ICT priorities influencing policy directions in a South African telecommunications company

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ABSTRACT

COVID-19 facilitated the adoption of ICT and digital platforms as businesses utilised virtual alternatives for business continuity, education to online learning, and health to digital-enabled systems. This increased the amount of data shared between connected entities and thus the demand for telecommunications networks, presenting an opportunity for telecommunications operators to respond by leveraging data analytics and digital technologies in their processes. It became imperative to implement policies that could leverage the effectiveness of digital technologies as governance structures were not moving as fast during disruptions. So, this research explores policy directions of a telecommunications company in responding to COVID-19 disruptions.

The research adopted a qualitative research approach through semi-structured virtual interviews. This approach was supplemented by secondary data collection where various information sources were used. Data were collected from 12 participants and transcribed for analysis using thematic analysis approach to identify patterns in the data.

Organisation policies are not adaptive during disruptions and misalignments exist between policies of the different business units (BUs). Organisation policies were amended during COVID-19 because of different factors such as changes in operating model and regulation. A gap within organisation policies was identified, where some policies were implemented across the organisation before sign-off for approval was received. Policy compliance is a reactive approach where compliance is particularly enforced post violations.

Digital technologies can be integrated in organisation policy processes. Policies must be agile and adaptive to effectively govern dynamic environments and disruptions.

KEY WORDS

Adaptive policies, COVID-19, Digital technologies, ICT ecosystem, Internet, Policy changes, Policy directions, Policy framework, South African telecommunications, Telecommunications operators

DECLARATION

I, Nonkosi Ntsini, declare that the study on ICT priorities influencing policy directions in a South African telecommunication company research report is my own work except as indicated in the references and acknowledgements. It is submitted in partial fulfilment of the requirements for the degree of Master of Management in the field of Digital Business at the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination in this or any other university.

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Signed at: Centurion

On the: 25 day of February 2022

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LIST OF ABBREVIATIONS AND ACRONYMS

AI	Artificial Intelligence
BCM	Business Continuity Management
BU	Business Unit
CEO	Chief Executive Officer
DoC	Department of Communications
ECA	Electronic Communications Act
ER	Employee Relations
FTTH	Fibre to the Home
HR	Human Resources
ICASA	Independent Communications Authority of South Africa
ICT	Information and Communication Technology
IP	Internet Protocol
IT	Information Technology
IoT	Internet of Things
MS Teams	Microsoft Teams
NBP	National Broadband Policy
NDP	National Development Plan
NDR	National Disaster Regulations
NIP	National Infrastructure Plan
PC4IR	The Presidential Commission on the Fourth Industrial Revolution

PPE	Personal Protective Equipment
QoS	Quality of Service
RPA	Robotic Process Automation
SME	Subject Matter Expert
VPN	Virtual Private Network
WFH	Work from Home

CHAPTER 1. INTRODUCTION

The chapter provides an overview of the research by outlining fundamental concepts, the basis and the context of investigations, problem addressed, research questions and objectives, and assumptions.

1.1 Purpose of the study

This study explores the response of a South African telecommunications company in terms of its policy directions to COVID-19 disruptions.

1.2 Context of the study

1.2.1 *South African government overview*

The South African government acknowledged Information and Communication Technology (ICT) advancements by responding with necessary regulatory and policy frameworks to assist the country in realising its long-term broadband communications vision (Gillwald et al., 2018; Manda & Backhouse, 2017). The government intervention is continuously adapted to extend ICT because of findings that suggest investments in infrastructure and ICT are directly related to economic growth (Attwood et al., 2013; Gillwald et al., 2018). Development of infrastructure facilitates the uptake of ICT and enhance interactions as people shift towards online platforms for communication.

1.2.2 *South African telecommunications industry overview*

The value of networks has increased with the evolution of technologies from voice to broadband products and services (Gillwald et al., 2018). Communication networks are a critical aspect in digital growth as they facilitate the production and the successful adoption of emerging digital technologies such as Cloud Computing, the Internet of Things (IoT) and Artificial Intelligence (AI) (Manda & Backhouse, 2017). The South African telecommunications industry had

continued to see growth despite the declining economic status of the country (ICASA, 2021) in terms of observed increase in mobile and Internet penetration. Telecommunications revenue increased by 3.6% (ICASA, 2021) reporting data revenue growth of 18.5% (Businesstech, 2021).

1.2.3 *Telecommunications company under study*

The telecommunications company under study is the third largest communications organisation offering communication solutions to consumer and business markets (Lehong et al., 2013). This company is semi-privatised and constitutes different business units (BUs) following a decentralised leadership and strategic approach (Mkula, 2018). Mobile devices and increased data traffic from 14.9 million active customers serviced by the mobile business has been the revenue generator of this organization (Businesstech, 2021).

Policy management is a critical factor of this organisation as it aims to provide a standardised and aligned policy framework between Group and its BUs (**Group, n.d.). Organisation policies intend to reflect the strategy and objective of the organisation. Policies are stored in an accessible central repository to enhance transparency and accessibility throughout the organisation. Therefore, because policies set direction and assist the organisation in decision-making, it is imperative for the organisation to ensure its policy framework is continuously reviewed, updated (**Group, n.d.) for relevance.

To effectively manage a policy environment, (Kusserow, 2014) proposes that an organisation covers the following stages:

- Control and manage compliance documents.
- Develop standardised policy document formats.
- Prompt when action is required.
- Manage workflow in drafting and/or reformulation of policies.
- Track existing policies across the organisation.
- Maintain an archive of policies.
- Ensure security and access control measures are in place.

- The documents must have pointers to related regulations for ease of access and reference.
- Facilitate distribution of policies within the organisation.

1.2.4 *COVID-19 implications*

The pandemic motivated organisations to find ways to continue doing business and adopt digital technologies in their responses to navigate around business models, processes, policies and supply chain challenges (Craven et al., 2020). A business model details how an organisation generates profits, creates value for its customers, differentiates itself from competitors and maintains competitive advantage (Afuah, 2002).

During the first lockdown of COVID-19, telecommunications operators provided free access to Internet connectivity and online access for some government and educational websites (Bhandari, 2020), increasing the need and demand for data access, ICT and quality connectivity.

1.3 Research problem

COVID-19 introduced positive change in regulatory and policy frameworks as different tools to improve Internet access and to meet increased demand of the Internet became imperative (Bhandari, 2020). Transformation resulting from the pandemic impacted on the use of telecommunications networks as organisations shifted to working from home (Lutu et al., 2020), education to remote learning (Mhlanga & Moloi, 2020), health to the use of IoT systems (Singh et al., 2020) and general social interactions to online and social media platforms (Intelligence, 2020). This adoption increased broadband usage including Wi-Fi, network traffic (Zaballos et al., 2020), and data traffic generated from connected devices (Intelligence, 2020).

The general problem is the implementation of policies that could leverage benefits of emerging digital technologies (Manda & Backhouse, 2017) as the regulation is not moving as fast as technology advancements, thus presenting a gap in the appropriate implementation of innovative technologies (Gillwald et al., 2018) and

the adoption of mobile services in developing countries (Jahanbakht & Mostafa, 2020).

The specific problem is changes in policy frameworks to manage emergence at such scale. There is a need to adopt innovative policies to enable emerging digital technologies adoption and implementation to address requirements for the digital purpose (Manda & Backhouse, 2017) and a development of adaptive policy frameworks. Innovative policies govern the complexity introduced by disruptive causes because they are agile and adaptive to dynamic environments.

Changes that resulted from the pandemic and emerging ICT required that policies be evolved to cope with disruptions and rapid technology changes to shape the telecommunications industry and regulate the use and implementation of these technologies in Public and Corporate sectors. The research interest was in exploring the agility of a particular telecommunications company in its policy directions during COVID-19.

1.4 Research objectives

The study explored policy directions of a telecommunications company in responding to the COVID-19 pandemic.

The main aim of the research objective was to:

i. Examine changes in policy directions of a particular telecommunications company to cope with COVID-19 disruptions.

Sub-objectives of the study included the following:

ii. Investigate policies that have been formulated/ reformulated because of COVID-19.
iii. Investigate policy changes on the organisation regulatory measures.
iv. Examine the effect of external bodies on the organisation policy directions.

1.5 Research questions

ICT was considered from a system thinking perspective to expand on a holistic understanding of the impact the pandemic has on policies. System thinking provides organisations and individuals with necessary tools to address complex problems and phenomenon resulting from a dynamically changing world (Sillitto et al., 2019). It was of interest to understand how the pandemic shaped policies of the South African telecommunications industry considering that changes in government regulations and policies have an impact in the ICT ecosystem (Diga & May, 2016). The ICT ecosystem is an evolving system that changes as (1) technology and new processes emerge, (2) products and services modernise, and (3) markets and customer requirements evolve (Fransman, 2009). The ICT ecosystem includes “policies, strategies, processes, information, technologies, applications, and stakeholders” as its system elements (Diga & May, 2016, p. 2).

It was important to understand the current landscape of the organisation under study, its policy development process and regulatory environment. Therefore, the research question this study addressed looked at how the COVID-19 pandemic influenced the company policy directions.

Research main question:

1. How have the organisation policy directions changed to cope with COVID-19 disruptions?

Research sub-questions:

2. What policies have been formulated/ reformulated because of COVID-19?
3. How have policy changes affected organisation regulatory measures?
4. How have external bodies influenced the organisation policy directions?

1.6 Significance of the study

ICT vision 2020 was drafted as a government initiative to develop an Integrated National ICT Policy Framework aimed to provide a roadmap for long-term ICT developments (Gillwald et al., 2012). However, the South African government did

not see through the initiative as there were political influences and leadership challenges that affected its implementation (Gillwald et al., 2012). Telecommunication policy bottlenecks continue to be an issue for South Africa, making it difficult for telecommunications operators to dynamically and efficiently respond to disruptions, evolving technology and increasing customer demands (Gillwald et al., 2012).

The National Broadband Policy (NBP) states its primary objectives as (1) accessibility of citizens to affordable and secure broadband services, (2) government commitment to enable inclusion, (3) reduction of broadband services cost and (4) emphasis on roles of stakeholders in the development of infrastructure (Gillwald et al., 2012, p. 7). Therefore, the focus of the South African government has been around developing policies and a regulatory environment that addresses access inclusivity and digital inequality (Gillwald et al., 2018) rather than to develop technology driven policy frameworks that will create an efficient and transparent regulatory environment.

Digital platforms are rapidly innovating and evolving as emerging technologies display exponential growth indicative of out-of-sync regulatory measures to enforce regulation (Giovannetti, 2019). However, this growth provides telecommunications operators with the ability to collect real-time data to provide actionable insights while providing allowance to (1) cross-sell products and services to customers, (2) enhance network operations through predicting network traffic (Lee et al., 2013), (3) enhance cybersecurity to proactively flag attacks and (4) infrastructure predictive maintenance to ensure Quality of Service (QoS) (Yazdan, n.d.). QoS is the performance on service as viewed from the user's perspective according to the degree of satisfaction (Jae-Il Jung, 1996).

The gap remains to address the regulatory environment, where digital technologies can be used to influence policy directions rather than to use policies to support how digital technologies can be adopted. Therefore, the study theoretically contributes to the field of policies and governance structures. While practically proposing measures for the organisation to develop a policy environment that is sustainable during times of disruptions. In addition, providing

insights on integrating digital technologies to develop efficient and proactive policy process formulation initiatives.

Furthermore, the study assists the telecommunications company with the investigation of adopting adaptive and innovative policies to facilitate an effective and efficient policy environment while bridging the gap between policies and advancements in technology.

1.7 Delimitations of the study

i. The focus is on the policies of a specific telecommunications company operating in the South African telecommunications industry.

ii. Diga and May (2016) and Fransman (2009) defined different levels of the ICT ecosystem. Level 1 contributors provide the foundation in which networks are built, level 2 companies are providers of network cabling and converged networks such as telecommunications operators, contributors of level 3 produce applications and content like Google, Facebook, etc., and level 4 are final consumers using products and services produced by contributors of levels 1, 2, and 3 such as organisations, the government and individuals. Technology contributors in level 1 and level 3 are excluded from this study.

iii. Sajja and Padmavathy (2017) argue that usage of telecommunications continues to increase as it digitally connects all individuals. With this said, the increase in demand implies a need for rapid technology advancements. This convergence has an impact in the environment because of increased energy consumption and radiation effects (Sajja & Padmavathy, 2017). So, energy efficiency and other environmental issues have been excluded as part of this study.

iv. Rapid innovation and connectedness introduced by ICT has increased challenges such as security, trust, data privacy, and liability (Agrawal et

al., 2015; Kamyshanskaya, 2021; Manda & Backhouse, 2017). In this study, issues resulting from these challenges have been excluded.

1.8 Definition of terms

Adaptive policies - are policies that can cope with complex and dynamic settings (Swanson et al., 2010).

Artificial Intelligence - is to make the machine intelligent by replicating some human capabilities (Balmer et al., 2020).

COVID-19 (Coronavirus Disease 2019) - a global infectious disease that causes respiratory illness caused by the SARS-CoV-2 virus (World Health Organisation, 2020).

Ecosystem - “sociotechnical networks of interdependent digital technologies and associated actors that are related based on a specific context of use” (Skog et al., 2018, p. 433).

Information and Communication Technology - communication and convergence of media technologies that allow users to interact in digital platforms (Christensson, 2010).

National Broadband Policy - is a documented plan aimed “to connect people, government and business in the pursuit of inclusive economic growth’’ (Manda & Backhouse, 2017, p. 5).

National Development Plan - Manda and Backhouse (2017) define NDP as a long-term plan that guides a strategic framework and actions on inclusive digital transformation.

Policy - a document outlining a set of rules, guidelines, standard of practice, and organisational principles to be adhered to (Rochon, 2017).

Spectrum - “the invisible wavelengths or frequencies by which services such as broadcasting and mobile communications can be transmitted” (DoC, 2013, p. 22).

System - interdependent and interconnected elements that collectively define the system (Sillitto et al., 2019).

Telecommunications - is an industry regulated by ICASA operating within the ICT sector together with Broadcasting and Postal Services (ICASA, 2021).

1.9 Assumptions

To carry out the study, the following assumptions were made,

- The organisation is compliant to regulations imposed by the government, regulatory or external bodies of the South African telecommunications industry.
- It is assumed that the infrastructure and the employee skills capabilities will be adequate to develop and implement the innovative digital technology that will be incorporated in the policy framework of this study.
- Participants are well-informed about the policies of the organisation under study.
- Participants are a sample drawn from Group. Group refers to the type of organisational structure that is adopted by the company under study. The structure is divisional as each BU of the organisation services different customers based on their needs (Suttle, 2019). Therefore, an assumption that the policy process is uniform across all organisation BUs is made.
- Participants are aware and are educated about the COVID-19 pandemic.
- Participants answer the questions with integrity.

1.10 Structure of the report

Chapter 1 provides the context and the background of the study by outlining fundamental concepts guiding the significance of the research. It provides the objectives, questions to be answered, and the problem the study seeks to address.

Chapter 2 presents the literature review and the conceptual development where key concepts underpinning the study are unpacked and investigated. Possible research answers are provided through propositions identified from the analysis of existing literature.

Chapter 3 is the overview of the design study discussing the methodologies, philosophies and paradigms chosen for this research. The research instrument, methods for data sampling, collection, and analysis procedures are discussed.

Chapter 4 presents answers in comparison to identified propositions of Chapter 2 by providing findings based on data collected from participants' responses.

Chapter 5 provides an interpretation and discussion of the findings in relation to the literature review.

Chapter 6 provides answers to the research questions, recommendations and conclusions drawn as well as limitations and theoretical and practical contributions of the study.

CHAPTER 2. LITERATURE REVIEW

2.1 Introduction

This chapter provides detail of fundamental concepts and propositions for research questions and objectives. COVID-19 resulted in an uptake of digital technologies as virtual platforms became popular (ICASA, 2021). There was insufficient time for businesses and the government to adjust policies, displaying a sense of agility in some organisations' business or operating models. An operating model visually represents how an organisation delivers customer value and runs itself (Suryanegara, 2020). It is interesting to investigate how a telecommunications company adjusted its policies during this period because policies have been identified as one of the important determinants during COVID-19 where organisations had to adopt measures to cope with the disruption (Chernozhukov et al., 2021) while meeting precautions and regulations specified by the World Health Organisation (WHO).

Therefore, this chapter discusses the background and key concepts, investigates conceptual development from the literature, provides possible answers, and presents concluding remarks.

2.2 Background discussion

The ability to embrace digital technologies is important to drive the digital vision and performance of government, business, and society while governing the complexities of the digital environment (Manda & Backhouse, 2017). Telecommunications operators leverage customer data collected to perform meaningful analytics and provide insights and trends that can be used in decision-making (Churchill, 2021) through integration with innovative digital capabilities. Growth in telecommunications is argued to be because of the evolution of digital technologies, particularly Artificial Intelligence techniques (Churchill, 2021).

2.3 Theoretical foundation

2.3.1. Policy process and stages

Rochon (2017) defines a policy as a document that outlines a set of rules, guidelines, standards of practice, and organisational principles to be followed. Policy development is a complex process affecting sustainability, the economy, the society and the environment (Milano et al., 2014). A need to develop business policies is not only associated with addressing issues but also with disruptions and innovations (Lohrey, 2018). Continuous monitoring and update of business policies is crucial in ensuring that policies do not hinder business objectives and organisation vision (Lohrey, 2018).

The concept of policy development was first coined by Lasswell as a linear seven-stage framework (Lasswell & Lerner, 1951, as cited in Fischer & Miller, 2006). However, according to Alinaghian et al. (2011), the policy development process involves four main stages (1) development, (2) implementation, (3) monitoring, and (4) evaluation, where the development stage includes policy formulation. Benoit (2013) also argues that stages of the policy process are simultaneously executed which is contrary to the linear framework of (Lasswell & Lerner, 1951, as cited in Fischer & Miller, 2006). Additionally, Benoit (2013) and Lohrey (2018) view policy development as a five-stage process that includes (1) identifying policy objectives or agenda setting, (2) policy formation, (3) adopting the best solution, (4) policy implementation, and (5) evaluating policy directives.

During the development of a policy, evidence needs to be provided to support policy decisions but the evidence used for this purpose is sometimes incomplete and often misunderstood (Patel et al., 2021). A need for regulatory agility is imperative to manage policy objectives of efficiency and innovation (Gillwald et al., 2018). As a result, a standard policy development template needs to be drawn up by all stakeholders involved in the process and made available across the organisation to enhance transparency, uniformity and compliance. Furthermore, this policy template needs to clearly specify the different stages to provide a measure of guidance for improved productivity (Lohrey, 2018).

This study thus adopted a combination of process steps extracted from (Benoit, 2013; Fischer & Miller, 2006; Lohrey, 2018), which view policy development as a five-stage framework. This framework enforces investigations of the purpose of the policy because effective organisation policies seek to answer a question or provide a solution to a business problem (Lohrey, 2018) and continuous compliance. Thus, identifying those questions or pain points an organisation should address is the first stage of policy creation (Lohrey, 2018) to provide proper guidance and assessment of policy relevance. The second stage, policy formulation, investigates different ways of addressing identified problems and questions raised from the first stage of identifying policy objectives or agenda setting. It becomes evident that to execute the second stage of the policy development process, stage 1 must be completed as it provides guidance to policy development.

Policy formulation in a policy development process brings upon a possibility of numerous solutions to the identified problems the organisation seeks to address, hence adopting the best possible solution becomes a critical aspect because these questions and problems link to long-term organisation objectives (Lohrey, 2018). So, depending on the organisation process of approval, if no solution is selected as feasible, the proposed policy goes back to the formation stage of the development process. Once a gap or a problem to solve has been identified and a way to address the problem has been established, the next stage looks at implementing the solutions while the last stage looks at evaluating policies for relevance. Therefore, the study adopts the linear approach to policy development to enforce sequential execution of the steps for better management of policy processes.

2.3.2. ICT priorities

Vu (2017) identifies ICT as generating network effects through connecting different entities and Christensson (2010) knowledge enriching through increased accessibility to online information and social interaction platforms. The usage of ICT continues to increase as it is aimed at digitally connecting all individuals (Sajja & Padmavathy, 2017). Thus, ICT integration is essential in the transformation of social, political and economic landscapes (Diga & May, 2016;

Olatokun, 2008). Government and organisations seek to integrate digital technologies within business functions by leveraging the amount of data transferred between connected entities (Balmer et al., 2020; Kamyshanskaya, 2021).

Digital technologies facilitate innovation and efficiency in business processes, social life and the economy (Kamyshanskaya, 2021; Lu et al., 2017). Its adoption and implementation should be appropriately executed to ensure compliance with business objectives as well as laws and regulations (Kamyshanskaya, 2021). Technology is the connectivity enabler of the digital economy (Townsend et al., 2013). Increased demand and changing customer needs put pressure on telecommunications operators to utilise new technologies for introducing better features (Agrawal et al., 2015) in products and services.

Therefore, this study refers to ICT as an evolving digital service that connects different stakeholders through the Internet or virtual platforms.

2.3.2.1. Generation of networks

Mobile communications have evolved through five generation of network where first generation was basic voice services (Forge & Vu, 2020), that used frequency modulation techniques and circuit switching technology (Agrawal et al., 2015). Each generation of network introduces technology advancements and enhanced features additional to previous generations (Forge & Vu, 2020). Mobile wireless communication has made connectedness easier with additional data and video services (Agrawal et al., 2015). The implementation of the fifth generation (5G) network requires a different operating model, one that is radical, flexible, and adaptive to changing needs (Suryanegara, 2020).

The fourth generation (4G) network provides users with voice, fast data transmission and ultra-broadband Internet services (Agrawal et al., 2015). This network is still the widely used infrastructure (Businesstech, 2019). Investment in 4G network continues to be vital for the growth of the country because it provides the foundation in which the 5G network is built. Forge and Vu (2020) argue that 5G offers high data speed and other capabilities over 4G network and provides an enablement of different use cases such as Process Automation, Artificial

Intelligence, IoT, and Cloud Services. Subsequently, 5G introduces further possibilities of growth of telecommunications and enhanced global competitiveness while facilitating digital inclusivity (Businesstech, 2019).

Table 1 below illustrates the variations of mobile communications generations with their corresponding features and theoretical download speeds.

Table 1. Variations of mobile communications generations

Network generation	1G	2G	3G	4G	5G
Year	~1980	~ late 1980	~2000	~2010	~2019/2020
Features	• Analog system. • Cordless telephone.	• Enhanced spectrum efficiency and security. • Improved network coverage and system capability. • Facility for roaming. • Data and voice.	• Faster data rates and high-speed mobile internet access. • Supports multimedia applications. • Value added services (VAS) like mobile television, GPS. • Increased capacity.	• High spectral efficiency, multicast/broadcast, and voice quality. • Easy internet access and other services. • Very low latency. • Simple protocol architecture.	**eMBB** = Enhanced mobile broadband characterized by rapid data rate **mMTC** = Massive machine-type communications, characterized by capability to support a high connection load **URLLC** = Ultra-reliable and low-latency communications
Download speed	2.4kbps	64kbps	144 kbps to 384 kbps	50 Mbps to 100 Mbps	2 to 20 Gbit/s
Main contribution	Limited mobile telephony access.	Extended mobile telephony access.	Enhanced mobile telephony access, Internet access and roll-out of some mobile services.	Access performance, innovation of social platforms.	Development of better business models and the replacement of fixed line broadband.
Disadvantages	• Only voice communication. • Low capacity with poor voice link. • Poor handoff. • Less secure.	• Weak signal. • Lack of complex data handling.	• Upgrading cost to 3G devices and requirement of closer base station is expensive. • High power consumption.	• Higher data prices. • Complicated and expensive to implement. • Higher power consumption.	N/A

Source: Agrawal et al. (2015); Forge and Vu (2020, p. 7)

The download speeds specified in Table 1 differ by country (Forge & Vu, 2020). The highest average download speed in South Africa, as provided by the top four telecommunications operators over 4G network, is 19.3 Mbps, with 10.7 Mbps being the lowest (Boyland, 2019). Overall 4G coverage across the country is at 80% (Boyland, 2019).

2.3.2.2. Digital technologies in telecommunications

AI-based systems in telecommunications can be used for different reasons such as reducing operating costs, improve performance and customer service (Balmer et al., 2020; Churchill, 2021). Artificial Intelligence is integrated more frequently in networks to enable efficiency and increase QoS (Balmer et al., 2020). In Balmer et al. (2020) and Churchill (2021) more use cases of digital technologies, particularly Artificial Intelligence in telecommunications are discussed. The discussion includes identifying efficient route and automatically redirecting traffic to less congested Internet Protocol (IP) networks, and predictive maintenance of network infrastructures. The use of Artificial Intelligence in telecommunications is not limited to these mentioned use cases.

For this study, digital technologies are integrated in organisation policies to develop and manage its policy directions. Emerging digital technologies enable an integrated, responsive, effective, and transparent approach to policy development and process.

2.3.3. ICT ecosystem

To understand the contribution of different elements that underpin the theory, we examine the ICT ecosystem to have a view of the overall picture and how these terms tie together. According to Fransman (2009), the evolution of the ICT ecosystem is a result of the adoption of the Internet over the years, the evolution of the relationships between the elements of the ecosystem as well as innovation. Improvements in Internet access have been motivated by the pandemic (Bhandari, 2020) to enhance communication through adopting high connection technologies and networks that offer improved performance. On the other hand, (Basole et al., 2015) adds that this evolution is driven by rapid technological advancements, shifts in economic landscapes and changes in regulation.

Since the elements of the ICT ecosystem include policies, strategies, processes, information, technologies, applications, and stakeholders (Diga & May, 2016). Changes in any of these elements impacts the functionality of the ecosystem. It noted that innovative ways of doing business was also motivated by COVID-19, where organisations incorporated technological solutions in how they respond to the disruption. Policies within the ICT ecosystem were adjusted during COVID-19, where the government drove inclusion and quality connectivity through the facilitation of temporary emergency spectrum rollout. This spectrum provided an enablement of digital technologies adoption and functionality.

2.4 COVID-19 disruptions

There has been an observed shift to virtual and video-based socialising and working platforms (Forge & Vu, 2020) that require reliable access to broadband (Bhandari, 2020). The pandemic has motivated a positive change in regulation as innovative implementation tools for policy directions were necessary to improve Internet access and QoS (Bhandari, 2020). COVID-19 facilitated immediate responses from government and organisations since regulations and policy environments were adjusted to accommodate COVID-19 disruptions and regulations.

Craven et al. (2020) provides action steps that are crucial for adoption by any type of business to navigate its operations during disruptions, particularly COVID-19, such as employee protection, development of a cross-functional COVID-19 response team, availability of sufficient liquidity, supply chain management, customer focus, practising and demonstrating the purpose of the plan.

2.5 Organisation policy directions

Regulatory uncertainty and the impact of COVID-19 are the organisation challenges (Integrated Report, 2020). During COVID-19, several precautionary measures around IT, security and network, employee well-being, supply chain management, and infrastructure management were implemented to minimise the impact of the pandemic on business operations (Integrated Report, 2020).

- IT, network and security - the organisation implemented a scalable network to effectively manage the increase in demand. Backed up by investment projections on site development, fibre backhaul, radio capacity, digital platforms and e-commerce to ensure business continuity.
- Employee agility - 80% of the workforce could immediately work from home, reflecting on the flexibility and agility of organisation operations.
- Supply chain management - business continuity plans were reviewed and new suppliers were secured to mitigate risks in inventory levels during the pandemic.

Fibre to the Home (FTTH) connectivity rate offered by the organisation is at 48.2%, the highest in the country's telecommunications industry (Integrated Report, 2020). FTTH is a connection technology that offers high speed Internet access, improved performance and support for emerging technologies. With this said, the organisation has managed to secure 79.5% 4G coverage throughout the country (Boyland, 2019) to offer enhanced customer experience.

These initiatives show that the organisation under study has the potential and capacity to implement digital technologies within its internal processes. The infrastructure accommodates for the adoption of emerging technologies for better customer experience and organisation processes and operations. The organisation displayed resilience in its business and operating model during COVID-19 which illustrated a sense of agility in some of its processes. Furthermore, most of the organisation workforce could immediately work from home displaying adaptive and digitally skilled operations. Adjustment of policies was also inevitable because a new way of managing the regulatory environment became a requirement.

2.6 South African government intervention

Political constraints and inconsistent leadership are a hindrance to the development of an appropriate ICT industry policy environment (Gillwald et al., 2012). The Independent Communications Authority of South Africa (ICASA) made top management appointments based on political motivations and not on

technical competencies and capabilities, showing low levels of experience and competence on the regulator of the South African telecommunications industry. (Gillwald et al., 2012). A fair regulatory environment and transparent policy framework are facilitators of competition and economic growth (Integrated Report, 2020).

The release of spectrum remains essential to facilitate the functionality of the next generation technologies (Gillwald et al., 2018). ICASA responded by issuing temporary emergency spectrum to telecommunications operators as part of the ICT COVID-19 National Disaster Regulations (NDR) to ease network congestion (Bhandari, 2020) and facilitate efficient ICT and quality connectivity. Policies were amended by the South African regulatory bodies and the government to ensure fair and correct implementation of the temporary spectrum and compliance on COVID-19 regulations.

To increase connectedness and reduce the price of broadband in South Africa, submarine cabling was extended to other players (Gillwald et al., 2018) for faster, reliable Internet and improved connectivity (Bloomberg, 2020). These efforts increased healthy competition and decreased the price of ICT services, placing South Africa in a better position to develop a digital economy, implement digital technologies, and leverage on their capabilities.

South Africa adopted digital transformation for its ICT ecosystem, including responding with policies and strategies to assist in achieving its transformation purpose (Manda & Backhouse, 2017). The South African government is investing in research areas such as Robotics, Artificial Intelligence, Nanotechnology, Biotechnology, and Advanced Manufacturing (National Advisory Council on Innovation, 2019). Table 2 provides the South African policy initiatives by the government in support of a policy environment that promotes digital growth.

Table 2. South African government initiatives

Initiative	Description
Electronic Communications Act, 2005 (ECA)	"Provides legal framework for convergence of the telecommunications, broadcasting and information technology services" (ICASA, 2022, p. 17) and the regulation on competition matters.
National Broadband Policy (NBP)	Aimed at creating accessibility to affordable and secure broadband services by enabling inclusion through reduced cost (Gillwald et al., 2012).
National Development Plan (NDP)	Promotes the use of ICT to develop an inclusive information society (Gillwald et al., 2018) by eradicating poverty and reducing inequality (ICASA, 2022).
National Integrated ICT White Paper Policy	Seeks to transform South Africa into an inclusive and innovative digital and knowledge society (Gillwald et al., 2018).
National Infrastructure Plan (NIP)	Aimed at transforming the economic landscape through delivery of basic services and facilitation of reducing unemployment (ICASA, 2022). This policy is also facilitating the expansion of access to communication technology through licensing of spectrum for the deployment of broadband infrastructure (ICASA, 2022).
National Treasury Economic Policy Paper, 2019	Policy that is focused on stimulating South Africa's economic growth and recovery by releasing spectrum through an auction process, leveraging the private sector to roll out broadband, and rapid deployment guidelines (ICASA, 2022).
Policy on High Demand Spectrum and Policy Direction on the Licensing of a Wireless Open Access Network, 2019 (2019 Policy Direction)	Aimed at promoting universal broadband coverage and the assignment of high demand spectrum to communications network service licensees.
Presidential Commission on the Fourth Industrial Revolution (PC4IR)	Investigates relevant policies, systems and action plans that will strategically position South Africa as a digital economy, by adopting and implementing digital technologies (PC4IR, 2020).

Source: Gillwald et al. (2012); Gillwald et al. (2018); ICASA (2022); PC4IR (2020)

2.7 Propositions

From the literature discussed and critically reviewed, the following propositions relating to the study have been identified:

- Proposition 1 - there are no organisation policies formulated/reformulated because of COVID-19.

- Proposition 2 - changes made to organisation policies have an impact on its regulatory environment.
- Proposition 3 - organisation policy directions are heavily influenced by external bodies.

2.8 Conceptual Framework

A conceptual framework is “a network of interlinked concepts that together provide a comprehensive understanding of a phenomenon or phenomena” (Jabareen, 2009, p. 51). It provides understanding (Jabareen, 2009) of how the Research problem identified in Chapter 1 is explored. Figure 1 provides a conceptual framework to illustrate the relation of the concepts used in the study.

The main components of the framework are infrastructure, digital technologies, business processes and policy processes. The functionality of these components is interlinked because the infrastructure provides the basis in which digital technologies can be developed and implemented while digital technologies are integrated in business processes, particularly policy processes to develop innovative policies as business policies address disruptions and innovations (Lohrey, 2018). The importance of infrastructure is highlighted through constant development of initiatives to expand access and the adoption of high-speed broadband networks and targets for download and upload speeds to provide access to advanced connectivity and services (Prado & Bauer, 2021; Forge & Vu, 2020) as well as the growth of the country because of its facilitation of digital inclusivity (Businesstech, 2019).

The infrastructure has three variables such as the generation of networks, submarine cabling and the spectrum as the spectrum facilitates the functionality of the next generation technologies (Gillwald et al., 2018). Additionally, Forge and Vu (2020) argue that 5G network provides an enablement of different digital technologies use cases in telecommunications, such as RPA, data analytics and Artificial Intelligence.

So the relationship that exists between the components of this framework is that, the infrastructure is essential and required to adopt digital technologies that are integrated in business processes and organisation policy processes.

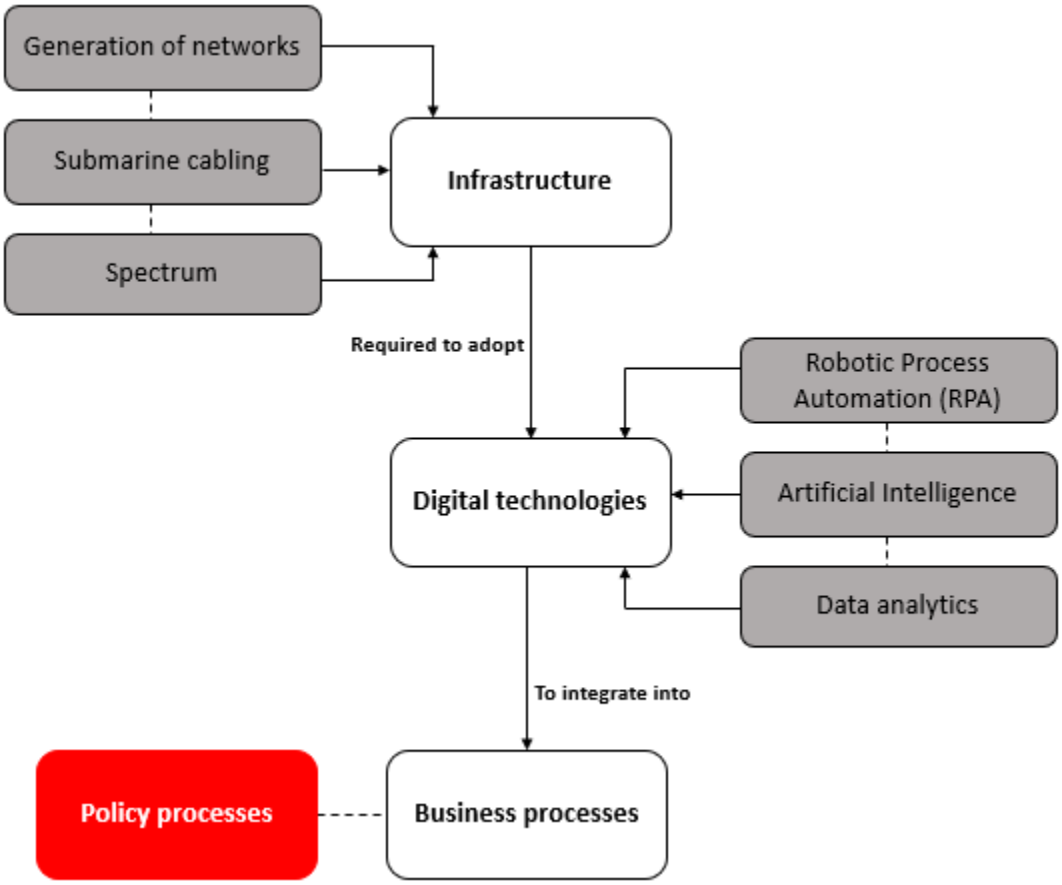

Figure 1. Conceptual framework

Source: Author's framework developed based on literature review

2.9 Conclusion of Literature Review

Policy oversight from the government and the regulator remains an issue in the ecosystem. An agile and efficient regulatory environment was essential for the functioning of business and government to better cope with disruptions and technology advancements. COVID-19 accelerated adoption of emerging digital technologies in telecommunications as there was a need to revise business and operating models to continue servicing customers. To create an agile policy environment, integration with digital technologies is essential to achieve policy objectives, efficiency, and transparency in organisation policies.

The South African government has taken initiatives for ensuring the country's readiness for the digital purpose, such that 80% of the country has 4G coverage. The organisation under study made investments towards infrastructure and adjusted its policies as a result of COVID-19. The company has displayed agility and flexibility in its operations and business model, as well as its readiness in the adoption of emerging digital technologies as a facilitator for efficiency and effectiveness within policy processes.

CHAPTER 3. RESEARCH METHODOLOGY

The overview of the design study and methodologies that have been adopted during the research process of this study are discussed. The topics covered include methods for data collection, data sampling, data analysis and interpretation procedures, and the trustworthiness of the research instrument used.

3.1 Research approach

A qualitative research method approach was adopted to provide answers to the research questions and to develop knowledge and understanding around policy development processes of a telecommunications company. According to Antwi and Hamza (2015), qualitative research relies on interpretivist epistemology, with an underlying assumption that meaning lies in the experiences of the participants while seeking to obtain a deeper understanding of an issue (Lester et al., 2020). In practice, a qualitative study can contribute in various ways, such as generating findings that have potential to inform practice and produce detail of a given phenomenon (Lester et al., 2020).

The time frame of 12 months in which to conclude the study has been taken into consideration. Other research methods are considered resource intensive. Furthermore, this research is not generalisable because organisations have different policy environments. In addition, more investigation and research still needs to be carried out around the concepts of agile and adaptive policy processes, and how the emerging digital technologies can be integrated in policy processes. Hence, qualitative approach was suitable for studies in policies as more understanding of the concepts was required.

3.2 Research design

This study used both primary and secondary data to answer the research questions. In addition, semi-structured interviews were conducted to obtain the views of the participants which assisted in getting new perspectives as well as an

understanding of the policy environment of the organisation. The study seeks to explore adjustments in policies by a telecommunications company to cope and continue operating during the pandemic. COVID-19 required agile and innovative processes and operating models for effective response of organisations to the disruption.

This study followed the interpretivist approach as lived experiences were explored to reveal the connections between the three pillars of social, cultural and historical aspects to examine the context in which actions occur (Ormston et al., 2014). The research was conducted amongst participants and their work environment rather than amongst objects producing knowledge by understanding and exploring interpretations of data collected.

When collecting data, it was ensured that it was done in an ethical manner by requesting consent from the participants, applying for ethical clearance from Wits ethics committee, and following processes of the organisation under study. See attached copy in the Appendix D for the Wits ethics clearance certificate. Information about organisation policies was then collected and findings were drawn based on the interpretation of the information.

3.3 Population and sample

3.3.1 *Population*

The population comprised of employees of a telecommunications company in South Africa, with no emphasis on age, gender, and ethnic group. The organisation under study has about 15 000 permanent workforce (Moyo, 2021). The study further made use of the case study approach as the aim was to provide understanding from real life context.

Yin (2014) argues that case study methodology is used when making in-depth understanding of events or processes. Five components to effective case study research design are discussed in (Yin, 2014) as the following:

- Research questions.

- Purpose of the study - statement that summarises main objectives of the study.
- Unit of analysis - area of focus that is analysed by a case study, with an accurate specification of the primary research.
- Linking the data to research questions - connecting data to identified propositions by matching patterns from data collected to define themes of the study.
- The criteria for interpreting results - data coding.

3.3.2 *Sample and sampling method*

A critical aspect of research that has the potential to compromise research quality if not correctly defined is data saturation (Fusch & Ness, 2015). A large sample size does not guarantee saturation as even six interviews have a potential of reaching data saturation. So, saturation is achieved when there is enough information obtained such that no new or additional information is being revealed (Fusch & Ness, 2015).

The categories of participants included executives, senior specialists, senior managers and consultants/ contractors. Employees on levels above executive were excluded from the research for ethical reasons as the participants become obvious from the organisation hierarchy structure. The sample size was 12 participants as determined when data saturation during data collection was reached. It was ensured that participating individuals are directly involved with organisation policy processes (in their respective BUs). The sample was drawn using the organisation Group Portal to source individuals who are policy champions in IT, network and security, supply chain management and employee relations areas. These employees were contacted and referrals for possible participants were made. Upon which the referrals were contacted and invited for participation.

Furthermore, the sample was of a purposive nature as the participants were key individuals who were directly involved in policy processes and could provide in-depth knowledge and relevant input. The lockdown was implemented in South Africa in March 2020 (ICASA, 2021), so it was ensured that participants were

involved in the organisation policy process for at least three years to accommodate for pre COVID-19 and during COVID-19 experience. Table 3 provides profile of the sample and the distribution of the sample across the organisation according to their level of occupation.

Table 3. Profile of participants

Level of occupation	Count
Executives	4
Senior managers	4
Senior specialists	2
Consultants/ contractors	2
Totals	**12**

Source: primary data

3.4 The research instrument

One-on-one virtual interviews were conducted as a primary source for data collection to gather information on organisation policies. Secondary data from documents was used as a supplementary source to data collection to gather in-depth knowledge of the study concepts. These included company documents, reports, websites, journals, books, conference papers and blogs.

The instrument was tested on two employees and adjustments were made to the wording for questions that were deemed ambiguous and unclear. Thirteen questions were asked during each interview session. Interviews were scheduled for 45 minutes but the actual length of interviews were 25 minutes on average. The instrument consisted of three sections to data collection. The sections were divided as follows, (1) COVID-19 implications to gain an understanding of policies that had to be formulated and/or reformulated as a result, (2) investigating the impact of policy changes to the organisation regulatory environment, and (3) policies of the organisation that are influenced by external bodies.

Below table provides a sectioned summary of the research instrument for the applicable research questions. The full research instrument is provided in the Appendix B.

Table 4. Summarised research instrument

Research instrument grouping	Sections	Question #
(1) COVID-19 implications to gain an understanding of policies that had to be formulated or reformulated	S1	1.1-1.4
(2) The effect of policy changes to the organisation regulatory environment	S2	2.1-2.6
(3) Influence of external bodies on organisation policies	S3	3.1-3.3

3.5 Procedure for data collection

Interpretive research focuses on understanding the view of the world by having conversations with the participants about their experiences (Antwi & Hamza, 2015). Antwi and Hamza (2015) note that interviews and focus groups are the mostly used methods of data collection in a qualitative study, owing to COVID-19, face to face interactions have been replaced by online interactions. Interviews were preferred over focus groups because the presence of other people can influence how questions are answered and also focus groups require a long process of preparation (Acocella, 2011). This presents a challenge considering time constraints to complete this research.

Data was collected using Microsoft Teams (MS Teams) virtual platform. Two meetings were scheduled during data collection. The first meeting was a 15 minute introductory session to go through the background of the study and request participation from the referrals, and the second meeting was the actual research interview upon the referral agreeing to participate in the study. The meeting links were shared beforehand, and the sessions were recorded to allow valid referencing and interpretation during the process of transcribing. This process mitigated possible misinterpretations of participant responses.

Before data could be collected within the organisation, clearance had to be obtained from Group Executive and the Group Chief of Human Resources. As

part of the process, certain information about the study was required, such as the supervisor information, the institution of the researcher, a summary of the study and how data will be collected, and how it will be used in the study. This process was unknown to the researcher, as a result, approval was received after a week and thereafter, information gathering commenced.

The other form of data collection adopted was secondary data using documents, blogs, journals, reports and conference papers. Organisation policy repository was used to access policies applicable to the study. In addition, different library sources and/or publications were used to gain understanding of policies from the literature. The search criteria contained the keywords adaptive policies, Artificial Intelligence, ICT, telecommunications, policy, telecommunications operators, digital technologies, COVID-19.

3.6 Data analysis and interpretation

Lester et al. (2020) argue that thematic analysis can be used to analyse patterns across data types used in a qualitative study. Thematic analysis provides possible assistance to produce a qualitative research of quality (Lester et al., 2020). Executing a qualitative data analysis is not one-way, however, thematic analysis is better preferred over other approaches for different reasons, such as (1) its theoretical flexibility that allows researchers across different fields to provide meaningful analysis about an investigated issue, (2) assisting researchers with deriving theory or data driven findings, and (3) its applicability to a data set of any size (Lester et al., 2020).

A seven-phase approach to qualitative data analysis suitable for thematic analysis as proposed by Lester et al. (2020) was adopted.

- Prepare and organise the data - data for this study was received from different sources (documents, company websites, interviews, blogs, journals, interviews). It was important to organise and store the data in a centralised location for ease of access. This made it convenient to transfer the data for analysis.

- Transcribing the data - for the purpose of this research, verbatim transcripts was adopted. Data was collected using virtual platforms to conduct interviews. Sufficient time was given for writing and converting the data to formats that were usable.
- Familiarise yourself with the data corpus - this phase assisted with identifying gaps in the data. A detailed memo of the data was written and fortunately, no additional interviews were necessary.
- Coding the data - meaning to words were assigned to break down the data into manageable bits. The process of coding was executed in three phases (1) coding the entire data set, (2) revisiting coding done in phase one to connect statements, and (3) making explicit connections to differentiate theory from conceptual coding. Categories and themes were also produced for further explanation of the phenomenon.
- Transparent analysis process - audit trails for transparency and convenience have been made available as well as presentation of the information and development of audit trails.

It was easy to understand the unstructured data being analysed because thematic analysis is carried out in phases. The data was analysed as follows, (1) An excel template was created to capture all the responses, (2) the recordings were listened to in order to transfer the data into the excel template, (3) data was saved to create a database for accessibility and further analysis, (4) MS Teams transcribing was saved in network drives to cross-reference when necessary, (5) data was then classified into categories and themes to make sense of it, and (6) data was manually analysed to provide findings.

3.7 Trustworthiness

Trustworthiness in qualitative research portrays quality of the research underpinning the rigor in the process, transparency in arriving at a conclusion, and relevance of the study (Daniel, 2019), such that, the reader gains trust in the research. Trustworthiness is concerned with demonstrating an appropriate level of consistency and integrity in the process, data, and the outcome of the study (Daniel, 2019). Trustworthiness also includes acknowledging certain levels of

bias, limitations of the study and use of reflexivity. If the reader questions the process, they might also question conclusions drawn from the study.

Daniel (2019) argues that trustworthiness in a qualitative research can be achieved by adopting a systematic process in the way the study is organised and the manner in which the data collected is analysed. For increased trustworthiness in a qualitative study, the characteristics of credibility, transferability, dependability, and confirmability need to be considered (Korstjens & Moser, 2018).

3.7.1 *Transferability*

Transferability suggests “results from one study can be applied in a different setting” (Daniel, 2019, p. 104). Characteristics of a transferable qualitative study have been discussed in (Daniel, 2019) as description of context, acknowledgement of multiple realities and delimitations of the study. A clearly defined context and use of purposive sampling method allows for increased transferability. The context of this study is clearly defined as a particular telecommunications organisation operating in a South African telecommunications industry.

As mentioned in the sampling section, purposive method was adopted to carry out the study as the interest is only in employees of the company involved in policies and have been involved within the process for at least three years. Due consideration of delimitations of the study have been outlined in detail in Chapter 1 of this study.

3.7.2 *Credibility*

Credibility is by means of establishing relevant and dependable findings from the perspectives of the participants (Daniel, 2019). The data collected was verified with the participants by providing transcripts of their responses to ensure the original responses are correctly reflected during data analysis, a method referred to as member checking (Daniel, 2019; Korstjens & Moser, 2018). Peer debriefing is another method that can be adopted (Daniel, 2019) by means of requesting

feedback from other researchers for improvement as well as persistent observation and prolonged engagement (Korstjens & Moser, 2018). Triangulation is a third method of credibility that can be used in a study (Daniel, 2019).

In this study, participants were involved during the data analysis process to cross-reference articulation of their responses. A detailed data analysis process has been made available to the reader of this research to allow transparency. Data triangulation was applied where data was collected at different times of the day depending on the availability of participants. Most interviews were done during the day, some were done early morning, and some were done in the evening. All research interviews were allocated sufficient and equal time frames (45 minutes to be precise) for prolonged conversations to gather sufficient data and facilitate comfortable interactions.

3.7.3 *Dependability*

Korstjens and Moser (2018, p. 121) have defined dependability as the "stability of findings over time" whereby participants evaluate the process, interpretation, and consistency in findings. It is important to ensure that the study aligns with accepted qualitative research standards (Korstjens & Moser, 2018). For this study, notes were taken explaining the process and approach adopted, thought process regarding the study, and decisions taken during the study to allow easily accessible audit trail. Transcripts used in data collection were also used for audit purposes to ensure accuracy of findings and consequently recommendations.

3.7.4 *Confirmability*

Confirmation is done by other researchers and refers to research findings that can be confirmed to be derived from the data received from participants (Korstjens & Moser, 2018). Data collected is made accessible and available to the researcher's supervisor and also audit to ensure correct usage of qualitative research standards. In addition, trail of the process was provided to other researchers.

3.8 Limitations of the study

First, findings of this study will not be generalised as the study is intended to understand and address policy directions of a particular telecommunications company, as such, data was only collected within that organisation. Different organisations have different policy environments, processes, and policy management (Kusserow, 2014) which require tailored policy processes. Secondly, during interviews, participants could express feelings of stress and anxiety (Arifin, 2018) which could affect their responses. In this case, participants were ensured that responses were anonymous and would not be made public. Lastly, the research methodology chosen was heavily influenced by the time constraints in which to conclude the study. As a result, time was not sufficient to investigate other available research methods that could have possibly better articulated the problem.

3.9 Ethical considerations

Protection of human subjects participating in a study is important and the protection should be by means of appropriate ethical principles and standards (Arifin, 2018). Ethical considerations of this research will be based on a combination of some ethical guidelines discussed in (Arifin, 2018) of considerations deemed applicable for this study.

- Informed consent and voluntary participation - participation was only subject to consent from the participants. Participants were informed about the purpose of the study and the fact that it was purely meant for academic purposes. A written consent form detailing the research and data collection procedure was distributed to all the participants and sufficient time was given to ensure participants have read and understood the form. This was followed by introductory meetings scheduled with each participant.
- Participant withdrawal - participants were granted an opportunity to withdraw from the interview (prior to data analysis) should they wish to do so.
- Anonymity and confidentiality - Protection of Personal Information Act (POPIA) guidelines were strictly followed and respected and as such, no

names and identity of participants involved in data collection process was revealed during the study. Participants have rather been referred to as Participant 1, Participant 2, etc. The company name was also not mentioned in the study.

- Interview sessions - interviews were conducted separately and privately. This allowed honest views of the participants regarding organisation policies.
- Ethical approval and access to participants - it was ensured that all ethical standards and guidelines of Wits University and the organisation under study were adhered to and the research has complied with the University's and the organisation's approval processes.
- Data protection - participants were made aware of session recordings and thus, consented to it. Collected data will only be kept for the duration of the research (to a maximum of one year), after which the data will be discarded. This will ensure that cybersecurity risks are mitigated.

3.10 Conclusion of Research Methodology

A qualitative research approach using semi-structured interviews (scheduled via Microsoft Teams) was adopted as a primary method to data collection. The aim was to get an understanding of the organisation policy environment by conducting interviews with employees who are directly involved in organisation policy processes. The study was based in South Africa, where participants were selected from the telecommunications company of interest. Data was collected using a research instrument which comprised of 13 questions that participants were asked during interviews. The questions provided answers to research questions identified in section 1.5 of this study.

Ethical measures were followed prior and during data collection where, (1) approval was obtained from the University Ethics Committee, (2) approval was received from the organisation Group Executive and Group Chief of Human Resources, (3) and anonymity was guaranteed for all participants and the organisation under study. Procedure for data analysis and interpretation was based on a seven-phase approach for thematic analysis to make the data manageable and easy to identify and draw patterns.

The following chapter will provide a presentation of the findings from the analysis of the data collected.

CHAPTER 4. PRESENTATION OF FINDINGS

4.1 Introduction

The chapter presents findings and describes the representation of these findings in comparison to identified propositions and research questions. The structure of this chapter is as follows, coding analysis, demographic profile of participants, discussions on research questions, summary of the findings, and chapter concluding remarks.

4.2 Demographic profile of participants

Out of the 14 interviews conducted, 2 were discarded because the interviews could not be saved due to network issues but interviews continued for the other participants. Notes were written during each interview and from reading through the notes, it was evident that no new information was provided by the 2 participants whose recordings could not be saved. So, re-scheduling of the 2 interviews was not necessary as data saturation was reached. The remaining 12 responses were within the inclusion criteria and were thus accepted for further analysis. The sample results reveal that more senior management employees (50%) were sampled than executives (33%) and consultants/ contractors (17%). Table 3 in Chapter 3 provides an illustration of the distribution of the sample across the organisation according to participants' level of occupation.

4.3 Thematic analysis

Since thematic analysis is aimed at providing data driven findings from shared meanings, it was adopted and applied to the responses of the 12 participants. Folders were systematically created for each participant to store signed consent forms, recordings from their interviews, and corresponding manual transcripts. The data was then copied to different locations and the Cloud for backup. Transcribing the data was not a challenge as the formats of saved files were consistent. A systematic approach was adopted in terms of data collection process and analysis to ensure uniformity in the interpretation of the data.

Each recording could be paused, rewinded and fast forwarded as many times as necessary to ensure accurate capturing of participants responses. Meanings to words and phrases were assigned and patterns identified for better management and analysis of the data. The process of coding was done numerous times and in different phases until themes and categories were explicitly defined.

4.3.1 *Coding analysis*

Coding is a step during data analysis that organises and makes sense of data (Basit, 2003). Data collected becomes smaller and manageable during analysis because of the interpretation and the organisation of the data (Basit, 2003). According to Basit (2003), there are two methods to coding, developing a provisional list from conceptual framework before commencing data collection and creating a list after data collection, referred to as the grounded approach.

Categories, relationships, and themes used in this study emerged from the research questions identified in Chapter 1. Subsequent sections focus on discussing findings based on each of the research questions in relation to the themes. Figure 2 provides a generic illustration of the coding approach to defining themes.

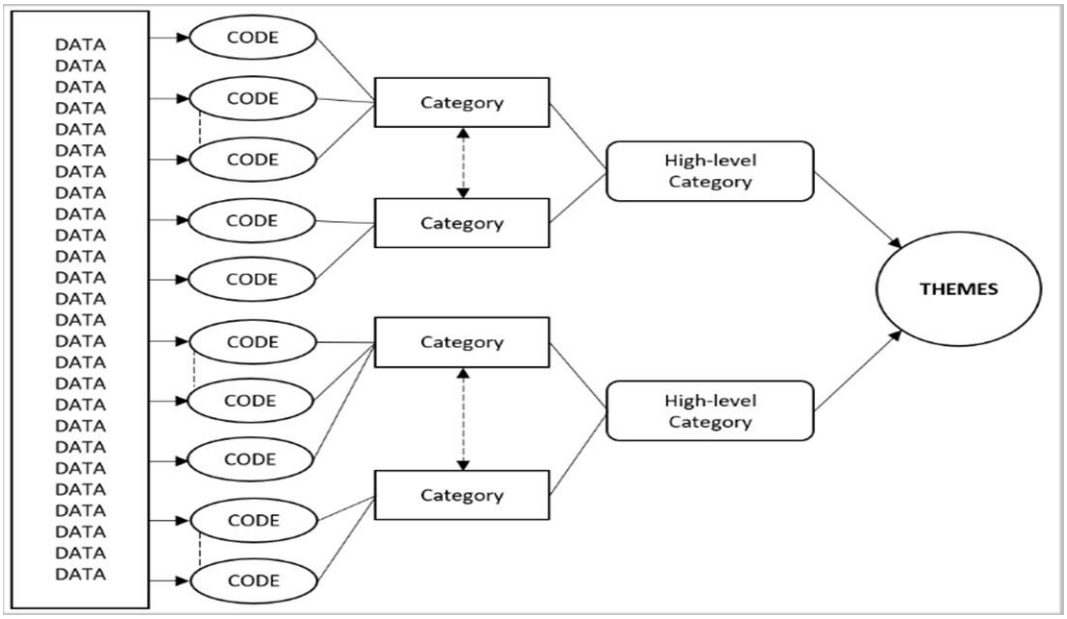

Figure 2. Thematic analysis approach to creating themes
Source: Saldaña (2015, as cited in Osei-Amanfi, 2018)

Table 5 provides a presentation of coding analysis, patterns identified and themes that were identified from the data collected during interviews.

Table 5. Presentation of coding analysis

Codes	Categories	Themes	Research questions	Main research question
Business strategy	Requirements	Policies during disruptions	What policies have been formulated/ reformulated because of COVID-19?	How have the organisation policy directions changed to cope with COVID-19 disruptions?
Operating model				
Risk management		Policy formulation/ reformulation		
Market trends	Gap analysis			
Research				
Policy review				
Policy development	Governance structures	Policy compliance	How have policy changes affected organisation regulatory measures?	
Policy implementation				
Violation				
Stakeholders				
Subject matter experts				
Accountability				
Approval				
Regulatory requirements	Requirements	External bodies	How have external bodies influenced the organisation policy directions?	
Legislation framework				
People management				

Source: primary data

4.3.2 *Findings on research question 1*

RQ1: what policies have been formulated/ reformulated because of COVID-19?

Two themes emerged from research question 1, policy formulation and reformulation, and policies during disruptions.

a. ***Policy formulation and reformulation***

Participant 8 provides a holistic overview process of organisation policy formulation and/or reformulation. The participant mentions 4 critical pillars in which organisation policies are assessed from, such as (1) employees, (2) customers, (3) partners, and (4) the market.

Participant 8 - *"The first thing we need to look at from a policy and governance perspective is what is the existing business governance policy within the organisation. The second step we would look at policies specifically around 4 elements, and those 4 elements include, (1) our people, governance and policies around our people, the staff, and the well-being, and also taking into account what the labour law dictates, (2) what are the contractual obligations we have with our customers and how does our policies influence that, (3) from a contracting perspective with our vendors and partners, any policy that we have to write out and implement within the organisation does have a degree impact on the partnerships that we have in the industry - partner relations landscape, and (4) the market itself – when we reference the market, we reference our existing policies, our existing processes, our existing systems and how does that impact on our reputation in the market is."*

Participants reveal different factors to organisation policy reformulation within the different BUs. However, factors provided as common across most participants include legislative framework, regulatory requirements, business strategy, and operating model.

Participant 10 - *"I think obviously legislation would help guide the direction of policies. But then obviously you need to couple that with the business*

requirements. So for me, every policy that is defined or that is implemented within the organisation has to speak to some level of the strategy of the business."

In addition to these factors, Participant 1 and Participant 9, include gaps identified in existing organisation policies. The two participants explain origination of these gaps as follows:

Participant 1 - *"What informs organisation policies are gaps within the organisation. There will be a gap in terms of the current policy or there will be a change in a legislative framework or there will be conditions prevailing that were previously not there that causes a gap in the current policies."*

Participant 9 - *"There's a few inputs to it - our stakeholders, internal and external; what's important to them in terms of supply chain process and the agility in that process. But also, because we are a governance function, we also take inputs from risk and audit and we also base it on global best practice. And obviously, you look at the trends in the market, for example, agile procurement is becoming the biggest buzzword. So from our side, we've got to try understand what it means within the context of our procurement policy and all the checks and balances we need to maintain."*

In addition to Participant 9 mentioning risk as one of the factors, Participant 7 advocates to this, and mentions risk management as the main factor to organisation policy formulation and/or reformulation. The corresponding response is provided below:

Participant 7 - *"The primary one is risk or risk management and the second is the company strategy informs policies as well."*

Participant 11 brought a different perspective that includes internal factors as main drivers to organisation policies formation. The internal factors include Group principles, where policy directives are cascaded down to the different BUs for implementation, and employee feedback and experience for improvement in existing policies.

b. *Policies during disruptions*

Steps involved in the development of organisation policies depend on what brings about a specific policy framework, what policy is being implemented, and if the policy is new or existing within the organisation. Steps identified as common and critical on either requirement (formulation of a new policy or amendment of existing policies) is the engagement of subject matter experts (SMEs) and relative stakeholders and training and education of employees which also includes the enablement of the transitioning of the organisation from implementation of outdated to updated policies.

Participant 3 articulates the importance of understanding the aim, what the organisation is looking to govern, and the need for a policy to ensure that the organisation and respective BUs don't end up with policies that don't achieve desired results.

Participant 2 - *"Obviously, depending on what policy. Take for example an HY Policy, you need SMEs to develop that policy. You can't take that policy and give to an operations person to develop. You also need SMEs and in addition to that, you need to consult with other relevant stakeholders. So the SME in this regard will be the champion, the facilitator, and the person accountable for development of that policy. But for the policy to be successful, it needs to be rolled down to be implemented. So other stakeholders like the Unions, ER, etc., also becomes important."*

Eight participants know of organisation policies that are reformulated because of COVID-19, where some participants were directly impacted by these amended policies in their work environments while others were indirectly impacted. The policies are around people management, the Remote Work Policy that gave effect to the Work from Home (WFH) Policy, the Health and Safety Policy, Leave Policy, Information Security Policy and Acceptable Use Policy. Below participant responses make reference to these policies:

Participant 1 - *"Ya! For example, we revised all people related policies but including a provision that enables hearings so that they are virtual, which was not there in the beginning including interviews but now those processes are*

conducted virtually. There was also a policy that overhaul the whole policy of working from home which gave effect to the hybrid model because the old policy working from home was structured in such a way that people would make a request to work from home on their own. But with the hybrid model, the employer determines which roles would work from home and at the office."

Participant 5 - *"Yes! We had EUD Policy and the WFH Policy, Acceptable Use Policy, and the Information Security Policy as well but that is more related to how we are now. Remember, prior to that, yes you could work from home and yes, you access through Virtual Private Network (VPN) but there was a certain point or stage where you actually had to go into the office - for authentication security standards."*

Participant 7 - *"The first one was your employment terms and conditions that had to be changed things like, place of work, hours of work. The security policies also changed because you are now working from home and in most cases the employees of BU "X" access their services over the Internet because they don't have VPN implemented like at Group. So security is key. The POPIA one, we also had to adapt, in the past, we had a Clean Desk Policy but now, you are sitting at home and now suddenly it's not your colleague that's looking over your shoulder by your husband or wife looking at the screen over your shoulder. So, there's a slight change in how you define a clean area or making sure that information is not compromised."*

Participant 4, mentions IT to have provided hardware and connectivity requirements to support, facilitate and enable an effective agile work process that is governed by Human Resources (HR). Hence to this point, no IT policies have had to be reformulated because of COVID-19. Participant 3 mentions that changes were in the methodologies of executing the ER Policy and not changes to the actual policy. Responses supporting these statements are provided below:

Participant 4 - *"No. So, when we went into lockdown March last year, transitioning was pretty easy for us in the sense that we had designed the network and the way we approach things long before there was any concept of lockdown. We took a zero-trust approach, where we had technical measures in place. So, there*

wasn't any major scrambling in terms of getting policies in place from that perspective enabling everybody across the organisation with devices that being mainly notebooks and we also had to make arrangements for people with desktops to remove them from the office and take them home. So, the overarching policy of agile work was governed by HR who had to make adjustments."

Participant 3 - *"We didn't change the ER Policy itself but we changed the methodology of implementing the disciplinary hearing. Remember historically, you would serve an employee with a notice in person, but with COVID-19, that was not possible. So we had to decide how we can fairly still meet all the requirements of law that we should and then we have the hearings virtually via MS Teams."*

The company Leave Policy takes into account leave benefits and entitlement practices for employee wellness requirements while improving the quality of life (**Group, 2021b). The Leave Policy was updated during the pandemic to cater for COVID-19 regulation requirements, such as leave for employees who had contracted the virus and/or suspect to have contracted the virus (**Group, 2021b).

The organisation has an existing Business Continuity Management (BCM) Policy that could immediately be implemented during COVID-19. The policy ensures that business operations are resilient during times of crisis and disruptions. The policy came to effect while the organisation was awaiting approval and implementation of the WFH Policy. COVID-19 however, motivated enforcement on the compliance of this policy such that, regular testing of equipment is executed. Participant 6 mentions possible reformulation to the BCM Policy and Compliance Policy, but the amendments are not because of COVID-19 but rather part of the organisation policy review process.

With the reformulation of these policies mentioned above, most of the sample articulates that the policies took long to get approval and implementation across the organisation. Other participants could not comment on this because none of the amended policies were directly linked to their work environments.

Participant 2 - *"The WFH Policy took us long because it's something that we started sometime in 2019 and I think it was only a couple of months ago when Exco endorsed it, and that's when it was communicated and then there was subsequent communication to order equipment. But one policy that had to be acted upon real quickly in the Health and Safety space is the communicable disease in terms of how are we going to mitigate the spread of the virus amongst our employees. Hence the organisation even up to today, still operates at level 5 of lockdown even though we are working from home. Because of the sensitivity, urgency, and criticality of the issue."*

Participant 9 feels strongly about keeping the scope of policy development narrow and include only the core audience or stakeholders. Involving people who do not have a true vested interest in a particular policy results in very low participation and feedback. The participant even made an example of a policy that has failed because of these factors. Participant 12 agreed with the notion of keeping to core stakeholders.

Participant 12 - *"We sometimes don't necessarily don't take into consideration the practicality of policies and the impact they have on business. In the sense of "red tape" in terms of, are we enabling the process or are we becoming a stumbling block in the process. Let me give you an example, if you take Recruitment, my question always is, why must a Chief sign-off on backfalls? That's so operational and is an ME responsibility to do the necessary assessments. This adds time to go through approval processes as the Chief has other important tasks to do."*

Figure 3 provides categories and themes identified for RQ1.

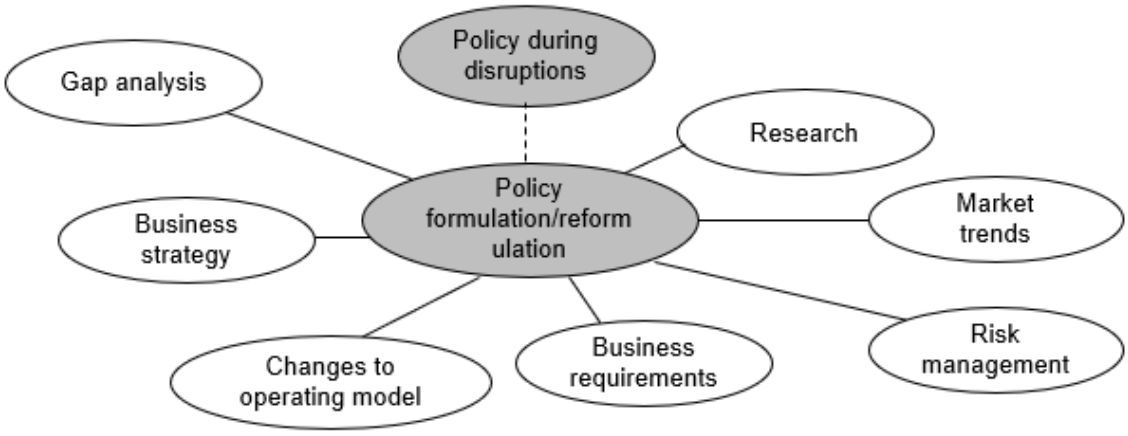

Figure 3. Coding analysis and identified themes for research question 1

Amendments to organisation policies are either internal or exogenous. Reformulated policies because of COVID-19 took long to get approved across the organisation. This is an indication of the gap between policies (organisation governance) and implementation during disruptions. Therefore, the policy environment of the organisation is not adaptive and agile to disruptions.

4.3.3 *Findings on research question 2*

RQ2: how have policy changes affected organisation regulatory measures?

From this research question, one theme, policy compliance emerged.

a. ***Policy compliance***

Participant 2 articulates the urgency that was required from management to act and approve the Communicable Disease Policy because of its sensitivity and criticality. On the other hand, participant 5 and participant 9 mention inconsistencies with regards to implementation of policies, whereby policies were implemented before sign-off was received from all relevant stakeholders. Participant 9 particularly makes reference to the WFH Policy:

Participant 9 - *"Sometimes policy implementation comes before approval. The WFH Policy is a perfect example where we were all forced to work from home when the original policy said you had to get manager approval. I do think it took*

us too long to respond to the work from home requirements of the policy because it was over analysed to "death" - it's one of those death of committee instances."

Participant 5 - *"There are misalignments with the implementation of policies and policy processes across the different BUs. Implementation of policies has been my biggest problem thus far. People are stuck in their ways especially in an organisation like ours, where people have been doing it their own way for however long."*

The sample indicates that the steps in policy development were all executed when revising policies during COVID-19 while others could not comment as their work environments are not directly involved with the reformulated policies.

As no new policies were drafted during COVID-19, the first step of the policy development process executed was the review of existing policies. The sample reveals that there is no impact on exclusions as all the development steps for policy reformulation were executed.

Compliance on policies is enforced by holding employees and line managers accountable. For example, the WFH Policy was implemented across the organisation before the reformulated policy was signed-off by all relevant stakeholders. Additionally, the way in which organisation policies are enforced is by a detection of non-compliance and/or violations, and only then, tracking reports are requested from relevant departments by line managers to do investigations. However, it is noted that there are consequences to organisation policy violations.

Participant 12 - *"Compliance is definitely enforced. The DOA is enforced. But I think were we sometimes struggle is where there is violation that action is taken. The thing that I pick is that line managers don't necessarily know or understand the policy until they have to use the policy. That's where support and education come to play."*

Figure 4 provides categories and themes identified for RQ2.

Figure 4. Coding analysis and identified themes for research question 2

Participant 10 believes policy compliance accountability is the responsibility of everyone within the organisation. It starts at the (1) employee level to ensure they adhere to the policy rules and guidelines, (2) line management to ensure their teams are complaint with the policies, and (3) goes all the way up to the Executive level with HR playing a support function from an education perspective.

Changes to policies have not affected the organisation regulatory measures as the steps of policy development were executed and compliance of organisation policies is enforced. However, there is a gap in the enforcement of compliance as monitoring and investigations only happen after a breach. This means that the organisation policy governance is reactive and so, there is a need to implement continuous and proactive measures to effectively monitor policy compliance and raise policy awareness amongst employees. Additionally, (Kusserow, 2014) raises the importance for an organisation to establish measures to prevent and detect criminal conduct.

4.3.4 *Findings on research question 3*

RQ3: how have external bodies influenced the organisation policy directions?

One theme, external bodies, has emerged from this research question.

a. ***External bodies***

The policies that were amended because of the influence of external bodies are Employee Relations (ER) policies to accommodate the regulations of adopting virtual platforms, and Health and Safety policies to accommodate COVID-19 regulations. The broader ER Policy encompasses the following policies, (i) Grievance Policy, (ii) The Disciplinary Policy, and (iii) The Incapacity Policy.

Participant 12 - *"Risk and compliance visions is running with those kind of policies of social distancing, including PPEs, etc. That was definitely amended and implemented."*

Participant 1 - *"Well for us, changing how hearings are conducted. So the Employee Relations Policy, Grievance Policy, the Disciplinary Policy, and the Incapacity Policy. The union was consulted on the changes of these policies. The ER policies have impacted business in a good way because for example, with the old policy the limitation was that, I can only represent you (an employee) if I work with you in the same workplace. So with representation now being virtual, there are no limitations. So the employees can now choose to be represented by anyone in the country."*

The amendments of policies are not heavily influenced by external bodies. Most of organisations reformulated policies are driven by internal forces or requirements, either as an initiative from Group or a BU initiating a requirement for a policy. Figure 5 provides categories and themes identified for RQ3.

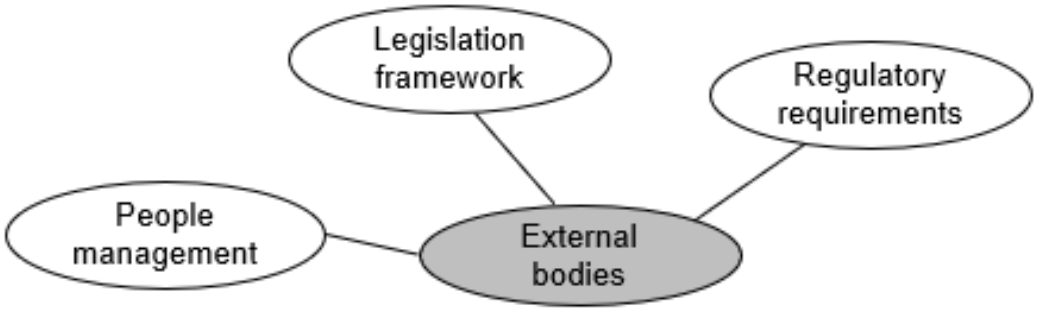

Figure 5. Coding analysis and identified themes for research question 3

4.4 Summary of the findings

The analysis was carried out with the objective to provide answers to research questions and propositions identified. The participants were from different BUs and departments but are all involved in the respective policy environments. Data showed that the organisation policy environment is not adaptive to disruptions as it takes long to get approval for policy implementation. In some instances, certain policies are implemented before the approval process is complete, creating gaps within policy governance.

Compliance on organisation polices is only detected after violations. Which could result in employee hearings that could have been mitigated if there were proper monitoring measures in place. This shows that the organisation governance structures and policy environment is reactive in its response slacking behind during disruptive causes. There has not been much impact of external bodies to influence the policy environment of the organisation, only Health and Safety polices were reformulated to accommodate COVID-19 regulations and ER polices to regulate the transition of operations and processes to virtual platforms.

Table 6 provides summary count of the themes relative to the research questions

Table 6. Summary of findings relative to the themes

Categories	Themes	Research question
7	2	RQ1
8	1	RQ2
3	1	RQ3

CHAPTER 5. DISCUSSION OF THE FINDINGS

5.1 Introduction

This chapter provides discussions and interpretation of the findings from data collected during interviews in comparison to research questions of the study.

5.2 Research question 1: What policies have been formulated/ reformulated because of COVID-19?

Disruptions are argued to be an opportunity to effect change in policies that require an interrogation of processes involved in policy development (Marsdena & Docherty, 2021). Policies need to be adaptive to conditions that are foreseen and those that are not as policies are meant to assist in effective and efficient interactions (Swanson et al., 2010). Policies that are unable to perform in dynamic and uncertain conditions tend to hinder effective policy environments (Swanson et al., 2010). Therefore, an understanding of definitions and terms that govern a policy is of importance for the organisation.

Participants have indicated that changes in the organisation policies are motivated by four main elements, namely, (1) business strategy, (2) legislation, (3) operating model, and (4) gaps identified in existing policies. The gaps are because of audit findings, results from research into market trends and global practices, and employee engagement through gathering employee experience and feedback. Most of policy changes are internally driven, where either Group cascades a policy initiative or a BU sees a need to draft its own policy as the organisation has a decentralised strategic approach. Because the BUs have different cultures embedded in their policy processes, this creates some misalignments in how policies are implemented.

WFH gave effect to a hybrid work model approach. This model allows employees to work from permitted premises either than the offices (**Group, 2021a). For roles that are considered as not eligible to work from home because of their job duties, have to report to the office (**Group, 2021a). So the model is termed

hybrid because some employees can fully work from home while others cannot. To enable and facilitate the execution of the WFH Policy, the organisation embarked on a project referred to as Project Next (**Group, 2021a) to investigate employee ergonomic and connectivity requirements. As a result, a task team was formed to facilitate this purpose.

In addition, the policy was amended to reflect 10 days of isolation and/or quarantine period from 21 days that was initially stipulated by the regulation when COVID-19 broke. Reformulation to this policy was mainly a requirement by the NDR (**Group, 2021b). This is advocate to an assumption that government have incomplete information on COVID-19 and further studies are being carried out which could potentially lead to further regulatory adjustments, and policy adjustments as a consequence - displaying a dynamic policy environment.

One of the organisation BUs consolidated its ICT policies such as Access Management Policy, Identity Management Policy, Antivirus Policy, etc. into one policy called the ICT Services Policy. The consolidation was aimed at enhancing organisation effectiveness and efficiency.

Table 7 provides an illustration of approving stakeholders relative to a policy being drafted or revised within the organisation.

Table 7. Organisation approval matrix

Policies	Approvals of policies					
	Execs	Chiefs	BU/ Entity CEO	Group CEO/ CFO	Board	Risk Committees
Group Ethics Handbook					x	
BCM Policy					x	
Enterprise Risk Management Policy					x	
Compliance Policy					x	
Procurement Policy					x	
Delegation of Authority					x	
Dividend Policy					x	
Treasury Policy					x	
Remuneration Policy					x	
ECA					x	
Assurance					x	
Risk Governance					x	
Any other, if applicable to Group and BUs, based on terms of reference				x		
If applicable to one BU			x			
If applicable to one division		x				
If applicable to one department	x					
If cross division then both areas to approve		x				
If cross department then both areas to approve	x					

Source: **Group (n.d.)

5.3 Research question 2: How have policy changes affected organisation regulatory measures?

According to Chen et al (2021), successful implementation of policies and compliance is related to cultural traits, where individualism is linked to higher non-compliance rates compared to a collectivism cultural trait. Collectivism encourages conformity which makes collective action easier, while individualism is more about personal freedom (Chen et al., 2021). Therefore, lack of compliance can be attributed to cultural backgrounds and not changes made to policies.

BU"x"[1] is more established in its governance framework as it services the Public Sector. It has also extended its footprint into the African and International markets, making governance requirements more critical for the organisation. Contrary to BU"y"[2], that is smaller and relatively "young" in its governance structures. Even though there are templates available across the organisation, BU"x" details its policy owner by role and/or department rather than by employee name like BU"y". Detailing the owner's name requires unnecessary and persistent changes to policy documents as employees leave the organisation or move between departments.

Furthermore, because organisation policies are supposed to come from Group to provide the framework and guidance for the different BUs to adopt and implement. This sometimes becomes an issue because of the different cultures of the BUs. Below, participant 12 makes reference to this:

Participant 12 - *"The policy must give us guidance and must give us the framework and BUs must follow that framework and principle within the ambit of their business. And what I mean by that is if you look at BU "X that is enterprise focused, versus BU "Y" that is consumer focus. We need to follow that framework that support the business so that they can execute. Which makes some policy*

[1] BU "x" is used to protect the name of the business unit being referenced for anonymity reasons
[2] BU "y" is used to protect the name of the business unit being referenced for anonymity reasons

frameworks more easier for BU "X", and some easier for BU "Y" because our environments are different."

This displays inconsistencies in cultures. Therefore, there needs to be an alignment in this regard, to ensure standardised, effective, and efficient policy environments.

5.4 Research question 3: How have external bodies influenced the organisation policy directions?

The effect of policy networks needs to be examined as they can be a hindrance or a facilitator in decision-making (Marsdena & Docherty, 2021). Policies amended by external bodies were more focused on regulatory measures to lessen the spread of COVID-19. ECA was amended by ICASA with requirements of the Regulations and mitigating measures that included compliance to health protocols, such as social distancing, regular sanitisation of work environments, and equipment (Government Notices, 2021). Amendments were made to ICT Regulation because of temporary spectrum that was allocated to telecommunications operators, whereby operators were mandated to maintain connectivity for virtual classroom platforms (General Notices, 2020).

Policies require stipulation of all linking policy documents, applicable laws, regulations, rules, and standards (Kusserow, 2014). As a result, this referencing can be resource-exhaustive and quite a daunting exercise that is prone to errors if precaution is not taken.

5.5 Chapter Conclusion

The steps involved in policy development within the organisation BUs are not clearly defined, with only those policies which are cascaded down from Group have clearly defined development steps. Even so, policy owners in documents are detailed differently between BUs, showing some inconsistencies within policy processes.

Culture plays a huge role in the compliance of policies. The organisation under study has a decentralised strategic approach, which means each BU has its own Chief Executive Officer (CEO) running and managing its own entity. This reflects the culture of individualism that motivates personal freedom. With this said, the organisation needs to lean more towards a culture of collectivism for effective compliance purpose.

The organisation was prepared for times of crisis through the implementation of the BCM Policy. It was relatively easy for the organisation to activate the policy and provide support for organisation vision and business stability.

No new policies have had to be drafted because of COVID-19 but there have been amendments to existing policies to accommodate and align with the new way of work and to enable the new operating model (the hybrid model) to ensure business continuity and customer support.

CHAPTER 6. CONCLUSIONS & RECOMMENDATIONS

Understanding the impact of COVID-19 on the organisation is important for formulating long-term policy environment and governance measures to cope with disruptions better. Studies on COVID-19 are still ongoing as the government seeks to gain more understanding of the pandemic and its impact. As a result, more changes to policies might be inevitable as more studies unfold that could require regulatory adjustments. Therefore, developing policies that are adaptive to dynamic environments is important.

Policy development and management is a critical aspect of the organisation as it provides direction and assists in decision-making. However, it is complex, costly, time-, and/or resource-exhaustive. Policy formulation affects sustainability and performance of the ICT ecosystem and thus, developing policies that are adaptive is also critical for growth and compliance.

The South African government realised the contribution of telecommunications on economic growth of the country. As a result, public policies are continuously adjusted to accommodate the evolution of digital technologies and disruptions. The government developed an infrastructure that facilitates the adoption of digital technologies by organisations to achieve their digital purpose.

This study set out to explore the agility of a particular telecommunications company in its policy directions during COVID-19. The focus was on executive, senior management, and contractors/consultants from different BUs of the organisation. The selection was based on the role the employees play in policy process and development. Hence, participants provided insights on their lived experiences in this regard.

This chapter provides summary of the findings, conclusions drawn, recommendations and areas of future research.

6.1 Conclusions regarding research question 1

Research question: What policies have been formulated/ reformulated because of COVID-19?

Organisation policy reformulation, is generally because of gaps identified within existing organisation policies, changes in operating model, business strategy and legislation. But the disruption from COVID-19 required a review and update of some policies. The policies had to be aligned to the NDR requirements to ensure organisation compliance to laws and regulations. This highlights the importance of research and constant monitoring of laws and regulations that inform a specific policy. Even though these policies were implemented across the organisation, their approval took long as a result, they were implemented before formal sign-off from all relevant stakeholders was received. Additional to the motivations to inform a policy, disruption causes should also be added as a motivation to organisation policy formulation and/or reformulation. Numerous organisation policies were reformulated because of COVID-19 as provided below:

- WFH Policy
- Health and Safety Policy
- Grievance Policy
- The Disciplinary Policy
- Leave Policy
- The Incapacity Policy
- IT and Security Policy
- Acceptable Use Policy

Development or reformulation of organisation policies involves stages of policy process. The steps identified within the organisation included the engagement of SMEs and relative stakeholders and training and education of employees. There seems to be an unclear understanding of policy process steps within the organisation. The participants were not so clear on what steps should be followed in this regard, such that participant 1 generalized and made reference to steps followed by previous employer.

6.2 Conclusions regarding research question 2

Research question: How have policy changes affected organisation regulatory measures?

Literature has revealed that non-compliance is also linked to culture, where non-compliance is higher in a culture of individualism than that of collectivism. This requires a research on the impact of the organisation decentralised strategic approach (when it comes to its policy landscape) as it could promote a culture of individualism.

Amended policies followed policy process steps. However, implementation of policies prior to approval and sign-off is an indication of non-compliance. Furthermore, even though compliance is enforced within the organisation and consequently the different BUs, it is a reactive approach that comes after a policy violation. This shows that the organisation policy environment is out of sync with the advances that were informed by COVID-19. With this said, regulatory measures were not affected by the changes in policies but rather by enforcement of compliance.

6.3 Conclusions regarding research question 3

Research question: How have external bodies influenced the organisation policy directions?

Some of the reformulated policies are as a result of external bodies. ICASA regulated the use of the emergency spectrum provided to telecommunications operators where maintenance of connectivity for virtual classroom was a requirement. There was also a requirement by the regulator to zero-rate access to some educational and health websites. NDR provided regulations on COVID-19 and how organisations should treat and handle their operations during the disruption. This included supply of Personal Protective Equipment (PPE), regular sanitisation of equipment and shared office space.

Occupational Health and Safety Act 85 of 1993 responded to COVID-19 and gave effect to the reformulation of the organisation Leave Policy to accommodate COVID-19 infections and suspected infections.

6.4 Recommendations and Practical and Theoretical Implications

COVID-19 has disrupted operations and how organisations do business with customers. The disruption facilitated an increase in the uptake of virtual platforms and use of data and/or broadband products and services. COVID-19 further brought a need for policies to adjust and cope with the disruption. Below recommendations have been considered for adoption to develop organisation policies that are adaptive and efficient:

- Adoption and integration of Artificial Intelligence in policy processes to assist with developing proactive monitoring measures of changes resulting from external regulatory bodies. This will assist to prompt respective review of applicable and affected organisation policies.
- Artificial Intelligence can also be used as a technology solution to automatically perform continuous monitoring, evaluation and update of business policies to ensure policies do not hinder business objectives and organisation vision.
- Policy compliance can be an automated process to continuously track and monitor the ICT ecosystem. This will also bring effectiveness and efficiency as the Robotic Process Automation (RPA) tool will proactively flag or highlight possible cases of non-compliance.
- It would be interesting to see the outcome if the organisation developed technology enhanced education and awareness programmes for employee knowledge and teachings on policies and compliance through quick guides to policies.
- Integration of policy environments of the different BUs of the organisation to create a more collaborated and aligned governance structure that promotes a culture of collectivism.

- Adoption of data analytics to improve real-time decision-making for policy formulation and/or reformulation in particular.

6.5 Suggestions for further research

Consideration for further studies include the concept of policy agility in times of disruptions for developing policies that are adaptive to dynamic environments and disruptive causes. The research could look at a practical implementation of digital technologies to develop a pilot of an adaptive policy framework.

Further research into using Blockchain technology and Smart Contracts in policies to gain confidence, transparency, and trust in the policy process.

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APPENDIX A - Consistency Matrix

The objective of this study is explore policy directions of a telecommunications company in responding to the COVID-19 pandemic. **Research question**: How have the organisation's policy directions changed to cope with COVID-19 disruptions?		
OBJECTIVES	**PROPOSITIONS**	**QUESTIONS**
ii. Investigate policies that have been formulated/ reformulated because of COVID-19. iii. Investigate policy changes on the organisation regulatory measures. iv. Examine the effect of external bodies on the organisation policy directions.	Proposition 1 - Proposition 1 - there are no organisation policies formulated/reformulated because of COVID-19. Proposition 2 - changes made to organisation policies have an impact on its regulatory environment. Proposition 3 - organisation policy directions are heavily influenced by external bodies.	2. What policies have been formulated/ reformulated because of COVID-19? 3. How have policy changes affected organisation regulatory measures? 4. How have external bodies influenced the organisation policy directions?

APPENDIX B - Research Instrument

Section 1:

1.1. What informs organisation policies?

1.2. How are the organisation's policies developed, i.e., policy development process steps?

1.3. Have there been any new policies drafted or revised because of COVID-19?

1.4. If **yes**, how long did it take to get them approved and implemented?

Section 2:

2.1. Were all the steps in the organisation policy development with reference to **Question 1.2** of **Section 1** executed in any new COVID-19 related policies?

2.2. If **no**, which ones were excluded from the process?

2.3. What was the impact of the exclusion noted in **Question 2.2** above?

2.4. Is compliance of organisation policies enforced?

2.5. If **yes**, please provide a brief description of how this is achieved.

2.6. If **no**, any reasons why compliance is not ensured?

Section 3:

3.1. Do you know of any policies amended during COVID-19, as a result of external influential bodies, e.g., Department of Labour, Regulatory bodies like ICASA, Department of Communications and Digital Technologies, etc.?

3.2. If **yes**, please provide examples of the policies.

3.3. If you have answered **yes** to **Question 3.1** above, can you elaborate on how these policies impacted the organisation's policies?

APPENDIX C - Participation Information Sheet

Dear participant,

My name is Nonkosi Ntsini, and I am currently enrolled as a student for the Master of Management degree in the field of Digital Business at Wits Business School, Johannesburg. As part of the academic requirements for the qualification, I am required to submit a research report. My research is aimed at exploring policy directions of the company in responding to the COVID-19 pandemic. Participants in this study will need to have been working within the policy development process of the organization for at least three years, accounting for pre COVID-19 and during COVID-19 experience.

I would like to invite you to participate in my research study. Participation will be in a semi-structured one-on-one online interview session with the researcher. The interview session will be 45 minutes long to ensure that participants fully understand the purpose of the research and to also allow sufficient time to answer any questions participants might have regarding the research.

The interview sessions might be recorded to afford the researcher an ability to transcribe the responses. Participant confidentiality is guaranteed as the recorded interview sessions will be kept in encrypted devices and will only be accessible and used by the researcher and supervisor, Professor Mjumo Mzyece of the Wits Business School. Anonymity is guaranteed as the participants will be referred to as Participant 1, Participant 2, etc. and transcription saved likewise instead of using their names and the name of the organisation participants work for. The data will be kept for a period of one year and will be deleted thereafter.

Participation in this research is completely voluntary. Participants are allowed to withdraw from the study at any point before and during the interview.

For any questions relating to the research, please email me at 1849426@student.wits.ac.za or my supervisor Professor Mjumo Mzyece at mjumo.mzyece@wits.ac.za

The research has been approved by the University Human Research Ethics Committee (Non-Medical) and can be contacted at 011 717 1408 or e-mail at hrecnon-medical@wits.ac.za

APPENDIX D - Ethics Clearance Certificate

Graduate School of Business Administration
University of the Witwatersrand, Johannesburg

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

Ethics Clearance Certificate

Ethics protocol number: WBS/DB1849426/720
This certificate is only valid with a legitimate ethics protocol number and signed by the Researcher (below).

Project title	ICT priorities influencing policy directions in a South African telecommunications company
Investigator / Researcher	Ms Nonkosi Ntsini
Nature of Project	MM (Digital Business)
Decision of the Committee	Approved, provided stakeholders and participants are guaranteed anonymity and confidentiality.
Issue Date of Certificate	2021-08-18
Expiry date	Date of submission of the project report
Chairperson	Prof Anthony Stacey ☎ +27 11 717 3587 +27 82 880 4531 ✉ anthony.stacey@wits.ac.za

Declaration by Researcher

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

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

Signature

2021-08-18
Date: