Operational Performance Factors Influencing Implementation of the Environmental Sustainability Targets in a South African Telecommunications Company

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Abstract

The world is on a drive for the implementation of the Sustainable Development Goals. Lack of implementation of the Environmental, Social, and Governance (ESG) targets presents environmental, reputational, and financial risks for companies where sustainability is increasingly important.

The aim of this research is to identify the factors that influence the effective implementation of environmental targets in the telecommunications sector in South Africa. The research aims to bridge the gap between intent and implementation, providing insights and recommendations to help companies in the sector achieve their environmental goals while balancing technological growth and sustainable development. The study was conducted using a qualitative methodology where semi-structured interviews were held with the participants.

The results and findings of the study presented; improvements on employee engagements, ownership, collaboration, alternative energy investments, lowering greenhouse emissions, investment in research and development, and prioritising environmental sustainability goals in the company strategy as some of the key components to implemented.

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1. Introduction

1.1. Background

Niehaus, Goedhals-Gerber and Feiboth (2018) argue that although the telecommunications sector has created opportunities and contributed significantly to the Gross Domestic Product (GDP) of South Africa, it has also had environmental implications. With the rapid proliferation of network infrastructure, increased electronic waste from discarded devices, and the energy-intensive operations of data centres, Kunkel and Matthess (2020) cite that the ecological footprint of the telecommunications industry has become a matter of concern. At the same time, the global context presents an even more pressing backdrop. According to Vyas-Doorgapersad (2022), the world has been grappling with issues of climate change, biodiversity loss, and sustainability crises. The Paris Agreement, the Sustainable Development Goals (SDGs), and numerous other international commitments accentuate the dire need for industries, countries, and communities to tread on a more sustainable path. As a result, even though several laws seek to improve the telecom industry's environmental sustainability, their success is far from assured. The effectiveness of these programmes is heavily influenced by variables including technical innovation, governance concerns, and the quality of the regulations. Therefore, to achieve the intended results, a multifaceted strategy that addresses these issues is crucial.

Therefore, telecommunications companies find themselves at a crossroads. With their vast reach and influence, Amini, Bienstock and Narcum (2018) highlight that telecommunications companies hold the potential to drive significant positive change. Many of them have set environmental targets, aiming to reduce carbon emissions, manage electronic waste, and promote renewable energy. The companies integrate these initiatives into their core strategies, showing a growing understanding of the significance of sustainable business practices. Another layer of difficulty is the digital divide, especially in developing nations like sub-Saharan Africa. The introduction of underwater cables for telecommunications might help close this gap. The relationship between African development, economic expansion, and telecommunications infrastructure. The above-stated facts form the backdrop of the proposed study, which is an exploration of factors influencing effective implementation of environmental targets in a South African telecommunications company. As such, environmental sustainability in the telecom industry is not just a matter of ethics but also a matter of business. The industry must include CSR into its sustainability plans, take into account how emerging technologies like 5G will affect the environment and public health, and find sustainable ways to close the digital gap.

1.2. Problem Statement

Although the intent to adopt sustainable practices is clear, the pathway to their effective implementation remains obscured by challenges. Amini et al. (2018) highlight that a gap seems to exist between

environmental targets set by telecommunications companies and their realisation. We can attribute this discrepancy to several reasons. The telecommunications sector in South Africa is vast and complex. Kumi, Yeboah and Kumi (2020) observe that with numerous stakeholders, ranging from regulatory authorities, service providers, consumers, and civil society, the decision-making process becomes multifaceted. Each stakeholder group brings its own set of interests, priorities, and perspectives, making the implementation of any initiative, including environmental targets, a challenging feat.

According to Vyas-Doorgapersad (2022), South Africa's developmental priorities sometimes conflict with environmental considerations. As a developing nation, Niehaus et al. (2018) argue that South Africa's primary focus often lies in providing essential services, boosting employment, and ensuring economic growth. In such a scenario, Kunkel and Matthess (2020) cite that environmental targets, despite their significance, might take a back seat, especially if they are perceived as hurdles to immediate economic goals. Moreover, Valinejad and Rahmani (2018) propound that there is a potential lack of clarity and uniformity in environmental guidelines and policies specific to the telecommunications sector. All these factors culminate in a significant problem: the effective implementation of environmental targets remains elusive in the South African telecommunications sector. This presents not only an environmental risk but also a reputational and financial risk for companies in an era where sustainability is becoming a core business imperative. Therefore, the formulated problem statement for this study is that the factors for the implementation of the environmental targets for the telecommunications company are unknown.

The telecommunications industry is a developing and important subject of academic research, particularly in the context of South Africa. However, there is not a lot of research out there that looks at this in relation to environmental issues. The study has the potential to be a valuable addition by shedding light on the dynamics and difficulties of incorporating environmental goals within the telecommunications business. This research could encourage other investigations, encouraging more academics to look at the connection between telecommunications and environmental sustainability, going beyond merely completing the academic area. Additionally, the study can help define "effective implementation" in the context of environmental objectives, adding much-needed conceptual depth to discussions.

1.3. Research Objectives

1. To understand the current environmental practices ((sustainability and technological advancements) in the telecommunications sector in South Africa.
2. To identify the challenges faced by telecommunications companies in South Africa in implementing environmental targets.
3. To ascertain the factors that promote successful implementation of these targets.

1.4. Research Questions

1. What are the prevalent environmental practices in the South African telecommunications sector?
2. What challenges do these companies face in setting and achieving environmental targets?
3. Which factors positively impact the effective implementation of environmental goals?

2. Literature Review

The telecommunications industry is not an exception to the growing concern over environmental sustainability. This section aims to examine the many facets of environmental sustainability, such as organisational practices and legislative frameworks, that influence how a South African telecommunications company implements it.

2.1. Conceptual Framework of Environmental Sustainability

Environmental sustainability has its historical roots in the Brundtland Report of 1987, which defined sustainable development as addressing existing demands without jeopardising the ability of future generations to address their own. According to Dauvergne (2018), this study marked a sea change in global governance since it elevated the topic of sustainability. Garrett et al. (2019) draw attention to the fact that, despite increased worldwide awareness, there are still several obstacles to the execution of sustainability measures, one of them being the absence of meaningful promises to end deforestation. According to Opoku (2019), the built environment, which encompasses urbanisation and infrastructural development, has frequently conflicted with biodiversity, making it more difficult to attain environmental sustainability. One prominent example in Europe is the use of renewable energy sources in data centres. The use of renewable energy in data centres greatly lowers carbon emissions, Telecom businesses must implement true green programmes since the Volkswagen incident has increased scrutiny of corporate sustainability claims. Additionally, depending on how it is managed, digitalisation can either increase or decrease energy usage.

Stakeholders' roles in environmental sustainability have also been discussed academically. Stakeholder theory, according to Barney and Harrison (2020), implies that companies have obligations to a number of groups in addition to shareholders while pursuing sustainability. According to Freeman, Harrison and Zyglidopoulos (2018), this theory has developed to take into account conflicts that arise between various stakeholder groups, including investors and local populations. Freeman, Phillips and Sisodia (2020) go on to say that rather than only being difficulties to be overcome, these conflicts may be a source of creativity and value creation. Consequently, the idea of environmental sustainability has changed over time, moving from a limited emphasis on the preservation of natural resources to a more comprehensive strategy that takes into account social and economic factors. Although there has been progress in incorporating sustainability into global governance frameworks and business plans, implementation and stakeholder engagement problems still exist. It will be essential that we solve these

issues going forward to make sure that environmental sustainability is a reality rather than simply a theoretical idea.

2.2. Importance in the telecommunications sector

The telecommunications industry has built modern civilisation by enabling international data interchange and communication. However, considering its high energy usage and carbon impact, this industry's environmental sustainability has come under investigation. Corporate social responsibility (CSR) and sustainability are strongly intertwined, and incorporating CSR into business sustainability is crucial for long-term performance, according to Ashrafi, Adams, Walker and Magnan (2018).

The introduction of 5G technology has exacerbated environmental issues. Bushberg, Chou, Foster, Kavet, Maxson, Tell and Ziskin (2020) draw attention to the risks to public health and safety associated with electromagnetic radiation from 5G wireless communications networks. Russell (2018) also covers the environmental effects of 5G wireless telecommunications growth. Frank (2021) suggests that we should employ a precautionary approach when evaluating the potential health impacts of electromagnetic fields produced by 5G technology.

Innovation is another way to improve sustainability. Lungu (2018) talks about how business model innovation in the telecom sector may lead to strategic agility. Tang, Xu, Hao, Wu and Xue (2021) explore the impact of telecommunications infrastructure development on China's green technology innovation.

As a result, environmental sustainability in the telecom industry is not only a matter of ethics, but also a matter of business. The industry must include CSR in its sustainability plans, take into account how emerging technologies like 5G will affect the environment and public health, and find sustainable ways to close the digital gap. Stakeholder theory is a valuable framework for striking a balance between the interests of many parties, and innovation presents chances to improve sustainability. Given that sustainability practices directly affect a company's long-term performance, their financial feasibility must also be taken into account.

2.3 Regulatory Landscape in South Africa

The need for energy-efficient equipment is a significant regulatory requirement in the telecommunications industry. According to Ioannou and Serafeim (2017), a company's environmental practices may be significantly impacted by required corporate sustainability reporting. Furthermore, Adedoyin, Gumede, Bekun, Etokakpan and Balsalobre-Lorente (2020) emphasise that the effectiveness of environmental policies directly depends on the quality of regulations. Asongu, Le Roux and Biekpe (2018) further highlight the importance of Information Communication Technology (ICT) in promoting environmental sustainability, proposing that laws should encourage the use of sustainable ICT solutions.

Enforcing these laws, nevertheless, presents difficulties. According to Fayiga, Ipinmoroti and Chirenje (2018), despite current legislation, environmental contamination is still a major problem in numerous industries, including telecommunications. According to Siakwah, Musavengane and Leonard (2020), problems with governance frequently make it more difficult to achieve sustainable development goals across a number of sectors. Asongu et al. (2018) also emphasise that, although ICT can serve as a tool for sustainability, legislation must address environmental issues.

To complicate matters even further, the telecommunications industry is a global one. According to Hamann, Smith, Tashman and Marshall (2017), both national and international laws have an impact on SMEs since they frequently conduct business internationally. This makes for a difficult environment where businesses have to follow a plethora of regulations that occasionally contradict each other. Enhancing ICT for environmental sustainability is particularly difficult in underdeveloped nations like sub-Saharan Africa, where regulatory frameworks might not be as strong, according to scholars Asongu et al. (2018). In addition, Godfrey and Oelofse (2017) note that different jurisdictions have very diverse waste management policies, which makes it more difficult to implement regulations. One such policy is the disposal of outdated telecom equipment. The critical conversation on environmental sustainability in the telecommunications sector is illustrated by the sequence diagram in Figure 2.1.
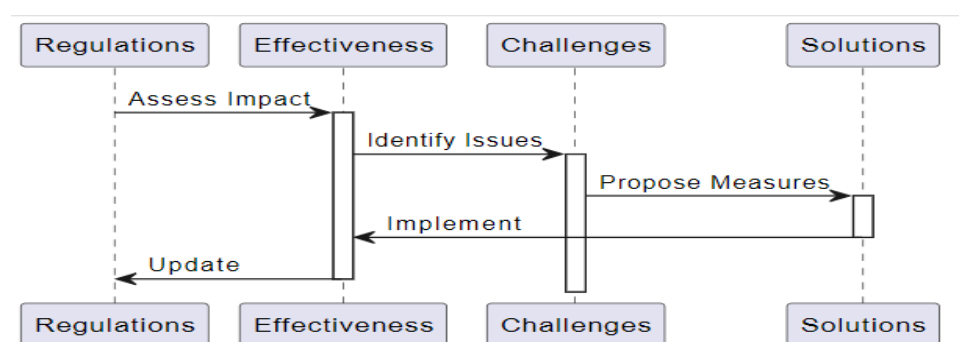

Figure 2.1: Environmental sustainability in the telecommunications sector

Source: Author

Figure 2:1 summarises the complex relationship between rules, their efficacy, problems, and remedies related to environmental sustainability in the telecommunications industry. We first evaluate the effects of the regulations before assessing their efficacy. The suggested solutions then address the issues identified in this examination. By putting these fixes into practice, the regulations become more effective, closing a loop that might lead to the original regulations being updated or revised. We use arrows to illustrate the flow of activities, whereas deactivations and activations indicate the phases in which each element is active during this complex interaction. Sustainable telecom practises have also received backing from the South African government. South African metropolitan centres like Johannesburg and Cape Town are progressively implementing the ideas of smart cities, which include

energy-efficient technology. Even in areas with less reliable infrastructure, machine learning techniques may be used to improve the energy efficiency of telecommunications. South African businesses must implement true green initiatives since corporate sustainability programmes are under more scrutiny internationally.

As a result, even though several laws seek to improve the telecom industry's environmental sustainability, their success is far from assured. The effectiveness of these programmes is heavily influenced by variables including technical innovation, governance concerns, and the quality of the regulations. Therefore, to achieve the intended results, a multifaceted strategy that addresses these issues is crucial.

2.3. Factors Influencing Environmental Sustainability

2.3.1. Organisational culture and leadership

Organisational culture and leadership greatly influence an organisation's environmental sustainability. Organisational culture, according to Henchion, Hayes, Mullen, Fenelon and Tiwari (2017), is a complicated system of standards, values, and beliefs that influence how people behave within a company. In a similar vein, Rosati and Faria (2019) assert that the essence of leadership is the capacity to motivate and direct subordinates towards the accomplishment of group objectives. Ren, Goedhals-Gerber and Feiboth (2022) assert that an organisation's leadership and organisational culture significantly shape its environmental sustainability activities. Thus, organisational culture is the foundation for carrying out and maintaining environmental activities.

2.3.2. Technological advancements

Some have hailed the promise of technological progress as the solution to many of the world's problems, including environmental sustainability. Contradictions abound in the complicated link between technology and environmental sustainability. The quickening rate of industrialisation further complicates the role of technology in environmental sustainability. However, a number of crucial elements, such as organisational culture and governmental regulations, will determine how well this transformation succeeds. In addition, highlighting the impact of institutional elements on sustainability reporting, Rosati and Faria (2019) opine that technological advancements alone would not be enough to achieve sustainable goals. Ren et al. (2022) raise doubts about the direct benefits of technology for environmental sustainability by presenting data from China showing that internet development, a technological achievement, has not always resulted in energy-saving practices. Kumar, Manrai and Manrai (2017) go on to say that a complex interaction of situational, societal, and individual variables impacts consumers' purchase decisions for environmentally friendly items.
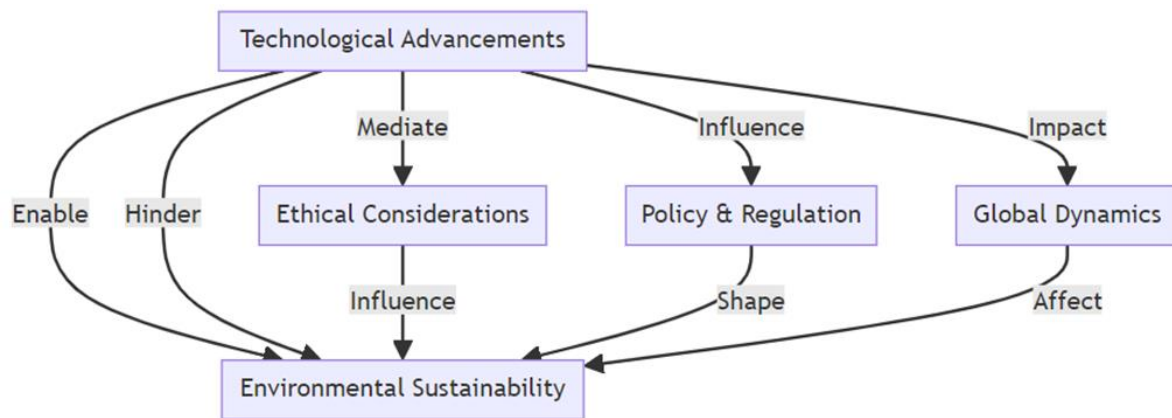
Figure 2.2: Relationship between technological advancements and environmental sustainability

Source: Author

Figure 2:2 illustrates the intricate interplay between environmental sustainability and technological developments. Technological improvements can either help or hinder environmental sustainability. Ethical issues mediate the impact of technology on sustainability, influencing the ethical acceptance of technological solutions. Regulation and policy play a crucial role in shaping the application of technology towards sustainable objectives. This connection is also influenced by global dynamics, as technical developments have an impact on sustainability on a global scale, extending beyond local or national settings. As such, environmental sustainability in the telecom industry is not just a matter of ethics but also a matter of business. The industry must include CSR into its sustainability plans, take into account how emerging technologies like 5G will affect the environment and public health, and find sustainable ways to close the digital gap.

As a result, even if technology presents opportunities to improve environmental sustainability, a complex interaction between global dynamics, regulatory frameworks, and ethical concerns moderates the influence of these improvements. Therefore, to fully use technology and accomplish environmental sustainability goals, a holistic strategy that considers these complex aspects is essential.

2.3.3. Financial considerations

Financial factors greatly influence environmental sustainability, serving as both facilitators and obstacles. The availability of financial resources can greatly accelerate the adoption of sustainable technology. Li, Long, Chen and Geng (2017) discovered, for example, that monetary incentives, including tax breaks and subsidies, had a beneficial impact on consumers' inclinations to purchase battery-electric cars. Kumar et al. (2017) contend, in a similar spirit, that financial incentives can persuade buyers to choose ecologically friendly goods. Schäufele and Hamm (2017), however, provide a warning: although financial incentives can encourage the adoption of sustainable practices, they are insufficient on their own and must be combined with consumer education and awareness campaigns.

As a result, although important, financial factors cannot solve all environmental sustainability issues. Other elements, including institutional support, public knowledge, and ethical issues, frequently play a mediating role in their success. Therefore, attaining long-term sustainability requires a comprehensive strategy that combines financial incentives with other supportive elements.

2.4. Challenges in Implementing Environmental Sustainability Targets

It is by no means easy to get from simply stating environmental objectives to actually achieving them. Chen, Kim, Pan, Tseng, Lin and Chiang. (2020) note that there is a discernible enthusiasm for environmental aims in the modern corporate landscape, particularly within the telecommunications industry. Caiado, Leal Filho, Quelhas, de Mattos Nascimento and Ávila (2018) state that many telecommunications' businesses are eager to integrate environmentally friendly practices into their operating frameworks since they connect with expansive ideals of a sustainable future. Their public declarations frequently convey optimism and a sincere dedication to a future with less environmental impact. But as with many grand goals, Leal Filho et al. (2019) note that there is no obvious way to translate these ideals into real acts.

Figure 2:3 shows how the main obstacles to adopting environmental sustainability are a lack of resources, regulatory restrictions, and market forces.
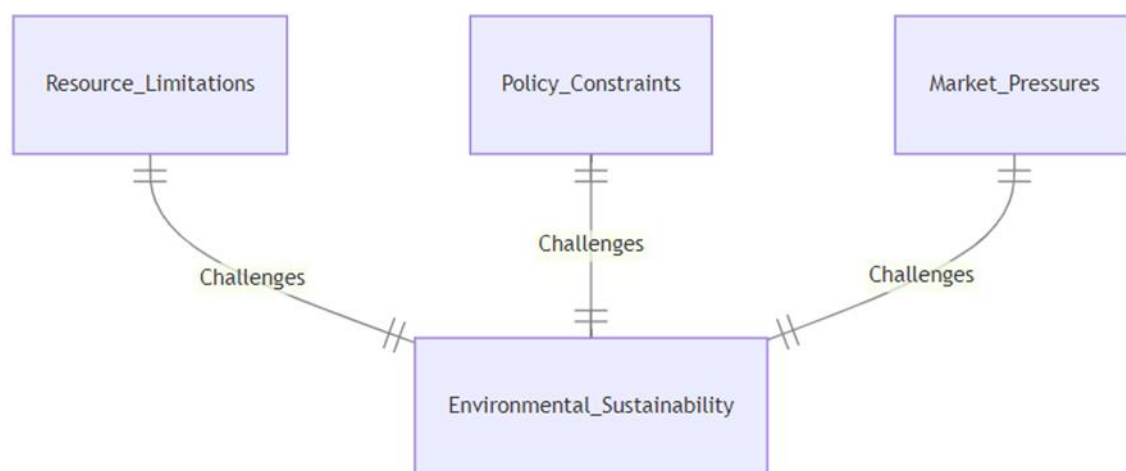
Figure 2.3: Barriers to environmental sustainability
Source: Author

2.4.1. Resource limitations

One of the biggest obstacles to achieving environmental sustainability standards is a lack of resources. With the establishment of the SDGs by the United Nations, the conversation around sustainability has gained momentum. However, there are several obstacles in the way of achieving these objectives, mainly because of limited resources. According to Caiado et al. (2018), resource constraints make the

collaborative action dilemma worse. The lack of resources—financial, human, and technological—hinders the group efforts required to carry out sustainability aims. This is especially true in underdeveloped nations, where there are more severe resource limitations.

2.4.2. Policy constraints

There is a degree of complexity because to the global nature of environmental challenges. Therefore, policy limitations severely hinder the implementation of environmental sustainability objectives. These limitations include incoherent policies, bureaucratic roadblocks, a lack of political will, and the difficulties involved in international collaboration. To address these issues, we need a multifaceted strategy that involves not only policy reform but also a shift in the underlying structures that support these limitations.

2.4.3. Market pressures

Because to market pressures, achieving environmental sustainability objectives is becoming increasingly difficult. It is impossible to exaggerate how much consumer demand shapes market forces. In a similar vein, Lee (2021) contends that environmental sustainability objectives and consumer needs for convenience, such as single-use plastics, directly clash.

2.5. Theoretical Framework

2.5.1. Stakeholder Theory

The Stakeholder Theory can offer a robust framework to examine how South African telecommunications companies engage with different stakeholders in their sustainability journey, elucidating potential challenges, conflicts, and synergies that arise in the process.

2.5.2. Ecological Modernisation Theory

The South African telecommunications sector is continually evolving, driven by technological advancements and market expansions. By examining the sector through the lens of ecological modernisation, the study can explore how technological innovations, infrastructural changes, and policy adaptations within the telecommunications landscape contribute to, or hinder, the effective implementation of environmental targets. The change has three major concepts: driving forces, restraining forces, and equilibrium. Driving forces are those that push in a direction that causes change to occur. They facilitate change because they push the patient in a desired direction. They cause a shift in the equilibrium towards change. Restraining forces are those forces that counter the driving forces. They hinder change because they push the patient in the opposite direction. They cause a shift in the equilibrium that opposes change. Equilibrium is a state of being where driving forces equal restraining forces, and no change occurs. It can be raised or lowered by changes that occur between the driving and restraining forces.

2.6. Gaps in Existing Literature

There appears to be not enough published material on environmental sustainability in the telecommunications sector, particularly in South Africa. Many studies have examined the adoption of sustainability goals by various organisations, but there is a notable lack of focus on telecommunications companies in South Africa. Interestingly, given the industry's significant impact on the environment, including energy use and electronic waste disposal, much research on this subject is not available.

We often overlook how technological advancements can either facilitate or obstruct the achievement of sustainability objectives. Given how quickly telecommunication technology is evolving, understanding how to use these advancements for sustainability might provide useful knowledge.

3. Research Methodology

Employing the research onion framework, this study's methodology delves deep into the layers that shape the research approach. The research onion provides a systematic progression through the layers of research considerations, starting from the broader choices and moving towards the more specific techniques.

3.1. Philosophical Stance: Interpretivism

According to Walliman (2021), this perspective is grounded in the belief that our knowledge and understanding of the world are inherently influenced by our individual experiences, backgrounds, and cultural contexts. By adopting an interpretivist stance, it allowed for a more intricate exploration of these personal narratives.

3.2. Research Approach: Inductive

The inductive approach, for example, has garnered significant attention. It commences with very specific observations. According to Busetto, Wick and Gumbinger (2020), these observations could be in the form of field notes, participant behaviours, or responses from interviews.

3.3. Research Strategy: Case Study

Walliman (2021) highlights that the case study approach provides profound insights into specific instances, which is why the proposed study has chosen this approach. By choosing this method of inquiry, the researcher is not merely seeking answers but also understanding the very nature and essence of the questions that arise in the company's pursuit of environmental sustainability.

3.4. Target population

We conducted the study in the South African ICT sector. Because of the high level of confidentiality and protection of the organisation, the organisation's name was omitted from the study. The target

population for this study is all the ICT companies in South Africa that produce broadband or other communication services for an organisation or household. In this case study, the total target population is the entire ICT organisation's workforce.

3.5. Sampling

The study had a target population of 60 participants and a sample of 12 purposively selected participants who had the necessary skills and knowledge in this area. The rationale behind this is to ensure that the voices captured in the study are those that hold significant influence and knowledge within the telecommunications company. More specifically, key decision-makers and those overseeing environmental management will be prioritised.

3.6. Data Collection

One of the foundational techniques utilised for gathering information is the conduct of in-depth, semi-structured interviews. This depth and breadth of perspective were paramount in ensuring the study's relevance and applicability. The interview guide used to collect data for the study was in the form of an in-depth, open-ended questionnaire. Care will be taken to remove personal feelings, perspectives, and opinions while analysing the response of the sample. The interview guide will be available to the participants one week before the scheduled interviews, as this will ensure that they have enough time to prepare their answers and also clarify any unclear questions.

3.8.1 Semi-structured interview guide

We developed an interview guide and made it available to the participants to gather meaningful data. These questions were open-ended, which did not pressure the participants. The interview questions covered the following themes:

- Understanding current environmental practices.
- Challenges in implementation of the environmentally sustainable targets.
- Factors for successful implementation for the environmentally sustainable targets.
- Future prospects to ensure continuous improvements.

3.7. Data collection administration

An in-depth, open-ended questionnaire served as the interview guide for data collection for the study.. The questionnaire will be analysed from a professional, objective, and unbiased viewpoint using content analysis.

3.8. Data Analysis

The research used a thematic approach to analyse the data. Thematic analysis stands out as a principal method in qualitative research, particularly when the goal is to discern, examine, and convey patterns that emerge within the data. the essence of this method lies in its structured yet flexible approach to

grappling with a voluminous amount of data. Initially, it is crucial to immerse oneself in the data, getting thoroughly familiar with the depth and breadth of the content.

3.8.1. Principles of Trustworthiness

Scholarly literature has extensively examined the fundamental aspects that are integral to ensuring the trustworthiness of qualitative studies.

3.8.2. Credibility

To achieve this goal, membership checks were implemented, which involved sharing data, interpretations, and conclusions with research participants so that they could clarify that their intentions were presented according to their expectations.

3.8.3. Transferability

Using a thick description, this research shows the applicability of the findings to different scenarios.

3.8.4. Dependability

A third party not involved in the data collection and analysis process examined the data collection, data analysis, and research study results to ensure reliability.

3.8.5. Confirmability

This research ensured that the data used came from the research participants and not the researcher.

3.9. Ethics

Permission was received through the Unisa Graduate School of Business Leadership Research Ethics Clearance Approval Committee for this study. Reference number 2023_SBL_MBL_051_FA-1868.

3.9.1. Informed consent

Every participant's informed consent was sought before the study commenced. This consent served as an affirmation that they are participating voluntarily, understanding the implications, scope, and purpose of their involvement.

3.9.2. Protection from harm

Maintaining the trust and confidentiality of our research participants is of utmost importance. As a measure to uphold this trust, the anonymity of every participant throughout the research process was ensured. The contents and recommendations of this research were provided to the organisation, and all information in this regard is kept confidential.

3.9.3. Right to privacy

No personal identifiers, such as names, addresses, or contact information, were used with the aim of creating a secure environment where participants felt at ease, knowing that their privacy was respected and protected.

4. Results and findings

We constructed a theme mind map as a framework for the study to present the findings, as shown in Figure 4.1. This visual representation helped to convey the relationships between the different themes and subthemes identified in the analysis.

> **Factors Influencing Effective Implementation of the Environmental Sustainability Targets in a South African Telecommunications Company:**
>
> **RO1: To understand the current environmental practices in the telecommunications sector in South Africa:**
> **Theme 1: Environmental Practices in the Telecommunications Sector in South Africa.**
> - 1.1: Environmental Practices in the Telco Industry
> - 1.2: Compliance with industry standards and regulations in the telecommunications industry.
> - 1.3: Organisation's Environmental Sustainability Efforts
>
> **RO2: To identify the challenges faced by telecommunications companies in South Africa in implementing environmental targets:**
> **Theme 2: Challenges faced by South African telecoms in meeting environmental goals.**
> - 2.1: Challenges in Implementing Environmental Targets and Sustainability Goals
> - 2.2: Regulatory challenges and complexities in environmental sustainability and compliance.
> - 2.3: Economic factors, cost, and profitability impact on environmental goals.
>
> **RO3: To ascertain the factors that promote successful implementation of environmental targets.:**
> **Theme 3: Factors that contribute to the successful implementation of environmental targets.**
> - 3.1: Factors contributing to achieving environmental targets.
> - 3.2: Partnerships and collaborations are crucial for the success of ESG initiatives.
> - 3.3: Important of Employee Involvement and Leadership.
> **Theme 4: Advancing environmental agenda and impact.**
> - 4.1: Important aspects of employee involvement and leadership
> - 4.2: Environmental impact and policies shaping the company's sustainability and performance initiatives

Figure 4.1: A mind map of the current environmental practices
Source: Researcher

The mind map serves as a structure for presenting the findings of the thematic analysis, supported by evidence from the participants and available literature.

4.1. Research objective 1: To understand the current environmental practices in the telecommunications sector in South Africa

This section presents a discussion of the findings related to the research objective, organised into various themes and subthemes.

4.1.1. Theme 1: Environmental Practices in the Telecommunications Sector in South Africa

The development of the emerging theme is depicted in Table 4.1.

Table 4.1: Theme 1: Environmental Practices in the Telecommunications Sector in South Africa

Subthemes	Emerging Theme
1.1: Environmental Practices in the Telecommunications Sector	1: Environmental Practices in the Telecommunications Sector in South Africa
1.2: Compliance with industry standards and regulations in the telecommunications industry.	
1.3: Organisations Environmental Sustainability Efforts	

The following section outlines the subthemes that played a role in the development of the main theme: *"Environmental Practices in the Telecommunications Sector in South Africa."*

4.1.1.1. Environmental Practises in the Telecommunications Sector

Environmental practices refer to the actions and initiatives taken by a company to minimise its impact on the environment and promote sustainability. The participants reported the following findings:

Communication and reporting:

> Participant said 11: *"I will say the practice is good currently because we have a special department that deals with environmental issues, and there are quite a lot of initiatives and communication within the company."*

Alternative energy and energy conservation:

> Participant 3 stated: *"Not only the sector but the country is working towards coming up with a combined mixture of energy sources and not only alternative sources but cleaner sources of energy."*

Climate Change:

> Participant 6: *"Obviously, there's the climate change ball, which is coming into effect shortly, depending on how long the government, I mean Parliament, takes to deliberate on it and that."*

Compliance with environmental regulations:

> Participant 11: *"I think within my company, compliance is key, especially with the Environmental Act. And I will say the practice is good currently because we have a special department that deals with environmental issues, and there are quite a lot of initiatives and communication within the company."*

Energy Efficiency and Alternative Energy:

> Participant 10: *"The company is actively working towards reducing their carbon footprint by also focusing on energy efficiency and renewable energy sources, whether we are there or not, but it's something on the pipeline. Even though the investment is not as great as the competitors', it's still something that we need to do."*

Environmental Awareness and Action:

> Participant 10: *"I guess in recent years, the telco industry has recognised the need to address environmental concerns and adopt sustainable practices, and I think our company forms part of that."*

Environmental Practises in Facilities Management and Utilities:

> Participant 4: *"So as part of promoting and developing new projects for waste management, there are these regulations that are part of the polluters pay principle."*

Environmental sustainability and responsibility:

> Participant 4: *"So, there is a newly promulgated regulation called the Extended Producer Responsibility Regulations, which make sure that our waste, when it comes to electrical electronic equipment's, is safely disposed of under what we call the Life Cycle Assessment."*

Long-term Climate Change Ambitions: Companies are setting long-term climate change mitigation goals, such as carbon neutrality and net-zero emissions, in line with science-based targets. They are working to reduce emissions and environmental impacts, with some aiming for these goals by specific target years.

> Participant 10: *"The company, I mean, has an opportunity to adopt a long-term perspective and really recognise that environmental goals can contribute to their overall profitability."*

Long-term climate change goals:

> Participant 6: *"So, these are emissions that are not under enough direct control, and that, I think, I mean, that is also going to be a big piece of work that feeds into the Net Zero agenda. Another piece of work is that we need to do this climate risk scenario. So, we need to understand the impact of our business on climate change, which is not something that we've done before."*

Research and Development:

> Participant 10: *"If you do not do research and development in its entirety and invest in it, I do not think the company really, that is my view that I do not think the company is investing in research and development especially around this topic to drive innovation in sustainable technologies."*

Waste management:

> Participant 1: *So, the department promulgated these regulations to make sure that the companies that are selling the electronic equipment, for example, you would not know that, so and so who bought a cell phone in 2021, where is that cell phone, like, finally disposed of? So as part of promoting and developing new projects for waste management, there are these regulations that are part of the polluter's pay principle.*

4.1.1.2. Subtheme 1.2: Compliance with industry standards and regulations in the telecommunications industry

Guidance from organisations like GSMA and the International Telecommunications Union, as well as adherence to ISO standards, are also highlighted as important factors in achieving these goals.

Alignment with industry standard:

> Participant 7: *"Sure. And I think, to start off, I would say that these are aligned with the International Telecommunications Union as well as the GSMA because they have set a standard for the industry to be carbon neutral by 2040."*

Alignment with national benchmarks:

> Participant 9: *"Yeah, I think to a large extent they are very much aligned, and I am saying that because, if I look at the company that we work with on the disposal, it is doing a lot of work for other cooperations in South Africa as well. So, they are standards, and the benchmarks are very much aligned with what is acceptable in the country."*

Environmental compliance with regulations:

> Participant 4: *"For example, we have been working hand in hand with the Department of Fisheries and Forestry and enviro when it comes to reporting our greenhouse gas emissions. I mentioned earlier that we have had regular engagements with them."*

Impact of load shedding:

> Participant 12: *"So environmentally, we have a huge dependency on power, which means we need to ensure that we have multiple kinds of backup power irrespective of where we find ourselves, and that is why doing that in an environmentally friendly way is critical with the existing rolling blackouts in a country, which we call load shedding. We burn electricity; if there is not enough electricity, we burn diesel."*

International standards and certifications:

> Participant 11: *"We are currently actually aligned with ISO 140001, which is the standard that actually helps organisations improve their environmental performance through more efficient*

and resource-efficient waste reduction. You know, and it is also helping us gain a competitive advantage with other stakeholders."

Water conservation:

Participant 3: *"Like, for example, water conservation, being in an environment where you are trying to conserve water, consume, recycle, including waste, small things as that are talking to preserving our environment and keeping it greener. An employee needs to understand that when I see a water leakage, I have to report it because I am a role player in making sure that yes, because this is a scarce resource, yes. So, in our environment, it has to be that everybody understands their role."*

4.1.1.3. Subtheme 1.3: Organisation's Environmental Sustainability Efforts

Initiatives include reducing energy consumption and carbon emissions through solar PV installation, recovering gases, removing asbestos, and exploring new energy-saving initiatives.

Lack of unique initiatives:

Participant said 1: *"Um, I am not going to say it is unique, but we try." It might be like we have a charging station for what do we call the cars that use batteries?"*

Renewable energy focus:

Participant 12 stated: *"We would not particularly call them unique, but we are doing work in terms of implementing renewable energy in the form of solar, wind, and some of the other renewable energies, which is a bit tricky and as such because of their non-cost effectiveness."*

Following industry standards:

Participant 2 said: *"I do not think we have any unique undertakings; everything we do is the dominant one. What is the rest of the world doing? Best practices: we tend to follow more mature solutions than more emerging ones."*

Energy efficiency and emissions reduction:

Participant 2: *"Yeah, and the other one, which, uh, gets topical in our country, is the removal of asbestos in all our work environments, especially disturbed asbestos."*

Contribution to broader sustainability goals:

Participant 3 stated: *"Without going into details, I think there are some projects that the company is looking at that would have the spin off in terms of providing alternative clean energies to other companies that are not necessarily in the sector and towards the greater country's targets towards coming up with a mixture of alternative energies. But the contribution would come mainly from providing that alternative source of energy from a cleaner perspective."*

Understanding and quantifying emissions:

> Participant 7 stated: *"So, so far, we have started to understand what our scope of three missions looks like, which is not really what our competitors have done. And if there is anything that they have done, it's only a few of the three scope categories out of the 15, but on our side, we've managed to determine all of those emissions for all the 15 categories, and that obviously starts because of the ambition that we have to become zero-neutral by 2040."*

Beyond expectations:

> Participant 7 mentioned: *There is a shift in our retail space towards environmentally-friendly devices and paper bags, stating we are now purchasing inventory-friendly and recyclable paper bags instead of plastic ones. We are also considering purchasing devices with good ratings and a focus on purchasing environmentally friendly devices."*

Proactiveness vs. reactivity:

> Participant 8 stated: *"Yeah, I would say moving to solar, but everybody is moving to solar, honestly, I think. As an industry, we need to do more to be proactive. If you can hear what I am saying, I think we are mostly reactive. I mean, we are putting on the solar because of the load shedding that is just around the corner, but as an industry, we are not proactive in terms of looking at what we can do for environmental sustainability."*

Employee engagement:

> Participant said: *"Electric cars. I know it might be standard in all industries, but for us it is free, and for our employees, we try to encourage them to use electric cars to reduce carbon, and that, I believe, is more unique because other companies do not have that kind of station. We allow focus so that you can charge at any time, and I noticed you guys are using electric cars, which I believe is unique."*

According to Siano, Vollero, Conte and Amabile (2017), increased consumer activism has prompted a more thorough scrutiny of sustainability assertions made by businesses.

4.2. Research objective 2: To identify the challenges faced by telecommunications companies in South Africa in implementing environmental targets

The section presents a discussion of the findings related to the research objective, organised into various themes and subthemes.

4.2.1. Theme 2: Challenges faced by South African telecommunications in meeting environmental goals

The development of the emerging theme is depicted in Table 4.2.

Table 4.2: Theme 2: Challenges faced by South African telecommunications **in meeting environmental goals**

Subthemes	Emerging Theme
2.1: Challenges in Implementing Environmental Targets and Sustainability Goals	2: Challenges faced by South African telecommunications in meeting environmental goals.
2.2: Regulatory challenges and complexities in environmental sustainability and compliance.	
2.3: Economic factors, cost, and profitability impact on environmental goals.	

The following section outlines the subthemes that played a role in the development of the main theme: *"Challenges faced by South African telecommunications in meeting environmental goals."*

4.2.1.1. Subtheme 2.1: Challenges in Implementing Environmental Targets and Sustainability Goals

Successful deployment is achieved through clear goals and targets, communication, incorporation into business plans, monitoring and reporting, relevant governance structures, and environmental audits. Some of the challenges in implementing environmental targets and sustainability goals include:

Strong leadership and tone at the top with clear goals and targets:

> *Participant 10: "I think for me, if you have strong leadership and tone at the top and clear goals and targets, if you are clear on what you need to achieve, that will really make it. But also, you need to be innovative, you know, and whether our company is innovative or not is another thing."*

Monitoring, reporting, and accountability:

> *Participant 11: "What made it to succeed? What I've seen so far is that in the company, we have a strategy that has been communicated to, you know, all levels and the target incorporated in the business plans, and above that, ensuring that there's a monthly, quarterly monitoring and reporting on all the KPI's you know related to the objectives you know and still further those monitoring and reporting to relevant governance structures within the business."*

Buy-in from stakeholders:

> Participant 3: *"So, you need to have them as the stakeholders that you need to bring on board so that they understand the change in the office ambience, for example. And understand that it is not that we are no longer compliant or that there is an issue with illumination.*

Planning and execution: Effective planning and execution are essential for successful implementation. This includes identifying the right technologies and partnerships, as well as ensuring smooth installation processes.

> Participant 12: *"It is about forming the right partnerships from an execution perspective and getting leadership direction and buy-in in terms of the implementation of environmental targets."*

Compliance requirements:

> Participant 12: *"So, all of the initiatives that the business implements, as I said over and above, the compliance aspect is really looking at our resources and how we manage our resources—water, waste, energy, etcetera—to be more efficient in terms of our impact on the environment."*

Awareness and education:

> Participant 12: *"So I think it's probably just to formalise that and make sure that the policy is clear and very, you know, strict around certain things, and also to make sure that there's enough awareness that we raise within the company so that it's not only the people that implement but the rest of the organisations that are fully aware of some of the initiatives that we do."*

Transparency and accountability:

> Participant 10: *"So, but when it comes to stakeholder engagement and transparency, I mean, these environmental factors push us to actually be transparent and really engage other stakeholders in what we are doing"*

Collaboration and involvement:

> Participant 12: *"Employee involvement is critical because I think in certain cases, in the balance of priorities, it is highly important to have employees aligned with what the ESG strategy is for the organisation, because in most cases, you find that you do not have unlimited resources."*

4.2.1.2. Subtheme 2.2: Regulatory challenges and complexities in environmental sustainability and compliance

The input highlights the regulatory challenges and complexities of environmental sustainability and compliance.

Fragmented regulatory landscape:

> Participant 10: *"So, there is no carrot dangled to do that, but unfortunately, because your investors are looking at it differently, you will have to do it. I mean, there's also inconsistent or fragmented policies across different sectors that will have an impact on that."*

Limited enforcement and monitoring:

Participant 10: *"I mean, enforcing regulation in South Africa is a problem on its own, you know, and it has been seen as a compliance tick box type of thing."*

Stakeholder interaction and public participation:

Participant 10: "*The next thing you know and that, and the other thing that I think is important in that is stakeholder engagement and public participation. I mean, if the stakeholders are not understanding the regulation, how do we expect them to actually uphold what is in the regulation?"*

Lack of standardisation in renewable energy integration:

Participant 12: *"You find that not all municipalities have the same level of maturity in terms of their policies and how they integrate renewable energies like solar PV and wind into their portfolio of services, which then results in not having a standardised way of engaging with the municipalities in order for us to be able to deploy across the country."*

Complex and time-consuming approval processes:

Participant 3: *"You have to have certification approval from the municipality, and it is not a well-oiled machine for you first of all to get the approval. It's quite a tedious and sometimes costly exercise just to get approval for your PV installation."*

Ineffective communication of regulatory changes:

Participant 4: *"You will find that there is not enough capacity to go out there for awareness and make the companies aware of the changes or amendments within the regulations."*

Economic impact of regulations:

Participant 12: *"The economic factors play a crucial role because, in most cases, the cost of equipment is variable depending on the exchange rate, and it is also dependent on what the government's regulatory stance is on certain things."*

Technical complexities of compliance:

Participant 11: *"And you might find that compliance with some of those details is not that easy and straightforward. Exactly, and it might need more budget as you may need specialised companies for people to come and do a detailed test and give you the report."*

Municipal approval processes for solar panel installations:

Participant 2: "*In this regard, legislation requires that municipalities approve certain designs and give approval before implementation. But municipalities are so swamped that the waiting period for gazette is about 3 months. But in my experience, I have waited for more than a year*

just to get a response from the government, and so that remains the biggest backlog and hindrance to the implementation of projects."

4.2.1.3. Subtheme 2.3: Economic factors, cost, and profitability impact on environmental goals

Sustainable practises

Participant 10: *"I mean, sustainable practises such as energy efficiency, waste reduction, and resource optimisation can all lead to cost savings, improved operational efficiency, and enhanced brand reputation."*

Environmental initiatives

Participant 10: *"And then I think about market and demand, market demand, and consumer preferences. Sometimes it helps to understand where you're standing when it comes to environmentally friendly products; you know it, it's sometimes it helps to do market research to understand their understanding. where they have an opportunity to align with the environmental goods based on their demand and preferences because some are very vocal about."*

Financial factors:

It was found that companies need to evaluate the cost, profitability, and return on investment of environmental initiatives.

Participant 11: *"So as a business, we will need to ensure that we have enough OPEX to go and fix whatever infrastructure we have so that we will be able to reach a certain number of South Africans that we want to connect seamlessly.*

4.2.1.4. Subtheme 2.4: Challenges in Environmental, Social and Governance implementation

Without adequate financial resources, it becomes challenging to invest in renewable energy sources and other environmentally friendly solutions.

Participant 10: *"So, the third one that I considered was the financial considerations. I mean, this sustainable behaviour or agenda requires a lot of funds. If you are in a space where the company is not performing, you need to choose your battles, which is which, and my take is that the company could actually start being intentional on the targets that are not money-intensive. When you look at the current ESG strategy, it's actually more investment-heavy, you know, and especially on the environment side, where that money is not readily available."*

4.3. Research objective 3: To ascertain the factors that promote successful implementation of environmental targets

The section presents a discussion of the findings related to the research objective, organised into various themes and subthemes.

4.3.1. Theme 3: Factors that contribute to the successful implementation of environmental targets

The development of the emerging theme is depicted in Table 4.3.

Table 4.3: Theme 3: Factors Promoting Successful Implementation of Environmental Targets

Subthemes	Emerging Theme
3.1: Factors contributing to achieving environmental targets.	3: Factors that contribute to the successful implementation of environmental targets.
3.2: Partnerships and collaborations are crucial for the success of ESG initiatives.	
3.3: Important of Employee Involvement and Leadership	

The following section outlines the subthemes that played a role in the development of the main theme: *"Factors that contribute to the successful implementation of environmental targets."*

4.3.1.1. Subtheme 3.1: Factors contributing to achieving environmental targets

The analysis reveals various factors that contribute to the achievement of environmental targets and sustainability goals within a company.

> Participant 10: "*I think for me, if you have strong leadership and tone at the top and clear goals and targets, and if you are clear on what you need to achieve, that will really make it. But also, you need to be innovative, you know, and whether our company is innovative or not is another thing.*"

Overall, the input emphasises the importance of various factors working together to achieve environmental targets and sustainability goals within a company.

> Participant 10: "*But having buy-in at the highest level is actually a good thing that they need to hold on to, and having clear goals and targets, whether right or wrong, is there. It is actually also another key point, another win on that, because I mean, in establishing measurable goals, it is really important, and we all drive towards that.*"

Accountability:

> Participant 11: *What I've seen so far is that the company has a strategy that has been communicated to, you know, all levels and the target incorporated in the business plans, and above that, ensuring that there's a monthly, quarterly monitoring and reporting on all the KPI's you know related to the objectives you know and still further those monitoring and reporting to relevant governance structures within the business.*

4.3.1.2. Subtheme 3.2: Partnerships and collaborations are crucial for the success of ESG initiatives

The following was listed by the participants:

Importance of partnerships and collaborations:

> Participant 7: *"Sure. I mean, one of the things we are still looking into is how to form more partnerships and also make a bigger footprint out there."*

Government collaborations:

> Participant 4: *"For example, we have been working hand in hand with the Department of Fisheries and Forestry and Environment when it comes to reporting our greenhouse gas emissions. As I mentioned earlier, we have had regular engagements with them. They have even provided training when it comes to registration and so forth. We are also working with SANEDI, which assists us when it comes to these energy performance certificates."*

Collaborations with industry organisations:

> Participant 6: *"I mean, I would not say anything specifically; we are members of the National Business Initiative, and we find a lot of ways to collaborate with other companies and also share best practises with other companies on this journey. So, I think that has been useful. We are, we have, and we are undertaking a partnership with the CSIR, but that is just about to kick off to look at our resource efficiency in terms of energy, waste, and water."*

External service provider partnerships:

> Participant 9: *"I mean, we're definitely in line with what we need to do around just protecting the environment, and mainly on my side, it's really got to do with the disposals of waste and, of course, any initiatives around IoT's that we have done with a number of clients. If I can start with mainly the disposals of waste, I mean, we've aligned and we've got ourselves a company that obviously has the benchmark around how to dispose."*

Digital wallet partnerships:

> Participant 11: *"If you think of the rural areas, you know, and people not being implemented, not having shops around in banks around, if one just downloads an app on our side for the*

digital, you know, pay or digital E wallet, it's easy for them to send money from one place to another or one person to another."

Collaboration with Eskom:

Participant 4: *"We are also working with companies like Eskom. As I have mentioned, we have our energy strategy as part of exploring more when it comes to these new technologies, and we work hand in hand with Eskom as well."*

Overall, the themes revolve around the importance of partnerships and collaborations in various aspects of environmental and ESG initiatives, including knowledge sharing, technical expertise, government support, waste management, digital solutions, and peer learning.

4.3.1.3. Subtheme 3.3: Important of Employee Involvement and Leadership

Communication and education:

Participant 2: *"You need to cascade those strategies down to If you would just understand how, it impacts them not only on an economic level but also socially, so that we all buy into the reduction of our carbon footprint and how we conduct ourselves, not just at work but also at home. So, the sensitising of the individuals and the education of the staff are key, and maybe we could do a lot more as a company."*

Change management strategies:

Participant 1: *"But remember this environmental target? They get to be politically aggressive sometimes because of what we see, but why push this? We benefited nothing as a company, and the European companies are not following that after the war with Ukraine. They forget about the environmental target, and they start using coal. Why should we stop? Then you become sometimes more political than yes, and that's actually how, when you come to the buy-in, it becomes difficult depending on which side of the fence you are on."*

Key performance indicators:

Participant 11: *"A successful business plan should include clear objectives and targets, communicated to all levels, and incorporated into the business plan. Monthly and quarterly monitoring and reporting on key performance indicators (KPIs) are essential for tracking progress and ensuring alignment with the objectives. This proactive approach helps to ensure the business stays on track and aligns with relevant governance structures, ensuring the company's success."*

4.3.2. Theme 4: Advancing environmental agenda and impact

The development of the emerging theme is depicted in Table 4.4.

Table 4.4: Theme 4: Advancing environmental agenda and impact

Subthemes	Emerging Theme
4.1: Important aspects of employee involvement and leadership	4: Advancing environmental agenda and impact.
4.2: Environmental impact and policies shaping the company's sustainability and performance initiatives	

The following section outlines the subthemes that played a role in the development of the main theme: *"Advancing environmental agenda and impact."*

4.3.2.1. Subtheme 4.1: Important aspects of employee involvement and leadership

The input highlights the importance of employee involvement and leadership in advancing an organisation's environmental agenda.

> Participant 2: *"So, in this one, I think the company has really committed; we have a Net Zero strategy for 2040 and decarbonization. Net Zero strategy, which the board has bought into, and a five-year strategy have been accepted by the executives, so the last part is to indicate commitment by funding the strategy.*

Furthermore, the findings highlight the challenges of limited resources in achieving environmental targets, as well as the goal of achieving net zero within a specific timeline.

> Participant 8: *"And even if you look at the economic outlook as a whole, people are really quite stretched. So, honestly, companies are struggling. People are paying more for load shedding. They are paying more just for normal resources because of the rising inflation."*

4.3.2.2. Subtheme 4.2: Environmental impact and policies shaping the company's sustainability and performance initiatives

Carbon taxes and decarbonization efforts on a company's environmental performance.

> Participant 6: *"I would not say that that makes it more complicated. I suppose. I would not say more complicated, but things like the Carbon Tax Act, for example, are obviously going to begin to impact a business like ours in the next two to three years."*

Solar energy and formalising disposal procedures in company policies are internal initiatives that can improve environmental performance.

> Participant 9: *"Yeah, I think to a large extent they are very much aligned, and I am saying that because, if I look at the company that we work with on the disposal, it is doing a lot of work for other cooperations in South Africa as well."*

Overall, the input highlights the need for companies to stay informed about demographic changes, political agendas, and policy shifts to effectively plan and implement environmental initiatives.

It emphasises the importance of proactive adoption of sustainable practises and alignment of policies with environmental goals to improve environmental performance.

5. Managerial Implications

The research provides a comprehensive overview of recommendations to ensure environmental practises in the telecommunications sector. These recommendations include:

- Communication and reporting: Companies should disclose their environmental compliance and sustainability initiatives in annual reports to promote transparency and accountability.

- Alternative energy sources: Telco companies should explore and invest in alternative energy sources like solar panels to reduce reliance on fossil fuels and mitigate greenhouse gas emissions.

- Energy conservation measures: Implementing energy conservation measures such as low-energy lights and automation through the IoT can help reduce energy consumption and carbon emissions.

- Adherence to regulations: Telco companies should adhere to national environmental regulations and conduct regular inspections and audits to show their commitment to environmental sustainability.

6. Conclusions, Limitations and Future Research

This study aims to identify the factors that influence a South African telecommunications company's effective implementation of environmental targets.

6.1. Conclusions from the findings

We present the study's conclusions in relation to the research questions.

6.1.1. Research Question 1

What are the prevalent environmental practices in the South African telecommunications sector?

Based on the findings of the primary research, it can be concluded that companies are actively implementing environmental practices to minimise their impact on the environment and promote sustainability. Communication and reporting on sustainability efforts are considered important, with

companies disclosing their compliance and sustainability efforts in annual reports. Companies are exploring alternative energy sources, like solar panels, and implementing energy conservation measures. They are also taking steps to reduce greenhouse gas emissions and mitigate their environmental impact. They view adhering to national environmental regulations and conducting regular inspections and audits as crucial.

6.1.2. Research Question 2

What challenges do these companies face in setting and achieving environmental targets?

Based on the findings from the primary research, it can be concluded that:

Implementing environmental targets and sustainability goals is a complex and challenging process. It requires strong leadership, clear goals, innovation, monitoring, reporting, and accountability. Success factors include leadership support, reliable suppliers, planning, technological advancements, buy-in from employees and stakeholders, compliance requirements, awareness, transparency, government support, and bringing everyone together to understand and contribute to the goals. Economic factors, such as cost and profitability, play a significant role in achieving environmental goals. Obtaining funding and support for environmental initiatives can be challenging, but there are potential cost savings and brand reputation benefits in the long run.

6.1.3. Research Question 3

Which factors positively impact the effective implementation of environmental goals?

Based on the findings of the primary data, it can be concluded that strong leadership, innovation, accountability, planning and execution partnerships, employee involvement and awareness, compliance and regulations, awareness and transparency, government support, bringing everyone together, and clear goals and targets, monitoring, and reporting are crucial factors for achieving environmental targets and sustainability goals within a company.

6.2. Areas for further research

According to the input, the three critical areas for future research on environmental sustainability and compliance are:

•   Research is required to explore effective strategies for engaging stakeholders in environmental initiatives, such as employees, government departments, research organisations, and external service providers.

•   Economic Factors and Financial Support: To understand the economic factors, such as cost, profitability, and return on investment, that influence the implementation of environmental goals, more research is required.

- Policy and Regulatory Frameworks: We need research to evaluate how well existing policies and regulations promote environmental sustainability and compliance.

6.3. Conclusion

In conclusion, the research highlights the importance of communication and reporting on sustainability efforts as well as the need for companies to align with industry standards and government regulations. It emphasises the adoption of alternative energy sources, energy conservation measures, and the reduction of greenhouse gas emissions. We also identify waste management, particularly e-waste, as a significant concern. The challenges in implementing environmental targets and sustainability goals include the need for strong leadership, clear goals, innovation, monitoring, reporting, and accountability. Economic factors, such as cost and profitability, play a significant role in achieving environmental goals. The input also discusses the challenges and complexities of environmental sustainability and compliance, including fragmented regulations, limited enforcement capacity, and a lack of stakeholder engagement. We see partnerships and collaborations as crucial for the success of ESG initiatives, and emphasise employee involvement and leadership as important factors in achieving sustainability goals. The limitation of this study lies in the case study which limits the generalisability of the study. Overall, the input highlights the various activities, regulations, and strategies that can greatly impact a company's environmental performance.

7. Acknowledgments

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