loss, -405.04% and -193.11% ROE, and -347.40% and -1 441.76% ROI, respectively. The 2020 financial results for Cell C continued to report a negative ROI of -2 823.59% (Cell C, 2021). If ROI measures effectiveness in generating profits with available assets and is the same as ROA, according to Gitman (2006), then these results raise the question of how effective Cell C's management is in generating sustainable profit with its available assets. Therefore, based on these five-year financial analyses, the researcher concluded that Cell C needed to turn things around in order to remain financially sustainable in this complex, highly regulated, and competitive industry. However, it is important to note that both Vodacom and MTN operate internationally, and the data analysed included group figures, while Cell C operates only within South Africa, and even though it does have international roaming agreements with other operators, it does not compete in the international market like its competitors. The root cause of the performance of each mobile operator was explicitly elucidated in Chapters 1 and 3 when exploring the strategy of each mobile operator in the organisational analysis section.

As previously indicated, the telco industry does not follow the usual supply chain processes of many industries, as the industry does not generate revenue through the conventional processes of buying and selling goods; instead, its profitability derives from the penetration of voice, SMS, and data services. The systematic analysis of the selected mobile operators revealed various revenue streams reported in their financial statements, even though voice, SMS, and data services cut across some of these multiple revenue streams. However, from a key performance indication perspective, each revenue stream reported each revenue independently segment. For example, in 2020, Vodacom reported a 6.7% year-on-year total service revenue growth, even though there was a 7.5% decline in mobile customer revenue. However, there was significant growth in the Enterprise Business Unit (EBU), which was driven by fixed-line, hosting, IoT, cloud, and security offerings. Subsequently, roaming revenues

increased by 75.3%, fixed-line revenue increased by 8.5%, and IoT revenue increased by 38.5% (Vodacom, 2020). In 2020, MTN reported a 1.6% increase in service revenue, with 7.0% from digital services, 15.3% generated from data revenue, and 3.0% from fintech revenue (MTN, 2020). To conclude the quantitative analysis and the deep dive into the capital market structure in which investors are interested when assessing the financial sustainability of an organisation, Vodacom reported R39.3 billion in cash generated from operations and paid interest of R4.7 billion to debt funders (Vodacom, 2020), while MTN reported R58.5 billion in cash generated from operations and paid interest of R12.3 billion to debt funders (MTN, 2020).

#### **5.4 The proposed framework and financial sustainability model**

The final research objective was to propose a framework for the financial sustainability of South African mobile operators. Based on the findings, the researcher included both qualitative and quantitative variables to develop a sound, meaningful framework and model to measure financial sustainability.

The proposed model to measure the financial sustainability of the South African telco industry, which can be seen in Figure 5.5, considers both internal and external factors. The internal factors consider key financial variables, namely, EBITDA, net profit, ROI, ROA, and ROE, while the external factors that are considered are the critical theories that were used to develop the theoretical framework for the current study. Based on the research findings, stakeholder management can be benchmarked through successful collaboration with government as a key stakeholder, other mobile operators, and banks to drive fintech services in the market in order to transform the traditional telco industry for future strategic positioning. Benchmarking impression management will require corporate governance to evaluate the commitment of the organisation to ESG matters. Furthermore, customer feedback measured through net promoter scores (NPSs) must be taken into consideration as one of the key performance indicators for impression management. Additionally, regulatory fines need to be considered. Lastly, knowledge management can be benchmarked through the acquisition of adequate talent and relevant skills and competencies that will allow mobile operators to exploit market opportunities to build individual and organisational capacity for the future.

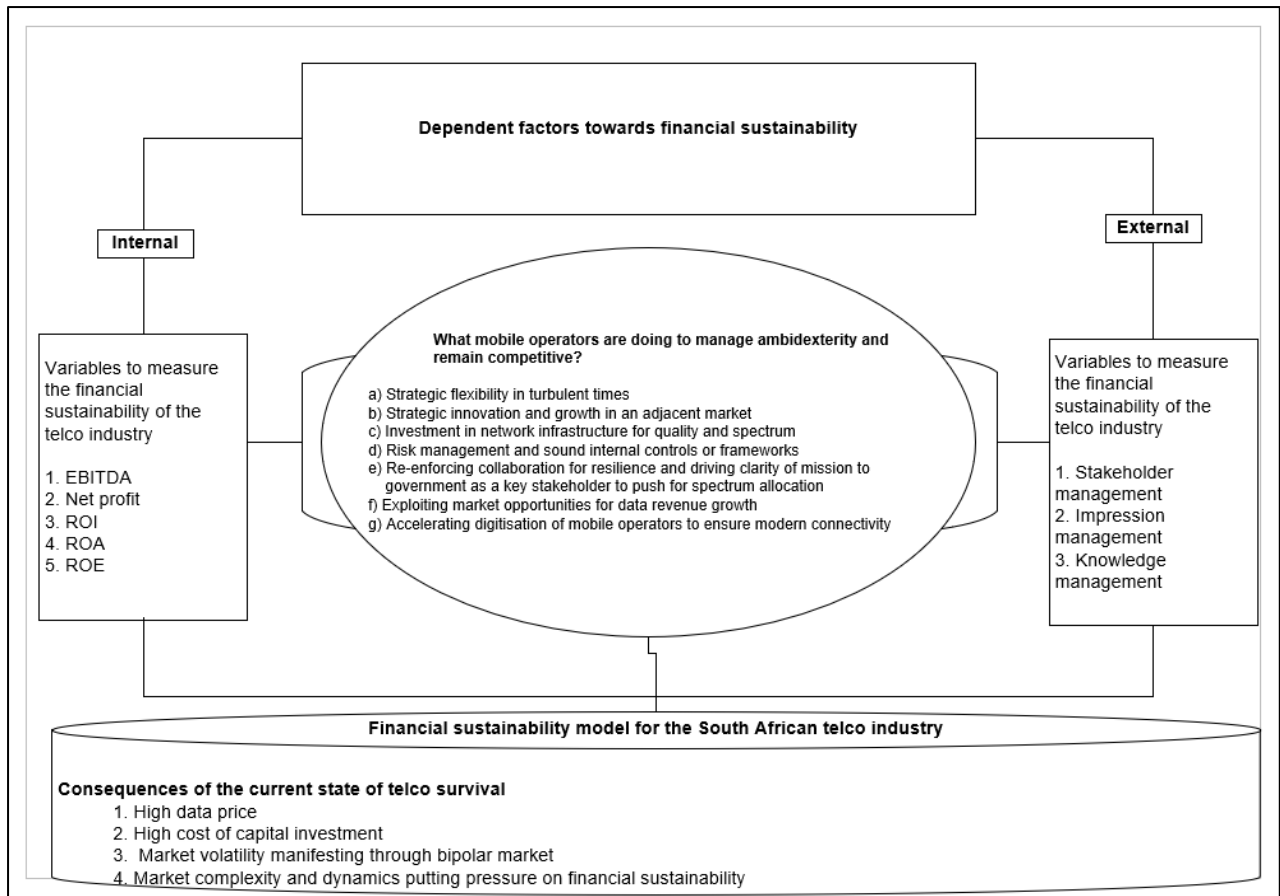


Figure 5.5 A financial sustainability model to measure the South African telco industry

Source: Own compilation

The consequences of the current state of telco survival are a manifestation of how mobile operators are dealing with the difficulties of spectrum scarcity, as the industry is very expensive. Therefore, continuous engagement with the government to release spectrum is required, as well as collaboration with other mobile operators for network infrastructure sharing and roaming agreements in order to reduce capex network investment, as a capital-intensive approach is not sustainable, especially for small mobile operators. Lastly, market complexity and dynamics put pressure on the financial sustainability of mobile operators, with market volatility manifesting through a bipolar market. Subsequently, these drive both capital investment and data costs up. Therefore, to successfully measure the financial sustainability of an organisation, not only financial variables, but also both internal and external factors must be considered, where financial variables must include both income statement and balance sheet items.

## 5.5 Chapter conclusion

Both the quantitative and qualitative findings reported on the dominance and challenges that directly or indirectly influenced the financial sustainability of mobile operators in the South African telco industry. The common category cutting across multiple themes was the issue around spectrum. However, there were also some impressive responses regarding the key challenges that had an impact on the South African telco industry, namely, connectivity, economy, and talent acquisition. While the COVID-19 pandemic had both social and macroeconomic effects, the pandemic accelerated the digitisation of mobile operators, increased data revenue, created avenues for exploiting market opportunities for data revenue growth, changed operating strategy, and injected a sense of urgency. Lastly, the quantitative results in this chapter raised a question around the financial sustainability of Cell C, as the organisation had been making a loss for three consecutive years.



## **CHAPTER 6: RESEARCH CONTRIBUTION, RESEARCH RECOMMENDATIONS, AND RESEARCH CONCLUSION**

### **6.1 Introduction**

Even though there were limitations during data collection, through triangulation and multiple-case analysis, the research objectives have been met, and the research questions have been answered accordingly. In conclusion, Chapter 5 interprets the research findings and research objectives; thereafter, the research contribution and recommendations that can be applied by the South African telco industry to ensure financial sustainability, improve internal control efficiencies, and mitigate risk exposures are highlighted in the following sections of this chapter.

### **6.2 Discussion of key findings**

It is important to note that six out of the nine participants believed that the South African telco industry was sustainable, while the three who believed that the industry was not sustainable were from the smaller operators. Digitisation improves innovation, efficiencies, and profitability in both the public and private sectors, and there is a connection between digitalisation and financial sustainability (Gurbanov, Yagublu, Akbarli, & Niftiyev, 2022). In the public sector, digitisation improves cost-saving strategies and increases customer experience satisfaction by 40% (Bason, 2010). All nine participants agreed that the future fit for the telco industry demanded digitisation and flexibility and that, as the technology evolved, it ensured financial sustainability. The network optimisation aspect highlighted by participants can only be achieved by addressing the problem statement of this research, which is to get and standardise a single product or service across all South African mobile operators with a unified marketing strategy that allows them to share revenue proportionally or to have a single infrastructure owned by all South African mobile operators.

Market and competitive advantages are completely different from those in 2020, and some of the telco competitive advantages in 1994 are now competitive challenges. The study intensively investigated the financial sustainability of the South African telco industry in the contemporary business environment, subsequently developing a model

to measure the financial sustainability of the South African telco industry. The enablers investigated contribute both positively and negatively to the financial sustainability of the industry, and the participants had various views on the South African industry landscape. All participants agreed that the big mobile operators would continue to dominate the industry, as they were well structured and had sufficient resources to stay in the market. Of the nine participants, seven viewed Telkom as a major threat, two viewed MTN as a major threat, and another four saw Vodacom as a major threat, while, interestingly, one participant viewed all mobile operators as both a threat and an opportunity. Participants 1, 2, and 7 noted the dominance of Telkom over Vodacom and MTN.

It is understandable for MTN to have strong financial results, as it operates on both the African continent and in the Middle East, while Vodacom is not a Middle East market player. Even though Cell C is one of the top three mobile operators in South Africa, its financial status has not yet reached a stage of maturity, as its EBITDA is well below R10 billion; it reported R3 106 million EBITDA with a margin of 21% in 2016, R7 793 million with a 50% EBITDA margin in 2017, R2 897 million with an 18% EBITDA margin in 2018, R2 467 million with a 16% EBITDA margin in 2019, and R2 860 million with a 21% EBITDA margin in 2020. Therefore, the EBITDA analysis clearly indicates that both Vodacom and MTN are financially sustainable, while further analysis and monitoring are required for Cell C, as it reported an R8.03 billion net loss after tax in 2019 and a R380 million net loss after tax, excluding a R5.1 billion impairment amount. According to Cell C (2021), the impairment that led to a R5.5 billion net loss was for a network transition that would be completed in 2023 as part of the optimisation of leases and recapitalisation; however, going forward, this should not be such a large amount, as it carried the cost in 2020.

To measure the profitability of Vodacom, MTN, and Cell C in relation to the equity, investment and efficiency over assets, net income, and net profit, the net profit margin, ROA, ROE, and ROI were analysed to determine the financial sustainability of each mobile operator. Gitman (2006: 65) defines ROI as a 'measure of management's effectiveness in generating profits with its available assets', which is the same as ROA. Also, the EBITDA, net profit margin, ROA, ROE, and ROI ratios are the fundamental financial evaluators that investors use to make decisions (Marx, 2010). Drury (2008)

suggests that ROI is an investment appraisal technique that is similar to the calculation of the accounting rate of return, as it measures the average annual profit against the average investment cost. Net profit margin measures the percentage of profit after all costs and expenses have been deducted, including interest, tax, and dividends, while ROA measures 'the return earned on the common stockholders' investment in the firm' (Gitman, 2006: 69). The greater the ROA, the greater the indication of business success in creating profit as well as being a quantitative measure of how well assets are managed to make a profit on each asset that has been invested in by an organisation (Sihombing & Hutagalung, 2020).

### 6.2.1 Research questions

As previously indicated in section 1.6, the research questions seek to understand and explore the research problem, while the research problem drives the formulation of the research questions that must be answered by the investigative study (Mouton, 2017). In section 1.6, the research questions were introduced, and it is highlighted that in order to investigate these research questions, the study applied mixed methods and triangulated multiple data sources. This section aligns the key research findings with the research questions to confirm that all research questions have been answered and to indicate how they have been answered.

#### 6.2.1.1 Primary question

The primary research question asked in this study was the following: what are the determinants for the financial sustainability of the South African telco industry?

This study found that, for the South African telco industry to be financially sustainable, there had to be a clarity of mission to the government as a key stakeholder, that mobile operators had to manage strategic flexibility in turbulent times, and that there had to be strategic innovation and growth in an adjacent market. Furthermore, mobile operators had to invest in network infrastructure for quality and spectrum while managing ambidexterity and dealing with various risks such as bypass. All of these themes and aspects directly affected organisational efficiencies and financial performance, leading to financial sustainability. Filho (2015) and Ben-Eli (2018) define financial sustainability as continuous economic improvement without jeopardising

future resources or causing liabilities to arise while continuously in the process of meeting current needs. Since 2018, the financial performance of Cell C has been contrary to the financial sustainability definitions provided by these scholars, as the company reported an R656 million net loss after tax in 2018 and an R8.03 billion net loss after tax in 2019 (BusinessTech, 2020; Cell C, 2021). To address sustainability, financial and non-financial risks, and the maximisation of economic, environmental, and social performance, stakeholders must adopt and enforce a good corporate governance model through the implementation of sustainable risk management and sustainable business practices (Aziz *et al.*, 2015). One of the root causes of the bankruptcy and collapse of an organisation emanates from poor internal controls, inadequate risk management, and incompetent leadership that neglects good corporate governance structures, with no financial sustainability improvement plans (Adeyemi, 2019). Risk governance is a critical aspect of financial sustainability, as it forms part of risk management and is one of the financial sustainability measurement pillars (Gleißner *et al.*, 2022).

Scholars such as Chen *et al.* (2021) and Gleißner *et al.* (2022) evaluate and measure financial sustainability through capital structure, market returns, and risk management. This study defined a model to measure financial sustainability for the South African telco industry by integrating EBITDA, net profit margin, ROA, ROE, and ROI as key financial indicators that provide a comprehensive and accurate financial sustainability view. The researcher concluded that corporate governance and risk management were paramount for financial sustainability and that the three integrated theories of knowledge management (KM), impression management (IM), and stakeholder theory (ST) supported the designed model indicators and provided a comprehensive organisational financial sustainability view. Therefore, this research question has been comprehensively answered by the research literature and both primary and secondary data analysis.

#### 6.2.1.2 Secondary questions

1. According to the executives from the mobile operators, what is the impact of the competitive environment on the financial sustainability of the South African telco industry?

All nine executives who participated in this study emphasised the following key themes that drove the impact of the competitive environment on the financial sustainability of the South African telco industry:

- i. Market complexity and dynamics putting pressure on financial sustainability.
- ii. Re-enforcing collaboration for resilience.
- iii. Pressure of building individual and organisational capacity for the future.
- iv. Dealing with the difficulties of spectrum scarcity and its consequences.

It is important to note that the smaller operators are not financially sustainable. In addition, all nine participants also agreed that, for mobile operators to be financially sustainable, capital availability was required, as the industry was expensive. Furthermore, all nine participants indicated that the industry demanded specific qualifications and that employees needed to upskill themselves to remain relevant for future fit; also, industry adjacency was digital. The research findings show that this research question has been answered.

2. What is the influence of South African regulation on the financial performance of mobile operators?

This study found that, in South Africa, government monopoly and political interference in the telco industry influenced strategic alliances and the cost leadership of mobile operators. As indicated in section 1.2.2.1, even though Telkom enjoyed a monopoly in South Africa during the apartheid regime, the transformation and evolution of the South African telco industry are evidence of the freedom of communication access promised by the African National Congress (ANC) government during the dawn of democracy in 1994. Before the ANC government, telco policy favoured a monopolistic telco environment, resulting in immense communities being deprived of communication access, which is one of the basic rights for all South Africans, and hindering economic growth (Ali, 2010). The telco industry has evolved and moved away from a monopoly, as the market is now open to all mobile operators and is competitive enough for South African mobile operators to trade internationally and compete against international companies such as Orange, Orascom, and Globacom (Faccio & Zingales, 2017; Magliozzi, 2017). Government's conflicts of interest, poor policy, and dual jurisdictional structure (with the Ministry of Communications and

Digital Technologies and statutory regulator ICASA) have meant that authority has been limited and ineffective, sometimes as a result of monopolistic behaviour, leading to barriers to the financial sustainability of South African mobile operators (Horwitz & Currie, 2007). However, from a financial sustainability perspective, government monopoly, economic lobbying, market competition, and politics affect telco competition rules and prices set by mobile operators (Faccio & Zingales, 2017). The cost of connectivity is extremely high due to the scarcity of spectrum, as the government regulates telco competition laws and owns the spectrum (Robb & Paelo, 2020).

As previously indicated in section 3.5.1, in South Africa over the past 20 years, ICASA has been hampered by political imperatives, which is evident in the ineffectiveness of issuing spectrum to mobile operators (Howell & Potgieter, 2022). The effectiveness of regulations is critical in achieving the liberalisation and efficient allocation of spectrum and resources in the market, where healthy competition drives affordable network connectivity (Gillwald, 2005). Eight participants were concerned about spectrum being poorly allocated, leading to risks to both customers and industry, as network maintenance was very costly. Six participants agreed that the spectrum regulation strategy of governments was not structured and that it was worse in developing countries. Governments are eager to collect levies and licence fees to increase revenue collection by auctioning off the right to use the spectrum, making the telco industry a very complex industry and a highly regulated one across the globe (Faccio & Zingales, 2017). The research findings show that this research question has been answered and that more improvement is required from the government in issuing spectrum, as the absence of spectrum allocation directly affects the financial sustainability of the industry.

3. How have mobile operators in South Africa responded to the COVID-19 pandemic, and what was the impact on the telco industry?

Many organisations were negatively affected by the 2008 global financial crisis, and in the UK, listed companies responded by deferring their dividend payout for 2013 to be paid in 2017 after exhibiting more stability during the second five-year period (Kilincarslan, 2021). Laing, Haw, and Ali (2021) argue that the dividends policy is not

just about managing cash flow, but that the management must also ensure the financial sustainability of the organisation, market performance, and market value. Ryu (2019) highlights that, in Korea, the 2008 global financial crisis provided an opportunity to explain the relationship between corporate social responsibility and firm value, as the crisis had a significant, positive effect on corporate social responsibility activities. Therefore, the 2020 global pandemic not only affected the bottom line of organisations, but also increased corporate social responsibility activities across the globe. To understand how mobile operators responded to this global pandemic, Table 6.1 shows other initiatives taken and the excellent work done by the top three South African mobile operators in the fight against the COVID-19 pandemic in South Africa.

Since both Vodacom and MTN are international companies, there are many other initiatives undertaken on the African continent and in the Middle East that are not listed in Table 6.1. The table is a consolidation of such activities aimed at highlighting the impact of the COVID-19 pandemic on the telco industry and the significant role these mobile operators play in the South African market. Therefore, the contribution and response of Vodacom and MTN to COVID-19 are not limited to the initiatives listed in the table. Additionally, the availability of data also played a critical role in consolidating this list.

Table 6.1 The response of the top three South African mobile operators to the COVID-19 pandemic

No.	Vodacom	MTN	Cell C
1.	To promote blended learning for universities, Vodacom discounted 30 GB data packages, and the data costs were absorbed by the universities (Vodacom, 2020).	In April, the MTN Group announced a R250 million relief package where over R150 million was reported to be invested in the Y'ello Hope Package for customers (MTN, 2020).	In April, Cell C donated 500 handsets to fieldworkers who were involved in the deep cleaning campaign at Polokwane Hospital, where each handset contained free services that were all valid for 30 days, namely, 2 GB of data, 900 Cell C minutes, and 45 minutes on other networks (Cell C, 2020b).
2.	Zero-rated data was offered to all public higher education institutions and public high schools (Vodacom, 2020).	A USSD line was zero-rated for reporting infections and for other critical information (MTN, 2020). Furthermore, there were two zero-rated Ayoba COVID-19 channels that were sharing updated news and information (MTN, 2020).	A number of health, education, and government websites were zero-rated (Cell C, 2020a).



3.	Free access was provided to government and other educational resources recommended by national educational authorities and academic institutions (Vodacom, 2020).	Increased the number of key zero-rating educational sites such as universities (MTN, 2020).	In March, Cell C donated hand sanitiser, soap, gloves, and face masks and supplied 250 000 units a week on a first-come-first-served basis while stocks lasted (Cell C, 2020a).
4.	Vodacom partnered with the government to use big data capabilities and geodata tracking to assist the government in improving insights into population movement while respecting individual privacy (Vodacom, 2020).	To help people not transact in physical cash, MTN reduced the transactions fees on a number of Mobile Money services and allowed free peer-to-peer cash payments under R200, effective 24 March 2020 (MTN, 2020).	Cell C donated to Ratang Bana, a children's home and community centre in Phuthaditshaba, Alexandra, and Life4U Foundation, an organisation that feeds, clothes, and provides free counselling to people in Tembisa and surrounding areas (Cell C, 2020a).
5.	Vodacom provided 20 000 devices to the Ministry of Health for the fieldworkers involved in testing and related data collection (Vodacom, 2020).	Approximately 46 000 people were given access to vital food and water during these trying times through the donation of food packs and the provision of water points (MTN, 2020).	

6.	To promote online COVID-19 screenings in South Africa, Vodacom partnered with medical aid provider Discovery Health to offer easy access to dedicated South Africans (Vodacom, 2020).	MTN invested R70 million in ensuring that communities were supported and backed the provision of 130 500 items of personal protective equipment (PPE) and 10 000 virus testing kits (MTN, 2020).	
7.	Vodacom partnered with Ministries of Health to continuously send awareness messages to its customers and, in March, funded more than 104 small- and medium-sized enterprises (SMEs) through VodaLend (Vodacom, 2020).	To support the unemployed, small and large businesses, and the procurement of essential goods such as food and medicine, which have a positive effect on the economic upliftment of societies, the MTN Group contributed R42 million in a number of markets for government relief funds (MTN, 2020).	

Source: Cell C (2020a); Cell C (2020b); MTN (2020); Vodacom (2020)

The research findings identified the following themes on the impact of the COVID-19 pandemic and how mobile operators in South Africa responded to the pandemic:

- i. Accelerated digitisation of mobile operators.
- ii. Increased data revenue.
- iii. Exploiting market opportunities for data revenue growth.
- iv. Change in operating strategy.
- v. Injecting a sense of urgency.

The pandemic presented great opportunities and placed the industry in an aspect where its services were in demand as an essential service, as it provided services to multiple industries such as banks and the health sector. Seven participants noted that many employees contracted COVID-19 and experienced cases of death in their organisations, that shops were closed, and that people were allowed to work from home to ensure that employees were protected. Eight participants asserted that COVID-19 provided a new demand for enterprise services such as fibre to the home. Therefore, from a financial sustainability perspective, the impact of COVID-19 on the telco industry was positive, and there were many social initiatives in which mobile operators were involved. The research findings show that this research question has been vigorously answered.

#### 4. What appropriate frameworks are used to measure the financial sustainability of South African mobile operators?

This research question has been answered, in that the study found that, currently, there was no standardised model, methodology, or framework for measuring financial sustainability in both the South African and international telco industry. The study defined a model to measure financial sustainability for the South African telco industry by integrating EBITDA, net profit margin, ROA, ROE, and ROI as key financial indicators that provide a comprehensive and accurate view of financial sustainability. The proposed financial sustainability model can provide in-depth financial sustainability insights into other industries, locally and abroad, and support businesses with empirical evidence for sound decision-making, proactive and collaborative stakeholder management, and good corporate governance. Furthermore, the proposed model presented in Figure 5.5 and 6.1 is better than the financial

sustainability measurement suggested by Navarro-Galera *et al.* (2016) because the model in the current study incorporates financial indicators that are in both the income statement and the balance sheet, which are the overall financial statements of the organisation. Navarro-Galera *et al.* (2016), however, only measure financial sustainability through income statement items.

## 6.2.2 Research objectives

As indicated in section 1.5, the term ‘research objective’ refers to the end goals that a researcher is required to have reached before the conclusion of the thesis (Neuman, 2006; Levitt *et al.*, 2018). The research objectives of the study were categorised into two sets of objectives, namely, the main or primary objective and the secondary objectives. In section 1.5, the research objectives were introduced, and this section presents the key findings to evaluate how the research objectives have been achieved.

### 6.2.2.1 Primary objective

The primary objective was to analyse the financial sustainability of the South African mobile telco industry using Vodacom, MTN, and Cell C as the market dominators.

Both qualitative and quantitative results were presented in Chapter 5. Of the participants, 78% highlighted that a low-cost strategy was not sustainable in the telco industry because it was an expensive industry and required substantial investment in network infrastructure for quality and spectrum if mobile operators were to be financially sustainable. Furthermore, in section 3.2, an organisational analysis was presented, noting key strategic pillars and the enablement of each segment, highlighting the uniqueness of each of the top three mobile operators. The researcher believes that this research objective has been achieved.

### 6.2.2.2 Secondary objectives

1. To evaluate the impact of the competitive environment on the financial sustainability of the South African telco industry according to the executives from the mobile operators.

This study found that the telco industry was linked to economic development, and eight participants asserted this view. Re-enforcing collaboration for resilience and managing

the pressure of building individual and organisational capacity for the future are critical for the future financial sustainability of the telco industry. Furthermore, Chapter 3 extensively explored the impact of the competitive environment on the financial sustainability of the South African telco industry by applying the RBV of the companies studied. In addition, Chapter 3 extensively evaluated the factors affecting sustained competitive advantage by exploring firm agility, alertness, accessibility, decisiveness, swiftness and flexibility, new product development, innovation, and technology distribution. Subsequently, this research objective has been achieved.

2. To investigate the influence of regulation on the financial performance of mobile operators.

This study found that, apart from the current economic challenges such as high inflation and the unemployment rate experienced across the globe due to the COVID-19 pandemic, the telco industry was also experiencing significant macroeconomic challenges. According to Osborne and Rubinstein (2020), the model of microeconomic theory includes an economic agent, the consumer, the producer, monopoly, choice, and decision-making under uncertainty. Economics helps consumers to make decisions, while the labour theory of value and supply and demand synthesis determine the price (Nicholson & Snyder, 2019). Therefore, the macroeconomic factors affect how consumers spend money on telco services. Government decisions and regulations in both the local and the international telco markets significantly influence the performance of mobile operators by contributing to the macroeconomic challenges that the industry is experiencing (Fitch Solutions, 2019). For example, as mentioned before, the government's conflicts of interest, poor policy, and dual jurisdictional structure (with the Ministry of Communications and Digital Technologies and statutory regulator ICASA) have meant that authority has been limited and ineffective, sometimes as a result of monopolistic behaviour (Horwitz & Currie, 2007). Furthermore, South African mobile operators could not efficiently implement the defence strategy required by ICASA, which was that each mobile operator had to report any new produce or price changes within 14 days before going to market. However, the 14-day price administration requirement was dropped to one day during the COVID-19 pandemic (ICASA, 2022). ICASA regulates price changes and administration in order to protect customers while providing competition oversight to the South African telco market (Faku, 2019; McLeod, 2020). ICASA is one of the South

African telco suppliers on whom mobile operators depend to release spectrum, and unfortunately, they cannot substitute or switch regulators or competition authorities, as they form part of the legislation of the country. One of the fundamental and key elements of good corporate citizenship is that mobile operators must adhere to all the laws of the country where they operate and comply with all industry-related legislation (Crilly & Sloan, 2012; Adejuwon, 2013). Therefore, supplier power is high. Thus, this research objective has been achieved.

3. To understand how mobile operators in South Africa responded to the COVID-19 pandemic and explore the impact on the telco industry according to the investigated mobile operators.

This study found that, with COVID-19 restrictions in place, only the telco industry made the working-from-home model a success through providing network connectivity. All nine participants confirmed that the COVID-19 pandemic accelerated digital and data services in the telco industry and strengthened staff retention policies due to the flexibility of working from home. Furthermore, all participants confirmed that the impact of COVID-19 on the telco industry was positive, as it increased data revenue due to customers using more Internet data to communicate during lockdown restrictions. Lastly, three participants expressed their gratitude to some of the arms of government for providing support and issuing temporary spectrum to deal with COVID-19 restrictions. Therefore, this research objective has been achieved.

4. To propose a framework for the financial sustainability of South African mobile operators.

The proposed model in Figure 6.1 is an expansion of the proposed theoretical framework presented in Figure 2.3 and that of the South African telco industry financial sustainability measurements presented in Figure 2.4, as financial ratios alone cannot provide a comprehensive enough view of financial sustainability, since the performance of the industry depends on multifaceted dimensions and is influenced by multiple factors.

Thus, this research objective has been achieved.

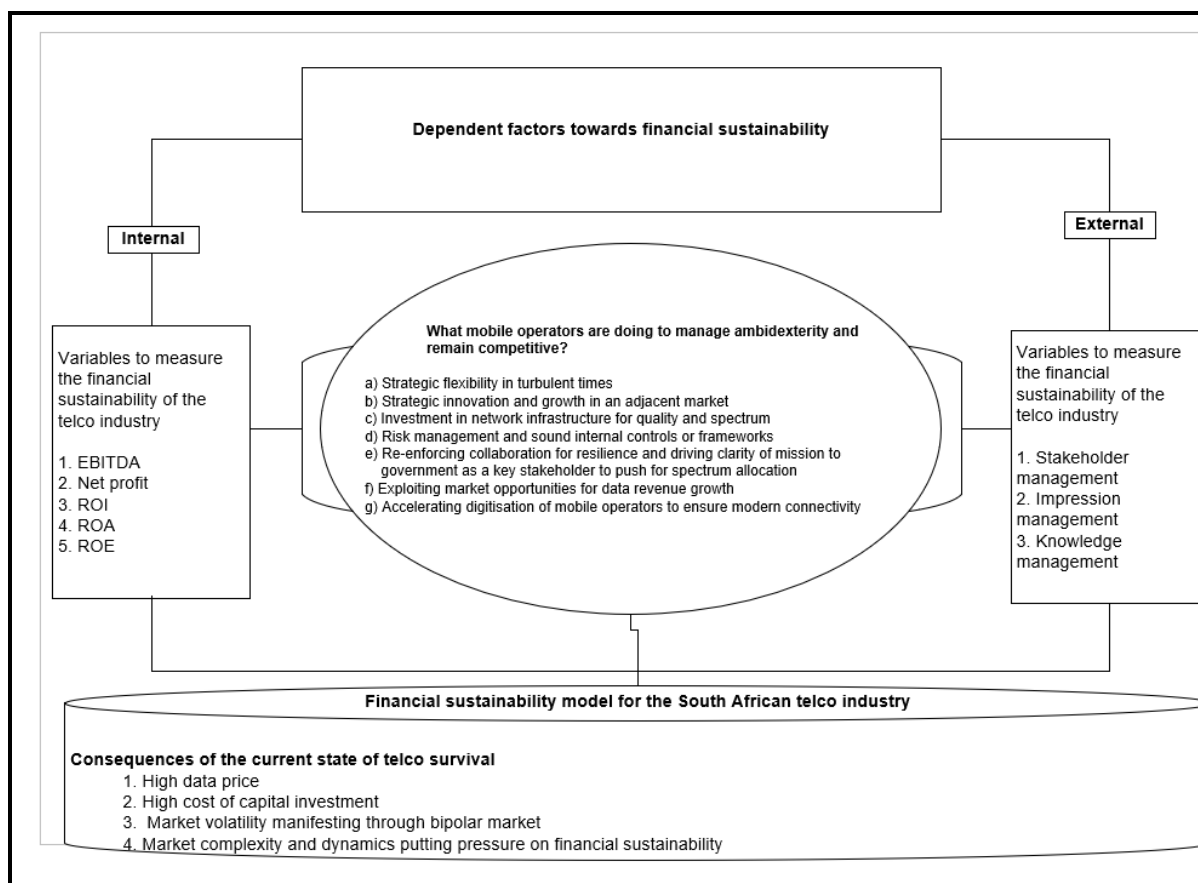


Figure 6.1 A financial sustainability model for the South African telco industry  
Source: Own compilation

### 6.3 Research recommendations

The research recommendations are divided into three categories, namely, (1) recommendations for future research, (2) recommendations for the telco industry, and (3) recommendations for policymakers.

#### 6.3.1 Recommendations for the telco industry

The literature suggests that, for all mobile operators to remain financially sustainable, they must drive cost-efficiencies and diversify their product portfolios. Furthermore, they should capitalise on the available opportunities presented in the SWOT analysis and SWOT matrix presented in sections 3.2.1 and 3.2.2 and on their strengths to increase profitability. Eight out of the nine participants stated the need for the diversification of traditional telco services to be more digital and invest in financial

services. Based on the industry analysis conducted in this study, the researcher highly recommends that mobile operators diversify their strategy and do not apply a low-cost strategy because the industry is highly dynamic. To create competitive advantage, South African mobile operators must adopt both the stakeholder theory and the shared value theory, as they promote transparency and responsibly share information with all stakeholders (Alsayegh *et al.*, 2020).

The problem statement is clear that, due to the complexity of the telco industry in South Africa, there is no single product, service, or infrastructure that is standardised across all South African mobile operators with a unified marketing strategy that allows them to share revenue proportionally. Additionally, 89% of the participants suggested network optimisation as a key financial sustainability strategy for the South African telco industry, as this would allow mobile operators to share services, products, and infrastructure, since it was currently very costly to run their businesses. Investment in the network is crucial in the telco industry in order to close the digital divide, foster the digital economy, and infuse performance (Jung, 2020). The network optimisation aspect highlighted by the participants can only be achieved by addressing the problem statement of this research, which is to get, implement, and standardise a single product, service, or infrastructure service across all South African mobile operators with a unified marketing strategy that allows them to share revenue proportionally.

Lastly, it is important to highlight that all nine participants agreed with the research problem and highlighted that the root cause of this problem emanated from South African competition laws. In addition, the participants suggested that, for the telco industry to be financially sustainable, there had to be infrastructure or spectrum sharing, whether it be in the form of lease agreements or rentals, because the cost of running a business in the telco industry was very high, and smaller operators were at a high risk of not being financially sustainable.

### 6.3.2 Recommendations for policymakers

Since environmental, social, and governance (ESG) factors, corporate social responsibility (CSR), and economic, governance, social, ethical, and environmental (EGSEE) sustainable development initiatives form part of the 17 Sustainable



Development Goals (SDGs) that need to be achieved by 2030 (United Nations, 2015), the study recommends that the South African government should set performance targets for all businesses and monitor their performance to ensure that the sustainable development of the country is progressing positively and that those businesses that are not participating must be held accountable. As part of corporate governance and ESG, South African mobile operators must implement strong environmental policies, publish them so that they are accessible to all stakeholders, and, as part of stakeholder engagement, allow public review similar to government policies where public opinion is sought before the implementation of policy.

### 6.3.3 Recommendations for future research

As indicated in Chapters 2 and 3, there is no model using the selected financial variables (EBITDA, net profit margin, ROA, ROE, and ROI) while integrating the proposed theoretical framework to measure the financial sustainability of the telco industry. Therefore, the following future research studies are highly recommended:

1. To further explore the integration of these three theories, namely, impression management theory, knowledge management, and stakeholder theory, and test how they support the financial sustainability of other industries apart from the telco industry.
2. To further test the defined financial indicators, namely, EBITDA, net profit margin, ROA, ROE, and ROI, to see whether they provide a comprehensive and accurate financial sustainability view in the telco industry outside South Africa.
3. To define a mixed financial sustainability model that integrates financial indicators along with corporate governance and risk management strategies.
4. To explore the impact of a single and standardised telco product or service where mobile operators share profit proportionally within the competition laws of the country and share infrastructure for the sustainability of the industry.
5. To explore the proposed financial sustainability model in other industries, both in South Africa and abroad, because financial sustainability is an important concept not only for business, but also for all stakeholders such as employees, shareholders, investors, suppliers, customers, and government.

6. To explore the impact of load-shedding on the financial sustainability of the South African telco industry while evaluating network maintenance costs, call degradation, and the impact on customer experience.
7. To explore the impact of government regulations on the financial sustainability of the telco industry while considering customer behaviour that is driven by price sensitivity.
8. To explore the financial sustainability of South African MVNOs while understanding macroeconomic and financial risk exposure.
9. To investigate the role that higher education institutions can play to ensure relevant, suitable, and competent graduates to expand the existing telco skill set.

#### **6.4 Research contribution**

This study makes a significant scholarly contribution, policy and governance contribution, methodological contribution, practical contribution, and theoretical contribution to the existing body of knowledge.

##### **6.4.1 Scholarly contribution**

The competitive analysis of the cases studied contributes to the existing literature by suggesting viable alternatives to Porter's generic strategies that South African mobile operators can adopt in order to remain financially sustainable. The study integrated academic theories with contemporary issues, socio-economic factors, and government decisions that directly influenced the performance and financial sustainability of telco organisations. This was achieved by exploring end-to-end telco strategies and aligning academic theories with the practical experience gained by the researcher over a career of 20 years in the telco industry. The theoretical framework developed in this study integrated impression management theory, knowledge management, and stakeholder theory to define the financial sustainability of the South African telco industry in the contemporary business environment. Currently, various scholars such as Brennan (2011), Rahimli (2012), Spear and Roper (2013), Tseng and Lee (2014), Bouhnik and Giat (2015), Bouhnik and Marcus (2015), Okoye *et al.* (2017), Effiong *et al.* (2019), Nyagadza *et al.* (2019), Srivastava and Kathuria (2020),

Sulimany *et al.* (2021), and Nakash and Bouhnik (2021) have explored these theories independently and not as an integrated framework. In addition, the proposed conceptual framework will add significant value to the body of knowledge, as it is more comprehensive and suitable to assess the financial sustainability of the telco industry than the competitive advantage model developed by Peteraf (1993). The new model integrates knowledge management, impression management, and stakeholder theory, whereas the original Peteraf (1993) model only had four dynamisms, namely, ex-post limits to competition, heterogeneity, ex-ante limits to competition, and imperfect mobility. Even though El Daly (2020) developed a conceptual framework of sustainable competitive advantage where knowledge management and market orientation were added to the original Peteraf (1993) model, both models still did not include impression management and stakeholder theory.

There is a gap in the literature examining the financial sustainability of the South African telco industry with a closer look at knowledge management, impression management, and stakeholder theory in the current business environment. McLaren and Struwig (2019) conducted an empirical study and propose five groups of ratios, namely, financial performance, liquidity, asset management, debt management, and reserves ratios, as a theoretical framework for South African universities. Furthermore, the current research defined South African telco industry financial sustainability measurements by exploring five key financial indicators that were completely different from those that current scholars such as McLaren and Struwig (2019) and Navarro-Galera *et al.* (2016) had explored. The researcher believes that measuring EBITDA, net profit margin, ROA, ROE, and ROI provides a comprehensive and accurate financial sustainability view, as the analysis dives into both the income statement and the balance sheet, unlike the Navarro-Galera *et al.* (2016) study, which only measured financial sustainability through the income statement. It is imperative to analyse both the income statement and the balance sheet because financial sustainability measurement goes beyond capital market returns and risk management (Gleißner *et al.*, 2022).

#### 6.4.2 Contribution to the method of executing the research design of the study

The application of mixed methods brings a practical perspective to triangulated multiple data sources, refreshing the mixed-methods design classifications developed and designed by Greene *et al.* (1989), Morse (1991), Creswell *et al.* (2003), and Creswell *et al.* (2004), making it even more relevant. Subsequently, after performing the above investigation, adopting a mixed methodology, and analysing the triangulated multiple data sources, the study makes a significant contribution to the body of knowledge by integrating academic theories (IM, ST, and KM) with contemporary issues, socio-economic factors, and government decisions that directly influence the performance and financial sustainability of telco organisations. This was achieved by exploring end-to-end telco strategies and aligning academic theories with the practical experience gained by the researcher over a career of 20 years in the telco industry.

#### 6.4.3 Policy and governance contribution

From the social enterprise perspective, the context of financial sustainability can be achieved by integrating the socially disadvantaged and excluded into the workplace (Staicu, 2018). To ensure financial sustainability, most of the social enterprises in Central and Eastern European countries do not depend solely on one source of income, but have a hybrid revenue stream derived from both public and private donors (Staicu, 2018). Therefore, the businesses should diversify their products to remain competitive and financially sustainable.

The findings of this study can be used by various practitioners, researchers, and policymakers to accelerate the 17 Sustainable Development Goals (SDGs) that need to be achieved by 2030, as the research covers environmental, social, and governance (ESG), corporate social responsibility (CSR), and economic, governance, social, ethical, and environmental (EGSEE) sustainable development aspects (United Nations, 2015). Furthermore, human resources practitioners can use the output of this research to identify the skills gap that needs to be closed in order to achieve social sustainability and financial inclusion. Mobile operators and policymakers can use this

study to design new controls to mitigate emerging financial sustainability risks and develop strong policies to ensure sound governance.

#### 6.4.4 Practical contribution

The study defined measures of financial sustainability for the South African telco industry by integrating EBITDA, net profit margin, ROA, ROE, and ROI as key financial indicators to provide a comprehensive and accurate view of financial sustainability in the performance of a business. These financial indicators can provide in-depth financial sustainability insights in other industries in both South Africa and abroad for sound decision-making and to support sound corporate governance. The proposed conceptual framework will add significant value to the telco industry, policymaking, and other industry bodies to better measure financial sustainability; it can also assist other stakeholders who support mobile operators in ensuring that they remain financially sustainable. This research meticulously and comprehensively examined the challenges that network operators faced daily (for example, subscription and SIM box fraud); the output of the research can then be effectively used by network operators for training and for proactively strengthening fraud controls to mitigate revenue leakages. Furthermore, the operators can also use the output of this thesis to improve customer service, as some customers end up changing network operators or porting their numbers from one network operator to another, hoping for a better experience after being victims of either SIM-swap or phishing fraud (Ardé, 2019).

#### 6.5 Limitations of the study

It is important to state the limitations of the study so that readers understand the research findings and can generalise these to other contexts when evaluating the study (Madondo, 2021). Theofanidis and Fountouki (2018) highlight that some researchers do not share the limitations of a study, fearing that their research will not be accepted. However, Madondo (2021) suggests that a researcher should always try to find a possible solution to address the limitations of the study, as some of the limitations may become research gaps. The researcher believes that it is good to open research gaps, as these inspire future research and allow upcoming researchers to

debate, challenge, and expand the researched topic and theories. The limitations of the study are the restrictions that are outside the researcher's control and that sometimes expose pitfalls that could have been handled better (Theofanidis & Fountouki, 2018).

There is limited research that explores full, end-to-end practical telco strategies, as none of the scholars have explored how the telco industry makes its financial decisions. The limitations in the scholarly papers were addressed by consulting some business articles reporting on research by the big five audit firms in order to support the telco view and perspective. The results of this study are limited to the cases or sampled mobile operators, and the research only focused on the South African telco industry. As the study applied triangulation, its results provide valuable, in-depth insight into the explored phenomenon. For quantitative data, the analyses were carried out on data available on the websites of the companies, the JSE, and public journals, while qualitative data required that interviews be conducted with the executive team of each company because of their greater exposure to telco strategic priorities as compared to lower-profile employees. On analysing the quantitative data, the researcher discovered that the financial statements of Cell C were not audited and that the organisation was not listed on the JSE, which both Vodacom and MTN are. Securing time slots to interview the executive team participants was a challenge, and the approved interview time was very limited. Effective and proper planning eliminated frustration from both parties; planning engagements between the researcher and gatekeepers took two months before the interviews were conducted in the third month.

Due to executive commitments and emergency board meetings, some interviews had to be postponed several times, and some participants had to withdraw completely. This study limitation was addressed by interviewing more than one candidate from each company, although not more than three candidates from each case studied were included. The aim was to complete 10 semi-structured interviews; this was achieved, even though the interviews were conducted with nine executive team members, with one follow-up interview. However, due to participants' extensive experience, knowledge of the industry, and maturity in strategy, saturation was reached on the sixth interview.

As previously indicated in sections 4.2.3 and 4.13.6 the use of fewer than 10 interviews to complete an academic study is acceptable, as this is in line with the saturation principle and has been done by other scholars such as Castillo *et al.* (2017) and Alotaibi (2019). Morse (1994) recommends at least six participants for phenomenological studies. Lastly, as previously indicated in section 4.12, even though in-depth insights can be gained from 12 interviews, saturation was, however, reached after six interviews (Guest *et al.*, 2006).

## **6.6 Research summary**

This chapter has provided information on the significant contribution of the study to the body of knowledge, as the research sought to evaluate and develop the financial sustainability of the South African telco industry. This study makes a significant scholarly contribution, policy and governance contribution, methodological contribution, practical contribution, and theoretical contribution to the existing body of knowledge. The financial sustainability model that was developed can not only be used by mobile operators, but the model designed can also be used by other businesses in other industries as well, as it comprehensively integrates critical financial indicators. The integration of academic theories and financial ratios is what strengthens the proposed model and makes it unique, as the model triangulates multiple data sources. This chapter has illuminated how the research objectives were met, has answered the research questions, has suggested avenues for future research, and has made other practical recommendations. In conclusion, Table 6.2 provides a summary indicating whether or not the research objectives were met and the research questions answered.

Table 6.2 Checklist of research questions and research objectives against the findings

<b>Primary or secondary</b>	<b>Research objective</b>	<b>Research question</b>	<b>Achieved and/or answered</b>
Primary	The primary objective was to analyse the financial sustainability of the South African mobile telco industry using Vodacom, MTN, and Cell C as the market dominators.	What are the determinants of the financial sustainability of the South African telco industry?	Yes
Secondary	To evaluate the impact of the competitive environment on the financial sustainability of the South African telco industry according to the executives from the mobile operators.	According to the executives from the mobile operators, what is the impact of the competitive environment on the financial sustainability of the South African telco industry?	Yes
Secondary	To investigate the influence of regulation on the financial performance of mobile operators.	What is the influence of South African regulation on the financial performance of mobile operators?	Yes
Secondary	To understand how mobile operators in South Africa responded to the COVID-19 pandemic and explore the impact on the telco industry according to the investigated mobile operators.	How have mobile operators in South Africa responded to the COVID-19 pandemic, and what was the impact on the telco industry?	Yes



Secondary	To propose a framework for the financial sustainability of South African mobile operators investigated.	What appropriate frameworks are used to measure the financial sustainability of South African mobile operators?	Yes
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*Source:* Own compilation

The researcher's philosophical and epistemological assumptions were empirically warranted and proven by the research results revealing the influence of regulation on the financial sustainability of mobile operators through spectrum allocation re-enforcing collaboration for resilience network connectivity. The proposed financial sustainability model unveils what mobile operators are doing to manage ambidexterity and remain competitive. In conclusion, the telco industry is a catalyst committed to bridging the digital divide, significantly transforming communication monopoly, and making network connections accessible to all through open innovation, advanced and modern technologies, 5IR and financial inclusion through FinTech services.

## REFERENCE LIST

- Abbas, J. 2020. Impact of total quality management on corporate green performance through the mediating role of corporate social responsibility. *Journal of Cleaner Production*, 242: 118458.
- Abd-Elrahman, A.E.H. and Ahmed Kamal, J.M. 2022. Relational capital, service quality and organizational performance in the Egyptian telecommunication sector. *International Journal of Emerging Markets*, 17(1): 299-324.
- Abdolshah, M., Moghimi, M., and Khatibi, S.A. 2018. Investigating competitive advantage in banking industry based on Porter's Generic strategies: IRANs newly-established private banks. *International Journal of Applied Management Sciences and Engineering (IJAMSE)*, 5(1): 52-62.
- Abell, D.F. 1980. *Defining the business: The starting point of strategic planning*. Englewood Cliffs, NJ: Prentice-Hall.
- Abraham, A. 2003. Financial sustainability and accountability: A model for nonprofit organisations. *AFAANZ 2003 Conference Proceedings*, 26. Brisbane, Australia: AFAANZ.
- Abu-Saifan, S. 2012. Social entrepreneurship: Definition and boundaries. *Technology Innovation Management Review*, 2(2): 22-27.
- Adair, J.E. 2007. *Decision making and problem solving strategies*. Volume 9. London, UK: Kogan Page Publishers.
- Adejuwon, O.O. 2013. Sources of organisational legitimacy in the Nigerian telecommunications industry. *African Journal of Business and Economic Research*, 8(2-3): 51-83.
- Adelowotan, M. 2021. Towards ensuring the sustainability of South African small and medium enterprises in the fourth industrial revolution era. *Eurasian Journal of Business and Management*, 9(1): 38-46.
- Adeyemi, A. 2019. Balancing the objectives of corporate governance: Social welfare v profitability. *Journal of Law, Policy and Globalization*, 83(83): 31.
- Adi, S., Heripracoyo, S., and Simamora, B.H. 2021. Potential used of social media/mobile phone to support promotion and marketing in the rural tourism destination. *Proceedings of the 11<sup>th</sup> Annual International Conference on Industrial Engineering and Operations Management*, 3370-9. Singapore.

- Adom, D., Hussein, E.K., and Agyem, J.A. 2018. Theoretical and conceptual framework: Mandatory ingredients of a quality research. *International Journal of Scientific Research*, 7(1): 2277-8179.
- Agasisti, T., Egorov, A., and Maximova, M. 2021. Do merger policies increase universities' efficiency? Evidence from a fuzzy regression discontinuity design. *Applied Economics*, 53(2): 185-204.
- Aggarwal, R. 1981. International differences in capital structure norms: An empirical study of large European companies. *Management International Review*, 21(1): 75-88.
- Ahmed, A., Campion, B.B., and Gasparatos, A. 2019. Towards a classification of the drivers of jatropha collapse in Ghana elicited from the perceptions of multiple stakeholders. *Sustainability Science*, 14: 315-339.
- Aizenman, J. and Jinjarak, Y. 2005. The collection efficiency of the value added tax: Theory and international evidence. *UC Santa Cruz Working Paper Series*.
- Akreml, L. 2020. *Unit of analysis*. Sage Research Methods Foundations. London: Sage Publications.
- Albert, D. 2023. Financial sustainability strategies used by small retail business owners. Doctoral thesis. Walden University.
- Alboukaey, N., Joukhadar, A., and Ghneim, N. 2020. Dynamic behavior based churn prediction in mobile telecom. *Expert Systems with Applications*, 162: 113779.
- Albuquerque, R., Koskinen, Y., and Zhang, C. 2019. Corporate social responsibility and firm risk: Theory and empirical evidence. *Management Science*, 65(10): 4451-4469.
- Alexander, L. 2017. *It's time for a new salon business model*. [Online]. Available at: <https://www.salontoday.com/374085/its-time-for-a-new-salon-business-model> [Accessed 24 February 2021].
- Al-Faryan, M.A.S. 2020. Corporate governance in Saudi Arabia: An overview of its evolution and recent trends. *Risk Governance and Control: Financial Markets & Institutions*, 10(1): 23-36.
- Al-Gasawneh, J.A., Anuar, M.M., Dacko-Pikiewicz, Z., and Saputra, J. 2021. The impact of customer relationship management dimensions on service quality. *Polish Journal of Management Studies*, 23(2): 24-41.
- Ali, B.J. and Anwar, G. 2021. Porter's generic competitive strategies and its influence on the competitive advantage. *International Journal of Advanced Engineering, Management and Science*, 7(6): 42-51.

- Ali, F. 2010. The South African telecommunications environment: A brief assessment of regulatory change. *South African Journal for Communication Theory and Research*, 29(1-2): 114-128.
- Almeida, F., Santos, J.D., and Monteiro, J.A. 2020. The challenges and opportunities in the digitalization of companies in a post-COVID-19 World. *IEEE Engineering Management Review*, 48(3): 97-103.
- Almilia, L.S. 2009. Determining factors of internet financial reporting in Indonesia. *Accounting & Taxation*, 1(1): 87-99.
- Alobari, C., Igbara, F. N., Tordee, B., and Domale, E. 2019. Financial performance, corporate governance and microfinance institutions sustainability in Nigeria. *Equatorial Journal of Finance and Management Sciences*, 3(1): 30-43.
- Alotaibi, H.J. 2019. Foresightful strategic planning and organisational flexibility in the Saudi telecommunications sector under turbulent economic conditions. *International Journal of Advanced Research in Management and Social Sciences*, 8(11): 114-134.
- Alsayegh, M.F., Abdul Rahman, R., and Homayoun, S. 2020. Corporate economic, environmental, and social sustainability performance transformation through ESG disclosure. *Sustainability*, 12(9): 3910.
- Alshenqeeti, H. 2014. Interviewing as a data collection method: A critical review. *English Linguistics Research*, 3(1): 39-45.
- Alshurideh, M., Masa'deh, R., and Alkurdi, B. 2012. The effect of customer satisfaction upon customer retention in the Jordanian mobile market: An empirical investigation. *European Journal of Economics, Finance and Administrative Sciences*, 47(12): 69-78.
- Alzoubi, H., Abdo M., Al-Gasaymeh, A., and Alzoubi, A. 2019. An empirical study of e-Service quality and its impact on achieving a value added. *Journal of Business and Retail Management Research (JBRMR)*, 13(4): 138-145.
- Alzoubi, H., Alshurideh, M., Kurdi, B., and Inairat, M.J.U.S.C.M. 2020. Do perceived service value, quality, price fairness and service recovery shape customer satisfaction and delight? A practical study in the service telecommunication context. *Uncertain Supply Chain Management*, 8(3): 579-588.
- Amani, F. and Fadlalla, A. 2015. Predictability of firm financial sustainability using artificial neural networks: The case of Qatar exchange. In: Selvaraj, H., Zydek, D., and Chmaj, G. eds. 2015. *Progress in systems engineering*. Cham: Springer, 245-249.

- Ampomah, Y.K. 2012. Factors affecting customer satisfaction and preference in the telecommunications industry: a case study of mtn Ghana. *Unpublished Master Thesis, Kwame Nkrumah University of Science and Technology, GHANA.*
- Aminpour, P., Gray, S., Richardson, R., Singer, A., Castro-Diaz, L., Schaefer, M., Ramlan, M.A., and Chikowore, N.R. 2019. Perspectives of scholars on the nature of sustainability: A survey study. *The International Journal of Sustainability in Higher Education*, 21(1): 34-53.
- Amouzesh, N., Moeinfar, Z., and Mousavi, Z. 2011. Sustainable growth rate and firm performance: Evidence from Iran Stock Exchange. *International Journal of Business and Social Science*, 2(23): 249-255.
- Anderson, J., Reckhenrich, J., and Kupp, M. 2013. 'Strategy gaga'. *Business Strategy Review*, 24(1): 54-58.
- Ani, W., Mary, I.O., and David, U. 2013. Telecommunication development and regional economic growth: Evidence from ITU ICT development index (IDI) top five countries for African region. *African Journal of Business and Economic Research*, 8(2&3): 85-100.
- Anney, V.N. 2014. Ensuring the quality of the findings of qualitative research: Looking at trustworthiness criteria. *Journal of Emerging Trends in Educational Research and Policy Studies*, 5(2): 272-281.
- Anojan, V. 2014. Tax policy changes, tax revenue and budget deficit: A case in Sri Lanka. *Jaffna University International Research Conference*. 2014. Sri Lanka: Department of Accounting, Faculty of Management Studies and Commerce, University of Jaffna.
- Anojan, V. 2015. Value added tax (VAT), gross domestic product (GDP) and budget deficit (BD): A case study in SRI. *Proceedings of International Conference on Contemporary Management (ICCM)*. 2015. Sri Lanka: Faculty of Management Studies and Commerce, University of Jaffna.
- Ansari, M.S.A. 2021. An innovative approach of integrating service quality, employee loyalty and profitability with service profit chain in telecom service industry: An empirical validation. *Proceedings on Engineering*, 3(1): 1-12.
- Ardé, A. 2019. *Surge in mobile fraud with SIM swap: Increase in crime in almost every category of banking in 2018.* [Online]. Available at: <https://www.pressreader.com/south-africa/sowetan/20190627/281724091089430> [Accessed 20 October 2019].

- Arora, P. and Narula, S. 2018. Linkage between service quality, customer satisfaction and customer loyalty: A literature review. *The IUP Journal of Marketing Management*, 17(4): 30-53.
- Arya, S. and Kumar, P. 2023. Sustainable supply chain agility of e-commerce companies: A study based on the responses from online customers. *NCSDSGE–2023*, 20(29): 252.
- Aschhoff, G. 1982. The banking principles of Hermann Schulze-Delitzsch and Friedrich Wilhelm Raiffeisen. In: Engels, W. and Pohl, H. eds. 1982. *German Yearbook on Business History 1982*, Berlin: Springer, 19-41.
- Aslansefat, K., Nikolaou, P., Walker, M., Akram, M.N., Sorokos, I., Reich, J., Kolios, P., Michael, M.K., Theocharides, T., Ellinas, G., and Schneider, D. 2022. Safedrones: Real-time reliability evaluation of UAVs using executable digital dependable identities. *International Symposium on Model-Based Safety and Assessment*, 252-266. Cham: Springer International Publishing.
- Atsu, F., Adams, S., and Adjei, J. 2021. ICT, energy consumption, financial development, and environmental degradation in South Africa. *Heliyon*, 7(7): 07328.
- Avila-Gutierrez, M.J., Martin-Gomez, A., Aguayo-Gonzalez, F., and Lama-Ruiz, J.R. 2020. Eco-holonic 4.0 circular business model to conceptualize sustainable value chain towards digital transition. *Sustainability*, 12: 1889.
- Aziz, N.A.A., Manab, N.A., and Othman, S.N. 2015. Exploring the perspectives of corporate governance and theories on sustainability risk management (SRM). *Asian Economic and Financial Review*, 5(10): 1148-1158.
- Babbie, E. 2007. *The practice of social research*. 11<sup>th</sup> ed. Belmont: Thomson Wadsworth.
- Babbie, E.R. 2016. *The practice of social research*. 14<sup>th</sup> ed. Belmont: Cengage Learning.
- Baca-Feldman, C.F., Velázquez, E.H., Malvido, M.Á., Hinojosa, D.P., and Ramos, K.V. 2019. 16 weaving technological autonomy in indigenous peoples: Community cellular telephony in Oaxaca, Mexico. *Internet Governance and Regulations in Latin America*, 275.
- Bachmann, R., Ehrlich, G., Fan, Y., and Ruzic, D. 2019. *Firms and collective reputation: A study of the Volkswagen emissions scandal*. Working Paper 26117, National Bureau of Economic Research, Cambridge. [Online]. Available at: <http://www.nber.org/papers/> [Accessed 18 June 2023].

- Badawi, A.B. and De Fontenay, E. 2019. Contractual complexity in debt agreements: The case of EBITDA. *Duke Law School Public Law & Legal Theory Series No. 2019-67*.
- Bai, X., Sheng, S., and Li, J.J. 2016. Contract governance and buyer-supplier conflict: The moderating role of institutions. *Journal of Operations Management*, 41(1): 12-24.
- Bansal, P. and DesJardine, M.R. 2014. Business sustainability: It is about time. *Strategic Organization*, 12: 70-78.
- Barbosa, B., Saura, J.R., and Bennett, D. 2022. How do entrepreneurs perform digital marketing across the customer journey? A review and discussion of the main uses. *The Journal of Technology Transfer*, 1-35.
- Barney, J. 1991. Firm resources and sustained competitive advantage. *Journal of Management*, 17: 99-120.
- Barney, J.B. and Mackey, A. 2018. Monopoly profits, efficiency profits, and teaching strategic management. *Academy of Management Learning & Education*, 17(3), 359-373.
- Bason, C. 2010. Leading Public Sector Innovation: Co-creating for a Better Society. *The Policy Press*, Bristol, UK.
- Bateh, J., Heaton, C., Arbogast, G.W., and Broadbent, A. 2013. Defining sustainability in the business setting. *American Journal of Business Education*, 6(3): 397-400.
- Baxter, J. and Eyles, J. 1997. Evaluating qualitative research in social geography: Establishing 'rigour' in interview analysis. *Transactions of the Institute of British Geographers*, 22(4): 505-525.
- Belcher, B.M., Rasmussen, K.E., Kemshaw, M.R., and Zornes, D.A. 2016. Defining and assessing research quality in a transdisciplinary context. *Research Evaluation*, 25: 1-17.
- Belmiro, D., Bintang, G., and Bakti, S. 2021. The applicability of Porter's generic strategies in e-commerce companies: Study case in Indonesia. *Proceedings of the International Conference on Industrial Engineering and Operations Management*. 2-5 August 2021. Rome, Italy: IEOM Society International.
- Ben-Eli, M.U. 2018. Sustainability: Definition and five core principles, a systems perspective. *Sustainability Science*, 13: 1337-1343.
- Benoot, C., Hannes, K., and Bilsen, J. 2016. The use of purposeful sampling in a qualitative evidence synthesis: A worked example on sexual adjustment to a cancer trajectory. *BMC Medical Research Methodology*, 16: 21.

- Benzaghta, M.A., Elwalda, A., Mousa, M.M., Erkan, I., and Rahman, M. 2021. SWOT analysis applications: An integrative literature review. *Journal of Global Business Insights*, 6(1): 54-72.
- Berg, B.L. 2007. *Qualitative research methods for the social sciences*. London: Pearson.
- Berger, R. 2015. Now I see it, now I don't: Researcher's position and reflexivity in qualitative research. *Qualitative Research*, 15(2): 219-234.
- Beyersdorf, F. 2015. Freedom of communication: Visions and realities of postwar telecommunication orders in the 1940s. *Journal of Policy History*, 27(3): 492-520.
- Bhattarai, D. 2018. Generic strategies and sustainability of financial performance of Nepalese enterprises. *Pravaha*, 24(1): 39-49.
- Bhuiyan, A.B., Kassim, A.A.M., Ali, M.J., Saad, M., and Rus, A.D.M. 2020. Microfinance institution's sustainability and mission drift: An empirical review. *International Journal of Academic Research in Accounting, Finance and Management Sciences*, 10(3): 349-364.
- Bing, Z. and Kun, Y. 2019. Economic contribution of China's copyright industry in 2017. *Publishing Research Quarterly*, 35: 600-628.
- Bird, R.M. and Gendron, P. 2005. VAT revisited. A new look at the value added tax in developing and transitional countries. *USAID Workshop for Practitioner on Tax*, 4.
- Bird, R.M. and Gendron, P. 2006. Is VAT the best way to impose a general consumption tax in developing countries? *Bulletin for International Taxation*, 60(7): 287.
- Birks, L., Guxens, M., Papadopoulou, E., Alexander, J., Ballester, F., Estarlich, M., Gallastegi, M., Ha, M., Haugen, M., Huss, A., Kheifets, L., Lim, H., Olsen, J., Santa-Marina, L., Sudan, M., Vermeulen, R., Vrijkotte, T., Cardis, E., and Vrijheid, M. 2017. Maternal cell phone use during pregnancy and child behavioural problems in five birth cohorts. *National Library of Medicine*, 04: 122-131.
- Bitsch, V. 2005. Qualitative research: A grounded theory example and evaluation criteria. *Journal of Agribusiness*, 23(1): 75-91.
- Blumberg, B., Cooper, D.R., and Schindler, P.S. 2008. *Business research methods*. Berkshire: McGraw-Hill.
- Bond, T. 2003. Validity and assessment: A Rasch measurement perspective. *Metodoliga de las Ciencias del Comportamento*, 5(2): 179-194.



- Bornay-Barrachina, M., López-Cabrales, Á., and Salas-Vallina, A. 2023. Sensing, seizing, and reconfiguring dynamic capabilities in innovative firms: Why does strategic leadership make a difference? *BRQ Business Research Quarterly*, 0(0).
- Bosiu, T., Nhundu, N., Paelo, A., Thosago, M.O., and Vilakazi, T. 2017. Research project on large firms and systems for regular tracking of their strategies and decisions: Top 50 firms on the Johannesburg Stock Exchange (JSE). *Industrial Development Research Programme (IDRP) Working Paper*, 17: 2007.
- Bosomworth, K. 2014. *Using a Triangulated Theoretical Framework and Mixed Methods: Frame, Institutional and Network Analyses*. Sage Research Methods Cases.
- Bosse, D.A., Phillips, R.A., and Harrison, J.S. 2009. Stakeholders, reciprocity, and firm performance. *Strategic Management Journal*, 30(4): 447-456.
- Bouhnik, D. and Giat, Y. 2015. ISO 9001 as a tool for improving knowledge management in business ecosystems. *International Journal of Knowledge-Based Development*, 6(3): 261-272.
- Bouhnik, D. and Marcus, T. 2015. The inter-relationship between knowledge management culture and knowledge management processes in the quest for organizational innovativeness. *International Journal of Innovative Research in Technology & Science*, 3(4): 8-22.
- Bowman, W. 2011. Financial capacity and sustainability of ordinary nonprofits. *Nonprofit management and leadership*, 22(1): 37-51.
- Boyatzis, R.E. 1998. *Transforming qualitative information: Thematic analysis and code development*. Thousand Oaks, CA: Sage.
- Božić, B., Stanić, M.K., and Jurišić, J. 2021. The relationship between corporate social responsibility, corporate reputation, and business performance. *Interdisciplinary Description of Complex Systems*, 19(2): 281-294.
- Braun, V. and Clarke, V. 2006. Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3: 77-101.
- Brederode, W. 2023. *Telecommunications, 30 years of Vodacom*. [Online]. Available at: <https://dailyinvestor.com/telecommunications/13462/30-years-of-vodacom/> [Accessed 13 May 2023].
- Bressanelli, G. Perona, M., and Sacconi, N. 2019. Challenges in supply chain redesign for the circular economy: A literature review and a multiple case study. *International Journal of Production Research*, 57(23): 7395-7422.

- Breuer, A., Janetschek, H., and Malerba, D. 2019. Translating sustainable development goal (SDG) interdependencies into policy advice. *Sustainability*, 11(7): 2092.
- Brewerton, P.M. and Millward, L. 2001. *Organizational research methods: A guide for students and researchers*. London: Sage.
- Bromiley, P. and Rau, D. 2016. Social, behavioral, and cognitive influences on upper echelons during strategy process: A literature review. *Journal of Management*, 42: 174-202.
- Brundtland, G.H. 1987. *Report of the World Commission on Environment and Development: Our common future*. New York: World Commission on Environment and Development.
- Brusset, X. and Teller, C. 2017. Supply chain capabilities, risks, and resilience. *International Journal of Production Economics*, 184: 59-68.
- Bucheli, M. and Salvaj, E. 2014. Adaptation strategies of multinational corporations, state-owned enterprises, and domestic business groups to economic and political transitions: A network analysis of the Chilean telecommunications sector, 1958-2005. *Adaptation Strategies and Networks*, 9(2): 534-576.
- Burget, M., Bardone, E., and Pedaste, M. 2017. Definitions and conceptual dimensions of responsible research and innovation: A literature review. *Science and Engineering Ethics*, 23: 1-19.
- BusinessTech. 2019. *How we got here: The story of Cell C as told by its CEO*. [Online]. Available at: <https://businesstech.co.za/news/mobile/343141/how-we-got-here-the-story-of-cell-c-as-told-by-its-ceo/> [Accessed 24 February 2021].
- BusinessTech. 2020. *MTN is re-opening its network of 410 stores nationwide*. [Online]. Available at: <https://businesstech.co.za/news/mobile/395587/mtn-is-re-opening-its-network-of-410-stores-nationwide/> [Accessed 24 May 2020].
- Callicott J.B. and Mumford K. 1997. Ecological sustainability as a conservation concept. *Conservation Biology*, 11: 32-40.
- Cappelli, P. and Tavis, A. 2016. *The performance management revolution*. [Online]. Available at: <https://hbr.org/2016/10/the-performance-management-revolution> [Accessed 20 September 2020].
- Carpenter, M.A., Geletkanycz, M.A., and Sanders, W.M.G. 2004. Upper echelons research revisited: Antecedents, elements, and consequences of top management team composition. *Journal of Management*, 30: 749-778.

- Carroll, A.B., Adler, N.J., Mintzberg, H., Cooren, F., Suddaby, R., Freeman, R.E., and Laasch, O. 2020. What 'are' responsible management? A conceptual potluck. *The research handbook of responsible management*, 56-71.
- Carson, D., Gilmore, A., Perry, C., and Gronhaug, K. 2001. *Qualitative marketing research*. London: Sage.
- Castillo, C., Fabbri, F., and Saez-Trumper, D. 2017. Current practices of online community managers: A report from six interviews. *Technical Report, Eurecat*.
- Cell C. 2018. Annual results presentation for the year ended 31 December [Online]. Available at: <https://www.cellc.co.za/cellc/investor-relations> [Accessed 25 April 2021].
- Cell C. 2020a. *Cell C aids charities to stem the spread of COVID-19*. [Online]. Available at: <https://www.cellc.co.za/cellc/newsroom-detail/cellc-aids-charities-to-stem-the-spread-of-covid-19> [Accessed 27 December 2020].
- Cell C. 2020b. *Cell C donates phones to deep cleaning COVID-19 campaign fieldworkers in Limpopo*. [Online]. Available at: <https://worldofcellc.co.za/news/cellc-donates-phones-campaign-fieldworkers-limpopo> [Accessed 27 December 2020].
- Cell C. 2020c. *World of Cell C, Sponsorships*. [Online]. Available at: <https://www.cellc.co.za/cellc/sponsorships> [Accessed 21 May 2021].
- Cell C. 2020d. Results Presentation Monday, March 23, 2020 For the year ending 31 December 2019. Cell C's Turnaround Strategy takes shape [Online]. Available at: <https://www.cellc.co.za/cellc/investor-relations> [Accessed 25 April 2021].
- Cell C. 2021. *Investor relations*. [Online]. Available at: <https://www.cellc.co.za/cellc/investor-relations> [Accessed 25 April 2021].
- Cell C. 2024. *The world of Cell C*. [Online]. Available at: <https://worldofcellc.co.za/home-page> [Accessed 11 February 2024].
- Chabalala, J. 2020. *Cellphone towers 'burnt' in KwaZulu-Natal amid rumours linking 5G to Covid-19*. [Online]. Available at: <https://www.news24.com/news24/SouthAfrica/News/cellphone-towers-burnt-in-kwazulu-natal-amid-rumours-linking-5g-to-covid-19-20210107?isapp=true> [Accessed 10 January 2021].
- Chakraborty, I. 2010. Capital structure in an emerging stock market: The case of India. *Research in International Business and Finance*, 24(3): 295-314.
- Charmaz, K. 1983. The grounded theory method: An explication and interpretation. In: Emerson, R.M. ed. 1983. *Contemporary field research*, 109-126.

- Chen, Y., Sensini, L., and Vazquez, M. 2021. Determinants of leverage in emerging markets: Empirical evidence. *International Journal of Economics and Financial Issues*, 11(2): 40-46.
- Chesbrough, H. 2006. *Open innovation: Researching a new paradigm*. Oxford: Oxford University Press on Demand.
- Chilisa, B. and Preece, J. 2005. *African perspective in adult learning: Research methods for adult educators*. Hamburg: UNESCO Institute of Education.
- Christen, P., Rhyne, E., Vogel, R., and McKean, C. 1995. *Maximizing the outreach of microenterprise finance*. [Online]. Available at: <http://www.microfinancegateway.org/files/150701507/pdf> [Accessed 19 October 2022].
- Clarke, R. 2019. Principles and business processes for responsible AI. *Computer Law & Security Review*, 35(4): 410-422.
- Clarke, V. and Braun, V. 2013. Teaching thematic analysis: Overcoming challenges and developing strategies for effective learning. *The Psychologist*, 26(2): 120-123.
- Coffeng, T., Van Steenbergen, E.F., De Vries, F., Steffens, N.K., and Ellemers, N. 2023. Reflective and decisive supervision: The role of participative leadership and team climate in joint decision-making. *Regulation & Governance*, 17(1): 290-309.
- Coldwell, D. and Herbst, F.J. 2004. *Business research*. Cape Town: Juta.
- Colvin C. and McLaughlin E. 2014. Raiffeisenism abroad: Why did German cooperative banking fail in Ireland but prosper in the Netherlands? *Economic History Review*, 67: 492-516.
- Communication Authority of Kenya. 2018. *Electromagnetic energy and human health*. [Online]. Available at: <https://ca.go.ke/wp-content/uploads/2018/02/Electromagnetic-Energy-and-Human-health.pdf> [Accessed 5 January 2019].
- Cook, P.M. 2015. Analysis of sustainable food practices in Texas Acute Care Hospital. Master's dissertation. Stephen F. Austin State University, Nacogdoches, TX, USA.
- Corbin, J.M. and Strauss, A.L. 2008. *Basics of qualitative research: Techniques and procedures for developing grounded theory*. London: Sage.
- Creswell, J.W. 2009. *Research design: Qualitative, quantitative, and mixed methods approaches*. 3<sup>rd</sup> ed. Los Angeles: Sage.
- Creswell, J.W. 2013. *Qualitative inquiry and research design*. 3<sup>rd</sup> ed. Los Angeles: Sage.

- Creswell, J.W. 2014. *Research design: Qualitative, quantitative, and mixed methods approaches*. 4<sup>th</sup> ed. Lincoln: Sage.
- Creswell, J.W. 2015. *A concise introduction to mixed methods research*. Thousand Oaks, CA: Sage.
- Creswell, J.W. and Miller, D. 2000. Determining validity in qualitative inquiry. *Theory into Practice*, 39(3): 124-130.
- Creswell, J.W. and Poth, C.N. 2018. *Qualitative inquiry and research design: Choosing among five approaches*. 4<sup>th</sup> ed. Thousand Oaks, CA: Sage Publications.
- Creswell, J.W., Fetters, M.D., and Ivankova, N.V. 2004. Designing a mixed methods study in primary care. *The Annals of Family Medicine*, 2(1): 7-12.
- Creswell, J.W., Plano Clark, V.L., Gutmann, M., and Hanson, W. 2003. Advanced mixed methods research designs. In Tashakkori, A. and Teddlie, C. *Handbook of mixed methods in social and behavioral research*, 209–240.
- Criado, J.I. and Gil-Garcia, J.R. 2019. Creating public value through smart technologies and strategies: From digital services to artificial intelligence and beyond. *International Journal of Public Sector Management*, 32(5): 438-450.
- Crilly, D. and Sloan, P. 2012. Enterprise logic: Explaining corporate attention to stakeholders from the 'inside-out'. *Strategic Management Journal*, 33(10): 1174-1193.
- Crotty, M. 1998. *The foundations of social research*. London: Sage.
- Crouch, A. 2009. *The community phone project: An overview*. Desert Knowledge CRC Working Paper, 46.
- Curl, A. 2018. The importance of understanding perceptions of accessibility when addressing transport equity. *The Journal of Transport and Land Use*, 11: 1147-1162.
- Curren, R. and Metzger, E. 2017. *Living well now and in the future: Why sustainability matters*. Cambridge, MA: MIT Press.
- Dagli, O. and Jenkins, G.P. 2016. Consumer preferences for improvements in mobile telecommunication services. *Telematics and Informatics*, 33(1): 205-216.
- Danso, A., Adomako, S., Amankwah-Amoah, J., Owusu-Agyei, S., and Konadu, R. 2019. Environmental sustainability orientation, competitive strategy and financial performance. *Business Strategy and the Environment*, 28(5): 885-895.
- Danwanzam, A.U., Saleh, Y.G., and Stephen, A.R. 2019. Postmodernism in International Relations. *SCHOLEDGE International Journal of Multidisciplinary & Allied Studies*, 6(10): 95-104.

- Darvish, M., Archetti, C., and Coelho, L.C. 2019. Trade-offs between environmental and economic performance in production and inventory-routing problems. *International Journal of Production Economics*, 217: 269-280.
- Davis, A. 2013. Exploring the strategizing practices of middle managers: A case study at a South African university. Doctoral thesis. University of South Africa.
- Davis, A.B. and Goyal, S.K. 1993. Management of cellular fraud: Knowledge-based detection, classification and prevention. *Proceedings of the 13<sup>th</sup> International Conference on Artificial Intelligence, Expert Systems and Natural Language*, 2: 155-164.
- De Silva, R.S., Weerasekara, H., Dias, M.S.V., and Siyambalapitiya, T. 2023. The impacts of deregulation of the electricity markets: A comparative study of international and local case studies. *National Symposium on Power Sector Reforms in Sri Lanka*. Colombo, Sri Lanka.
- Demirgüç-Kunt, A., Klapper, L., Singer, D., Ansar, S., and Hess, J. 2020. The Global Findex Database 2017: Measuring financial inclusion and opportunities to expand access to and use of financial services. *The World Bank Economic Review*, 34(1): 2-8.
- Dencker, J.C., Gruber, M., and Shah, S.K. 2009. Pre-entry knowledge, learning, and the survival of new firms. *Organization Science*, 20(3): 516-537.
- Denzin, N.K. and Lincoln, Y.S. 2011. *The SAGE handbook of qualitative research*. 4<sup>th</sup> ed. Thousand Oaks: Sage.
- Department of Health, Republic of South Africa. 2018. *Listeriosis outbreak emergency response plan*. [Online]. Available at: <http://www.health.gov.za/index.php/component/phocadownload/category/439> [Accessed 25 June 2023].
- Department of the National Treasury. 2018. *2017/18 National Treasury annual report*, 7. Available at: <http://www.treasury.gov.za/publications/annual%20reports/national%20treasury/nt%20annual%20report%202017-18.pdf> [Accessed: 2019-05-29].
- DeSantis, L. and Ugarriza, D.N. 2000. The concept of theme as used in qualitative nursing research. *Western Journal of Nursing Research*, 22(3): 351-372.
- Dolores, L., Macchiaroli, M., and De Mare, G. 2020. A dynamic model for the financial sustainability of the restoration sponsorship. *Sustainability*, 12(4): 1694.

- Don-Solomon, A. and Eke, G.J. 2018. Ontological & epistemological philosophies underlying theory building: A scholarly dilemma or axiomatic illumination – The business research perspective. *European Journal of Business and Innovation Research*, 6(2): 1-7.
- Dörnyei, Z. 2007. *Research methods in applied linguistics*. New York: Oxford University Press.
- Drury, C. 2008. *Management and cost accounting*. 7<sup>th</sup> ed. Boston: South-Western Cengage Learning.
- Dunning, J.H. 1988. The eclectic paradigm of international production: A restatement and some possible extensions. *Journal of International Business Studies*, 19(1): 1-31.
- Dunning, J.H. and Rugman, A.M. 1985. The influence of Hymer's dissertation on the theory of foreign direct investment. *American Economic Review*, 75(2): 228-232.
- Dyble, J. 2021. *The leading player in South Africa's telecommunications industry, Vodacom is pioneering change through intuitive innovation and creative investment*. [Online]. Available at: <https://www.africaoutlookmag.com/company-profiles/1070-vodacom-south-africa> [Accessed 23 February 2021].
- Edeling, A. and Himme, A. 2018. When does market share matter? New empirical generalizations from a meta-analysis of the market share-performance relationship. *American Marketing Association Journal of Marketing*, 82: 1-24.
- Edwards, L. and Lawrence, R.Z. 2010. *Do developed and developing countries compete head to head in high-tech?* 16105. National Bureau of Economic Research.
- Effiong, S.A., Oti, P.A., and Akpan, D.C. 2019. Triple bottom line reporting and shareholders' value in oil and gas marketing firms in Nigeria. *Academy of Accounting and Financial Studies Journal*, 23(5): 1-16.
- Eizaguirre, A., Garcia-Feijoo, M., and Laka, J.P. 2019. Defining sustainability core competencies in business and management studies based on multinational stakeholders' perceptions. *Sustainability*, 11: 2303.
- Ekman, P., Thilenius, P., Thompson, S., and Whitaker, J. 2020. Digital transformation of global business processes: The role of dual embeddedness. *Business Process Management Journal*, 26(2): 570-592.
- El Daly, N. 2020. Towards an understanding of the sources of sustainable competitive advantage: A literature review and conceptual framework. *Sustainable Development and Social Responsibility – Volume 1: Proceedings of the 2nd American University in*

- the Emirates International Research Conference (AUEIRC)*, 2018: 299-316. Dubai, UAE: Springer International Publishing.
- Elkington, J. 1997. *Cannibals with forks: The triple bottom line of 21<sup>st</sup> century business*. Oxford: Capstone.
- Eisenhardt, K.M. 1989. Building theories from case study research. *Academy of management review*, 14(4): 532-550.
- Erikson, K. 1966. *Wayward puritans: A study in the sociology of deviance*. New York: Wiley.
- Esterberg, K.G. 2002. *Qualitative methods in social research*. New York: McGraw-Hill.
- Etikan, I., Musa, S.A., and Alkassim, R.S. 2016. Comparison of convenience sampling and purposive sampling. *American Journal of Theoretical and Applied Statistics*, 5(1): 1-4.
- Faccio, M. and Zingales, L. 2017. Political determinations of competition in the mobile telecommunication industry. *Working Paper*, 23041.
- Faku, D. 2019. *MTN gets fined R5 million over compliance on WhatsApp bundles price hike*. [Online]. Available at: <https://www.iol.co.za/business-report/companies/mtn-gets-fined-r5-million-over-compliance-on-whatsapp-bundles-price-hike-32669461> [Accessed 2 January 2021].
- Faku, D. 2020. *Cell C to retrench 546 staff, close 128 stores*. [Online]. Available at: <https://www.iol.co.za/business-report/companies/cell-c-to-retrench-546-staff-close-128-stores-6c210998-e571-49f6-a3af-482aa71b02b1> [Accessed 18 April 2021].
- Fama, E. and French, K. 2002. Testing trade-off and pecking order predictions about dividends and debt. *The Review of Financial Studies*, 15(1): 1-33.
- Famiyeh, S., Asante-Darko, D., and Kwarteng, A. 2018. Service quality, customer satisfaction, and loyalty in the banking sector. *International Journal of Quality & Reliability Management*, 35(8): 1546-1567.
- Fan, H., Liu, Y., Qian, N., and Wen, J. 2018. *The dynamic effects of computerized VAT invoices on Chinese manufacturing firms*. Fudan University, Northwestern University & Yale University.
- Fan, M. and Xiao, Y. 2015. Competition and subsidies in the deregulated US local telephone industry. *RAND Journal of Economics*, 46(4): 751-776.



- Fatourehchi, D. and Zarghami, E. 2020. Social sustainability assessment framework for managing sustainable construction in residential buildings. *Journal of Building Engineering*, 32: 101761.
- Faulkender, M. and Petersen, M.A. 2006. Does the source of capital affect capital structure? *Review of Financial Studies*, 19(1): 45-79.
- Fernandez-Feijoo, B., Romero, S., and Ruiz, S. 2016. The assurance market of sustainability reports: What do accounting firms do? *Journal of Cleaner Production*, 139: 1128-1137.
- Fetters, M.D. and Freshwater, D. 2015. Publishing a methodological mixed methods research article. *Journal of Mixed Methods Research*, 9: 203-213.
- Feuerstein, R. 1990. *The early history of the telephone in England 1877-1911*. Doctoral thesis. University of Sussex.
- Fiet, J.O., Norton Jr, W.I., and Clouse, V.G. 2013. Search and discovery by repeatedly successful entrepreneurs. *International Small Business Journal*, 31(8): 890-913.
- Filho, W.L. 2015. Transformative approaches to sustainable development at universities. *Working across disciplines*, 603. Springer.
- Fingeld-Connett, D. 2014. Use of content analysis to conduct knowledge-building and theory-generating qualitative systematic reviews. *Qualitative Research*, 14: 341-352.
- FinMark Trust, 2017. *FinScope micro, small and medium enterprise survey: Eswatini 2017 report*. [Online]. Available at: [http://www.finmark.org.za/wp-content/uploads/2018/06/FinScope MSME Report Eswatini 2017.pdf](http://www.finmark.org.za/wp-content/uploads/2018/06/FinScope_MSME_Report_Eswatini_2017.pdf) [Accessed 20 October 2019].
- Fitch Solutions. 2019. *Sub-Saharan Africa telecommunication report: Includes 5-year forecasts to 2022*. [Online]. Available at: [www.fitchsolutions.com](http://www.fitchsolutions.com) [Accessed 30 January 2019].
- Fitch Solutions. 2022. *South Africa telecommunications report*. [Online]. Available at: <https://store.fitchsolutions.com/all-products/south-africa-telecommunications-report> [Accessed 21 May 2022].
- Fleetwood, S. 2005. The ontology of organisation and management studies. In: Ackroyd, S. and Fleetwood, S. eds. 2004. *Realist applications in organisation and management studies*. 27: 53. London: Routledge.
- Fotouhi, A., Qiang, H., Ding, M., Hassan, M., Giordano, L.G., Garcia-Rodriguez, A., and Yuan, J. 2019. Survey on UAV cellular communications: Practical aspects,

- standardization advancements, regulation, and security challenges. *Journal of Communications Surveys and Tutorials*, 1809:01752(2): 1-26.
- Fruchter, G.E. and Sigué, S.P. 2009. Social relationship and transactional marketing policies: Maximizing customer lifetime value. *Journal of Optimization Theory and Applications*, 142(3): 469-492.
- Fu, X., Lei, Z., Wang, K., and Yan, J. 2015. Low cost carrier competition and route entry in an emerging but regulated aviation market – The case of China. *Transportation Research Part A: Policy and Practice*, 79: 3-16.
- Fusch, P.I. and Ness, L.R. 2015. Are we there yet? Data saturation in qualitative research. *The Qualitative Report*, 20(9): 1408-1416.
- Gallagher, T.J. and Andrew, J.D. 2007. *Financial management: Principles and practice*. 4<sup>th</sup> ed. St Paul, MN: Freeload Press.
- Gallifa, J. and Batallé, P. 2010. Student perceptions of service quality in a multicampus higher education system in Spain. *Quality Assurance in Education*, 18(2): 156-170.
- Garg, A. 2016. How to conduct an effective literature review. *TEQIP Short Term Course on Research Skills and Methods*. 19-21 February 2016. IIT Kanpur, India.
- Gershenfeld, N. and Vasseur, J.P. 2014. *As objects go online: The promise (and pitfalls) of the Internet of things* [Online]. Available at: <https://www.foreignaffairs.com/articles> [Accessed 12 February 2014].
- Geurs, K.T. and Östh, J. 2016. Advances in the measurement of transport impedance in accessibility modelling. *European Journal of Transport and Infrastructure Research*, 16: 294-299.
- Geurs, K.T. and Van Wee, B. 2004. Accessibility evaluation of land-use and transport strategies: Review and research directions. *Journal of Transport Geography*, 12: 127-140.
- Ghalem, Â., Chroqui, R., Okar, C., and Semma, E. 2016. Performance: A concept to define. *ResearchGate*. [Online]. Available at: [https://www.researchgate.net/publication/316630175\\_Performance\\_A\\_concept\\_to\\_define](https://www.researchgate.net/publication/316630175_Performance_A_concept_to_define) [Accessed 30 May 2020].
- Ghardallou, W. 2022. Corporate sustainability and firm performance: The moderating role of CEO education and tenure. *Sustainability*, 14(6): 3513.
- Gibbert, M. and Ruigrok, W. 2010. The “what” and “how” of case study rigor: Three strategies based on published research. *Organizational Research Methods*, 13(4): 710-737.

- Gibbs, G.R. 2007. *Analyzing qualitative data*. London: Sage.
- Gillitzer, C. 2017. Do output contractions cause investment in fiscal capacity? *American Economic Journal: Economic Policy*, 9(2): 189-227.
- Gillwald, A. 2005. Good intentions, poor outcomes: Telecommunications reform in South Africa. *Telecommunications Policy*, 29: 469-491.
- Gitman, L.J. 2006. *Principles of managerial finance*. 11<sup>th</sup> ed. Personal international edition. Boston: Pearson Addison Wesley.
- Gleißner, W., Günther, T., and Walkshäusl, C. 2022. Financial sustainability: Measurement and empirical evidence. *Journal of Business Economics*, 92(3): 467-516.
- Gligor, D., Gligor, N., Holcomb, M., and Bozkurt, S. 2019. Distinguishing between the concepts of supply chain agility and resilience: A multidisciplinary literature review. *The International Journal of Logistics Management*, 30(2): 467-487.
- Gligor, D.M. 2016. The role of supply chain agility in achieving supply chain fit. *Decision Sciences*, 47(3): 524-53.
- Gligor, D.M. and Holcomb, M.C. 2012. Understanding the role of logistics capabilities in achieving supply chain agility: A systematic literature review. *Supply Chain Management: An International Journal*, 17(4): 438-453.
- Go, D.S., Kearney, M., Robinson, S., and Thierfelder, K. 2005. An analysis of South Africa's value added tax. *World Bank Policy Research Working Paper*, 3671: 21.
- Goldman, S.L. and Nagel, R.N. 1993. Management, technology and agility: The emergence of a new era in manufacturing. *International Journal of Technology Management*, 8(1-2): 18-38.
- Gonzalez, E.G. 2019. *Evolution sustainability marketing*. Oakville, ON: Society Publishing.
- Goodland, R. 1995. The concept of environmental sustainability. *Annual Review of Ecology and Systematics*, 26(1): 1-24.
- Gorichanaz, T., Latham, K.F., and Wood, E. 2018. Lifeworld as 'unit of analysis'. *Journal of Documentation*, 74(4): 880-893.
- Goulding, C. 2002. *Grounded theory: A practical guide for management, business and market researchers*. London: Sage Publications Inc.
- Government Gazette, No. 19814, 2 March 1999*. [Online]. Available at: <https://www.treasury.gov.za/legislation/pfma/PFMA%201999%20as%20amended%20March%202017.pdf> [Accessed 11 September 2023].

- Government Gazette, No. 28743. Cape Town, Vol. 490, 18 April 2006. [Online]. Available at: <https://www.icasa.org.za/uploads/files/Electronic-Communications-Act-2005.pdf> [Accessed 28 May 2020].*
- Government Gazette, No. 40057, 9 June 2016. [Online]. Available at: <https://www.wylie.co.za/wp-content/uploads/COMPETITION-ACT-NO.-89-OF-1998.pdf> [Accessed 2 January 2021].*
- Government Gazette, No. 41030, Notice 822, 7 August 2017. [Online]. Available at: <http://www.saflii.org/za/gaz/ZAGovGaz/2017/573.pdf> [Accessed 24 May 2020].*
- Government Gazette, No. 41613, Notice 233, 7 May 2018. [Online]. Available at: <https://www.ellipsis.co.za/wp-content/uploads/2018/05/End-User-and-Subscriber-Service-Charter-Amendment-Regulations-2018-Gazetted.pdf> [Accessed 30 May 2020].*
- Government Gazette, No. 45458, 11 November 2021. [Online]. Available at: [file:///C:/Users/nene\\_p/Downloads/ICT-COVID-19-National-Disaster-seventh-amendment-Regulations-2021.pdf](file:///C:/Users/nene_p/Downloads/ICT-COVID-19-National-Disaster-seventh-amendment-Regulations-2021.pdf) [Accessed 9 May 2022].*
- Graneheim, U.H. and Lundman, B. 2004. Qualitative content analysis in nursing research: Concepts, procedures and measures to achieve trustworthiness. *Nurse Education Today*, 24: 105-112.
- Gray, L.M., Wong-Wylie, G., Rempel, G.R., and Cook, K. 2020. Expanding qualitative research interviewing strategies: Zoom video communications. *The Qualitative Report*, 25(5): 1292-1301.
- Greamer, E.G. 2018. Striving for methodological integrity in mixed methods research: The difference between mixed methods and mixed-up methods. *Journal of Engineering Education*, 107(4): 526-530.
- Greene, J.C., Caracelli, V.J., and Graham, W.F. 1989. Toward a conceptual framework for mixed-method evaluation designs. *Educational Evaluation and Policy Analysis*, 11(3): 255-274.
- Grewal, D. 1996. The impact of technology on the quality-value-loyalty chain: A research agenda. *Journal of the Academy of Marketing Science*, 28(1): 168-174.
- Grober, U. 2012. *Sustainability: A cultural history*. Translated. Totnes: Green Books.
- Grosshans, W. and Chelimsky, E. 1992. Quantitative data analysis: An introduction. *Report to Program Evaluation and Methodology Division*.

- Guarini, E. and Pattaro, A.F. 2017. Fiscal responsibility and multi-level governance: Bridging the gap between policy and management. In: *Handbook of Research on Subnational Governance and Development*. Hershey: Harrisburg IGI Global: 167-192.
- Guba, E.G. and Lincoln, Y.S. 1994. Competing paradigms in qualitative research. In: Denzin, N.K. and Lincoln, Y.S. eds. 1994. *Handbook of qualitative research*, 2(163-194):105. Thousand Oaks: Sage.
- Guest, G., Bunce, A., and Johnson, L. 2006. How many interviews are enough? *Field Methods*, 18(1): 59-82.
- Guest, G., Namey, E., and Chen, M. 2020. A simple method to assess and report thematic saturation in qualitative research. *PLoS ONE*, 15(5): e0232076.
- Gulbrandsen, I.T. 2015. Towards a typology: The 5 P's of strategic communication.
- Gunasekaran, A. 1999. Agile manufacturing: A framework for research and development. *International Journal of Production Economics*, 62(1-2): 87-105.
- Günther, T. and Günther, E. 2017. Finanzielle Nachhaltigkeit – Messung, finanzielle Steuerung und Herausforderungen. In: Hoffjan A, Knauer T, Wöhrmann A (eds) *Controlling – Konzeptionen. Instrumente, Anwendungen, Schäffer-Poeschel*, Stuttgart, 79–90.
- Guo, C. and Bielefeld, W. 2014. *Social entrepreneurship: An evidence-based approach to creating social value*. San Francisco: John Wiley & Sons.
- Gurbanov, N., Yagublu, N., Akbarli, N., and Niftiyev, I. 2022. Digitalization and the Covid-19-led public crisis management: An evaluation of financial sustainability in the Azerbaijan business sector. *SocioEconomic Challenges*, 6(3): 23-38.
- Gurel, E. and Tat, M. 2017. SWOT analysis: A theoretical review. *The Journal of International Social Research*, 10(51): 994-1006.
- Gürlek, M. and Tuna, M. 2018. Reinforcing competitive advantage through green organizational culture and green innovation. *The Service Industries Journal*, 38(7-8): 467-491.
- Hadden, J., Tiwari, A., Roy, R., and Ruta, D. 2007. Computer assisted customer churn management: State-of-the-art and future trends. *Computers & Operations Research*, 34(10): 2902-2917.
- Hale, J., Legun, K., Campbell, H., and Carolan, M. 2019. Social sustainability indicators as performance. *Geoforum*, 103: 47-55.
- Hambrick, D.C. 2007. Upper echelons theory: An update. *Academy of Management Review*, 32: 334-343.

- Hambrick, D.C. and Mason, P.A. 1984. Upper echelons: The organization as a reflection of its top managers. *Academy of Management Review*, 9: 193-206.
- Hansen, W.G. 1959. How accessibility shapes land use. *Journal of the American Planning Association*, 25: 73-76.
- Hart, C.W.L, Heskett, J.L., and Sasser, W.E. 1990. The profitable art of service recovery. *Harvard Business Review*, 68(4): 148-156.
- Haynes, K. 2012. Reflexivity in qualitative research. In: Cassell, C. and Lee, B. eds. 2012. *Challenges and controversies in management research*. New York: Routledge, 18.
- Hegde, M.P. 2022. Analysis of markets and business buyer behaviours. *Message from the Editor-in-Chief*, 3: 4.
- Helfat, C., Finkelstein, S., Mitchell, W., Peteraf, M., Singh, H., Teece, D., and Winter, S. 2007. *Dynamic capabilities: Understanding strategic change in organisations*. Hoboken, NJ: Wiley.
- Helfat, C.E. and Eisenhardt, K.M. 2004. Inter-temporal economies of scope organisational modularity, and the dynamics of diversification. *Strategic Management Journal*, 25: 1217-1232.
- Helms, B. 2006. *Access for all: Building inclusive financial systems*. Washington, DC: The World Bank.
- Henderson, R.M. and Clark, K.B. 1990. Architectural innovation: The reconfiguration of existing product technologies and the failure of established firms. *Administrative Science Quarterly*, 35(1): 9-30.
- Hendrick, R. 2011. *Managing the fiscal metropolis: The financial policies, practices, and health of suburban municipalities*. Washington, DC: Georgetown University Press.
- Hesse-Biber, S.N. 2013. The medium is the message: Channeling Marshall McLuhan's insights on emergent technologies for social research praxis. *Keynote presentation at the Qualitative Report's Fourth Annual Conference on Qualitative Research and Technology*. Fort Lauderdale, FL.
- Hieu, V.M. and Yen, H.T.B. 2019. Analysing economic contribution of tourism: Insights from selected Southeast Asian countries. *Sciend Management*, 23(2): 223-237.
- Hilal, A.H. and Alabri, S. 2013. Using NVivo for data analysis in qualitative research. *International Interdisciplinary Journal of Education*, 2(2): 181-186.
- Hill, C.W., Jones, G.R., and Schilling, M.A. 2014. *Strategic management: Theory & cases: An integrated approach*. Belmont: Cengage Learning.

- Hitt, M., Ireland, R., and Hoskisson, R. 2009. *Strategic management: Competitiveness and globalization: Concepts & cases*. Mason, OH: South-Western.
- Hodge, J. 1999. The state of the telecommunications industry in South Africa and the potential costs/benefits of liberalization. In *TIPS Annual Forum*.
- Hodgkinson, G.P. and Sparrow, P.R. 2002. *The competent organization: A psychological analysis of the strategic management process*. Maidenhead, UK: Open University Press.
- Hofstee, E. 2006. *Constructing a good dissertation: A practical guide to finishing a master's, MBA or PhD on schedule*. Sandton: EPE.
- Hollensbe, E., Wookey, C., Hickey, L., George, G., and Nichols, C.V. 2014. Organizations with purpose. *Academy of Management Journal*, 57(5): 1227-1234.
- Höller, J., Tsiatsis, V., Mulligan, C., Karnouskos, S., Avesand, S., and Boyle, D. 2014. *From machine-to-machine to the Internet of things: Introduction to a new age of intelligence*. Amsterdam: Elsevier.
- Holloway, I. 2005. *Qualitative research in health care*. Maidenhead: Open University Press.
- Holtzblatt, M.A., Foltin, C., and Tschakert, N. 2020. Learning from ethical violations in public accounting: A South African audit scandal and a firm's transformation. *Issues in Accounting Education*, 35(2): 37-63.
- Hong, J., Xu, Z., Chen, J., and Yin, Z. 2018. High-efficiency revolving-turret chip transferring technology for flip chip packaging. *IEEE Transactions on Components, Packaging and Manufacturing Technology*, 8(1): 154-164.
- Hoque, Z., Parker, L.D., Covaleski, M.A., and Haynes, K. 2017. *The Routledge Companion to Qualitative Accounting Research Methods*. London: Routledge.
- Horton, M. 2019. *Regressive vs. proportional vs. progressive taxes: What's the difference*. [Online]. Available at: <https://www.investopedia.com/ask/answers/042415/what-are-differences-between-regressive-proportional-and-progressive-taxes.asp> [Accessed 28 May 2019].
- Horwitz, R.B. and Currie, W. 2007. Another instance where privatization trumped liberalization: The politics of telecommunications reform in South Africa – A ten-year retrospective. *Telecommunications Policy*, 31: 445-462.
- Hoskisson, R.E., Chirico, F., Zyung, J., and Gambeta, E. 2017. Managerial risk taking: A multitheoretical review and future research agenda. *Journal of Management*, 43: 137-169.

- Howell, B.E. and Potgieter, P.H. 2022. Effective competition and ineffective mobile industry regulation in South Africa. *Telecommunications Policy*, 46(7): 102317.
- Huang, K.F., Dyerson, R., Wu, L.Y., and Harindranath, G. 2015. From temporary competitive advantage to sustainable competitive advantage. *British Journal of Management*, 26(4): 617-636.
- Huber, G.P. 1991. Organizational learning: The contributing processes and the literatures. *Organization Science*, 2(1): 88-115.
- Hult, G.T.M., Mena, J.A., Gonzalez-Perez, M.A., Lagerström, K., and Hult, D.T. 2018. A ten country-company study of sustainability and product-market performance: Influences of doing good, warm glow, and price fairness. *Journal of Macromarketing*, 38(3): 242-261.
- Hunter Jr, D.L. 2017. Using work experience to predict job performance: Do more ears matter? Master's dissertation. San Francisco State University.
- Hunter-Adams, J., Battersby, J., and Oni, T. 2018. Fault lines in food system governance exposed: Reflections from the listeria outbreak in South Africa, *Cities & Health*, 2(1): 17-21.
- Huttunen, S., Ojanen, M., Ott, A., and Saarikoski, H. 2022. What about citizens? A literature review of citizen engagement in sustainability transitions research. *Energy Research & Social Science*, 91: 102714.
- Hutzschenreuter, T. and Horstkotte, J. 2013. Performance effects of top management team demographic faultlines in the process of product diversification. *Strategic Management Journal*, 34: 704-726.
- Iacono, M., Krizek, K.J., and El-Geneidy, A. 2010. Measuring non-motorized accessibility: Issues, alternatives, and execution. *Journal of Transport Geography*, 18: 133-140.
- ICASA (Independent Communications Authority of South Africa). 2018. *Reasons for number portability regulations*. [Online]. Available at: <https://www.icasa.org.za/uploads/files/Number-Portability-Regulations-2018-Reasons-Document.pdf> [Accessed 2 July 2022].
- ICASA (Independent Communications Authority of South Africa). 2022. *Bi-annual report on the analysis of tariff notifications submitted to ICASA for the period 01 July to 31 December 2021*. [Online]. Available at: <https://www.icasa.org.za/uploads/files/2021-22-FY-Q4-Bi-Annual-Tariff-Analysis-Report.pdf> [Accessed 9 May 2022].



- IDATE and ETNO. 2017. *Annual economic report, 2017*. Brussels: European Telecommunications Network Operators' Association.
- Illidge, M. 2023. *Code red at Eskom*. Eskom anticipates high risk of load-shedding in South Africa for 2023-2024 [Online]. Available at: <https://www.biznews.com/energy/2023/12/05/eskom-high-risk-load-shedding-2023-2024#:~:text=By%20Myles%20Illidge,at%20least%20the%20next%20year>. [Accessed 21 December 2023].
- Imenda, S. 2014. Is there a conceptual difference between conceptual and theoretical frameworks? *Journal of Social Science*, 38(2): 185-195.
- Imhanzenobe, J.O. 2020. Managers' financial practices and financial sustainability of Nigerian manufacturing companies: Which ratios matter most? *Cogent Economics & Finance*, 8(1): 1724241.
- Inoue, Y. 2019. Winner-takes-all or co-evolution among platform ecosystems: A look at the competitive and symbiotic actions of complementors. *Sustainability*, 11(3): 726.
- Institute of Directors in South Africa. 2016. *King IV report on corporate governance for South Africa*. Sandton: The Institute of Directors in South Africa.
- Ishida, J. 2008. *Decisiveness* (No. 08E002). Osaka: Osaka School of International Public Policy, Osaka University.
- Jafari, M., Omran, M.M., and Jahani, E. 2020. Offensive, Defensive, and Generic Advertising Strategies in a Dynamic Oligopolistic Market. *Mathematical Problems in Engineering*, 2021: 1-29.
- Jahanbakht, M., Mostafa, R., and Veloso, F. 2022. Pre-entry experience, postentry adaptations, and internationalization in the African mobile telecommunications industry. *Organization Science*, 33(3): 969-990.
- Jain, P.K., Jain, A., and Rezaee, Z. 2016. Value-relevance of corporate social performance: Evidence from short selling. *Journal of Management Accounting Research*, 28: 29-52.
- Jamei, E., Chan, M., Chau, H.W., Gaisie, E., and Lättman, K. 2022. Perceived accessibility and key influencing factors in transportation. *Sustainability*, 14(17): 10806.
- Jamwal, A., Agrawal, R., Sharma, M., Kumar, V., and Kumar, S. 2021. Developing A sustainability framework for Industry 4.0. *Procedia CIRP*, 98: 430-435.
- Jindal, A., Sharma, S.K., Sangwan, K.S., and Gupta, G. 2021. Modelling supply chain agility antecedents using fuzzy DEMATEL. *Procedia CIRP*, 98: 436-441.

- Johnson, G., Scholes, K., and Whittington, R. 2008. *Exploring corporate strategy: Text and cases*. 8<sup>th</sup> ed. Harlow: Pearson Education.
- Johnson, J. 2022. *Worldwide digital population as of January 2022*. [Online]. Available at: <https://www.statista.com/statistics/617136/digital-population-worldwide/> [Accessed 2 May 2022].
- Johnson, P. and Clark, M. 2006. Editors' introduction: Mapping the terrain: An overview of business and management research methodologies. In Johnson, P. and Clark, M. eds. *Business and management research methodologies*. London: Sage, 4: 25-52.
- Jones, K. 2017. Using a theory of practice to clarify epistemological challenges in mixed methods research: An example of theorizing, modelling, and mapping changing West African seed systems. *Journal of Mixed Methods Research*, 11(3): 355-373.
- Jun, H. and Moon, S. 2021. An analysis of sustainability integration in business school curricula: Evidence from Korea. *Sustainability*, 13(5): 2779.
- Jung, J. 2020. Institutions and telecommunications investment. *Information Economics and Policy*, 50: 100849.
- Kakati, S. and Roy, A. 2021. Financial sustainability: An annotated bibliography. *Economics and Business Review*, 7(3): 35-60.
- Kamardi, A.A., Mahdiraji, A.H., Masoumi, S., and Jafari-Sadeghi, V. 2022. Developing sustainable competitive advantages from the lens of resource-based view: Evidence from IT sector of an emerging economy. *Journal of Strategic Marketing*: 1-23.
- Kang, J. 1987. Franklin D. Roosevelt and James L. Fly: The politics of broadcast regulation, 1941-1944. *Journal of American Culture*, 10(2): 23-33.
- Kar, A.K. and Dwivedi, Y.K. 2020. Theory building with big data-driven research – Moving away from the 'What' towards the 'Why'. *International Journal of Information Management*, 54: 102205.
- Kass-Hanna, J., Lyons, A.C., and Liu, F. 2022. Building financial resilience through financial and digital literacy in South Asia and Sub-Saharan Africa. *Emerging Markets Review*, 51: 100846.
- Katz, R. and Jung, J. 2023. The impact of taxation in the telecommunications industry. *Information Economics and Policy*, 62: 101016.
- Kay, M. 2015. Troublesome telephony: How users and non-users shaped the development of early British exchange telephony. *Science Museum Group Journal*, 3: 89-229.

- Keating, E.K., Fischer, M., Gordon, T.P., and Greenlee, J.S. 2005. Assessing financial vulnerability in the nonprofit sector. *SSRN Electronic Journal*, 647662.
- Kennedy, M.M. 2007. Defining a literature. *Educational Researcher*, 36(3): 139-147.
- Kero, C.A. and Bogale, A.T. 2023. A systematic review of resource-based view and dynamic capabilities of firms and future research avenues. *International Journal of Sustainable Development & Planning*, 18(10): 3137-3154.
- Khan, K.U., Atlas, F., Ghani, U., Akhtar, S., and Khan, F. 2020. Impact of intangible resources (dominant logic) on SMEs innovation performance, the mediating role of dynamic managerial capabilities: Evidence from China. *European Journal of Innovation Management*, 24(5): 1679-1699.
- Khanagha, S., Zadeh, M.T.R., Mihalache, O.R., and Volberda, H.W. 2018. Embracing Bewilderment: Responding to Technological Disruption in Heterogeneous Market Environments. *Journal of Management Studies*, 55: 7.
- Khoo, S.S. 2019. Tobin's Q of Honda Motor Company, Limited and its determinants from 2013 to 2017. *MPRA Paper*: 93879. [Online]. Germany: University Library of Munich. Available at: <https://mpra.ub.uni-muenchen.de/93879/> [Accessed 18 June 2023].
- Kilincarslan, K. 2021. Smoothed or not smoothed: The impact of the 2008 global financial crisis on dividend stability in the UK. *Finance Research Letters*, 38: 101423.
- Kim, H., Batten, J.A., and Ryu, D. 2020. Financial crisis, bank diversification, and financial stability: OECD countries. *International Review of Economics & Finance*, 65: 94-104.
- King, T. 2018. Structured data vs. unstructured data: What's the difference? *Solutions Review*.
- Kirzner, I. 1979. *Perception, opportunity and profit*. Chicago, IL: University of Chicago Press.
- Kirzner, I. 1997. Entrepreneurial discovery and the competitive market process: An Austrian approach. *Journal of Economic Literature*, 35(1): 60-85.
- Kitov, I. 2023. *Porter's 5 forces model: Bargaining power of suppliers*. [Online]. Available at: <https://365financialanalyst.com/knowledge-hub/business-analysis-and-strategy/porters-5-forces-model-bargaining-power-of-suppliers/> [Accessed 21 May 2023].
- Kivunja, C. and Kuyini, A.B. 2017. Understanding and applying research paradigms in educational contexts. *International Journal of Higher Education*, 6(5): 26-41.

- Kliestik, T., Valaskova, K., Lazaroiu, G., Kovacova, M., and Vrbka, J. 2020. Remaining financially healthy and competitive: The role of financial predictors. *Journal of Competitiveness*, 12(1): 74-92.
- Koi-Akrofi, G.Y., Koi-Akrofi, J., Odai, D.A., and Twum, E.O. 2019. Global telecommunications fraud trend analysis. *International Journal of Innovation and Applied Studies*, 25(3): 940-947.
- Kolokoltsov, V.N. and Malafeyev, O.A. 2020. *Understanding game theory: Introduction to the analysis of many agent systems with competition and cooperation*. Hackensack, NJ: World Scientific.
- Korstjens, I. and Moser, A. 2018. Series: Practical guidance to qualitative research. Part 4: Trustworthiness and publishing. *European Journal of General Practice*, 24(1): 120-124.
- Kothari, C.R. 2004. *Research methodology: Methods and techniques*. 2<sup>nd</sup> rev. ed. New Delhi: New Age International Publishers.
- Kotler, P. 1994. *Marketing management, analysis, planning, implementation and control*. Upper Saddle River: Prentice Hall.
- Kraiger, K., McLinden, D., and Casper, W.J. 2004. Collaborative planning for training impact. *Human Resource Management*, 43(4): 337-351.
- Kumar, R. 2005. *Research methodology: A step-by-step guide for beginners*. 2<sup>nd</sup> int. ed. Thousand Oaks: Sage.
- Kundu, G., Ayyasamy, R., and Patel, K. 2010. Dispatch service architecture framework. United States Patent. *Patent No.:* US 7,787,896B2.
- Kurdi, B., Alshurideh, M., Akour, I., Alzoubi, H., Obeidat, B., and Alhamad, A. 2022. The role of digital marketing channels on consumer buying decisions through eWOM in the Jordanian markets. *International Journal of Data and Network Science*, 6(4): 1175-1186.
- Kvale, S. 1996. The 1,000-page question. *Qualitative Inquiry*, 2(3): 275-284.
- Laine, M., Tregidga, H., and Unerman, J. 2022. *Sustainability accounting and accountability*. 3<sup>rd</sup> ed. Oxon: Routledge.
- Laing, B.H., Haw, C.T., and Ali, R. 2021. Dividend payout policy and global financial crisis: A study on Malaysian non-financial listed companies. *Asian Journal of Business and Accounting*, 14(1): 145-170.

- Langos, S. 2014. Athens as an international tourism destination: An empirical investigation to the city's imagery and the role of local DMO's. Master's dissertation. Derby, UK: University of Derby.
- Lanivich, S.E., Smith, A., Levasseur, L., Pidduck, R.J., Busenitz, L., and Tang, J. 2022. Advancing entrepreneurial alertness: Review, synthesis, and future research directions. *Journal of Business Research*, 139: 1165-1176.
- Lapierre, L. 1980. My own translation of 'un reve ou un bouquet de reves en quete de realite'. 'Le changement strategique: Un reve en quete de reel'. PhD Management Policy course paper. McGill University, Canada.
- Laskar, N. and Maji, S.G. 2018. Disclosure of corporate sustainability performance and firm performance in Asia. *Asian Review of Accounting*, 26(4): 414-443.
- Lasserre, P. 2017. *Global strategic management*. London: Bloomsbury Publishing.
- Leavy, P. 2022. *Research design: Quantitative, qualitative, mixed methods, arts-based, and community-based participatory research approaches*. New York, NY: Guilford Publications.
- Leiblein, M.J., Chen, J.S., and Posen, H.E. 2021. Uncertain learning curves: Implications for first mover advantage and knowledge spillovers. *Academy of Management Review*, 58.
- Leon, P. 2001. *Four pillars of financial sustainability*. Arlington, VA: The Nature Conservancy.
- LeRoux, K. and Medina, A. 2023. Bending the arc of nonprofit leadership toward justice: Impacts of racial representation and organizational publicness on diversifying executive leadership. *Public Administration Review*, 83(1): 103-116.
- Lešnik, T., Jagrič, T., and Jagrič, V. 2018. VAT gap dependence and fiscal administration measures. *Naše Gospodarstvo/Our Economy*, 64(2): 43-51.
- Levinthal, D. and March, J.G. 1981. A model of adaptive organizational search. *Journal of Economic Behavior and Organization*, 2(4): 307-333.
- Levitt, H.M., Creswell, J.W., Josselson, R., Bamberg, M., Frost, D.M., and Suarez-Orozco, C. 2018. Standards for qualitative primary, qualitative meta-analytic, and mixed methods research in psychology: The APA publications and communications task force report. *American Psychologist*, 73(1): 26-46.
- Lewis, C. and Lewis, C. 2020. Universal service obligations. *Regulating Telecommunications in South Africa: Universal Access and Service*, 27-170.

- Li, G., Liu, H., and Luo, Y. 2018. Directive versus participative leadership: Dispositional antecedents and team consequences. *Journal of Occupational and Organizational Psychology*, 91: 645-664.
- Lin, C.J. 2018. Telecommunications health and safety: Mobile-phone RF/microwave exposure and memory performance scores in adolescents. *Radio Science Bulletin*, 366: 32-35.
- Lincoln, Y.S. and Guba, E.G. 1985. *Naturalistic inquiry*. Beverly Hills: Sage.
- Lincoln, Y.S., Lynham, S.A., and Guba, E.G. 2011. Paradigmatic controversies, contradictions, and emerging confluences revisited. In: Denzin, N.K. and Lincoln, Y.S. eds. 2011. *The SAGE handbook of qualitative research*. 4<sup>th</sup> ed. Thousand Oaks: Sage: 97-128.
- Loom, 2019a. *A short history of Vodacom*. [Online]. Available at: <https://www.loom.co.za/vodacom-history>[Accessed 23 May 2020].
- Loom, 2019b. *A short history of Cell C*. [Online]. Available at: <https://www.loom.co.za/cellc-history> [Accessed 24 February 2021].
- López-Salas, N. and Antonietti, M. 2021. Carbonaceous materials: The beauty of simplicity. *Bulletin of the Chemical Society of Japan*, 94(12): 2822-2828.
- Louw, L. and Venter, P. 2013. *Strategic management: Developing sustainability in South Africa*. 3<sup>rd</sup> ed. Cape Town: Oxford University Press.
- Louw, L. and Venter, P. 2019. *Strategic management: Towards sustainable strategies in Southern Africa*. 4<sup>th</sup> ed. Cape Town: Oxford University Press.
- Luthra, S., Kumar, A., Zavadskas, E.K., Mangla, S.K., and Garza-Reyes, J.A. 2020. Industry 4.0 as an enabler of sustainability diffusion in supply chain: an analysis of influential strength of drivers in an emerging economy. *International Journal of Production Research*, 58(5): 1505-1521.
- Madondo, S.M. 2021. *Data analysis and methods of qualitative research: Emerging research and opportunities*. Hershey, PA: IGI Global.
- Magliozzi, D. 2017. Comparative financial management analysis of Telecom Italia with other telecommunication operators in Europe. *Journal of Financial Management and Analysis*, 30(1): 34-44.
- Magnusson, P.R., Matthing, J., and Kristensson, P. 2003. Managing user involvement in service innovation experiments with innovating end users. *Journal of Service Research*, 6(2): 111-124.

- Maguire, M. and Delahunt, B. 2017. Doing a thematic analysis: A practical, step-by-step guide for learning and teaching scholars. *All Ireland Journal of Teaching and Learning in Higher Education*, 8(3): 3351-3354.
- Maidique, A.M. and Patch, P. 1988. Corporate strategy and technological policy. In: Tushman, M.L. and Moore, W.L. eds. 1988. *Readings in the management of innovation*. 2<sup>nd</sup> ed. Cambridge, MA: Ballinger.
- Makhdoom, H.U.R. and Anjum, A. 2016. Impact of CSR & TQM on employee's turnover intention: Mediating role of organizational commitment. *International Journal of Academic Research in Business and Social Sciences*, 6(9): 210-229.
- Malaka, I. and Brown, I. 2015. Challenges to the organisational adoption of big data analytics: A case study in the South African telecommunications industry. *Proceedings of the 2015 Annual Research Conference on South African Institute of Computer Scientists and Information Technologists*, 1-9.
- Malmqvist, J., Hellberg, K., Möllås, G., Rose, R., and Shevlin, M. 2019. Conducting the pilot study: A neglected part of the research process? Methodological findings supporting the importance of piloting in qualitative research studies. *International Journal of Qualitative Methods*, 18: 1609406919878341.
- Manrique, S. and Martí-Ballester, C.P. 2017. Analyzing the effect of corporate environmental performance on corporate financial performance in developed and developing countries. *Sustainability*, 9(11): 1957.
- Mansanta, C. and Sani, D. 2019. Intrapreneurship discovery: Standard strategy to boost innovation inside companies. *World Academy of Science, Engineering and Technology International Journal of Industrial and Manufacturing Engineering*, 13(3): 340-344.
- March, J.G. 1991. Exploration and exploitation in organizational learning. *Organization Science*, 2(1): 71-87.
- Marshall, C. and Rossman, G.B. 1990. Designing qualitative research. *Issues in Applied Linguistics*, 1(2): 268-275.
- Martín-Herrán, G. and Sigué, S.P. 2019. Offensive and defensive marketing in spatial competition. *Journal of Service Research*, 22(2): 189-201.
- Marwa, N. and Aziakpono, M. 2015. Financial sustainability of Tanzanian saving and credit cooperatives. *International Journal of Social Economics*, 42(10): 870-887.
- Marx, J. 2010. *Investment management*. 3<sup>rd</sup> ed. Pretoria: Van Schaik Publishers.

- Mason, M. 2010. Sample size and saturation in PhD studies using qualitative interviews. *Forum: Qualitative Sozialforschung/Forum: Qualitative Social Research*. 11(3). [Online]. Available at: <http://www.qualitative-research.net/index.php/fqs/article/view/1428/3027> [Accessed 22 July 2018].
- Matheson, T. and Petit, P. 2021. Taxing telecommunications in developing countries. *International Tax and Public Finance*, 28(1): 248-280.
- Matussek, K. 2018. VW Fights Investors as Diesel-Scandal Cost Could Top \$35 Billion [Online]. Available at: <https://www.bloomberg.com/news/articles/2018-09-08/vw-fights-investors-as-diesel-scandal-cost-could-top-35-billion> [Accessed 2 January 2021].
- Maxham, J.G. 2001. Service recovery's influence on consumer satisfaction, positive word-of-mouth, and purchase intentions. *Journal of business research*, 54(1):11-24.
- Maynard, D.D.C., Vidigal, M.D., Farage, P., Zandonadi, R.P., Nakano, E.Y., and Botelho, R.B.A. 2020. Environmental, social and economic sustainability indicators applied to food services: A systematic review. *Sustainability*, 12(5): 804.
- Mbanje, S. 2022. A framework for evaluating the impact of business process outsourcing (BPO) on the operational performance of the mobile telecommunications industry, South Africa. Doctoral thesis. University of KwaZulu-Natal.
- McDaniel, M.A., Schmidt, F.L., and Hunter, J.E. 1988. Job experience correlates of job performance. *Journal of Applied Psychology*, 73(2): 327.
- McLaren, J.I. and Struwig, F.W. 2019. Financial ratios as indicators of financial sustainability at a South African university. *Journal of Contemporary Management*, 16(2): 68-93.
- McLeod, D. 2019. *Icasa fines MTN millions over price hike*. [Online]. Available at: [https://techcentral.co.za/icasa-committee-fines-mtn-millions-over-price-hike/92439/#disqus\\_thread](https://techcentral.co.za/icasa-committee-fines-mtn-millions-over-price-hike/92439/#disqus_thread) [Accessed 2 January 2021].
- Meena, M.E. and Geng, J. 2022. Dynamic competition in telecommunications: A systematic literature review. *SAGE Open*, 12(2): 1-10.
- Merkel-Davies, D.M. and Brennan, N.M. 2011. A conceptual framework of impression management: New insights from psychology, sociology, and critical perspectives. *Accounting and Business Research*, 41(5): 415-437.
- Merriam, S.B. 1988. *Qualitative research and case study application in education*. San Francisco: Jossey-Bass.



- Messick, S. 1989. Validity. In: Linn, R.L. ed. 1989. *Educational measurement*. 3<sup>rd</sup> ed. New York: American Council on Education and Macmillan, Chapter 3: 13-103.
- Meyer, B., Burtscher, M.J., Jonas, K., Feese, S., Arnrich, B., Tröster, G., and Schermuly, C.C. 2016. What good leaders actually do: Micro-level leadership behaviour, leader evaluations, and team decision quality. *European Journal of Work and Organizational Psychology*, 25(6): 773-789.
- Miles, M.B. and Huberman, A.M. 1994. *Qualitative data analysis: A sourcebook of new methods*. 2<sup>nd</sup> ed. Beverly Hills: Sage Publications.
- Miller, M.H. 1988. The Modigliani-Miller propositions after thirty years. *Journal of Economic Perspectives*, 2(4): 99-120.
- Miller, P. 2020. *COVID-19 fast-tracking the Fourth Industrial Revolution*. [Online]. Available at: <https://www.cipla.co.za/cipla-news/covid-19-fast-tracking-the-fourth-industrial-revolution/> [Accessed: 26 December 2020].
- Mingers, J. 2004. Real-izing information systems: Critical realism as an underpinning philosophy for information systems. *Information and Organization*, 14(2): 87-103.
- Mintzberg, H. 1987. The strategy concept I: Five Ps for strategy. *California Management Review*, 30(1): 11-24.
- Mintzberg, H., Ahlstrand, B., and Lampel, J.B. 2020. *Strategy safari*. London: Pearson UK.
- Mishra, S. and Modi, S. 2013. Positive and negative corporate social responsibility, financial leverage, and idiosyncratic risk. *Journal of Business Ethics*, 117(2): 431-448.
- Mmako, N. and Jansen van Rensburg, M. 2017. Towards integrated reporting: The inclusion of content elements of an integrated annual report in the chairmen's statement of JSE-listed companies. *South African Journal of Business Management*, 48(1): 45-54.
- Modigliani, F. and Miller, M.H. 1958. The cost of capital, corporation finance and the theory of investment. *American Economic Review*, 48(3): 261-297.
- Moeng, B. 2018. *MTN South Africa invested ZAR30 billion in network infrastructure*. [Online]. Available at: <https://www.biznisafrika.com/mtn-south-africa-invested-zar30-billion-network-nfrastructure/> [Accessed: 09 March 2019].
- Mohamad, M.M., Sulaiman, N.L., Sern, L.C., and Salleh, K.M. 2015. Measuring the validity and reliability of research instruments. *Procedia – Social and Behavioral Sciences*, 204: 164-171.

- Moloi, T. and Iredele, O. 2020. Firm value and integrated reporting quality of South African listed firms. *Academy of Strategic Management Journal*, 19(1): 1-12.
- Moore, M.H. 1995. *Creating public value: Strategic management in government*. London: Harvard University Press.
- Mora, L., Deakin, M., and Reid, A. 2019. Strategic principles for smart city development: A multiple case study analysis of European best practices. *Technological Forecasting and Social Change*, 142: 70-97.
- Moraka, N.V. 2013. Board transformation and EE scorecard target attainment: Progress made, and barriers faced with transformation by JSE listed companies in the South African mining industry. Master's dissertation. Pretoria: University of South Africa.
- Morduch, J., Haley, B., and Robert, F. 2002. Analysis of the effects of microfinance on poverty reduction. *NYU Wagner Working Papers Series*, 6(6): 2016. New York University: Wagner Graduate School of Public Service.
- Morrow, D. 2017. *Telco corruption fuels SIMbox frauds*. [Online]. Available at: <https://commsrisk.com/telco-corruption-fuels-simbox-frauds/> [Accessed 29 January 2019].
- Morse, J. 1994. Designing funded qualitative research. In: Denzin, N.K. and Lincoln, Y.S. eds. 1994. *Handbook for qualitative research*. Thousand Oaks: Sage , 3(7): 220-223.
- Morse, J.M. 1991. Approaches to qualitative-quantitative methodological triangulation. *Nursing Research*, 40: 120-123.
- Morse, J.M. 1995. The significance of saturation. *Qualitative Health Research*, 5(2): 147-149.
- Morse, J.M. 2015. 'Data were saturated ...'. *Qualitative Health Research*, 25(5): 587-588.
- Moser, P.K. 1990. *Rationality in action: Contemporary approaches*. Cambridge: Cambridge University Press.
- Mouton, J. 2001. *How to succeed in your master's and doctoral studies*. Pretoria: Van Schaik.
- Mouton, J. 2017. *How to succeed in your master's and doctoral studies. A South African guide and resource book*. 24<sup>th</sup> ed. Pretoria: Van Schaik.

- Moyo, A. 2023. *Rain moves into mobile with expectations of R2bn revenue*. [Online]. Available at: <https://www.itweb.co.za/content/mQwkoM6YOVK73r9A> [Accessed 10 December 2023].
- Mpofu, F.Y. 2021. Addressing the saturation attainment controversy: Evidence from the qualitative research on assessing the feasibility of informal sector taxation in Zimbabwe. *Technium Social Sciences Journal*, 19: 607-630.
- Msomi, T.S. and Olarewaju, O.M. 2021. Factors affecting small and medium enterprises' financial sustainability in South Africa. *African Journal of Inter/Multidisciplinary Studies*, 3(1): 103-117.
- MTN (Mobile Telephone Networks). 2016. [Online]. Available at: <https://www.mtn.co.za/Pages/Home.aspx> [Accessed 7 November 2018].
- MTN (Mobile Telephone Networks). 2017. [Online]. Available at: <https://www.mtn.co.za/Pages/Home.aspx> [Accessed 27 January 2019].
- MTN (Mobile Telephone Networks). 2018. [Online]. Available at: <https://www.mtn.co.za/Pages/Home.aspx> [Accessed 9 March 2019].
- MTN (Mobile Telephone Networks). 2019. [Online]. Available at: <https://www.mtn.co.za/Pages/Home.aspx> [Accessed 16 May 2020].
- MTN (Mobile Telephone Networks). 2020. [Online]. Available at: <https://www.mtn.com/covid-19/> [Accessed 27 December 2020].
- MTN (Mobile Telephone Networks). 2021. [Online]. Available at: <https://www.mtn.co.za/Pages/Home.aspx> [Accessed 18 April 2021].
- MTN (Mobile Telephone Networks). 2023. *MTN Group Limited Sustainability Report for the year ended 31 December 2022*. [Online]. Available at: <https://www.mtn.com/wp-content/uploads/2023/04/MTN-Group-FY-22-Sustainability-Report.pdf> [Accessed 22 November 2023].
- MTN (Mobile Telephone Networks). 2024. *About US*. [Online]. Available at: <https://www.mtn.com/about/> [Accessed 11 February 2024].
- MTN Group. 2016. [Online]. Available from: <https://www.mtn.com/who-we-are/leadership/executive-committee/> [Accessed 16 May 2020].
- Mugari, S. 2020. *Vodacom fined M134 million*. [Online]. Available at: <https://www.thepost.co.ls/news/vodacom-fined-m134-million/> [Accessed 2 January 2021].

- Mukhezakule, M. and Tefera, O. 2019. The relationship between corporate strategy, strategic leadership and sustainable organisational performance: Proposing a conceptual framework for the South African aviation industry. *African Journal of Hospitality, Tourism and Leisure*, 8(3): 1-19.
- Mukhuty, S., Upadhyay, A., and Rothwell, H. 2022. Strategic sustainable development of Industry 4.0 through the lens of social responsibility: The role of human resource practices. *Business Strategy and the Environment*, 31(5): 2068-2081.
- Müller, E. and Hopf, H. 2017. Competence center for the digital transformation in small and medium-sized enterprises. *Procedia Manufacturing*, 11: 1495-1500.
- Muller, R. 2022. *South Africa's exclusive R10-billion Capex Club*. [Online]. Available at: <https://mybroadband.co.za/news/cellular/445868-south-africas-exclusive-r10-billion-capex-club.html> [Accessed 24 December 2023].
- Musakwa, M.T. and Odhiambo, N.M. 2022. Tourism and financial development in South Africa: A trivariate approach. *Journal of Policy Research in Tourism, Leisure and Events*, 14(2): 148-164.
- Muthu, D. and Thangavelu, I. 2019. Driving sustained competitive advantage through agility, NDP and innovation for telecommunication service providers. *International Journal of Business Competition and Growth*, 6(4): 244-272.
- Muyanga, C. 2014. The effect of fiscal policy on the performance of the Nairobi Securities Exchange. Master's dissertation. Nairobi: University of Nairobi.
- Mweshi, G.K. and Sakyi, K. 2020. Application of sampling methods for the research design. *Archives of Business Review*, 8(11): 180-193.
- MyBroadband. 2018a. *The best and worst mobile networks in South Africa*. [Online]. Available at: <https://mybroadband.co.za/news/cellular/274577-the-best-and-worst-mobile-networks-in-south-africa.html> [Accessed 16 January 2019].
- MyBroadband. 2018b. *MTN has 15,900 employees, spent R27 billion on tax, and operates in war zones*. [Online]. Available at: <https://mybroadband.co.za/news/cellular/254523-mtn-has-15900-employees-spent-r27-billion-on-tax-and-operates-in-war-zones.html> [Accessed: 2 March 2019].
- MyBroadband. 2020a. *#DataMustFall – The complete story*. [Online]. Available at: <https://mybroadband.co.za/news/telecoms/341887-datamustfall-the-complete-story.html> [Accessed 2 August 2020].
- MyBroadband. 2020b. *Mixed messages over Cell C roaming on MTN's 5G network*. [Online]. Available at: <https://mybroadband.co.za/news/cellular/373378-mixed->

messages-over-cell-c-roaming-on-mtns-5g-network.html [Accessed 27 December 2020].

MyBroadband. 2020c. *These are the best and worst mobile networks in South Africa*. [Online]. Available at: <https://businesstech.co.za/news/mobile/439727/these-are-the-best-and-worst-mobile-networks-in-south-africa-3/#:~:text=Best%20mobile%20network%20in%20South%20Africa&text=MTN%20reigned%20supreme%20with%20a,4.27%2C%20and%20Rain%20on%203.74> [Accessed 27 December 2020].

MyBroadband. 2020d. *Mobile operators give feedback on salary cuts, retrenchments, and work-from-home plans*. [Online]. Available at: <https://mybroadband.co.za/news/cellular/354217-mobile-operators-give-feedback-on-salary-cuts-retrenchments-and-work-from-home-plans.html> [Accessed 8 January 2021].

MyBroadband. 2021. *Cell C customer migration to Vodacom and MTN explained*. [Online]. Available at: <https://mybroadband.co.za/news/cellular/384254-cell-c-customer-migration-to-vodacom-and-mtn-explained.html#:~:text=Cell%20C%20is%20migrating%20its,service%20levels%20as%20Vodacom%20subscribers.&text=Over%20the%20three%20years%2C%20Cell,towers%20in%20the%20phased%20process> [Accessed 25 March 2021].

Myers, M.D. 1997. Qualitative research in information systems. *MIS Quarterly*, 21(2): 241-242.

Myers, M.D. 2020. *Qualitative research in business and management*. 3<sup>rd</sup> ed. London: Sage Publications.

Nagel, R.N and Dove, R. 1991. *21<sup>st</sup> century manufacturing enterprise strategy: An industry-led view*. Darby, PA: Diane Publishing.

Naidoo, R., Kaplan, D., and Fransman, M. 2005. The South African telecoms innovations system and the diffusion of broadband. *ResearchGate*. [Online]. Available at:

[https://www.researchgate.net/publication/238065356\\_THE\\_SOUTH\\_AFRICAN\\_TELECOMS\\_INNOVATION\\_SYSTEM\\_AND\\_THE\\_DIFFUSION\\_OF\\_BROADBAND](https://www.researchgate.net/publication/238065356_THE_SOUTH_AFRICAN_TELECOMS_INNOVATION_SYSTEM_AND_THE_DIFFUSION_OF_BROADBAND) [Accessed 13 December 2020].

Nakash, M. and Bouhnik, D. 2021. Knowledge management is not dead. It has changed its appearance. And it will continue to change. *Knowledge and Process Management*, 28(1): 29-39.

- Narayanan, A. and Lee, K. 2023. Security policy audits: Why and how. *IEEE Security & Privacy*, 21(2): 77-81.
- Narayanasamy, A. 2015. Reflexive account of unintended outcomes from spiritual care qualitative research. *Journal of Research in Nursing*, 20(3): 234-248.
- Naser, A. 2002. *The long-term financial sustainability of the Palestinian NGO sector: An assessment*. [Online]. Available at: <http://www.microfinancegateway.org/files/150701507/pdf> [Accessed 19 October 2022].
- Naudé, P., Hamilton, B., Ungerer, M., Malan, D., and De Klerk, M. 2018. *Business perspectives of the Steinhoff saga*. University of Stellenbosch Business School, Special Report June 2018. [Online]. Available at: [https://www.usb.ac.za/usb\\_reports/steinhoffsaga/](https://www.usb.ac.za/usb_reports/steinhoffsaga/) [Accessed 25 June 2023].
- Navarro-Galera, A., Rodríguez-Bolívar, M.P., Alcaide-Muñoz, L., and López-Subires, M.D. 2016. Measuring the financial sustainability and its influential factors in local governments. *Applied Economics*, 48(41): 3961-3975.
- Nazari, F., Valizadeh, E., Kashani, N., Rezaei, G., and Amini, P. 2022. The effect of knowledge management on business strategy specifically, Porters generic competitive strategies evidence from Iran. *Academy of Strategic Management Journal*, 21: 1-10.
- Nene, P.R. 2019. Exploring the impact of value added tax increase on the performance of the business: A case of MTN. Master's dissertation. Pretoria: University of South Africa.
- Nene, P.R. 2023. Value-added tax change implementation aftermath: A case of MTN. *Open Journal of Business and Management*, 11: 2966-2987.
- Nene, P.R. and Moraka, N.V. 2023. The strategic impact of tax regulation on the performance of a telecommunication company. *Corporate and Business Strategy Review*, 4(4, special issue): 369-380.
- Netreba, M., Bilyk, V., Oliiar, M., Martsikhiv, K., and Stoliarchuk, L. 2020. Educational issues in the development of postmodernism: A retrospective review and current trends. *Postmodern Openings*, 11(2Sup1): 288-300. [Online]. Available at: <https://doi.org/10.18662/po/11.2Sup1/193> [Accessed 11 August 2021].
- Neu, D., Warsame, H., and Pedwell, K. 1998. Managing public impressions: Environmental disclosures in annual reports. *Accounting, Organizations and Society*, 23: 265-282.

- Neuman, W.L. 2006. *Social research methods: Qualitative and quantitative approaches*. 6<sup>th</sup> ed. Boston, MA: Pearson.
- Neuman, W.L. 2011. *Social research methods: Qualitative and quantitative approaches*. 7<sup>th</sup> ed. Boston, MA: Allyn and Bacon.
- Newman, J. 2019. *Ontological Social Policy Analysis: An investigation into the ontological assumptions underpinning the social security reforms of the UK Coalition Government 2010-2015*. Doctoral dissertation, University of Leeds.
- Ng, A. and Yi Young, J. 2019. Industry surveys. Telecommunications: Europe, CFRA powered by data from S&P Global.
- Ng'ang'a, L.W. 2017. Influence of strategic direction on organizational performance in tourism government agencies in Kenya. *International Journal of Business and Commerce*, 6(4): 18-36.
- Ngatane, N. 2020. *Lesotho confirms Vodacom slapped with R8.2M penalty fee*. [Online]. Available at: <https://ewn.co.za/2020/02/17/lesotho-confirms-vodacom-slapped-with-r8-2m-penalty-fee> [Accessed 2 January 2021].
- Ngulube, P. 2015. Trends in research methodological procedures used in knowledge management studies. *African Journal of Library, Archives & Information Science*, 25(2): 125-143.
- Nguyen, H.T., Nguyen, H., Nguyen, N.D., and Phan, A.C. 2018. Determinants of customer satisfaction and loyalty in Vietnamese life-insurance setting. *Sustainability*, 10(4): 1151-1167.
- Nguyen, P.B.A. 2019. *Advanced research methods for applied psychology*. Oxon: Routledge.
- Nicholson, W. and Snyder, C. 2019. Microeconomic theory: Basic principles and extensions. Toronto: Thomson. 136. *Cuadernos de Economía*, 38:76.
- Njokweni, A., Mketsu, M., and Cwele, T. 2019. *Makate v Vodacom: Intellectual property in mist of a contractual dispute*. [Online]. Available at: <http://www.derebus.org.za/makate-v-vodacom-intellectual-property-in-mist-of-a-contractual-dispute/> [Accessed 18 April 2021].
- Nowak, J.K., Nowak, R., Radzikowski, K., Grulkowski, I., and Walkowiak, J. 2021. Automated bowel sound analysis: An overview. *Sensors*, 21: 5294.
- Nyagadza, B., Kadembo, E.M., and Makasi, A. 2019. An application of impression management theory on corporate storytelling for branding in examining internal

- stakeholders' corporate brand perceptions. *The Retail and Marketing Review*, 15(2): 39-50.
- Nyamsogoro, G.D. 2010. Financial sustainability of rural micro finance in Tanzania. Doctoral thesis. University of Greenwich.
- Nyan, L.M., Rockson, S.B., and Addo, P.K. 2020. The mediation effect of customer satisfaction on the relationship between service quality and customer loyalty. *Journal of Management and Strategy*, 11(3): 13.
- O'Shannassy, T. 2021. The challenges of strategic leadership in organizations. *Journal of Management & Organization*, 27(2): 235-238.
- Occomore, D. 1995. 'Number, please!' – A history of the early London telephone exchanges from 1880 to 1912.
- OECD (Organization for Economic Cooperation and Development. 2018. [Online]. Available at: [https://read.oecd-ilibrary.org/taxation/revenue-statistics-2018\\_rev\\_stats-2018-en#page186](https://read.oecd-ilibrary.org/taxation/revenue-statistics-2018_rev_stats-2018-en#page186) [Accessed 29 May 2019].
- Ogueyungbo, O.O., Maloma, A., Igbinoba, E., Salau, O., Maxwell, O., and Hezekiah, F. 2019. A review of flexible work arrangements initiatives in the Nigerian telecommunication industry. *International Journal of Civil Engineering and Technology*, 10(3): 934-950.
- Okoye, L.U., Erin, O., Ado, A., and Isibor, A.A. 2017. Corporate governance and financial sustainability of microfinance institutions in Nigeria. *Proceedings of the International Business Management Association (IBIMA) Conference – Education Excellence and Innovation Management through Vision 2020*, 4035-4045.
- Oláh, J., Aburumman, N., Popp, J., Khan, M.A., Haddad, H., and Kitukutha, N. 2020. Impact of Industry 4.0 on environmental sustainability. *Sustainability*, 12(11): 4674.
- Omayio, L. 2017. Competitive strategy and organizational performance of telecommunications industry in Kenya. Doctoral thesis. University of Nairobi.
- Ones, D.S. Anderson, N., Viswesvaran, C., and Sinangil, H.K. 2017. *The SAGE Handbook of Industrial, Work and Organizational Psychology*. London: Sage.
- Onuigbo, C.M., Onoh, G.N., and Inyama, H.C. 2021. Performance analysis of 3G and 4G LTE networks and the need for automatic mobile number portability. *International Journal of Engineering and Environmental Sciences*, 4(3): 27-43.
- Onwuegbuzie, A.J. and Leech, N.L. 2005. On becoming a pragmatic researcher: The importance of combining quantitative and qualitative research methodologies. *International Journal of Social Research Methodology*, 8(5): 375-387.



- Onyeiwu, S. 2022. The nexus of structural adjustment, economic growth and sustainability: The case of Ethiopia. In Antoniadou, A., Antonarakis, A.S., and Kempf, I. eds. 2022. *Financial crises, poverty and environmental sustainability: Challenges in the context of the SDGs and Covid-19 recovery*, 107-120.
- Opferkuch, K., Caeiro, S., Salomone, R., and Ramos, T.B. 2021. Circular economy in corporate sustainability reporting: A review of organisational approaches. *Business Strategy and the Environment*, 30(8): 4015-4036.
- Oraedu, C. 2019. Structural equation test of service quality dimensions on the relationship quality construct: Evidence from an emerging telecom market. *Journal of Relationship Marketing*, 18(2): 146-171.
- Osborne, M.J. and Rubinstein, A. 2020. *Models in microeconomic theory ('he' edition)*. Open Book Publishers. [Online]. Available at: <https://doi.org/10.11647/OBP.0204> [Accessed 14 May 2023].
- Overgaard, M. 2021. Assumption and metaphysics in empirical consciousness science. *Psychology of Consciousness: Theory, Research, and Practice*, 8(1): 88-90.
- Özden-Schilling, C. 2016. The infrastructure of markets: From electric power to electronic data. *Economic Anthropology*, 3(1): 68-80.
- Ozili, P.K. 2022. Theories of sustainable finance. *Managing Global Transitions*, March.
- Öztekin, H.R. and Bayraktar, F. 2019. How decisiveness, self-efficacy, curiosity and independent and interdependent self-construals are related to future hopefulness among senior students. *Behavioral Sciences*, 9(12): 154.
- Padgett, T.M. 2017. Improving healthcare provider communication during patient change of unit. Doctoral thesis. Walden University.
- Parasuraman, A., Zeithaml, V.A., and Berry, L.L. 1988. SERVQUAL: A multiple-item scale for measuring consumer perceptions of service quality. *Journal of Retailing*, 64(1): 12.
- Parkinson, S. 2005. *Telecentres, access and development: Experience and lessons from Uganda and South Africa*. Rugby: Practical Action Publishing.
- Parra-Bernal, G. and Alves, A. 2017. *UPDATE 4-Banco do Brasil sets profitability as priority over market share*, 16 February 2017. [Online]. Available at: <http://www.reuters.com/article/banco-dobrasil-results-idUSL1N1G10CG> [Accessed 23 May 2021].
- Patterson, K. 1997. Delighted clients are loyal clients. *Rough Notes*, 140(3): 221-234.

- Patton, M.Q. 2002. *Qualitative research and evaluation methods*. 3<sup>rd</sup> ed. Thousand Oaks, CA: Sage.
- Patton, M.Q. 2015. *Qualitative research and evaluation methods*. 4<sup>th</sup> ed. Thousand Oaks, CA: Sage.
- Pearce, A.J. and Robinson, R.B. 2007. *Strategic management: Formulation, implementation, and control*. 10<sup>th</sup> ed. Pennsylvania: McGraw-Hill.
- Pecoraro, K. 2016. *What exactly is insight?* New Brunswick: Center of Alcohol Studies, Rutgers University.
- Peersman, G. 2014. Overview: Data collection and analysis methods in impact evaluation. *Methodological Briefs: Impact Evaluation*, 10.
- Pellissier, R. 2008. *Business research made easy*. Juta and Company Ltd.
- Peteraf, M.A. 1993. The cornerstones of competitive advantage: A resource-based view. *Strategic Management Journal*, 14: 179-191.
- Phadermrod, B., Crowder, R.M., and Wills, G.B. 2019. Importance-performance analysis based SWOT analysis. *International journal of information management*, 44: 194-203.
- Phi, H., Thanh, L., and Viet, B. 2018. Effects of service quality on customer satisfaction and customer loyalty: A case of 4- and 5-star hotels in Ho Chi Minh City, Vietnam. *Business and Economic Horizons*, 14(1): 437-450.
- Pierce, D. 2018. Phone calls are dead. Voice chat is the future. *The Wall Street Journal*. [Online]. Available at: <https://www.wsj.com/articles/phone-calls-are-dead-voice-chat-is-the-future-1531051200>.
- Piot-Lepetit, I. and Nzongang, J. 2014. Financial sustainability and poverty outreach within a network of village banks in Cameroon: A multi-DEA approach. *European Journal of Operational Research*, 234(1): 319-330.
- Pongratz, S. 2023. *Worldwide telecom equipment up 3 percent in 2022*. [Online]. Available at: <https://www.delloro.com/worldwide-telecom-equipment-up-3-percent-in-2022/> [Accessed 21 May 2023].
- Porter, M. 1987. From competitive advantage to corporate strategy. *Harvard Business Review*, May-June: 43-59.
- Porter, M.E. 1980. *Competitive strategy*. New York: Free Press.
- Porter, M.E. 1983. The technological dimension of competitive strategy. In: Rosenbloom, R.S. ed. 1983. *Research on technological innovation, management and policy*, Greenwich, CT: JAI Press.

- Porter, M.E. 1990. Competitive advantage: Creating and sustaining superior performance. *Harvard Business Review*, 73: 93.
- Powmya, A., Abidin, N.Z., and Azizi, N.S.M. 2019. Strategizing contractor firms to deliver green construction projects: Conceptual framework. *IOP Conference Series: Materials Science and Engineering*, 601(1): 012027. IOP Publishing.
- Pradhan, R.P., Arvin, M.B., Nair, M.S., Hall, J.H., and Bennett, S.E. 2021. Sustainable economic development in India: The dynamics between financial inclusion, ICT development, and economic growth. *Technological Forecasting and Social Change*, 169: 120758.
- Prahalad, C.K. and Hamel, G. 1990. The core competence of the corporation. *Harvard Business Review*, 68: 275-282.
- Prasad, M.S. 2020. Birds' eye view on mobile number portability. *Network Security*, 8(2): 28-35.
- Priadana, S., Sunarsi, D., Wahyitno, A.P.S., Mogi, A., Agustin, F., Irawati, L., Supriyadi, H.S.K., Wandu, D., and Purwanto, A. 2021. The effect of strategic leadership on competitive strategy and business performance: Evidence from Indonesian SME's. *Annals of the Romanian Society for Cell Biology*, 25(2): 4908-4918.
- Prongjit, S. 2006. Relationship between training and individual performance improvement. *Sasin Journal of Management*, 12(1): 30-50.
- Przychodzen, J. and Przychodzen, W. 2013. Corporate sustainability and shareholder wealth. *Journal of Environmental Planning and Management*, 56(4): 474-493.
- Puron-Cid, G., Reddick, G.C., and Ganapati, S. 2019. Public value of online financial transparency: Financial sustainability and corruption of public officials in the US state governments. *International Journal of Public Sector Management*, 32(5): 511-553.
- Purvis, B., Mao, Y., and Robinson, D. 2019. Three pillars of sustainability: In search of conceptual origins. *Sustainability Science*, 14: 681-695.
- Qu, S.Q. and Dumay, J. 2011. The qualitative research interviews. *Qualitative Research in Accounting & Management*, 8(3): 238-264.
- Rahamathunnisa, A., Selvakumar, S., and Kannan, A.S. 2023. A Systematic Literature Review Analysis Of The Determinants Of Financial Inclusion: Current State And Future Directions. *Journal of Namibian Studies: History Politics Culture*, 33: 410-437.
- Rahim, N. 2017. Sustainable growth rate and firm performance: A case study in Malaysia. *International Journal of Management, Innovation & Entrepreneurial Research*, 3(2): 48-60.

- Rahimli, A. 2012. Knowledge management and competitive advantage. *Information and Knowledge Management*, 2(7): 37-43.
- Rahman, H. 2014. Factors affecting customer satisfaction in mobile telecommunication industry in Bangladesh. *Business, Management and Education*, 12(1): 74-93.
- Rahmoun, M. 2020. Factors affecting customer behavior in telecommunication industry. *International Journal of Research in Business and Social Science*, 9(2): 133-138.
- Raimi, L. 2017. Understanding theories of corporate social responsibility in the Ibero-American hospitality industry. In *Corporate Social Responsibility and Corporate Governance*; Emerald Publishing Limited: Bingley, West Yorkshire, UK.
- Regulation, G.D.P. 2018. General data protection regulation (GDPR). *Intersoft Consulting*, Accessed in October, 24(1).
- Rehman, A.A. and Alharthi, K. 2016. An introduction to research paradigms. *International Journal of Educational Investigations*, 3(8): 51-59.
- Reich, J., Schneider, D., Sorokos, I., Papadopoulos, Y., Kelly, T., Wei, R., Armengaud, E., and Kaypmaz, C. 2020. Engineering of runtime safety monitors for cyber-physical systems with digital dependability identities. *Proceedings of the Computer Safety, Reliability, and Security: 39th International Conference, SAFECOMP 2020*, 39: 3-17. 16-18 September 2020. Lisbon, Portugal: Springer International Publishing.
- Reinharz, S. 1992. *Feminist methods in social research*. Oxford: Oxford University Press.
- Remenyi, D. 2012. *Case study research*. Reading: Academic Publishing.
- Rezaee, Z. 2016. Business sustainability research: A theoretical and integrated perspective. *Journal of Accounting Literature*, 36(1): 48-64.
- Richards, L. and Richards, T. 1991. The transformation of qualitative method: Computational paradigms and research processes. In: Fielding, N.G. and Lee, R.M. eds. 1991. *Using computers in qualitative research*. London: Sage, 2(1): 38-53.
- Rilke, R.M., Danilov, A., Weisel, O., Shalvi, S., and Irlenbusch, B. 2021. When leading by example leads to less corrupt collaboration. *Journal of Economic Behavior & Organization*, 188: 288-306.
- Robb, G. and Paelo, A. 2020. Competitive dynamics of telecommunications markets in South Africa, Tanzania, Zambia, and Zimbabwe. *WIDER Working Paper*, 83.

- Roller, L.H. and Waverman, L. 2001. Telecommunications infrastructure and economic development: A simultaneous approach. *The American Economic Review*, 91(4): 909.
- Romm, N.R.A. and Ngulube, P. 2015. Mixed methods research. In: Mathipa, E.R. and Gumbo, M.T. eds. 2015. *Addressing research challenges: Making headway for developing researchers*. Noordwyk: Mosala-MASEDI Publishers and Booksellers, 9: 159-173.
- Rosário, A.T. and Dias, J.C. 2022. Sustainability and the digital transition: A literature review. *Sustainability*, 14(7): 4072.
- Rowlands, T., Waddell, N., and McKenna, B. 2016. Are we there yet? A technique to determine theoretical saturation. *Journal of Computer Information Systems*, 56(1): 40-47.
- Roxas, B., Ashill, N., and Chadee, D. 2017. Effects of entrepreneurial and environmental sustainability orientations on firm performance: A study of small businesses in the Philippines. *Journal of Small Business Management*, 55: 163-178.
- Roy, K., Zvonkovic, A., Goldberg, A., Sharp, E., and LaRossa, R. 2015. Sampling richness and qualitative integrity: Challenges for research with families. *Journal of Marriage and Family*, 77(1): 243-260.
- Rozenbaum, O. 2019. EBITDA and managers' investment and leverage choices. *Contemporary Accounting Research*, 36(1): 513-546.
- Russell, C.L. 2018. 5 G wireless telecommunications expansion: Public health and environmental implications. *Environmental Research*, 165: 484-495.
- Rydenfelt, H. 2021. Realism without representationalism. *Synthese*, 198: 2901-2918. [Online]. Available at: <https://doi.org/10.1007/s11229-019-02251-4> [Accessed 5 January 2019].
- Ryder, J. 2005. Primitiv' pragmatizm i naturalizm [Reconciling pragmatism and naturalism]. *Bulletin of Moscow University*, 7(4): 18-36.
- Ryu, D. 2019. Effects of the 2008 global financial crisis on corporate social responsibility and firm value in Korea. *Investment Analysts Journal*, 48(2): 114-124.
- Saldaña, J. 2010. *The coding manual for qualitative researchers*. Thousand Oaks: Sage.
- Saldaña, J. 2015. *The coding manual for qualitative researchers*. London: Sage.
- Sancak, C., Velloso, R., and Xing, J. 2010. Tax revenue response to the business cycle. *IMF Working Paper*, 10: 71.

- Santalova, M.S., Soklakova, I.V., and Balabanova, D.K. 2020. The choice of the competitive strategy of the company. *International Scientific Conference Far East Conference (ISCFEC 2020)*, 1282-1289. Atlantis Press.
- SARS (South African Revenue Service). 2022. *Media release – SARS collects R1.564 trillion*. [Online]. Available at: <https://www.sars.gov.za/media-release/media-release-sars-collects-r1-564-trillion/> [Accessed 21 May 2022].
- Satyasai, K.J.S. and Kumar, A. 2020. NAFINDEX: Measure of financial inclusion based on NABARD All India Rural Financial Inclusion Survey (NAFIS) data. *NABARD Working Paper*, 2020: 1.
- Saunders, M. 2016. Understanding research philosophies and approaches to theory development. In: Saunders, M., Lewis, P., and Thornhill, A. eds. 2016. *Understanding research philosophies and approaches*. Harlow: Pearson Education, Chapter 4: 122-161.
- Saunders, M., Lewis, P., and Thornhill, A. 2009. *Research methods for business students*. 4<sup>th</sup> ed. Harlow: Pearson.
- Saunders, M., Lewis, P., and Thornhill, A. 2015. *Research methods for business students*, 5<sup>th</sup> ed. Harlow: Pearson.
- Saunders, M., Lewis, P., and Thornhill, A. 2019. *Research methods for business students*, 8<sup>th</sup> ed. Harlow: Pearson.
- Saunila, M., Ukko, J., and Rantala, T. 2018. Sustainability as a driver of green innovation investment and exploitation. *Journal of Cleaner Production*, 179: 631-641.
- Sautet, F. 2022. Alertness: An Aristotelian approach. In: Bylund, P.L. ed. 2022. *A modern guide to Austrian economics*. Cheltenham: Edward Elgar Publishing, Chapter 3: 39-63.
- Saxena, D. 2019. The search for mechanisms in business research: Reflections on retroductive analysis in a multilevel critical realist case study. *The Electronic Journal of Business Research Methods*, 17(1): 17-27.
- Schwab, K. 2017. *The fourth industrial revolution*. New York: Crown Business.
- Schwandt, T.A., Lincoln, Y.S., and Guba, E.G. 2007. Judging interpretations: But is it rigorous? Trustworthiness and authenticity in naturalistic evaluation. *New Directions for Evaluation*, 114: 11-25.
- Sesinye, N. 2018. *Safaricom faces \$4.47 million fine by telecom regulator*. [Online]. Available at: <https://www.itnewsafrika.com/2018/09/safaricom-faces-kes-449-mln-fine-by-telecom-regulator/> [Accessed 29 January 2019].

- Sey, A. 2008. Where did all the payphones go? Intermediaries, innovation and insecurity in the mobile phone industry. *International Communication Association Pre-Conference on Mobile Communication*. 21-22 May 2008. Montreal, Canada.
- Sharifi, H. and Zhang, Z. 1999. A methodology for achieving agility in manufacturing organizations: An introduction. *International Journal of Production Economics*, 62(1-2): 7-22.
- Shava, H., 2021. The relationship between service quality and customer satisfaction in the South African mobile network telecommunications industry. *Journal of International Studies*, 14(2): 70-83.
- Shenton, A.K. 2004. Strategies for ensuring trustworthiness in qualitative research projects. *Education for Information*, 22(2): 63-75.
- Shobande, O.A. and Asongu, S.A. 2022. The critical role of education and ICT in promoting environmental sustainability in Eastern and Southern Africa: A panel VAR approach. *Technological Forecasting and Social Change*, 176: 121480.
- Shou, Z., Zheng, X., and Zhu, W. 2016. Contract ineffectiveness in emerging markets: An institutional theory perspective. *Journal of Operations Management*, 46(1): 38-54.
- Shubita, M.F. 2019. Specification of the relationship between the sales expenses and the sales in Jordanian companies. *Innovative Marketing*, 15(4): 57-65.
- Siele, J. 2009. The effects of corporate governance structures on performance of MFIs. Outside Directors and CEO Turnover. *Journal of Financial Economics*, 20.
- Sihombing, D. and Hutagalung, G. 2020. Debt ratio, debt to equity ratio, net profit margin and return effects on stock price assets. *Proceedings of the International Conference on Culture Heritage, Education, Sustainable Tourism, and Innovation Technologies, Science and Technology Publications*, 1(2): 530-535.
- Simsek, Z., Heavey, C., and Fox, B.C. 2018. Interfaces of strategic leaders: A conceptual framework, review, and research agenda. *Journal of Management*, 44: 280-324.
- Singh, K.R., Dash, S., Deka, B., and Biswas, S. 2021. Mobile technology solutions for COVID-19. In: Al-Turjman, F., Devi, A., and Nayyar, A. 2021. *Emerging technologies for battling COVID-19: Applications and innovations*, 271-294.
- Sinkovics, R., Ghauri, P., and Penz, E. 2008. Enhancing the trustworthiness of interview based qualitative research. *Management International Review*, 6: 689-714.

- Siwale, M. and Venable, J. 2020. Information systems planning problems in not-for-profit organisations: The case of Western Australia. *Asia Pacific Journal of Information Systems*, 30(3): 664-694.
- Slaper, T. F. and Hall, T.J. 2011. The triple bottom line: What is it and how does it work? *Indiana Business Review*, 86(1): 4-8.
- Smith, M.B., Hill, A.D., Wallace, J.C., Recendes, T., and Judge, T.A. 2018. Upsides to dark and downsides to bright personality: A multidomain review and future research agenda. *Journal of Management*, 44(1): 191-217.
- Smith, A.N., Watkins, M.B., Ladge, J.J., and Carlton, P. 2019. Making the invisible visible: Paradoxical effects of intersectional invisibility on the career experiences of executive black women. *Academy of Management Journal*, 62: 1705-1734.
- Smura, T. 2004. Mobile number portability: Case Finland. *Mimeo, Networking Paper in Global Journal of Business Research*, 8(4): 99-110.
- Soegoto, A.S. and Karamoy, H. 2020. Competitive strategy analysis to increase consumer purchasing decisions on minimarket business. *ETIKONOMI*, 19(1): 119-130.
- Sontag-Padilla, L.M., Staplefoote, L., and Morganti, K.G. 2012. *Financial sustainability for nonprofit organizations: A review of the literature*. Santa Monica, CA: RAND Corporation.
- South Africa. 2006. *Corporate Laws Amendment Act 24 of 2006*. *Government Gazette* 29377(497). Cape Town: Government Printers.
- South Africa. 2013. *Protection of Personal Information Act 4 of 2013*. [Online]. Available at: <https://www.justice.gov.za/inforeg/docs/InfoRegSA-POPIA-act2013-004.pdf> [Accessed 30 May 2020].
- Spear, S. and Roper, S.T. 2013. Using corporate stories to build the corporate brand: An impression management perspective. *Journal of Product & Brand Management*, 22(7): 491-501.
- Srivastava, A., Bartol, K.M., and Locke, E.A. 2006. Empowering leadership in management teams: Effects on knowledge sharing, efficacy, and performance. *Academy of Management Journal*, 49: 1239-1251.
- Srivastava, G. and Kathuria, V. 2020. Impact of corporate governance norms on the performance of Indian utilities. *Energy Policy*, 140: 111414.



- Staicu, D. 2018. Financial sustainability of social enterprise in Central and Eastern Europe. *Proceedings of the International Conference on Business Excellence*, 12(1): 907-917.
- Stamenkov, G. and Dika, Z. 2015. A sustainable e-service quality model. *Journal of Service Theory and Practice*, 25(4): 414-442.
- Stanek-Kowalczyk, A. 2021. Sustainable development start-ups as a new category of enterprises in Poland. *International Entrepreneurship Review*, 7(2): 67-83.
- Starbuck, W.H. 1965. Organizational growth and development. In: March, J.G. ed. 1965. *Handbook of organizations*. New York: Rand-McNally, 451-522.
- Stein, V., Wiedemann, A., and Bouten, C. 2019. Framing risk governance. *Management Research Review*, 42(11): 1224-1242.
- Steyn, B. 2004. From strategy to corporate communication strategy: A conceptualisation. *Journal of communication management*, 8(2): 168-183.
- Strauss, A. and Corbin, J. 1998. *Basics of qualitative research: Techniques and procedures for developing grounded theory*. Thousand Oaks: Sage.
- Suarez, F.F. and Lanzolla, G. 2005. The half-truth of first-mover advantage. Technology and analytics. *Harvard Business Review*. [Online]. Available at: <https://hbr.org/2005/04/the-half-truth-of-first-mover-advantage> [Accessed 6 January 2021].
- Subbareddy, K. and Reddy, M.K.K. 2017. Sustainable growth rate and firm performance. *Paper presented at the National Conference on Marketing and Sustainable Development*, October, 13:14.
- Subrahmanyam, S. and Azad, S. 2019. Carrefour's competitive strategy-cost leadership and differentiation: A case study. *Pacific Business Review International*, 11(8): 137-145.
- Sulimany, H.G.H., Ramakrishnan, S., Chaudhry, A.A., and Bazhair, A.H. 2021. Impact of corporate governance and financial sustainability on shareholder value. *Estudios de Economia Aplicada*, 39(4): 1133-3197.
- Sunassee, N.N. and Sewry, D.A. 2002. A theoretical framework for knowledge management implementation. *Proceedings of the 2002 Annual Research Conference of the South African Institute of Computer Scientists and Information Technologists on Enablement through Technology*, 235-245.
- Suri, H. 2011. Purposeful sampling in qualitative research synthesis. *Qualitative Research Journal*, 11: 63-75.

- Syekei, J., Kapinga, W., and Kalule, B. 2021. *East Africa guide – Data infrastructure. Bowmans the value of knowing.*
- Tafur-Arciniegas, M. and Contreras, A.F.L. 2018. First approach to purposeful sampling for 1998 determining key factors on outcome bias. *American Society for Engineering Education (ASEE) Annual Conference and Exposition*. Salt Lake City, UT.
- Talbot, L.A. 1995. *Principles and practice of nursing research*. St. Louis, MO: Mosby-Yearbook.
- Tallon, P.P., Kraemer, K.L., and Gurbaxani, V. 2000. Executives' perceptions of the business value of information technology: A process-oriented approach. *Journal of Management Information Systems*, 16(4): 145-173.
- Tavory, I. and Fine, G.A. 2020. Disruption and the theory of the interaction order. *Theory and Society*, 49: 365-385.
- Tedersoo, L., Küngas, R., Oras, E., Köster, K., Eenmaa, H., Leijen, Ä., Pedaste, M., Raju, M., Astapova, A., Lukner, H., and Kogermann, K. 2021. Data sharing practices and data availability upon request differ across scientific disciplines. *Scientific Data*, 8(1): 192.
- Teece, D.J. 2018. Profiting from innovation in the digital economy: Enabling technologies, standards, and licensing models in the wireless world. *Research Policy*, 47(8): 1367-1387.
- Telkom, 2021. *Statements of profit or loss and other comprehensive income for the year ended 31 March 2021*. [Online]. Available at: <https://telkom-reports.co.za/reports/ar-2021/statements-of-profit-or-loss-and-other-comprehensive-income.php> [Accessed 21 May 2022].
- Thamrin, H. and Pamungkas, E.W. 2017. A rule based SWOT analysis application: A case study for Indonesian higher education institution. *Procedia Computer Science*, 116 (2): 144-150.
- Theofanidis, D. and Fountouki, A. 2018. Limitations and delimitations in the research process. *Perioperative Nursing*, 7(3): 155-163.
- Thornton, L., Carrim, Y., Mtshaulana, P., and Reyburn, P. 2006. *Telecommunications law in South Africa*. Johannesburg: STE Publishers.
- Thraya, M.F., Lichy, J., Louizi, A., and Rzem, M. 2019. High-tech acquirers and the moderating role of corporate governance. *The Journal of High Technology Management Research*, 30(2): 100354.

- Tian, Y. 2022. A literature review on upper echelons theory. *2022 2<sup>nd</sup> International Conference on Enterprise Management and Economic Development (ICEMED 2022)*, 169-173. Atlantis Press.
- Timotijevic, L. and Barnett, J. 2006. Managing the possible health risks of mobile telecommunications: Public understandings of precautionary action and advice. *Health, Risk and Society*, 8(2): 143-164.
- Titman, S. and Tsyplakov, S. 2007. A dynamic model of optimal capital structure. *Review of Finance*, 11(3): 401-451.
- Tlili, M., Othman, B.H., and Hussainey, K. 2019. Does integrated reporting enhance the value relevance of organizational capital? Evidence from the South African context. *Journal of Intellectual Capital*, 20(5): 642-661.
- Tobin, G.A. and Begley, C.M. 2004. Methodological rigour within a qualitative framework. *Journal of Advanced Nursing*, 48(4): 388-396.
- Tonday, H.R., Katore, P.D., Raut, D.S., Rathod, A.D., and Morwal, A.I. 2021. Study of implementation of agile supply chain for efficient delivery of essentials during Covid-19. *SSRG International Journal of Mechanical Engineering*, 8(8): 1-5.
- Tongaat. 2019. *SENS Tongaat Hulett*. [Online]. Available at: <http://www.tongaat.com/investors/sens/> [Accessed: 25 June 2023].
- Toytok, E.H. and Doğan, M. 2022. Power-center forming games behaviors of school principals: Mixed method research. *International Journal of Curriculum and Instruction*, 14(1): 751-785.
- Trafford, V. and Leshem, S. 2012. *Stepping stones to achieving your doctorate by focusing on your viva from the start*. Maidenhead: Open University Press.
- Tricker, R.I. 2015. *Corporate governance: Principles, policies, and practices*. 2<sup>nd</sup> ed. Oxford: Oxford University Press.
- Tse, Y.K., Zhang, M., Akhtar, P., and MacBryde, J. 2016. Embracing supply chain agility: An investigation in the electronics sector. *Supply Chain Management: An International Journal*, 21(1): 140-156.
- Tseng, S.M. and Lee, P.S. 2014. The effect of knowledge management capability and dynamic capability on organizational performance. *Journal of Enterprise Information Management*, 27(2): 158-179.
- Tseng, Y., Verhoef, E., De Jong, G., Kouwenhoven, M., and Van der Hoor, T. 2007. A pilot study into the perception of unreliability of travel times using in-depth interviews. *Journal of Choice Modelling*, 2(1): 8-28.

- Tsindeliani, I., Kot, S., Vasilyeva, E., and Narinyan, L. 2019. Tax system of the Russian Federation: Current state and steps towards financial sustainability. *Sustainability*, 11(24): 6994,
- Tuckett, A.G. 2004. Qualitative research sampling: The very real complexities. *Nurse Researcher*, 12(1): 47-61.
- United Nations General Assembly. 2005. *60/1 2005 World Summit outcome. United Nations, Report A/60/L (1): 139.*
- United Nations. 2015. *The sustainable development agenda*. [Online]. Available at: <https://www.un.org/sustainabledevelopment/development-agenda/> [Accessed 22 November 2023].
- Urpelainen, J. and Yang, J. 2019. Global patterns of power sector reform, 1982-2013. *Energy Strategy Reviews*, 23: 152-162.
- Valentin, E.K. 2001. SWOT analysis from a resource-based view. *Journal of Marketing Theory and Practice*, 9(2): 54-69.
- Van der Linde, K.E. 2022. The Steinhoff corporate scandal and the protection of investors who purchased shares on the secondary market. *Potchefstroom Electronic Law Journal/Potchefstroomse Elektroniese Regsblad*, 25(1).
- Van Niekerk, A.J. 2020. Inclusive economic sustainability: SDGs and global inequality. *Sustainability*, 12(13): 5427.
- Van Vuuren, H.J. 2020. The disclosure of corporate governance: A tick-box exercise or not? *International Journal of Business and Management Studies*, 12(1): 50-65.
- Van Wyk, B. 2012. *Research design and methods. Part 1*. University of the Western Cape. [Online]. Available at: [https://www.uwc.ac.za/Students/Postgraduate/Documents/Research\\_and\\_Design\\_1.pdf](https://www.uwc.ac.za/Students/Postgraduate/Documents/Research_and_Design_1.pdf) [Accessed 9 August 2014].
- Van Zyl, G. 2016. *Former MTN CEO in R24m golden handshake*. [Online]. Available at: <http://www.fin24.com/Tech/Companies/former-mtn-ceo-in-r24m-golden-handshake-20160425> [Accessed 16 May 2020].
- Vasileiou, K., Barnett, J., Thorpe, S., and Young, T. 2018. Characterising and justifying sample size sufficiency in interview-based studies: Systematic analysis of qualitative health research over a 15-year period. *BMC Medical Research Methodology*, 18(1): 1-18.

- Veledar, O., Damjanovic-Behrendt, V., and Macher, G. 2019. August. Digital twins for dependability improvement of autonomous driving. *European Conference on Software Process Improvement*, 415-426. Cham: Springer International Publishing.
- Veligura, N.V., Chan, K.K.K., Van Ingen, F.M.P., and Cufre, G. 2020. *COVID-19's impact on the global telecommunications industry*. [Online]. Available at: <https://policycommons.net/artifacts/1268128/covid-19s-impact-on-the-global-telecommunications-industry/1847693/> [Accessed 10 May 2022].
- Verboncu, I. and Condurance, A. 2016. Diagnostics vs. SWOT analysis. *Review of International Comparative Management*, 17(2): 114-122.
- Vodacom. 2018. *Vodacom Group Limited Preliminary Results for the year ended 31 March 2018* [Online]. Available at: <https://www.vodacom.com/reporting-centre.php> [Accessed 26 December 2020].
- Vodacom. 2019. *Trading update for the quarter ended 30 June 2019*. [Online]. Available at: <https://www.vodacom.com/quarterly-results.php> [Accessed 26 December 2020].
- Vodacom. 2020. *Vodacom Group six point plan to help counter the impact of COVID-19*. [Online]. Available at: <https://www.vodacom.com/covid-19.php> [Accessed 26 December 2020].
- Vodacom. 2023. *Vodacom Group Limited environmental, social and governance report for the year ended 31 March 2023*. [Online]. Available at: <https://www.vodacom.com/reporting-centre.php> [Accessed 22 November 2023].
- Vodacom. 2024. *Our strategy*. [Online]. Available at: <https://www.vodacom.com/our-strategy.php> [Accessed 11 February 2024].
- Von Schomberg, R. 2013. A vision of responsible research and innovation. In: Owen, R., Heintz, M., and Bessant, J. eds. 2013. *Responsible innovation: Managing the responsible emergence of science and innovation in society*, 51-74.
- Vu, H.M., Chan, H.K., Lim, M.K., and Chiu, A.S.F. 2017. Measuring business sustainability in food service operations: A case study in the fast food industry. *Benchmarking*, 24: 1037-1051.
- Vuong, Q.H. 2021. The semiconducting principle of monetary and environmental values exchange. *Economics and Business Letters*, 10(3): 284-290.
- Wairimu, D.M., Chege, D., Muli, S., and Ndolo, J. 2022. Nexus between agility capability and resilience in the retail sector. *International Journal of Innovation and Economic Development*, 8(2): 34-47.

- Wang, B., Liu, Y., Qian, J., and Parker, S.K. 2021. Achieving effective remote working during the COVID-19 pandemic: A work design perspective. *Applied Psychology: An International Review*, 70(1): 16-59.
- Wang, G., Holmes Jr., R.M., Oh, I.-S., and Zhu, W. 2016. Do CEOs matter to firm strategic actions and firm performance? A meta-analytic investigation based on upper echelons theory. *Personnel Psychology*, 69: 775-862.
- Warde, P. 2011. The invention of sustainability. *Modern Intellectual History*, 8(1): 153-170.
- Weber, R.P. 1990. *Basic content analysis*. Newbury Park, CA: Sage.
- Webster, J. and Watson, T. 2002. Analyzing the past to prepare for the future: Writing a literature review. *MIS Quarterly*, 26(2): 13-23.
- Weick, K.E. 1995. *Sensemaking in organizations*. Newbury Park, CA: Sage.
- Wernerfelt, B. 1995. The resource-based view of the firm: Ten years after. *Strategic Management Journal*, 16(3): 171-174.
- West, J. and Gallagher, S. 2006. Challenges of open innovation: The paradox of firm investment in open-source software. *R&D Management*, 36(3): 319-331.
- WHO (World Health Organization). 2020. [Online]. Available at: <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/events-as-they-happen> [Accessed 18 May 2020].
- Womack, J.P., Jones, D.T., and Roos, D. 1990. *The machine that changed the world*. New York, NY: Rawson Associates.
- World Bank, 1994. *Adjustment in Africa: Reforms, results, and the road ahead*. Oxford: Oxford University Press.
- World Bank. 2020. *How the World Bank Group is helping countries with COVID-19 (coronavirus)*. [Online]. Available at: [www.worldbank.org/en/news/factsheet/2020/02/11/how-the-world-bank-group-is-helping-countries-with-covid-19-coronavirus](http://www.worldbank.org/en/news/factsheet/2020/02/11/how-the-world-bank-group-is-helping-countries-with-covid-19-coronavirus) [Accessed 31 May 2020].
- Wright, P., Pringle, O., and Kroll, M. 1992. *Strategic management text and cases*. Needham Heights, MA: Allyn and Bacon.
- Wugang, G. 2016. The analysis on the Development Strategy of High Tech Industries in Shenzhen. Master's dissertation. Siam University.
- Xiang, M.Q., Lin, L., Wang, Z.R., Li, J., and Xu, Z. 2020. Sedentary behavior and problematic smartphone use in Chinese adolescents: the moderating role of self-control. *Frontiers in Psychology*, 10: 495621.

- Xie, Z., Liu, X., Najam, H., Fu, Q., Abbas, J., Comite, U., Cismas, L.M., and Miculescu, A. 2022. Achieving financial sustainability through revenue diversification: A green pathway for financial institutions in Asia. *Sustainability*, 14(6): 3512.
- Xu, M., David, J.M., and Hi Kim, S. 2018. The fourth industrial revolution: Opportunities and challenges. *International Journal of Financial Research*, 9(2): 90-95.
- Yadav, P. 2022. Strategic management and its core concepts. *Specialusis Ugdymas*, 1(43): 5437-5449.
- Yin, R.K. 2014. *Case study research: Design and methods*. 3<sup>rd</sup> ed. Thousand Oaks: Sage.
- Yin, R.K. 2018. *Case study research and application: Design and methods*. 6<sup>th</sup> ed. Los Angeles: Sage.
- Yoshikuni, A.C. and Albertin, A.L. 2018. Effects of strategic information systems on competitive strategy and performance. *International Journal of Productivity and Performance Management*, 67(9): 2018-2045.
- Zabolotnyy, S. and Wasilewski, M. 2019. The concept of financial sustainability measurement: A case of food companies from Northern Europe. *Sustainability*, 11(18): 5139.
- Zaheer, S. 1995. Overcoming the liability of foreignness. *Academy of Management Journal*, 38(2): 341-363.
- Zaman, K. 2023. The future of financial support for developing countries: regional and Islamic monetary funds. *Politica*, 1(1): 1-8.
- Zamanian, A. and Hardiman, C.Y. 2005. Electromagnetic radiation and human health: A review of sources and effects. *High Frequency Electronics*: 16-26.
- Zameer, H., Wang, Y., Yasmeen, H., and Ahmed, W. 2019. Modeling the role of service quality, customer satisfaction and customer loyalty in building service brand equity. *International Journal of Asian Business Information Management*, 10(2): 55-72.
- Zaw, M.S. 2019. A study on effects of training program on human resource development in telecom industry (A case study on Nokia company). Doctoral thesis. MERAL Portal.
- Zelechowska, D., Zyluk, N., and Urbanski, M. 2020. Find out a new method to study abductive reasoning in empirical research. *International Journal of Qualitative Methods*, 19: 1-11.

Zhou, G., Liu, L., and Luo, S. 2022. Sustainable development, ESG performance and company market value: Mediating effect of financial performance. *Business Strategy and the Environment*, 31(7): 3371-3387.

Ziolo, M., Bak, I., and Cheba, K. 2021. The role of sustainable finance in achieving Sustainable Development Goals: Does it work? *Technological and Economic Development of Economy*, 27(1): 45-70.

Zuhe, H. 2017. Causes and prevention of telecommunication network fraud. *2<sup>nd</sup> International Conference on Humanities Science and Society Development. Advances in Social Science, Education and Humanities Research*, 155.



**APPENDIX A: LETTER SEEKING PARTICIPANT PERMISSION****Invitation to participate in an academic research study**

Dear Participant

We would like to acknowledge your busy schedule as a devoted executive in your organisation. We sincerely thank you for taking the time to open this email.

My name is **Phindile Nene**, permanently employed in MTN Group as a Senior Consultant for Controls and Process in Group Revenue Assurance and Fraud Management, and I have been with MTN since September 2004. When I joined the company, my first position was at 173 (Customer Care), where I worked as a call centre agent. With the aspiration to grow and optimise the opportunities available in the organisation, I have been on rotation in the company in various divisions, ranging from Customer Service, Legal Action Department, and Finance to Group Revenue Assurance and Fraud Management.

We are contacting you as part of a doctoral research project that I am undertaking at the University of South Africa (Unisa) under the supervision of Prof. Nthabiseng Violet Moraka, Chair of the Department of Business Management and Senior Lecturer: Strategic Management in the Department of Business Management at Unisa. The title of the research study is **“The financial sustainability of the South African telecommunication industry in the contemporary business environment – A multiple case analysis”**.

The purpose of the study is to explore the challenges experienced by the South African telecommunication (telco) industry that directly or indirectly affect the financial sustainability of mobile operators. Due to the complexity of the market and industry dynamics, a full understanding of the financial sustainability of the South African telco industry in the contemporary business environment will be achieved by exploring the political, economic, social, technological, environmental, and legal (PESTEL) model. The financial sustainability of South African mobile operators will be measured by

means of financial indicators such as earnings before interest, taxes, depreciation, and amortisation (EBITDA), net profit margin, return on total assets (ROA), return on equity (ROE), and return on investment (ROI). Analysing these financial indicators will assist in evaluating competitive strategies in the telco industry and the costing model of the evaluated mobile operators. I do not foresee that your organisation will experience any negative consequences by participating in this research, as all the financial information is already available in the public domain. I do, however, need to understand some of the strategic aspects that affect the financial sustainability of your organisation.

In view of the above, we would like to request an interview with you on a date and at a time suitable for you. The interview will take approximately 45 minutes to an hour of your time. We will take all reasonable steps to protect the anonymity and confidentiality of your responses. The researchers undertake to keep any information provided in the interview confidential, to not let it out of our possession, and to report on the findings from the perspective of the participating group and not from the perspective of an individual. Furthermore, the pseudonyms of both the sampled companies and the participants will be used when presenting the research results in order to ensure the confidentiality and anonymity of your participation.

We would like to inform you that your participation is completely voluntary, and your responses will only be used for the purposes of research. You will not be reimbursed or receive any incentives for your participation in the survey. The results of the study can be made available to you on request by means of an academic publication. The records will be kept for five years for audit purposes, after which they will be permanently destroyed: hard copies will be shredded, and electronic versions will be permanently deleted from the computer hard drive.

We hope that you will respond positively to this request and look forward to meeting you.

Yours sincerely

Phindile Roda Nene (Miss)

Senior Consultant for Controls and  
Process

Group RAFM

[Phindile.Nene@mtn.com](mailto:Phindile.Nene@mtn.com)

(+27) 83 209 0431

Nthabiseng Violet Moraka (Prof.)

Department of Business Management  
University of South Africa

[moraknv@unisa.ac.za](mailto:moraknv@unisa.ac.za)

(+27) 12 429 8752 (office); (+27) 78 447

4109

## APPENDIX B: CONSENT TO PARTICIPATE IN THIS STUDY

### CONSENT TO PARTICIPATE IN THIS STUDY

I, \_\_\_\_\_ (participant name), confirm that the person asking my consent to take part in this research has told me about the nature, procedure, potential benefits and anticipated inconvenience of participation.

It has been explained to me and I understood the study as explained in the information sheet.

I have had sufficient opportunity to ask questions and am prepared to participate in the study.

I understand that my participation is voluntary and that I am free to withdraw at any time without penalty (if applicable).

I am aware that the findings of this study will be anonymously processed into a research report, journal publications and/or conference proceedings.

I agree to the recording of the interview.

I have received a signed copy of the informed consent agreement.

Participant name & surname..... (please print)

Participant signature.....Date.....

Researcher's name & surname.....(please print)

Researcher's signature.....Date.....

Witness name & surname.....(please print)

Witness's signature.....Date.....

**APPENDIX C: INTERVIEW GUIDE**

**Student:** Miss Phindile Roda Nene  
**Field of study:** Doctor of Philosophy in Management Studies  
**Student number:** 34929533  
**Supervisor:** Prof. Nthabiseng Violet Moraka  
**Co-supervisor:** Prof. Macdonald Kanyangale

Interview acceptance date	
Interviewee name	
Designation	
Date of interview	

Orient the interviewee to the nature of the study and the objectives of the interview, stressing the confidentiality of the information discussed during the interview session.

**Background demographic questions**

- Briefly describe yourself in terms of your age, your qualifications, and your job description.
- How many years of experience do you have in the telecommunication (telco) industry?
- How many years of experience do you have beyond and outside the telco industry?

- Describe your career path that led you to the position you currently occupy, and indicate whether you are a member of any governing board.

### **About financial sustainability**

#### **Main question**

What is the financial sustainability of the South African telco industry in the contemporary business environment?

#### **To contextualise the contemporary business environment**

I am referring to predicaments and pursuits of the here and the now that affect the performance of the South African telco industry. When referring to performance, I am referring to strategic, operational, and financial performance.

If some aspects of the question are not answered, I will ask certain sub-questions.

#### **Sub-questions**

- What are the fundamental challenges associated with financial sustainability experienced by your own mobile operator?
  
- How is your organisation managing these challenges?

- Is there any financial risk exposure that directly or indirectly affects the financial sustainability of your mobile operator?
- How are you mitigating these risks?

<b>Competitive advantage</b>
------------------------------

**Main question**

What strategic game plan has been followed by your organisation in the past five years?

**Sub-questions**

- Is there anything that you would have done differently in the past five years to ensure that your organisation would remain competitive?
- Did the COVID-19 pandemic disrupt your 2020 strategy?
- How did your mobile operator respond to the COVID-19 pandemic?
- In your view, what is the impact of COVID-19 on the telco industry?

- Among Vodacom, MTN, Cell C, Telkom, Rain, and Liquid Telecom, which one of these organisations:
  - is a major threat; and
  - presents a great opportunity?

Please explain why you hold such a competitive view regarding your threats and opportunities.

### **Industry best practice**

#### **Main question**

How do the business environment and industry best practice affect the financial sustainability of your mobile operator?

#### **Sub-questions**

- Please explain, in detail, what can be done in order to mitigate the arbitrage risk experienced by mobile operators.
  
- What are your views, both advantages and disadvantages, of legalising SIM box in South Africa?

### **In closing**



- Do you think the South African government is doing enough to support mobile operators with spectrum allocation?
- Is the South African telco industry financially sustainable to continue to offer more job opportunities and reduce the unemployment rate?
- If “Yes”, why should graduates join the telco industry?
- Are there any other questions I should ask that can add value to the study?
- Are there any other public documents, information, reports, or artefacts that I should take into consideration?

## **APPENDIX D: CONFIDENTIALITY AGREEMENTS**

- Interview transcriber
- Language and technical editor
- Qualitative analyst consultant

## CONFIDENTIALITY AGREEMENT BETWEEN RESEARCHER (P. R. NENE) AND INTERVIEW TRANSCRIBER

### Full names of transcriber:

**Study title:** A Financial Sustainability Model for the South African Telecommunication Industry

I, the undersigned, acknowledge, understand and agree to adhere to the following conditions of access.

- Data of the above-mentioned study
- Analysis report of the above-mentioned study
- Data results of the above-mentioned study

I will maintain the privacy and confidentiality of all accessible research data and understand that unauthorised disclosure of confidential data is an invasion of privacy and may result in criminal actions against me.

I will not disclose data or information to anyone other than those whom I am authorised to do so which in this case are the following;

Student:  
**PR Nene**  
 (University of South Africa)  
[Phindile.Nene@mtn.com](mailto:Phindile.Nene@mtn.com)

Supervisor  
**Prof. NV Moraka**  
 (University of South Africa)  
[moraknv@unisa.ac.za](mailto:moraknv@unisa.ac.za)

Co-supervisor  
**Prof. M Kanyangale**  
 (University of KwaZulu Natal)  
[kanyangalem@ukzn.ac.za](mailto:kanyangalem@ukzn.ac.za)

- I will access data only for the purposes for which I am authorised explicitly. On no occasion will I use research data, including confidential information, for my personal interest or advantage, or for any other business purposes.
- I will comply at all times with the University of South Africa's ethics and confidentiality code of conduct.
- I am informed that the references to confidential information in these documents are for my information, and are not intended to replace my obligations.
- I understand that where I have been given access to confidential information I am under a duty of confidence and would be liable under common law for any inappropriate breach of confidence in terms of disclosure to third parties and also for invasion of privacy if I were to access more information than that for which I have been given approval or for which consent is in place.
- Should my work in relation to the research study discontinue for any reason, I understand that I will continue to be bound by this signed Confidentiality Agreement.

Researcher signature:

.....

Interview transcriber signature:

.....

Date:

.....

**CONFIDENTIALITY AGREEMENT BETWEEN RESEARCHER (P.R. NENE) AND  
LANGUAGE EDITOR**

**Full names of Language and Technical Editor: Hendia Baker**

**Study title: A Financial Sustainability Model for the South African Telecommunication  
Industry**

I, the undersigned, acknowledge, understand and agree to adhere to the following  
conditions of access.

- Thesis and data of the above-mentioned study
- Analysis report of the above-mentioned study
- Data results of the above-mentioned study

I will maintain the privacy and confidentiality of all accessible research data and  
understand that unauthorised disclosure of confidential data is an invasion of privacy  
and may result in criminal actions against me.

I will not disclose data or information to anyone other than those whom I am authorised  
to do so which in this case are the following;

Student:  
**PR Nene**  
(University of South Africa)  
[Phindile.Nene@phinhope.co.za](mailto:Phindile.Nene@phinhope.co.za)

Supervisor  
**Dr NV Moraka**  
(University of South Africa)  
[moraknv@unisa.ac.za](mailto:moraknv@unisa.ac.za)

Co-supervisor  
**Prof M Kanyangale**  
(University of KwaZulu Natal)  
[kanyangalem@ukzn.ac.za](mailto:kanyangalem@ukzn.ac.za)

- I will access the thesis only for the purposes for which I am authorised explicitly. On no occasion will I use research data, including confidential information, for my personal interest or advantage, or for any other business purposes.
- I will comply at all times with the University of South Africa's ethics and confidentiality code of conduct.
- I am informed that the references to confidential information in these documents are for my information and are not intended to replace my obligations.
- I understand that where I have been given access to confidential information I am under a duty of confidence and would be liable under common law for any inappropriate breach of confidence in terms of disclosure to third parties and also for invasion of privacy if I were to access more information than that for which I have been given approval or for which consent is in place.
- Should my work in relation to the research study discontinue for any reason, I understand that I will continue to be bound by this signed Confidentiality Agreement.

Researcher signature:



.....

Language and Technical Editor signature:



.....

Date:

06 March 2024

.....

## **CONFIDENTIALITY AGREEMENT BETWEEN RESEARCHER (P.R. NENE) AND INDEPENDENT RESEARCH RESULTS REVIEWER**

### **Full names of Independent Research Results Reviewer:**

**Study title:** A Financial Sustainability Model for the South African Telecommunication Industry

I, the undersigned, acknowledge, understand and agree to adhere to the following conditions of access.

- Data of the above-mentioned study
- Analysis report of the above-mentioned study
- Data results of the above-mentioned study

I will maintain the privacy and confidentiality of all accessible research data and understand that unauthorised disclosure of confidential data is an invasion of privacy and may result in criminal actions against me.

I will not disclose data or information to anyone other than those whom I am authorised to do so which in this case are the following;

Student:  
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[Phindile.Nene@mtn.com](mailto:Phindile.Nene@mtn.com)

Supervisor  
**Prof. NV Moraka**  
(University of South Africa)  
[moraknv@unisa.ac.za](mailto:moraknv@unisa.ac.za)

Co-supervisor  
**Prof. M Kanyangale**  
(University of KwaZulu Natal)  
[kanyangalem@ukzn.ac.za](mailto:kanyangalem@ukzn.ac.za)

- I will access data only for the purposes for which I am authorised explicitly. On no occasion will I use research data, including confidential information, for my personal interest or advantage, or for any other business purposes.
- I will comply at all times with the University of South Africa’s ethics and confidentiality code of conduct.
- I am informed that the references to confidential information in these documents are for my information and are not intended to replace my obligations.
- I understand that where I have been given access to confidential information I am under a duty of confidence and would be liable under common law for any inappropriate breach of confidence in terms of disclosure to third parties and also for invasion of privacy if I were to access more information than that for which I have been given approval or for which consent is in place.
- Should my work in relation to the research study discontinue for any reason, I understand that I will continue to be bound by this signed Confidentiality Agreement.

Researcher signature:

.....

Statistical Analyst Consultant signature:

.....

Date:

.....



## APPENDIX E: ETHICS CLEARANCE CERTIFICATE



## UNISA ETHICS REVIEW COMMITTEE

Date 11 March 2021

NHREC Registration # : N/A  
 ERC Reference # 2021\_CEMS\_BM\_110  
 Name : Ms PR Nene  
 Student #34929533  
 Staff #N/A

Dear Ms PR Nene

**Decision: Ethics Approval from  
 March 2021 to March 2026**

**Researcher(s): Name:** Dear Ms PR Nene  
 E-mail address: 34929533@mylife.unisa.ac.za  
 Telephone # 083 2090 431

**Supervisor (s): Name:** Dr NV Moraka  
 E-mail address # moraknv@unisa.ac.za  
 Telephone # (012) 429-8753

**Working title of research:**

**The Financial Sustainability of the South African Telecommunication Industry in  
 the Contemporary Business Environment – a multiple case analysis**

**Qualification:** PhD

Thank you for the application for research ethics clearance by the Unisa Ethics Review Committee for the above-mentioned research. Ethics approval is granted for 5 years.

*The low risk application was reviewed by a Sub-committee (Department of Business Management Ethics Review Committee) of URERC on 11 March 2021 in compliance with the Unisa Policy on Research Ethics and the Standard Operating Procedure on Research Ethics Risk Assessment. The decision was approved on 11 March 2021.*

The proposed research may now commence with the provisions that:

1. The researcher(s) will ensure that the research project adheres to the relevant guidelines set out in the Unisa Covid-19 position statement on research ethics attached.



University of South Africa  
 Pretoria Street, Muckleneuk Ridge, City of Tshwane  
 PO Box 392 UNISA, 0003 South Africa  
 Telephone: +27 12 429 3111 Facsimile: +27 12 429 4150  
 www.unisa.ac.za

2. The researcher(s) will ensure that the research project adheres to the values and principles expressed in the UNISA Policy on Research Ethics.
3. Any adverse circumstance arising in the undertaking of the research project that is relevant to the ethicality of the study should be communicated in writing to the ethics Committee.
4. The researcher(s) will conduct the study according to the methods and procedures set out in the approved application.
5. Any changes that can affect the study-related risks for the research participants, particularly in terms of assurances made with regards to the protection of participants' privacy and the confidentiality of the data, should be reported to the Committee in writing, accompanied by a progress report.
6. The researcher will ensure that the research project adheres to any applicable national legislation, professional codes of conduct, institutional guidelines and scientific standards relevant to the specific field of study. Adherence to the following South African legislation is important, if applicable: Protection of Personal Information Act, no 4 of 2013; Children's act no 38 of 2005 and the National Health Act, no 61 of 2003.
7. Only de-identified research data may be used for secondary research purposes in future on condition that the research objectives are similar to those of the original research. Secondary use of identifiable human research data require additional ethics clearance.
8. No field work activities may continue after the expiry date 11 March 2026. Submission of a completed research ethics progress report will constitute an application for renewal of Ethics Research Committee approval.

**Note:**

*The reference number 2021\_CEMS\_BM\_110 should be clearly indicated on all forms of communication with the intended research participants, as well as with the Committee.*

Yours sincerely,

Signature



Chair Person : Prof S Rudansky-Kloppers  
 Department of Business Management  
 E-mail: E-mail: rudans@unisa.ac.za  
 Tel: (012) 429- 4689

Signature



Executive Dean : Prof Thomas Mogale  
 Economic and Management Sciences  
 E-mail: mogalmt@unisa.ac.za  
 Tel: (012) 429-4805

**APPENDIX F: QUANTITATIVE ANALYSIS AUDIT TRAIL**

The table below provide the figures extracted from the financial statements of the studied companies along with the researcher's calculations and formulas to determine some of the financial variables such as Net Profit Margin and ROI used to design the financial sustainability model in line with the research objectives.

Mobile Operator	Financial Indicators	2016	2017	2018	2019	2020
<b>Financial period evaluated</b>		<b>The figures are presented in Million</b>				
Vodacom	Revenue	80 077	81 278	86 370	86 627	90 746
	EBITDA	30 345	31 238	32 898	33 714	37 610
	Net profit	12 910	13 126	15 562	15 532	16 644
	Net profit margin	Own calculation (Net Profit divided (/) Revenue)				
	Capital expenditure	12 875	11 292	11 594	12 957	13 218
	ROA (Income/Assets)	A=78 703	A=81 138	A=131 365	A=153 643	A=190 223
	ROE (Net Income/Shareholders equity)	E=23 024	E=22 996	E=70 652	E=86 388	E=100 070
	ROI (Net profit/Cost of investment)	Own calculation (Revenue (/) Capital expenditure)				
	EBITDA margin (%)	37,90%	38,40%	38,10%	38,90%	41,40%
	Tax paid	-5 456	-6 051	-6 194	-6 535	-6 417
<b>Financial period evaluated</b>		<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>
MTN	Revenue	147 063	147 920	132 869	134 560	151 460
	EBITDA	59 125	40 751	46 971	48 246	64 092
	Net profit	23 570	-3 103	4 550	9 578	10 692
	Net profit margin	Own calculation (Net Profit divided (/) Revenue)				
	Capital expenditure	29 199	34 920	31 380	26 090	32 653
	ROA (Income/Assets)	A=313 867	A=268 700	A=252 834	A=256 835	A=302 311

	ROE (Net Income/Shareholders equity)	E=151 838	E=105 231	E=95 336	E=88 226	E=86 100
	ROI (Net profit/Cost of investment)	Own calculation (Revenue (/) Capital expenditure)				
	EBITDA margin (%)	40,20%	27,50%	35,40%	35,90%	42,30%
	Tax paid	-11 322	-8 346	-5 020	-5 430	-6 908
<b>Financial period evaluated</b>		<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>
Cell C	Revenue	14 646	15 715	15 667	15 155	13 833
	EBITDA	3 106	7 793	2 897	2 467	2 860
	Net profit	541	4 114	-7 337	-3 936	-5 506
	Net profit margin	Own calculation (Net Profit divided (/) Revenue)				
	Capital expenditure	2 271	1 198	2 112	273	
	ROA (Income/Assets)	A=15 762	A=18 948	A=14 134	A=8 869	
	ROE (Net Income/Shareholders equity)	E=(11 687)	E=3 760	E=(3 868)	E=(7 848)	
	ROI (Net profit/Cost of investment)	Own calculation (Revenue (/) Capital expenditure)				
	EBITDA margin (%)	21%	50%	18%	16%	

Source: Own compilation

