Gordon Institute of Business Science
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Advancing renewable energy transition through employee empowerment in the South African telecommunications sector

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A research project submitted to the Gordon Institute of Business Science, University of Pretoria, in partial fulfilment of the requirements for the degree of Master of Business Administration.

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Abstract

South African firms continue to experience a decline in performance due to energy insecurity caused by the nation's overreliance on fossil fuels, which also contribute to environmental degradation. The telecommunications sector has committed to a net-zero emissions target for 2050; as such, renewable energy (RE) has been identified as a sustainable means to reduce emissions while promoting energy security. Research has identified employees as key intermediaries in accelerating sustainability transitions; however, the literature is limited in strategies to enhance employees' competence in accelerating these transitions. Therefore, this study explored how employee psychological empowerment can be implemented to accelerate the sustainability transition to RE in South Africa's (SA) telecommunications sector. A qualitative and exploratory research design was employed, and 13 semi-structured interviews were conducted with non-executive employees across various telecommunications firms. Thematic analysis revealed key psychological empowerment practices, such as training, rewards, and participation, which enhance employees' abilities, motivation, and engagement. However, the findings also revealed barriers to implementation, including limited consultation and general misalignment. Therefore, this study proposed an integrated framework that recommends how the identified empowerment practices can be implemented effectively to overcome organisational and social barriers. The findings provide telecommunications practitioners in SA with insights into implementing psychological empowerment to enhance employees' competence, thereby accelerating sustainability transitions to RE.

Key Words

AMO theory, psychological empowerment, renewable energy, and sustainability transition.

Declaration

I declare that this research project is my own work. It is submitted in partial fulfilment of the requirements for the degree of Master of Business Administration at the Gordon Institute of Business Science, University of Pretoria. It has not been submitted before for any degree or examination in any other University. I further declare that I have obtained the necessary authorisation and consent to carry out this research.

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List of Abbreviations

AEE	Association of Energy Engineers
AJG	Academic Journal Guide
AMO	Ability-Motivation-Opportunity
CEM	Certified Energy Manager
CEO	Chief Executive Officer
CFO	Chief Financial Officer
COO	Chief Operating Officer
CTO	Chief Technology Officer
ESG	Environmental, Social, and Governance
ExCo	Executive Committee
GHRM	Green Human Resource Management
HR	Human Resources
HRM	Human Resource Management
ISO	International Organization for Standardization
KPI	Key Performance Indicator
LMS	Learning Management System
MD	Managing Director

MNO	Mobile Network Operator
OEM	Original Equipment Manufacturer
OpEx	Operating Expenditure
PDS	Performance Development System
POPI Act	Protection of Personal Information Act
R&D	Research and Development
RE	Renewable Energy
SA	South Africa
SDG	Sustainable Development Goal
SNM	Strategic Niche Management
SLT	Senior Leadership Team
STR	Socio-Technical Regime
STRN	Sustainability Transitions Research Network
TIS	Technological Innovation Systems
TM	Transition Management
UN	United Nations
FY	Financial Year

Chapter One: Introduction To the Research Problem

1.1. Background to the Research Problem

The prosperity of a nation is directly tied to its infrastructure investment and development, which are mainly dependent on the production, storage, and transmission of electricity (Akinbami et al., 2021). As Africa's most developed nation, it is unsurprising that South Africa (SA) is Africa's largest emitter of greenhouse gases, partly due to the country's environmentally unsustainable electricity generation practices (Just Transition Finance Lab, 2024).

The notion that environmental degradation is not a priority for developing nations is no longer true (Adebayor et al., 2021). Apart from being the largest emitter in Africa, SA's heavy reliance on fossil fuels for energy production has landed it in the global top 10 of greenhouse gas emitters (Akinbami et al., 2021). This is a jarring statistic for the nation, its government, business, and civil society, as the effects of greenhouse gas emissions cause irreversible damage to the earth, undermining national food and water security, reducing incomes, and increasing the cost of living and doing business (Johnston et al., 2024).

To reduce and manage carbon emissions in electricity generation, the South African national government has set a Vision 2030 target to transition the country to an environmentally sustainable society and a low-carbon economy (National Planning Commission, 2012). Vision 2030 is aligned with the United Nations (UN) Sustainable Development Goals (SDGs), particularly Goal 7, which aims to ensure that citizens have access to affordable, reliable, and sustainable energy (United Nations, n.d.).

SA has abundant renewable energy (RE) sources, such as wind and solar, which are proven to significantly reduce emissions of harmful gases compared to fossil fuels (Ibrahim et al., 2021). As such, the national government has identified RE as a key resource to meeting its and the UN's 2030 target of sustainable and accessible energy generation and transmission. To meet this target, the state encourages private firms and state entities to transition from fossil fuel-powered operations to sustainable practices, such as RE.

1.2. Context of This Study

The global energy supply faces uncertainty due to unsustainable production

practices that have led to the swift diminution of natural resources, pollution, and the emission of harmful greenhouse gases (Robinson & Williams, 2020). The energy access challenge poses a threat to industrialisation and business performance, particularly in developing nations, such as SA, where businesses are more vulnerable to this crisis (Bartolucci et al., 2019).

The telecommunications (telecoms) industry is the cornerstone of human connection and development, relying heavily on energy to provide network connectivity to the population (Tang et al., 2021). The telecoms sector in SA employs nearly 50,000 people and generates an annual revenue of more than R350 billion, making it a key contributor to SA's social and economic landscape (Statistics South Africa, 2023). As a nation develops, the need for telecom tower base stations increases, accompanied by a rise in electricity demand to power them (Deevela et al., 2023).

Globally, the telecoms sector has committed to achieving net zero by 2050, with ambitious operators even targeting as early as 2025 (Gil Gómez et al., 2024). To achieve these targets, telecom operators must manage and reduce their Scope 1 (sources owned or controlled by the firm) and Scope 2 (from purchased sources) emissions, a significant portion of which are attributable to their energy sourcing and use. As such, there is growing concern within the industry, particularly in developing nations, about how energy can be sourced more sustainably to accelerate decarbonisation (Gil Gómez et al., 2024). Due to political, economic, and environmental constraints, the telecoms sector in SA faces growing pressure to transition to sustainable energy solutions to meet its target of net-zero emissions by 2050.

1.3. Problem Statement

This study has identified practical and theoretical problems that justify exploring psychological empowerment as a strategy to enhance employees' competence, thereby advancing the sustainability transition to RE in SA's telecoms sector.

1.3.1. Business Problem

SA's national power utility, Eskom, relies primarily on fossil fuels to generate grid power; 85% of the electricity produced is generated from coal (Tyler & Mgoduso, 2022). This unsustainable practice has resulted in Eskom failing to meet the nation's

energy needs, leading to the implementation of routine power outages. South African firms have identified power outages and the associated costs of operating generators as the primary inhibitors to their growth and performance, with firms reporting annual revenue losses of up to 4.9% (Cole et al., 2018). Firms will remain unsustainable, continue to lose revenue, and experience higher operating costs if they persist in relying on grid electricity and fossil-fuelled backup power. Telecom network operations, such as base stations, rely on a consistent and affordable energy supply to remain commercially competitive. Therefore, it is imperative for the telecom sector to transition to sustainable energy solutions, such as RE, to ensure base station uptime and commercial viability.

A firm's brand and reputation are often viewed as more valuable than money, with research indicating that a strong reputation offers several competitive advantages, including a doorway into new markets, increased long-term shareholder value, revenue, profitability, customer loyalty, trust and price premiums (Cowan & Guzman, 2020). On the other hand, there are severe consequences for firms that do not honour their brand promises and psychological contracts with customers. There have been several instances of brands and business leaders collapsing due to corporate scandals. A recent case is that of Andy Byron, ex-Astronomer CEO, who resigned following public backlash after an alleged extramarital affair with a subordinate at a music concert (The Times, 2024). Such reputation-damaging incidents can result in shareholder and revenue losses and, in extreme cases, lead to the firm's closure (Loock & Phillips, 2020).

Regarding environmental sustainability, the question practitioners ask is, "Do customers really care?" (Loock & Phillips, 2020, p.2). Firms are wary of investing time and money in sustainability efforts that lack high consumer awareness (Cowan & Guzman, 2020). According to Chladek (2019), customers do indeed care; firms that embed environmental sustainability into their strategy and operations are shown to gain a competitive advantage, as a result of the growing market for sustainable goods, with some consumers completely disassociating from unsustainable brands. This means telecom firms cannot continue to power their operations through environmentally unsustainable means, such as coal-fired grid electricity and diesel-powered backup generators. Therefore, it is imperative for telecom firms to embed environmental sustainability into their strategies to remain financially sustainable and

competitive in an ever-growing, sustainability-conscious market. This can be achieved by transitioning to RE to power the sector's operations.

To address financial and environmental constraints, as well as the growing pressure from governments, regulators, shareholders, and customers to transition to sustainable energy practices, the largest mobile network operators (MNOs) in SA have embedded carbon-emission targets into their medium- and long-term strategies. MTN has set a target to achieve a 47% reduction in carbon emissions by 2030, after failing to meet its 2025 goal of transitioning to RE (MTN Group, 2020). To achieve this, MTN aims to ramp up its use of RE to decrease its reliance on diesel generators during power outages. According to Vodacom (2023), despite setting a target to purchase 100% RE by 2025, the SA-based firm spent R700 million in 2023 on non-RE backup power solutions. This indicates SA telecom's unsatisfactory position in the sustainability transition to RE, with two of the industry's largest firms failing to meet their sustainability targets. This is contrary to European telecom firms, such as Vodafone, which is 100% powered by RE sources (Vodafone, 2021).

Several cases of energy sustainability transitions have been observed across the globe. In Chile, Indonesia, Mongolia, Thailand, and Colombia, for example, transitions from fossil fuel energy to RE have been observed (GIZ, 2023a; GIZ, 2023b; Limberg, 2024; Munkhjargal, 2024; Wangmanaopituk & Charoenlarpnopparut, 2024). The common challenges observed were stakeholder engagement and management (including employees and the community), logistical and planning complexities, and policy development and implementation. SA telecom firms must heed these challenges, particularly employee engagement and management and leverage lessons learnt to facilitate the energy transition within their realm.

To address the adverse economic, social, and environmental impacts and pressures arising from the overreliance on fossil-fuel-powered grid energy, SA telecom firms must ramp up their efforts to transition to RE by efficiently and effectively utilising key resources, such as employees, and leveraging lessons from sustainability transitions across the globe. As Luu (2019) highlighted, firms would benefit greatly from understanding the role of employee psychological empowerment practices in their sustainability transition to RE.

1.3.2. Theoretical Problem

The literature clearly defines sustainability transitions and acknowledges that employees are key intermediaries in accelerating them (Kivimaa et al., 2019; Kivimaa & Rogge, 2022). The literature further states that to transition from one system to another, firms must invest in strengthening their capabilities to manage change, including people, facilities, research and development (R&D), and systems, among other measures (Kanger et al., 2020). Surprisingly, the literature reviewed offers limited insight into the role of specific human resource management (HRM) practices, such as psychological empowerment, in promoting intermediary (employee) competence to accelerate sustainability transitions across different industries and geographic locations.

The competence required from leaders in formulating and implementing sustainability policies and strategies is well understood in research and firms (Bhutto et al., 2021). However, the competence required from individual employees to implement such policies is underexplored in literature (Luu, 2019). Kivimaa et al. (2019) and Luu (2019) emphasise that individual employees are key intermediaries and implementers of sustainability transition initiatives. Nevertheless, research has not sufficiently explored green human resource management (GHRM) strategies, particularly psychological empowerment as an intermediary strengthening strategy to enable employees to implement sustainability transition initiatives competently.

An article by Köhler et al. (2019) provides an extensive review and an updated research agenda for the field of sustainability transitions. The article revealed a gap in understanding how to accelerate sustainability transitions in developing nations amid growing global pressures. Furthermore, research on the role of specific employee psychological empowerment practices and strategies in advancing sustainability transitions is limited, particularly in developing nations and the telecoms sector (Pham et al., 2020). A study exploring the role of employee psychological empowerment in accelerating sustainability transitions in developing nations would benefit academia by contributing to the body of knowledge in these contexts and in energy-intensive sectors seeking to transition to sustainable practices.

1.4. Purpose Statement

This research aims to explore and establish employee psychological empowerment practices and how they can be implemented to advance sustainability transitions to RE in SA's telecoms sector. It aims to bridge the research gap on employee psychological empowerment in sustainability transitions and to identify key practices that firms can adopt to develop comprehensive GHRM strategies to overcome employee-related barriers in transitioning to RE. By applying psychological empowerment practices, firms can influence and contribute to an employee's ability, motivation, and opportunities, thereby accelerating sustainability transition initiatives.

This research paper outlines the research methodology and design employed as a structured process to achieve the research objectives. A literature review of top Academic Journal Guide (AJG)-rated peer-reviewed journal articles was conducted to establish the knowns and unknowns within the field of research. Data were collected through 13 semi-structured interviews with selected participants to gain insight into the phenomena under study. The data were analysed thematically to code and categorise, establishing recurring themes. The established themes were discussed to answer the proposed research questions and to establish employee psychological empowerment practices that accelerate sustainability transitions to RE in SA's telecoms sector. The discussion informed recommendations for a framework to guide practitioners in effectively implementing psychological empowerment practices within sustainability transitions.

1.4.1. Business Purpose

The telecoms sector is under pressure to transition to sustainable energy practices due to the unreliability, high costs, and environmental unsustainability of fossil-fuel-powered energy (Cole et al., 2018). To transition, firms within the sector must maximise the effectiveness and efficiency of employees as intermediaries to accelerate transition initiatives (Kivimaa & Rogge, 2022). Therefore, this research aims to develop a framework to guide practitioners in effectively implementing psychological empowerment practices within sustainability transitions, based on the findings emanating from data collection and analysis and knowledge garnered from academia. To meet the research objectives, 13 semi-structured interviews were conducted with individuals employed in the SA telecoms sector to explore employee

psychological empowerment in relation to the sustainability transition to RE. This research aims to provide practitioners with insights and recommendations on designing GHRM strategies to empower employees to accelerate sustainability transitions.

1.4.2. Theoretical Purpose

Literature on specific intermediary competence-enhancing practices to accelerate sustainability transitions in developing nations is limited (Köhler et al., 2019). Furthermore, research remains obscure in exploring how empowerment should be implemented and practised within sustainability transitions to realise its benefits (Iqbal et al., 2020). This research aims to contribute to the theoretical body of knowledge by offering insights into how psychological empowerment interacts with sustainability transitions, using the Ability-Motivation-Opportunity (AMO) framework, particularly in developing nations and energy-intensive industries.

This research aligns with the Psychological Empowerment Theory by Spreitzer (1995) and the AMO Theory by Appelbaum (2001). The Psychological Empowerment theory will serve as a guide for exploring employees' internal states during sustainability transitions. The AMO theory will assist in establishing, exploring and grouping employee psychological empowerment practices that advance sustainability transitions. This research aims to contribute to the theoretical bodies of knowledge within the AMO and Psychological Empowerment Theory contexts, with a specific focus on developing nations and the telecoms sector.

1.5. Delimitations

This study has intentionally set out the following boundaries: the geographical focus is on SA, a developing nation with high levels of emissions and energy insecurity (Akinbami et al., 2021); the sector explored is telecoms, which is energy-intensive and under pressure to transition to RE (Gil Gómez et al., 2024); the first construct chosen is psychological empowerment at a micro level, rather than other forms of empowerment, which are prominent at meso and micro levels (Monje-Amor et al., 2021); the second construct explored is sustainability transitions over other forms of transitions as it focuses on shifts from unsustainable regimes to sustainable niche practices (Kanger et al., 2020); this study explores the phenomenon over a short period of time, reflecting current and recent developments.

Chapter Two: Literature Review

2.1. Introduction

This chapter exclusively reviewed literature from top AJG-rated peer-reviewed journals and provided conceptual clarity on sustainability transitions and employee psychological empowerment. The two constructs, sustainability transitions and psychological empowerment, are defined, and their dimensions are outlined and contextualised to employees as intermediaries within the SA telecom sector's bid to accelerate the sustainability transition to RE. The chapter examined literature on GHRM as an operational context for this study and assessed the AMO theoretical framework as a lens for this study. Finally, the chapter established a connection between sustainability transitions and employee psychological empowerment through an operational context and theoretical lens, which is subsequently presented in Table 1. By reviewing what is known and unknown about the phenomenon being studied, this research leveraged the existing knowledge base to help close the theoretical gap by answering the research questions that arose from this chapter.

2.2. Transitions

Transitions are viewed as movements from one socio-technical system to another, spanning periods of 50 years or more (Kivimaa & Rogge, 2022). Socio-technical systems are defined as groups of actors, regulations, and technologies that meet fundamental societal needs and challenges, such as energy, transportation, food, and communication (Kanger et al., 2020). An example of a socio-technical transition is the agenda to shift from unsustainable electricity generated by fossil fuels to sustainable, renewable sources such as solar and wind. The global transition to RE aims to address the societal need for sustainable energy generation and provision by developing actors, rules, and technologies that reduce the emission of harmful greenhouse gases (Herrfahrdt-Pähle et al., 2020; Williams & Robinson, 2020). This research examined the sustainability transition to RE in SA's telecoms sector, addressing the societal need for sustainable energy consumption to facilitate communication.

Transitions are primarily driven by social problems, such as climate change, resource depletion, technological advances and urbanisation (Köhler et al., 2019). These social problems catalyse a landscape shift through intertwined processes at three

levels: regimes, niche and landscapes (Kanger et al., 2020). Regimes are established societal systems and rules that influence the behaviour of actors within a system to drive incremental innovations that reinforce and improve the incumbent socio-technical regime (Sengers et al., 2019). Niche refers to protected spaces (from market pressure) that foster the development of radical innovations until the technologies are ready to challenge and potentially replace the existing regime (Kivimaa et al., 2019). Lastly, landscapes are defined as exogenous social events, such as wars, that expose cracks and tensions within incumbent regimes, creating opportunities for niche innovations (Köhler et al., 2019). In essence, the landscape shapes regimes and niches through landscape changes that catalyse transitions by pressuring the existing regime while protecting the development of niche innovations, offering alternative solutions to solving social challenges.

Although landscape changes occur frequently, achieving successful transitions remains a challenge for practitioners due to the often robust nature of established regimes, which are deeply embedded in social, ecological and logistical structures (Herrfahrdt-Pähle et al., 2020). In a business environment, changing landscapes are not always sufficient to drive change; there is often a need for internal forces to accelerate transition initiatives. In transition literature, these internal forces are referred to as intermediaries and are believed to speed socio-technical transitions (Kivimaa et al., 2019). Failure to identify and strengthen transition intermediaries can have dire consequences for businesses, as they may lag behind competitors that adapt more quickly to a changing landscape.

As discussed above, transitions occur when landscape alterations challenge the viability of the incumbent regime, as is the case with the global shift towards sustainable production and consumption (Kanger et al., 2020; Kavadis & Thomsen, 2022). Scholars and practitioners have recognised climate change, biodiversity loss, and resource depletion as a grand societal and business challenge (Williams & Robinson, 2020). This challenge arises from unsustainable extraction, production, and consumption practices in socio-technical systems, such as the mining of fossil fuels to produce electricity (Köhler et al., 2019). Incremental innovations within dominant regimes are insufficient to address such problems, underscoring the need to explore niches for radically shifting to environmentally sustainable socio-technical systems (Markard et al., 2012). This radical niche shift toward environmentally

conscious socio-technical systems is referred to as a sustainability transition.

An example of a sustainability transition is the shift from fossil-fuel-generated energy to RE. Fossil-fuel-based energy systems, such as coal plants, which are prominent in SA and account for 85% of all electricity generation, exemplify the socio-technical regime (Cole et al., 2018). The socio-technical landscape has shifted with the rise of climate change pressures, driving firms to adopt environmentally sustainable strategies and policies to remain competitive in the long run (Ludwig & Sassen, 2022). The change in the landscape means the dominant regime (fossil-fuel-based energy systems) exacerbates the societal problem (greenhouse gas emissions), thus presenting an opportunity for niche innovations to challenge the incumbent regime by offering alternative solutions to catalyse a large-scale socio-technical sustainability transition from fossil-fuel energy to RE. In this case, the niche innovations are solar energy, wind turbines and microgrid systems.

However, as previously mentioned, landscape changes alone are not sufficient to catalyse organisational transitions; internal forces or intermediaries are required to accelerate them (Kivimaa et al., 2019). Research broadly acknowledges intermediaries as accelerators of transition. Alas, it fails to identify and list specific intermediary strengthening practices and strategies, along with their roles in facilitating sustainability transitions — an underexplored area in the literature (Köhler et al., 2019). This situation is further exacerbated by the scarcity of literature on sustainability transitions in developing nations, particularly in industries like telecoms, which are under pressure to transition (Kanger et al., 2020). Therefore, this research explored psychological empowerment as a specific intermediary strengthening strategy to accelerate the sustainability transition to RE in SA's telecom sector.

A prerequisite for a firm to embark on a sustainability transition is to establish corporate governance measures that enable it to meet the socio-technical sustainability challenges (Kavadis & Thomsen, 2021).

2.2.1. Sustainable Corporate Governance for Transitions

Conserving global resources to manage climate change by transitioning to net-zero carbon emissions is a business imperative in today's landscape (Ludwig & Sassen, 2022). Aguilera et al. (2021) highlight that business and political leaders across the globe have committed to implementing governance frameworks to mitigate local and

global environmental degradation caused by unsustainable production and consumption. Kavadis and Thomsen (2021) interpret corporate governance as a set of organisational controls that enable a firm to move in the desired direction to meet its business objectives. Building on this definition, environmentally sustainable corporate governance can be defined as organisational controls that enable a firm to transition to sustainability targets. Environmentally sustainable corporate governance is a platform for firms to develop GHRM practices that encompass employee empowerment, thereby contributing to the success of sustainability transition initiatives.

In response to the business and social imperative of transitioning to net-zero carbon emissions, management scholars have researched and theorised corporate governance strategies to govern and promote corporate transitions towards environmental sustainability (Aguilera et al., 2021). It is no surprise that academia and business acknowledge that environmentally sustainable corporate governance is imperative in driving sustainability transitions. However, in the constrained business environment, identifying the changes required to reinforce corporate governance and GHRM strategies remains a challenge, thereby enabling sustainability transitions to address the global carbon emissions crisis. In turn, sustainability transitions promote environmentally sustainable corporate governance by advancing shifts to green and responsible corporate behaviours (Sengers et al., 2019).

2.2.2. Sustainability Transitions

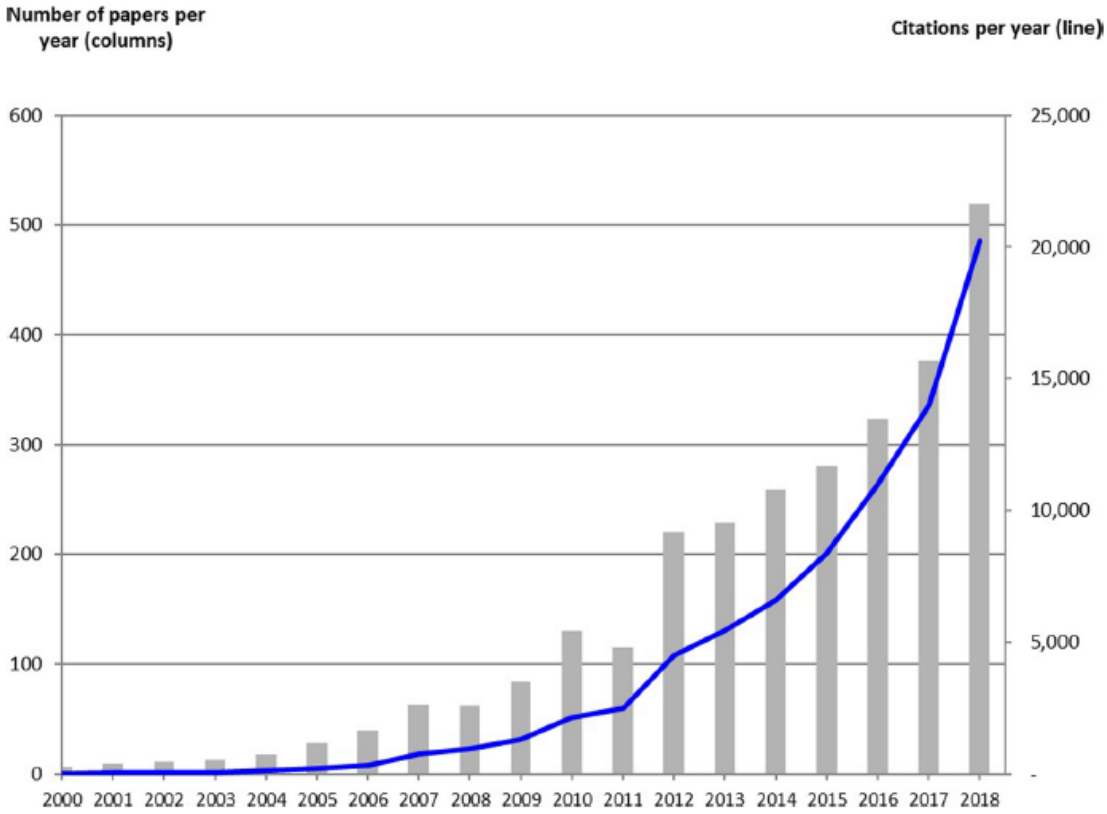
Kivimaa et al. (2019) and Hölscher et al. (2019) view sustainability transitions as mechanisms that drive cardinal transformation in socio-technical systems towards a more environmentally and socially sustainable approach to extraction, production and consumption. Literature on transitions has developed rapidly over the past two decades, with a growing international community hosting conferences to discuss and share scholarly investigations on concepts such as transition management and policy, transport transitions, and sustainability transitions (Markard et al., 2012).

The Sustainability Transitions Research Network (STRN) was established in 2009 and now has over 1,800 members across Europe, Australia, Asia, Africa, and the Americas (Köhler et al., 2019). As illustrated in Figure 1, the network had published

more than 450 papers in peer-reviewed journals, garnering over 20,000 citations by 2018 across diverse domains, including electricity, transportation, food, water, heat, buildings, cities, and waste management (Köhler et al., 2019). However, the network has expressed that further studies are needed to explore how sustainability transitions can be accelerated in developing nations (Kanger et al., 2020). Hence, this research contributed to the literature by exploring the role of psychological empowerment as an intermediary competence-enhancing strategy to accelerate the sustainability transition to RE in SA's telecom sector.

Figure 1

The number of papers published by the Sustainability Transitions Research Network



Note. The graph illustrates the number of papers published by the Sustainability Transitions Research Network, along with the corresponding number of citations, from 2000 to 2018. From "An Agenda for Sustainability Transitions Research: State of the Art and Future Directions," by J. Köhler, F.W. Geels, F. Kern, J. Markard, E. Onsongo, A. Wieczorek, F. Alkemade, F. Avelino, A. Bergek, F. Boons, L. Fünfschilling, D. Hess, G. Holtz, S. Hyysalo, K. Jenkins, P. Kivimaan, M.

Martiskainen, A. McMeekin, M.S. Mühlemeier, B. Nykvist, … P. Wells, 2019, *Environmental Innovation and Societal Transitions, 31*, 1-32, p. 3. Copyright 2019 by Elsevier. Reprinted for fair use for educational purposes.

From an environmentally sustainable corporate governance perspective, sustainability transitions promote green corporate citizenship, a firm's collective practices and strategies to reduce adverse environmental impacts by adopting a sustainable approach to extraction, production, and consumption, such as moving from fossil fuels to RE (Aguilera et al., 2021).

A change in the landscape often catalyses sustainability transitions (Köhler et al., 2019). In the energy sector, the unsustainable extraction of fossil fuels has led to rapid depletion of natural resources, along with air pollution and the emission of harmful greenhouse gases (Markard et al., 2012). This has resulted in short- and long-term energy supply risks, higher prices, and energy poverty (Cole et al., 2018). As such, in most parts of the world, particularly in developing nations, the landscape change and its associated repercussions have created cracks and exposed tensions in fossil-fuel-powered energy systems (Akinbami et al., 2021). The rising costs, unreliability and unsustainability of fossil-fuel-powered grid energy systems have forced firms to reconsider how they source and consume electricity. RE has been identified as a significant strategic avenue for sustainable economic growth by driving global sustainability transitions away from fossil fuels (Zhang & Kong, 2022). Therefore, firms in developing countries have an opportunity to explore RE as a possible alternative to fossil fuels.

Zhang and Kong (2022) argue that transitioning to sustainable energy systems such as RE can enhance a firm's productivity and profitability. By deploying RE in hybrid energy systems, firms can achieve cost savings and greater energy security compared to relying solely on grid power and diesel generators (Zhang & Kong, 2022). This sentiment is supported by Ludwig and Sassen (2022), who found that environmentally conscious firms are more financially competitive and more desirable to investors. The economic and social benefits offer South African firms an incentive to transition to RE. However, transitions are complex and require firms to allocate resources to strategically overcome the resistance from social and economic structures that reinforce the incumbent solution (Herrfahrdt-Pähle et al., 2020). This includes investing in employees, facilities, R&D and policies, amongst others.

2.2.2.1. Dimensions of Sustainability Transitions

Sustainability transitions encompass socio-technical systems, including water and energy supply, building on socio-technical transitions, systems innovations, and sustainable technologies (Kivimaa et al., 2019; Markard et al., 2012). The definition of sustainability transitions is consistent across the literature, with academics further aligning on conceptual approaches to the construct. Sustainability transitions are theoretically grounded in four core concepts: socio-technical regime (STR), strategic niche management (SNM), transition management (TM), and technological innovation systems (TIS) (Kivimaa et al., 2019). This is an expansion of the traditional transition literature, which encompasses only STR and SNM (Kanger et al., 2020).

STR, or technological regime (as referred to in earlier research), is at the centre of sustainability transition studies (Williams & Robinson, 2020). According to Markard et al. (2012), the concept is embedded in the periodic development and sociology of technology, leading to the belief that society is inherently endowed with scientific intelligence, engineering rigour, and the ability to improve processes through technology. Scholars' interest in socio-technical regimes focuses on the factors that disrupt existing regimes, leading to regime transition or the formation of new regimes (Kivimaa & Rogge, 2022). Regime transition is often triggered by external macro-level forces, such as global climate change awareness, which has disrupted the dominant fossil fuel energy regime (Kanger et al., 2020). However, for firms to transition quickly, they must look beyond landscape changes and focus on internal drivers, such as intermediaries (Kivimaa et al., 2019). This study focused on how firms can leverage intermediaries to accelerate regime transitions, particularly the sustainability transition to RE as the dominant fossil-fuel regime continues to collapse.

SNM is the second core concept in sustainability transition literature and is considered vital for emerging innovative technologies (Kivimaa et al., 2019; Kanger et al., 2022). Niche is strategically managed and protected to enable radical innovation and change without being constrained by the dominant regime (Kanger et al., 2020). Niche concepts can develop and compete with prevailing regimes through experimentation, social learning and the continuous development of novel ideas, practices and technologies (Sengers et al., 2019). Within the energy sector, the depletion of natural resources and the rise in environmental pollution from fossil fuel

production led to a socio-technical need for alternative, sustainable energy sources (Zhang & Kong, 2022). Nations in the global west responded by creating protected spaces for radical innovation through government grants and subsidies, experimentation, and continuous development, resulting in the formation of financially and operationally sustainable RE systems (Herrfahrdt-Pähle et al., 2020). SNM has created a competing regime (RE) to fossil fuels; however, the onus falls on firms to support intermediaries that enable niche ideas to transition into the dominant regime. Hence, this study explored GHRM practices to support intermediary performance, as firms seek to accelerate the adoption of RE as a niche system to replace fossil fuels as the dominant regime.

TM is the third conceptual approach in the sustainability transition literature, aiming to influence and guide transitions toward sustainable transformation in socio-technical systems (Sengers et al., 2019). Köhler et al. (2019) note that TM utilises transition experiments to explore innovative and sustainable ways of meeting society's needs, including energy, health, safety, and mobility. Since transition management focuses on sustainable solutions, such as RE, to address societal issues like the global energy shortage and climate change, firms must utilise intermediaries to manage and accelerate sustainability transitions (Hölscher et al., 2019). This study explored how intermediaries can be empowered to foster psychological safety and autonomy, encouraging experimentation and resulting in innovative solutions that can accelerate sustainability transitions.

The fourth conceptual framework is TIS, which focuses on new technologies and practices, as well as the required organisational changes to enable their development (Markard et al., 2012; Herrfahrdt-Pähle et al., 2022). According to TIS, for firms to embark on sustainability transitions, they must first identify the key organisational changes required to support sustainability initiatives, such as the empowerment or promotion of intermediaries (Kivimaa & Rogge, 2022). Therefore, this study explored which organisational changes are required to drive GHRM strategies that empower employees to enhance performance in sustainability transition initiatives.

2.2.2.2. Intermediaries Within Sustainability Transitions

Literature acknowledges that intermediaries play a critical role in accelerating

transition strategies (Kivimaa et al., 2019; Sengers et al., 2019; Williams & Robinson, 2020). Building on existing literature, this study defined transition intermediaries as systems or actors that are influential in the transition process by facilitating the development and application of niche technologies and ideas to disrupt the incumbent socio-technical regime (Kivimaa & Rogge, 2022; Köhler et al., 2019). Kimivaa et al. (2019) identified five types of intermediaries within sustainability transitions: systemic, regime-based, niche, process, and user intermediaries.

A systematic intermediary operates in all four dimensions of sustainability transitions (STR, SNM, TM and TIS) as a lead actor to accelerate a given transition agenda at the holistic systems level (Kivimaa et al., 2019). An example is a Chief Sustainability Officer or an executive sustainability officer within a firm, who is responsible for setting out firm-wide sustainability strategies.

A regime-based transition intermediary is initially appointed to serve the incumbent regime but, due to landscape changes, is assigned a specific target to promote transition; thus, they occasionally engage with niche ideas (Köhler et al., 2019). This could be employees within an energy management team whose goal is to ensure power stability, but who have been mandated to begin transitioning from legacy fossil-fuel systems to RE.

A niche intermediary has the specific purpose of promoting a particular niche technology through experimentation, intending to dethrone the prevailing regime (Williams & Robinson, 2020). This could refer to employees in R&D teams whose sole purpose is to experiment with new RE solutions to replace grid electricity.

A process intermediary facilitates or implements a specific, assigned niche idea or technology, without personally contributing to the development of the niche technology or the broader transition strategy (Kivimaa & Rogge, 2022). This could be employees within the project management office or field technicians who install the RE systems,

A user intermediary bridges the gap between niche technology developers and end users by gathering user preferences and communicating them to developers and other key stakeholders to maximise the value of the technology (Kivimaa et al., 2019). This may refer to sustainability champions within the technology team.

Systemic, regime-based transition and niche intermediaries tend to have a stronger desire and agency to facilitate and accelerate sustainability transitions, due to the sense of ownership that comes from directly contributing to the formulation of niche technologies and ideas strategy (Kivimaa & Rogge, 2022). Process intermediaries, however, tend to have limited agency in sustainability transitions, serving merely as facilitators in implementing niche technologies (Kivimaa et al., 2019). User intermediaries can have either low or high agency depending on their level of involvement and the extent of their engagement within sustainability transitions (Köhler et al., 2019).

2.2.2.3. Enhancing Intermediary Competence

Within firms, intermediary functions are often performed by chance rather than design in sustainability transitions (Köhler et al., 2019). Kimivaa et al. (2019) further emphasise the need to explore specific intermediary functions and how they can be reinforced, enabling firms to deliberately employ and empower personnel to work within these functions, thereby bringing about sustainable change. Although the categories of intermediaries are established and broadly defined in literature, specific intermediary-enhancing practices such as psychological empowerment in facilitating and accelerating sustainability transitions across various industries, including telecoms and geographic locations such as SA, are not well-explored in research (Aguilera et al., 2021; Kivimaa et al., 2019; Markard et al., 2012). Furthermore, a literature review indicated a general lack of research on sustainability transitions within SA and its telecoms sector.

All five intermediaries are crucial to the success of sustainability transitions and the adoption of new regimes. This research focused on empowering employees as regime-based transition, niche, process, and user intermediaries to maximise their agency in accelerating sustainability transitions to RE within SA's telecom sector. System intermediaries were excluded from this research, as this is generally an executive-level function, which does not align with this research's intention to explore the personal experiences of those impacted by empowerment policies, rather than those who develop empowerment policies and strategies.

Since employees are the implementers of sustainability transition strategies, this research examined psychological empowerment as an intermediary enhancing

function to explore and establish practices that can form part of a firm's comprehensive GHRM strategy, thereby accelerating its sustainability transition to RE in SA's telecom sector.

2.3. Empowerment

Empowerment in the workplace is when a leader voluntarily allocates a portion of their power to subordinates, while power itself is defined as command over organisational assets (Conger & Kanungo, 1988; Maiorano, 2021). Leaders' allocation and sharing of organisational resources align with the principles of shared leadership (Ali et al., 2020). In literature, there are two types of empowerment: structural and psychological (Campion et al., 1993; Spreitzer, 1995). Structural empowerment focuses on organisational conditions, such as job design, policies, and procedures, whereas psychological empowerment focuses on individuals and their perceptions of autonomy over their work (Iqbal et al., 2020).

According to research, more than 70% of organisations have implemented some form of empowerment initiative, due to the proven benefits in employee satisfaction, performance, well-being, and attitude (Maynard et al., 2012). Although employee empowerment is suggested to benefit the firm, doubts remain about whether it fundamentally improves firm performance or is merely another trend on the long list of managerial practice fads (Piazza & Abrahamson, 2020). Other studies have raised concerns that empowerment is superficial, as control remains largely with top management in most firms (Baird et al., 2020). This study explored how empowerment can be practised within sustainability transitions to realise its benefits, including improved, sustainable employee performance, thereby accelerating transition initiatives.

2.3.1. Structural Empowerment

Structural empowerment is described as a set of organisational structures, practices, and policies that enable employees to perform their daily tasks effectively (Monje-Amor et al., 2020). This refers to creating an environment where employees can achieve professional growth through meaningful work, learning opportunities and access to organisational information (Monje-Amor et al., 2021).

Structural empowerment comprises four dimensions: collaboration; formalisation;

directness; and influence level (Baird et al., 2020). Collaborations refer to involvement in decision-making (Monje-Amor et al., 2021). Formalisation focuses on establishing a clear protocol to foster engagement and participation (Iqbal et al., 2020). Directness refers to first-hand involvement in decision-making rather than through third parties (Maynard et al., 2012). While influence measures the degree of impact an employee has on decision-making (Monje-Amor et al., 2021). A study focusing on structural empowerment within the context of sustainability transitions would align with the exploration of leadership structures, resource-allocation measures, and organisational systems at the meso level.

2.3.2. Psychological Empowerment

Spreitzer (1995) built on Conger and Kanungo's (1998) definition of empowerment to conceptualise the theory of *Psychological Empowerment*, which Maynard et al. (2012) define as an employee's perception of the autonomy they have over their work and the ability to complete allocated tasks, linked to Bandura's (1977) motivational theory of self-efficacy.

Psychological empowerment is well-defined in literature, with researchers agreeing on the following core building blocks and their definitions: meaning, competence, self-determination and impact (Maynard et al., 2012; Spreitzer, 1995). Meaning refers to the degree of alignment between an individual's beliefs and the assigned task or role, ultimately determining how much they care about their work (Baird et al., 2020). Competence is an individual's belief (self-efficacy) in completing work-related tasks skilfully (Iqbal et al., 2020). Self-determination is the belief that one has a degree of control over one's immediate work environment and can initiate, effect, and regulate it (Motamarri et al., 2020). Impact is the perceived value that an individual believes they can add to a firm to positively influence the achievement of set goals (Monje-Amor et al., 2020; Monje-Amor et al., 2021). Leaders must promote the above-mentioned cognitions to reduce power distance in organisations by sharing decision-making responsibilities and increasing lower-level individuals' access to organisational information and resources (Maiorano, 2021).

Studies have shown that employees who are psychologically empowered exhibit higher levels of agency, psychological safety, motivation, and ability, which in turn foster greater organisational support, trust, participation, ownership, and sustainable

performance (Baird et al., 2020; Iqbal et al., 2020). In simple terms, psychologically empowered employees perform more effectively and efficiently (Hameed et al., 2020). This is particularly important during sustainability transitions, as firms require employees who take initiative and drive innovation to promote sustainable niche ideas and technologies, thereby shifting away from the unsustainable dominant regime (Kivimaa & Rogge, 2022; Köhler et al., 2019). Therefore, it is evident that employee psychological empowerment, when applied correctly, is a strategy to promote employee performance in sustainability transition initiatives.

2.3.3. Selection of Psychological Empowerment

In this study, employee psychological empowerment, rather than structural empowerment, was selected as the construct to explore practices that enhance individual employees' competence to accelerate sustainability transition initiatives. This choice is based on the ideology that psychological empowerment focuses on the individual's perception and reaction to empowerment at a micro level (Maynard et al., 2012). In contrast, structural empowerment focuses on institutional processes (Campion et al., 1993).

As discussed in Section 2.2.2.2, employees have been identified as intermediaries that can potentially accelerate sustainability transitions (Kivimaa et al., 2019). It remains potential because, if intermediaries are not sufficiently and deliberately equipped or empowered, the benefit will not be realised. Despite this, research remains limited in identifying specific intermediary competence-enhancing practices and in applying them effectively to enable intermediaries to perform better, thereby accelerating sustainability transitions. Given the established benefits of psychological empowerment for employee performance, this study identified psychological empowerment as a key intermediary strengthening strategy to accelerate sustainability transitions through improved, sustainable intermediary (employee) performance. Therefore, this study explored employee psychological empowerment and identified key practices that can strengthen employee performance during sustainability transition initiatives.

2.4. Sustainability Transitions and Psychological Empowerment

2.4.1. Green Human Resource Management Practices for Psychological Empowerment in Sustainability Transitions

GHRM was not considered a standalone construct in this study; instead, its practices were used to provide empirical context for understanding the role of employee psychological empowerment in sustainability transitions. Pham et al. (2020) define GHRM as human resource management (HRM) policies that foster environmental sustainability. Mahashwari et al. (2024) have noted a growing dialogue regarding sustainable HRM, capturing the attention of scholars and shifting their focus towards developing GHRM strategies and practices to drive environmental sustainability in firms. Psychological empowerment can be fostered as a GHRM strategy to drive employee performance within the sustainability space. GHRM empowers new and existing employees through green recruitment, development, performance management, remuneration, and engagement, promoting the firm's environmental performance and sustainability (Luu, 2019).

Green recruitment ensures that firms utilise appropriate criteria to hire environmentally conscious individuals skilled in developing sustainable solutions, which aligns with the meaning and competence cognitions of employee psychological empowerment (Hameed et al., 2019). Green development refers to providing employees with relevant training to equip them with the necessary skills and abilities to execute sustainability initiatives, thereby empowering them by increasing their competence, meaning, self-determination and impact (Pham et al., 2020). Green performance management and remuneration involve measuring employee performance against green targets and providing constructive feedback, as well as financial and non-financial incentives that promote the advancement of sustainability transitions within the firm; this encourages meaning (Luu, 2019; Pham et al., 2020). Finally, green engagement refers to offering employees the opportunity to participate in developing and implementing sustainability transition initiatives, thereby enabling employee empowerment through a sense of competence, meaning, self-determination and impact (Khan & Muktar, 2024).

Although psychological empowerment is well-researched, the use of GHRM practices to promote it and help firms meet their sustainability targets is

underexplored (Luu, 2019; Pham et al., 2020). This contradicts expectations because, as Kivimaa et al (2019) and Luu (2019) highlighted, employees are central to implementing and accelerating sustainability transition initiatives. Additionally, a study by Pham et al. (2020) within the hospitality sector found that GHRM practices that empowered employees improved the firm's environmental performance, indicating that firms can better capture sustainable niche technologies and practices to challenge the dominant, unsustainable regime.

The limited studies exploring GHRM and sustainable performance focus on the hospitality and tourism industries, particularly in Europe, the Americas, and Asia (Bhutto et al., 2021; Luu, 2019; Pham et al., 2020). This aligns with the STRN (the most prominent sustainability transition research caucus), which has highlighted the need for further research to explore how sustainability transitions can be accelerated in developing nations (Köhler et al., 2019). This represents a glaring gap in the literature for African regions and other industries under pressure to transition to net-zero carbon emissions. This research contributed to the academic and practical body of knowledge within developing nations by exploring employee psychological empowerment as a GHRM strategy to accelerate sustainability transitions to RE in SA's telecom sector.

2.4.2. Ability-Motivation-Opportunity Theoretical Framework

The AMO theoretical framework states that GHRM practices are directly linked with employee performance (Maheshwari et al., 2024). According to AMO, designing and implementing effective GHRM practices can improve employee performance and help achieve green goals (Hameed et al., 2020). Therefore, this research will utilise the AMO theoretical framework as a lens to identify, explore, and categorise key psychological empowerment practices as a GHRM strategy, and to examine how they can be implemented to promote employee performance and advance sustainability transitions. AMO consists of three categories: ability, motivation, and opportunity (Luu, 2019). This study leveraged the AMO categories to explore how an employee's (as an intermediary) ability, motivation, and access to opportunities can be reinforced and improved through psychological empowerment practices as a GHRM strategy to advance sustainability transitions.

Ability refers to the psychological and physical capacity to perform tasks skilfully,

similar to competence, meaning, self-determination and impact in the employee psychological empowerment theory (Pham et al., 2020). Employee ability can be enhanced through GHRM practices such as green recruitment and development, which include training, selective hiring, and career development initiatives (Bos-Nehles et al., 2023).

Motivation is the compulsion that guides and rejuvenates employees to drive sustainable performance, aligned with meaning in the employee psychological empowerment theory (Hameed et al., 2020). Employees can be motivated using green performance management and remuneration, such as regular performance evaluations and appraisals, performance-based compensation, recognition, awards, promotion and job security (Bos-Nehles et al., 2023).

Opportunities are extrinsic contextual factors that offer employees the chance to engage in and participate in initiatives (Khan & Muktar, 2024). Employees can be offered opportunities through green engagement practices such as decision-making participation, job autonomy, and engagement-enhancing policies (Bos-Nehles et al., 2023). These align with the theory of psychological empowerment, emphasising competence, meaning, self-determination and impact.

2.4.3. Link Between Psychological Empowerment and Sustainability Transitions

Over the past decade, scholars and practitioners have devoted resources to understanding the role of individuals in a firm achieving its sustainability targets (Pham et al., 2020). Francoeur et al. (2021) highlight that individuals contribute to sustainability transitions at different levels: top management sets the strategy and targets, middle managers communicate the strategy and outline the implementation plan, and employees implement the strategy in line with the plan. Therefore, this research has identified employees as key agents in the successful implementation of sustainability transition initiatives. Researchers within the sustainability transition domain support this stance, as they identified employees as key intermediaries in accelerating transitions (Kivimaa et al., 2019). However, the literature acknowledges that although employees are key intermediaries, firms need to continuously support and empower them to reinforce and enhance their capacity to perform effectively and efficiently within sustainability transition initiatives (Kivimaa & Rogge, 2022).

Bhutto et al. (2020), Hameed et al. (2020), and Iqbal et al. (2020) all established that empowered employees are more innovative, motivated, and capable, and are more likely to succeed in a psychologically safe workplace. This contributes to higher firm innovation and project success. GHRM strategies, such as psychological empowerment, impart employees with competence, meaning, and self-determination, as well as the ability to impact projects (Spreitzer, 1995). This is particularly important in sustainability transitions, as successful transitions must supplant the incumbent regime (Köhler et al., 2019). This requires employees to be innovative, proactive, and collaborative — traits that are also characteristic of psychologically empowered employees (Maynard et al., 2012). By grounding this study in the AMO theory, this study identified employee psychological empowerment as a construct that promotes green innovation and project success, thereby aiding SA telecom firms in their sustainability transition to RE.

As detailed in Table 1, this study applied the AMO framework as a theoretical lens within the GHRM operational context to identify psychological empowerment practices that promote an employee's competence, sense of meaning, self-determination, and impact in accelerating sustainability transition initiatives. The Ability category in the AMO framework encompasses green recruitment and development, both of which aim to enhance employees' abilities by empowering them, imparting a sense of meaning, competence, self-determination, and impact, thereby strengthening their capacity to deliver on sustainability transition initiatives (Hameed et al., 2019; Pham et al., 2020). The motivation category covers green performance management and remuneration as motivators, which imparts a sense of meaning to employees, empowering and rejuvenating them to actively participate and contribute to sustainability transition initiatives (Luu, 2019; Pham et al., 2020). The opportunity category enhances green engagement and development through engagement practices that empower employees by fostering a sense of meaning, competence, self-determination, and impact, thereby promoting participation, innovation, and ownership in sustainability transitions (Khan & Muktar, 2024).

Firms rely on employees to implement strategies (Maiorano, 2021). Industries, such as telecoms, with existing commitments and pressure to transition to RE must consider adopting GHRM practices to psychologically empower their employees to accelerate sustainability transitions. To date, no studies have been found that

explicitly investigate the role of psychological empowerment as a GHRM strategy to advance the sustainability transition to RE within SA's telecoms sector.

2.5. Conclusion

Employees within the telecoms sector play a key role as intermediaries in implementing and accelerating initiatives to promote RE transitions (Luu, 2019). Despite this, research indicates that the 'human side' of firms is underexplored in sustainability transition research, with researchers focusing more on operations, technology, resource management, innovation, and transition indicators (Jabbour et al., 2019). This presents a significant gap in the sustainability transition literature regarding the empowerment of intermediaries to accelerate transitions.

Kimivaa et al. (2019) further argue that it is necessary to explore specific strategies to promote intermediary competence, so that firms can deliberately employ them to accelerate sustainable change. This study has identified psychological empowerment as a GHRM strategy to enhance employee/intermediary competence, thereby accelerating sustainability transitions in developing nations. This angle has not been well explored in the literature, as it remains unclear how to identify and implement practices and strategies that enhance intermediaries' competence. Furthermore, research has shown that few studies explore how sustainability transitions can be accelerated in developing nations (Kanger et al., 2020).

Studies have questioned whether empowerment truly benefits a firm or is simply a superficial fad (Baird et al., 2020). Researchers have responded, demonstrating that empowerment indeed benefits employees and, consequently, benefits the firm (Iqbal et al., 2020). However, a gap remains in exploring how empowerment should be implemented and practised to realise its benefits.

To contribute to the body of knowledge on psychological empowerment and sustainability transitions, this research explored the cognitions of both constructs and added insights within the context of a developing nation and an energy-intensive sector seeking to transition to RE. Thereafter, this study established key psychological empowerment practices for employees. It provided a framework to guide SA telecoms practitioners in implementing them, thereby enhancing the competence of intermediaries/employees to advance sustainability transitions towards RE.

Table 1: *Interpretive Linkages Between Theoretical Lens, Context and Constructs*

AMO Category (Theoretical Lens)	GHRM Category (Operational Context)	Psychological Empowerment Dimensions (Construct 1)	Sustainability Transitions Insights (Construct 2)
Ability	Green recruitment Green development	Meaning, competence, self-determination and impact	Explore how ability-enhancing practices enable employees to develop their capacity to deliver meaningful impact in sustainability transition initiatives.
Motivation	Green performance management Green remuneration	Meaning	Explore how rewards and recognition motivate employees to contribute meaningfully to sustainability transition initiatives.
Opportunity	Green engagement Green development	Meaning, competence, self-determination and impact	Explore how offering employees the opportunity to participate in decision-making and solution formulation fosters ownership, alignment, and performance in sustainability transitions.

Note. Using the AMO framework, this table illustrates how each GHRM practice is interpreted in relation to the corresponding employee psychological empowerment dimensions, exploring the role of psychological empowerment in promoting sustainability transitions. Table developed by the author (2025)

Chapter Three: Research Questions

3.1. Introduction

This research proposes the following research questions to contribute to the body of knowledge by addressing the gaps observed in the literature and practice. This research aims to answer the research questions by bridging the gap between theory and practice, thereby contributing to the broader theoretical body of knowledge and providing practitioners with actionable processes for implementation

3.2. Research Question 1

Research question 1: Which employee psychological empowerment practices most effectively support the sustainability transitions towards renewable energy in South Africa's telecoms sector?

Research question 1 will establish and explore key psychological empowerment practices — such as training, remuneration, hiring, and participation — to enhance employees' competence and effectiveness as intermediaries in accelerating the sustainability transition to RE in SA's telecoms sector.

Kivimaa et al. (2019) and Luu (2019) respectively identified employees as key intermediaries and agents that facilitate, implement and accelerate sustainability transition initiatives. Employees take centre stage in strategy implementation, but this does not guarantee the quality of their performance during strategic rollouts. Sustainability transitions require developing and executing niche technologies and ideas to overtake the incumbent regime (Köhler et al., 2019). Therefore, uninspired, demotivated, and rigid employees working in silos will not positively impact sustainability transition initiatives (Iqbal et al., 2020). To manage this, employees must be psychologically empowered through GHRM strategies that enhance their abilities, motivation, and access to opportunities to drive performance and accelerate sustainability transitions. However, despite this acknowledgement, the literature remains limited in exploring the role of specific intermediary competence-enhancing strategies, such as psychological empowerment, in accelerating sustainability transitions across various energy-intensive industries, including telecoms, particularly in emerging geographic locations such as SA (Kanger et al., 2020; Pham et al., 2020).

Psychological empowerment practices aim to enhance employee competence by

imparting a sense of meaning, building internal capabilities and self-determination, and enabling them to be impactful in the workplace, as per the Psychological Empowerment Theory (Spreitzer, 1995). Therefore, this research endeavours to identify key psychological empowerment practices that enhance an employee's ability, motivation and access to opportunities, as per the AMO framework by Appelbaum (2001), which states that GHRM practices increase employee performance to achieve green goals (Bos-Nehles et al., 2023).

3.3. Research Question 2

Research question 2: How can telecom firms in South Africa implement psychological empowerment practices to accelerate the sustainability transition to renewable energy?

Research question 1 identifies the key psychological empowerment practices that employees perceive as most effective in enhancing their capacity to perform in sustainability transition initiatives. Research question 2 builds on the insights from research question 1, aiming to contribute to a firm's GHRM strategy by specifying how practitioners can implement the psychological empowerment practices identified in research question 1 to accelerate the sustainability transition to RE within SA's telecoms sector.

There is a growing concern in literature and practice regarding the effectiveness and impact of empowerment practices within firms, with some researchers and practitioners claiming that empowerment is one in a long list of managerial practice fads (Piazza & Abrahamson, 2020). This, however, has been dispelled by several studies that empirically show that empowered employees perform better in driving organisational targets (Hameed et al., 2020; Iqbal et al., 2020). The naysayers are not entirely off the mark in questioning the effectiveness of empowerment practices, as they are often applied superficially, leaving power isolated in top management (Baird et al., 2020). As such, it leaves employees feeling more disempowered, which is known to decrease performance (Hölscher et al., 2019).

This research aims to address this gap in the literature and practice by providing a framework for effectively implementing psychological empowerment to enhance employees' (intermediary) competence to accelerate sustainability transitions. To ensure the framework is comprehensive and specific, it will encompass recommendations for niche, regime-based transition, process, and user intermediaries (Kivimaa et al., 2019).

Chapter Four: Research Methodology

4.1. Introduction

Chapter Four detailed the rationale behind the research methodology selected for this study. The choice of methodology explained the research design, philosophy, approach, strategy and time horizon. The methodological choices encompassed this study's population, unit of analysis, sampling method and size, data-gathering and analysis approach, and quality controls. Finally, the chapter addressed this study's limitations.

4.2. Choice of Methodology

4.2.1. Purpose of Research Design

This study deemed it appropriate to follow an exploratory research design to gain insights into how psychological empowerment practices accelerate the sustainability transition to RE in SA's telecom sector. According to Lim (2024), qualitative research aims to uncover deep insights and understanding of complex phenomena, thereby connecting research to real-world issues. Nassaji (2020) supports this sentiment, stating that qualitative research attempts to explore rather than to explain. Psychological empowerment is a complex phenomenon, as it involves human psychology and emotions (Maynard et al., 2012). This research explored this phenomenon and connected it to sustainability transitions, a socio-technical endeavour that promotes RE as a niche system vying to supplant the dominant fossil-fuel-powered energy regime to address real-world problems such as pollution, climate change, resource scarcity, and energy poverty (Köhler et al., 2019). Telecom firms, in particular, seek to contribute to alleviating the aforementioned problems by moving away from unsustainable energy production and consumption practices (Kavadis & Thomsen, 2021).

In contrast, quantitative research focuses on measurement, providing numerical data and statistical analysis within mature academic topics and constructs (Mortelmans, 2025). This study cannot measure or statistically analyse the effectiveness of employee psychological employment practices in accelerating sustainability transitions in SA's telecom sector, because, as identified by Kivimaa et al. (2019) and Luu (2019), there is limited research on employee psychological empowerment as an intermediary competence-enhancing strategy within sustainability transitions. Furthermore, based on a review of the literature, there appears to be limited existing research on this topic within developing nations, such

as SA (Köhler et al., 2019). Therefore, academia first needs to explore the construct and identify key employee psychological empowerment practices that advance sustainability transitions, as this research has done.

The selection of an exploratory research design aligns with the intent of qualitative research, as this study aimed to explore employee psychological empowerment in sustainability transitions rather than measure or explain it, thereby justifying the choice.

4.2.2. Philosophy

Interpretivism aligns with this study's aim to explore and understand the role of employee psychological empowerment in accelerating sustainability transitions to RE within SA's telecom sector. As a philosophy, interpretivism focuses on understanding humans and their experiences and perceptions as 'social actors' when subjected to forces within their natural environment ((Kuckartz & Rädiker, 2023). This study aimed to understand the psychological and emotional experiences of employees involved in driving sustainability transition initiatives when subjected to empowering forces. This study recognised that employee empowerment depends on social realities within the natural environment, such as organisational policies, culture, and leadership (Bhutto et al., 2020; Maynard et al., 2012).

Although philosophies such as positivism, critical realism, postmodernism, and pragmatism exist, interpretivism aligns best with this study's limited time and objective of exploring and understanding human behaviour and experiences when subjected to social realities, as is the case when examining employee psychological empowerment practices in advancing sustainability transition initiatives.

The behaviour and experience of each employee when subjected to empowerment practices will be subjective, whereas positivism relies on objective and measurable data. This study aims to explore how empowerment is experienced rather than what causes it, thereby aligning with interpretivism rather than critical realism (Myers, 2019). Postmodernism emphasises a structured theory or framework; however, this study is grounded in the Ability-Motivation-Opportunity (AMO) theoretical model and seeks to develop a framework to guide practitioners in effectively and efficiently implementing psychological empowerment practices within sustainability transitions (Appelbaum, 2001; Mortelmans, 2025). Finally, this study is limited to a single research method due to time constraints. This approach contrasts with a pragmatic one, in which the researcher adopts

a method most suitable for answering the research questions, even if this means employing a mixed-methods approach (Myers, 2019).

4.2.3. Approach Selected

This research employed an inductive research approach. This study aimed to gather participant data to establish themes and patterns, offering insights into employee perceptions of empowerment and sustainability. These findings provided new theoretical insights and guided the development of a framework to help practitioners implement employee psychological empowerment in sustainability transitions. This bottom-up approach, in which data contribute to theory development, aligns with inductive reasoning (Myers, 2019).

This study goes beyond abduction because it sought to develop a conceptual framework rather than simply generalising themes, as per abductive reasoning (Lim, 2024). Deductive reasoning follows a top-down approach, where an existing theory is tested by collecting data (Myers, 2019). This contradicts the objective of this study. This research followed inductive reasoning to contribute to the theoretical and practical body of knowledge by providing new insights into how employee psychological employment is practised during sustainability transitions, thereby developing a framework to guide practitioners in implementing empowerment practices.

4.2.4. Methodological Choices and Strategy

Phenomenology was applied as the research strategy to explore employees' lived experiences. This study explored employees' lived experiences related to psychological empowerment and sustainability transitions to RE. The experiences were subjective and offered more profound insights into how employees perceive their role in sustainability transitions. Zahavi (2020) understands phenomenology as a study of giving meaning to lived experiences. Phenomenology aims to source data by directly engaging with subjects, rather than relying on secondary sources, as was the case in this study (Myers, 2019).

This study directly engaged with subjects by collecting data through semi-structured interviews, a mono-methodological approach. The choice of a mono-methodological approach was due to time constraints on this research. Semi-structured interviews offer depth and flexibility, allowing the interviewer to explore issues and themes by probing for further detail as needed (Lim, 2024). Despite their strengths, semi-structured interviews

are time-consuming; however, this was mitigated by choosing a single method.

Surveys and experiments are quantitative methods; therefore, they do not align with this study's aim of exploring a phenomenon (Fossey et al., 2002). This study's population comprised various telecom firms, from which primary data was collected from individual employees over a specified period. This thereby eliminates the need for case study, native inquiry, and archival and action research approaches. Case studies focus on a single firm, whereas action research relies on collaborative experiences; archival research relies on secondary data; and narrative inquiries are chronological and biographical (Mortelmans, 2025). Lastly, this study did not aim to create a new theory as is the approach of grounded theory research, but rather to build on existing theories (Myers, 2019).

4.2.5. Time Horizon

This study employed a cross-sectional research design, meaning that it explored the topic at a single point in time and established a snapshot of the phenomenon under investigation (Saldaña, 2021). This research conducted interviews with subjects to gather their current experiences regarding psychological empowerment in the workplace during sustainability transitions.

This study was unable to utilise a longitudinal research design, as this would require an extended period of time. In contrast, this study was allocated only 4 months to gather data.

4.3. Methodological Choices

4.3.1. Population

A study's population is defined as a fully assembled group of members that the study approaches to source data (Saunders & Lewis, 2018). This study's population consisted of employees in SA involved in implementing sustainability transition initiatives towards RE. The employees were required to be from SA telecom firms that are implementing or undergoing sustainability transitions to RE. The term 'employees' includes personnel at all levels, excluding executive leaders. Executive leaders in this study are defined as individuals who occupy top-tier management roles and are responsible for setting the firm's strategies and policies. Typical executive leader titles include Chief Executive Officer (CEO), Chief Operating Officer (COO), Chief Financial Officer (CFO), Chief Technology Officer (CTO), Managing Director (MD), Group Executive, or members of the Executive Committee (ExCo). This study excluded executive leaders, as it targets the

perspectives of individuals affected by empowerment policies during sustainability transitions, rather than those who develop empowerment policies and strategies.

This study targeted employees across various telecom firms in SA. The above population was selected because this research focused on individuals directly affected by employee empowerment practices during sustainability transitions within the SA telecoms sector. Therefore, their lived experiences and insights provided valuable information on employee psychological empowerment practices to accelerate sustainability transitions to RE.

4.3.2. Unit of Analysis

The unit of analysis is defined as the primary object or element that the research is studying, analysing or observing to answer the proposed research questions (Fossey et al., 2002). The unit of analysis in this study is at the micro level, focusing on individual non-executive employees operating within energy sustainability projects for SA telecom firms. As Luu (2019) states, employers implement sustainability initiatives, making them the cornerstone of the success of sustainability transitions. This further aligns with the phenomenology research design, as this research aims to explore employees' lived experiences when exposed to psychological empowerment practices that shape their perception of sustainability transitions (Lim, 2024; Zahavi, 2020).

Given that this research aims to explore individual employees' lived experiences, it would not be beneficial to collect data at the organisational (macro) or country level (meso).

4.3.3. Sampling Method and Size

Guest et al. (2020) define a sample as a subgroup of the population under study. In qualitative research, sampling is used to ensure information density, and the chosen sampling method must be appropriate and adequate (Fossey et al., 2002). Appropriate means identifying participants who can offer relevant and reliable information to this study (Pratt, 2009). Adequate means gathering sufficient data to thoroughly explore the research questions and contribute to a comprehensive understanding of the phenomenon (Shenton, 2004).

Fossey et al. (2002) define purposive sampling as a process of deliberately selecting appropriate sources that can provide adequate and representative information to answer the research questions in a manner that mitigates the researcher's bias. Non-probability sampling refers to the intentional selection of participants based on a set of criteria,

enabling the research to gather in-depth insights into the explored phenomenon (Guest et al., 2020). Therefore, to gain a deep understanding of the role of employee psychological empowerment in advancing sustainability transitions to RE in SA telecoms, this research utilised non-probability purposive sampling to select individuals with non-executive leadership roles and direct experience as intermediaries in sustainability transitions to RE within SA's telecoms sector. Probability sampling would not be suitable for this research because of its qualitative, exploratory, and focused design, whereas probability sampling is more suited to a generalised research design.

This research set out a selection criterion for choosing participants. The following criteria were used: non-executive employees in energy, operations and sustainability roles in SA-based telecom firms will be selected for this study. Participants were sourced from South African telecom firms with public sustainability goals and RE projects by leveraging the researcher's professional networks and professional social media platforms. Initial participants were asked to identify additional relevant participants through snowball sampling. However, to avoid contravening information privacy laws, such as the Protection of Personal Information Act (POPI Act), initial participants were required to obtain consent from the additional participants before sharing their personal details.

No fixed number of participants is stipulated for qualitative studies; rather, the focus should be on gathering rich and reliable data to gain a comprehensive understanding of the phenomenon being explored (Fossey et al., 2002; Pratt, 2009). Hence, sampling in qualitative data should continue until theoretical saturation is reached, the point at which new data fail to yield value-adding insights (Guest et al., 2020; Lim, 2024). The researcher conducted semi-structured interviews of 30-60 minutes with 13 participants, which marked theoretical saturation.

This study categorised the sample into four groups, based on the intermediary types identified by Kivimaa and Rogge (2022). Regime-based transition intermediaries who are employees hired to work with fossil-fuel energy but have been assigned a specific target to promote RE to enable phased transitioning (Williams & Robinson, 2020). Niche intermediaries are employees specifically hired to develop and promote RE solutions (Sengers et al., 2019). Process intermediaries are employees who facilitate and implement RE projects without being directly involved in strategy development (Kivimaa & Rogge, 2022). Finally, user intermediaries are employees who serve as the link between end users and RE solution development teams (Kivimaa et al., 2019). By categorising

intermediaries, this research developed a comprehensive framework that addressed the needs of the different employee functions in sustainability transitions.

4.3.4. Measurement Instrument

Semi-structured interviews rely on an interview guide as a measuring instrument to explore the relevant issues and questions (Lim, 2024). Interview guides typically contain questions and prompts that direct the interviewer in a focused yet flexible manner, encouraging natural conversation (Fossey et al., 2002; Lim, 2024). Eight and seven open-ended questions were formulated for the interview to address research questions 1 and 2, respectively.

The interview guide in Appendix A was structured to include preparation, introduction, conversation, and conclusion components (Myers, 2019). The preparation component encouraged the interviewer to seek background information about the interviewee and their work organisation (Fossey et al., 2002). The introduction ensured the interviewer made a good initial impression by introducing themselves and explaining the purpose of the interview, thereby building trust and credibility (Lim, 2024). The conversation portion was one-sided; questions were straightforward and engaging (Myers, 2019). The interviewer allowed further questions to arise from the answers. Finally, the conclusion is where the interviewer offered gratitude to the interviewee for their participation (Myers, 2019). After this, the interviewer took the opportunity to ask the participant to suggest other participants who might be helpful in this study.

4.3.5. Data Gathering Process

Data was gathered through semi-structured interviews, which provided a structured framework while allowing for flexibility and improvisation. This approach enables researchers to probe subjects and gain deep insights into the explored phenomena (Myers, 2019). The interviews were conducted via the Microsoft Teams virtual meeting platform and lasted 30-60 minutes. Before any data collection, this study obtained ethical clearance from the university's ethics committee.

Lim (2024) recommends pilot-interview testing to refine questions that resonate with participants and encourage storytelling. Piloting also allows researchers to improve their probing techniques and affinity-building skills (Kuckartz & Rädiker, 2023). The researcher selected two participants for the pilot study, as advised by Aspers and Corte (2019). The

interview guide was used to conduct the semi-structured interviews. Thereafter, the researcher observed and evaluated any misunderstandings or difficulties that participants encountered when answering the questions. Based on the pilot participant's evaluation and feedback, the interview guide was revised accordingly (Mortelmans, 2025).

The first step in data collection was identifying relevant participants through industry contacts, snowball sampling, and professional social media platforms, such as LinkedIn. Employees and managers must meet the selection criteria, which were identified based on their relation to SA telecoms firms. The second step was to gain informed consent from potential participants by explaining this study's mission, confidentiality, and voluntary participation, as outlined in the pro forma consent letter in Appendix B. The interviews commenced only after all parties had signed the pro forma consent letter. The third step involved conducting audio-recorded interviews with participants. The final step involved taking field notes, documenting subtle cues and observations during the interviews.

To ensure that the interview process was effective, the following measures were taken: The mirroring technique was used, which involved constructing subsequent questions from keywords and phrases that the participant used; the researcher was consciously flexible to new ideas and relevant diversions; and the interviews were recorded, subject to the participant's consent (Myers, 2019). The recorded data is stored on Google Drive, a cloud storage platform operated by Google. A backup copy is stored on a USB flash drive.

4.3.6. Data Analysis Approach

Data can be void if not converted to meaningful insights for the research (Myers, 2019). Data analysis aims to go beyond mere description by uncovering deeper themes, meanings, and connections buried within the data (Lim, 2024). There are many data analysis methods; this research will focus on thematic development. Thematic analysis enabled this study to code and categorise data to establish recurring themes (Mortelmans, 2025). This research employed thematic analysis because it supports in-depth exploration, enabling the study to identify themes and patterns that revealed key psychological empowerment practices for advancing sustainability transitions. The insights led to the development of a framework that will guide practitioners in effectively implementing psychological empowerment practices within sustainability transitions.

Braun and Clarke (2019) indicate that thematic analysis is a systematic approach to

analysing qualitative data. The approach comprises six phases: familiarisation with the data, developing initial codes, seeking themes, reviewing themes, defining and naming themes, and reporting themes (Saldaña, 2021). This study employed a thematic approach to analysing data; the phases followed are outlined below.

Phase one encouraged the researcher to repeatedly and intimately engage with the data to identify initial patterns (Mortelmans, 2025). Phase two sorted the data into parts to carefully analyse their similarities and differences. Subsequently, the data were labelled with codes and sorted into segments that exemplify their phenomena (Saldaña, 2021). The third phase refined the segments to create rational overarching themes (Lim, 2024). The fourth phase reviewed and arranged themes into two levels (Myers, 2019). The first level accurately reflected the coded data extracts, while the second level measured the theme's relevance to the complete dataset (Lim, 2024). Stage five provided names for the themes and a definition, indicating how each theme relates to the broader story (Braun & Clark, 2019). The final stage tied the themes to the research questions and existing literature to form an analytical narrative (Mortelmans, 2025). The final stage narrates how the data informs the research (Lim, 2024).

4.3.7. Quality Controls

It is pivotal for qualitative research to be trustworthy by ensuring reliability and validity. According to Lim (2024), the elements of trustworthiness in qualitative studies are credibility, dependability, confirmability, and transferability.

Credibility refers to the extent to which research findings represent the phenomena being explored (Myers, 2019). This study ensured credibility through prolonged engagement, consistent observation, triangulation, participant verification, peer discussions, negative case analysis, referential adequacy, and verification that the findings align with the theory (Shenton, 2004).

Dependability refers to the research findings' ability to remain harmonious and steady over time and under similar circumstances (Nassaji, 2020). This study ensured dependability by conducting audit enquiries, triangulating data and using pilot interviews to improve the reliability of the measurement instrument (Lim, 2024).

Confirmability refers to the impartiality of the research, ensuring that findings are grounded in data and theory rather than the researcher's bias (Lim, 2024). This research ensured

confirmability by establishing audit trails, verifying participant information, debriefing with peers, reflecting on biases and methodological decisions, and triangulating data (Myers, 2019).

Transferability measures the degree to which the research findings can be applied in other contexts (Shenton, 2004). To ensure this research's transferability, this study employed thick descriptions, which refer to meticulous accounts that include both data and context (Lim, 2024). This study described the research setting, dynamics, and interactions among members, providing a wealth of information and a clear narrative (Lim, 2024).

4.4. Limitations

Due to the time and contextual constraints imposed on this research, limitations are anticipated. The sample was relatively small and focused on a single country and sector, thus limiting generalizability. However, the intention was to offer deep and contextual insights rather than general ones. A single method (semi-structured interviews) was employed to collect data, mitigating time constraints. Furthermore, due to time constraints, data will be collected cross-sectionally rather than longitudinally. As a result of this research design, the data will be limited to a single point in time at the expense of developmental and long-term insights. Lastly, the subjective nature of interpretivism and phenomenology studies may influence data collection and analysis (Zahavi, 2020). This research will apply the quality controls outlined in section 4.3.7 to minimise bias and ensure trustworthiness.

Chapter Five: Findings/Results

5.1. Introduction

This chapter presents the findings from 13 semi-structured interviews with the research's selected sample, in line with the sampling method, criteria, and size, as well as the data-gathering process outlined in Chapter Four of this research report. The interviews were conducted to gather data for analysis to answer the two formulated research questions outlined in Chapter Three. This study's research questions are as follows:

a) Research question 1: Which employee psychological empowerment practices most effectively support the sustainability transitions towards renewable energy in South Africa's telecoms sector?

b) Research question 2: How can telecom firms in South Africa implement psychological empowerment practices to accelerate the sustainability transition to renewable energy?

5.1.1. Background to the Findings

Employees are regarded as central intermediaries in accelerating sustainability transition initiatives (Kivimaa et al., 2019). Research question 1 aims to identify key psychological empowerment practices that enhance employee competence to accelerate sustainability transitions. Research question 2 builds on research question 1 by detailing how the psychological empowerment practices identified in research question 1 can be implemented effectively.

This research followed a deductive approach to answer both research questions, providing an actionable framework for practitioners to guide the efficient and effective implementation of psychological empowerment practices to accelerate the sustainability transition to RE in SA's telecom sector. This study will contribute to the theoretical body of knowledge by exploring psychological empowerment as an intermediary competence-enhancing strategy to accelerate sustainability transitions in developing nations, a context underexplored in the literature (Köhler et al., 2019).

5.1.2. Description of the Sample

The sample for this study was deliberately selected by targeting employees with RE experience at various levels across several SA telecom firms. This study ensured that the selected participants were appropriate by seeking experienced individuals whose insights are relevant and reliable. This study promoted adequacy by collecting sufficient data, ensuring the interview guide aligned with this study's agenda, and interviewing 13 participants, which reached saturation.

This study divided the sample into categories, as guided by Kivimaa & Rogge (2022), who identified that intermediaries (employees) in sustainability transitions fall into five categories: systematic, regime-based transition, niche, process, and user. However, this study eliminated systemic intermediaries as this role is reserved for executive leadership, which is excluded from this study's population. This study's sample was consisted of six regime-based transition intermediaries, three process intermediaries, two niche intermediaries and two user intermediaries. This enabled this study to analyse data across intermediary categories and to recommend an implementation framework that is comprehensive and specific to address the business requirement and to contribute to the theoretical gap.

The participants occupied various positions, including project, technical, sustainability and energy managers, as well as energy specialists and consultants. Four were from energy Original Equipment Manufacturers (OEM), three were from multinational MNOs, three were from energy solution companies, two were energy consultants, and one was from a tower company. By selecting participants from a wide range of telecom firms and across various positions, this study ensured data appropriateness and adequacy, enabling the findings to be applied to employees at various levels across different types of telecom firms. The sample breakdown for this study is shown in Table 2.

Table 2: *Interview Participant Details*

Participant	Role	Intermediary Type	Company Type
Participant 1	Project Manager	Process	Tower Company
Participant 2	Green Energy Solution Manager	Niche	Original Equipment Manufacturer
Participant 3	Senior Specialist: Energy	Regime-based transition	Solutions Company

Participant	Role	Intermediary Type	Company Type
Participant 4	Manager: Sustainable Energy Systems	Niche	Mobile Network Operator
Participant 5	Principal Specialist: Radio Access and Power	Regime-based transition	Mobile Network Operator
Participant 6	Manager: Mobile Broadband	Regime-based transition	Original Equipment Manufacturer
Participant 7	Manager: Service Delivery	User	Original Equipment Manufacturer
Participant 8	Power Consultant	Process	Consultant
Participant 9	Sustainability Management Consultant	Process	Consultant
Participant 10	Project Consultant	User	Original Equipment Manufacturer
Participant 11	Technology Infrastructure Delivery Manager	Regime-based transition	Mobile Network Operator
Participant 12	Technical Manager	Regime-based transition	Solutions Company
Participant 13	Power Systems Manager	Regime-based transition	Solutions Company

Note. This table provides a breakdown of the participants interviewed in this study. Table developed by the author (2025)

5.1.3. Data Analysis Process

The data from the interviews was analysed qualitatively and deductively employing a six-phase thematic analysis process, as detailed by Braun and Clark (2019). The representation of this process is illustrated in Table 3, which lists the emerging themes, the codes within each theme, and their prevalence across the 13 interviews.

Firstly, the researcher obtained the transcripts from the data, cleaned them of any transcription errors, and referenced written notes from the respective interviews. The researcher then familiarised themselves with the data through repeated engagements with the transcripts, which led to the identification of initial patterns.

Secondly, using the software ATLAS.ti and Microsoft's Copilot, the researcher arranged the data into segments that exposed similarities and differences. This subsequently led to

coding, which is the labelling of data with name tags that represent their characteristics. The researcher initially identified 130 codes, which were refined to 44 based on relevance. The list of codes is in Appendix C.

The third phase entailed refining the codes into suitable overarching themes, based on their characteristics. The researcher identified seven themes. Thereafter, moving to the fourth phase, the themes were assessed at two levels. The first level assessed whether the themes accurately represented the coded data. The researcher conducted this assessment by evaluating the coherence of the data codes with the assigned theme and ensuring that the data codes within the cohort are closely related in terms of function. The second level entailed measuring the theme's relevance to the dataset. This was done by measuring the prevalence of the theme across the 13 interviews. Furthermore, the researcher measured how many times the elements within the theme were mentioned during all 13 interviews. This two-level process ensured that the themes encapsulated the data codes.

The fifth phase sought names and definitions for the themes. The themes were named by evaluating the codes under each and formulating titles that accurately encompassed the codes' characteristics and this research's intention. The seven themes identified are: Employee Psychological Empowerment; Competence Development; Motivation and Rewards; Personal Drivers and Values; Renewable Energy Adoption; Organisational Culture and Structure; and Sustainability Strategy and Key Performance Indicators (KPIs). Thereafter, the themes were given descriptions in relation to the codes and the insights they will contribute to this research.

The final phase linked the themes to the research questions by assigning each theme to a question based on its applicability and relevance. The allocation reflects the findings of the literature review, showcasing the two research constructs, the AMO theoretical lens and the GHRM operational context. Research question 1 was allocated four themes, namely: Employee Psychological Empowerment; Competence Development; Motivation and Rewards; and Personal Drivers and Values. Research question 2 was allocated three themes: Renewable Energy Adoption; Organisational Culture and Structure; and Sustainability Strategy and KPIs. The following sections of this chapter will explain how this data informed this study.

Table 3: *Emerging Themes from Data Analysis*

Research Question	Theme	Explanation Of Theme	Number of Codes in the Theme	Theme Prevalence in Interviews	Total Mentions
Research question 1	Employee Psychological Empowerment	This theme focuses on the definition of employee empowerment, its practices, its enablers, barriers and perceived value in promoting employee performance to accelerate sustainability transition initiatives.	8	13/13 (100%)	264
	Competence Development	This theme primarily focuses on the AMO ability lens to identify which measures build employees' competence and impact, and how effective those measures are.	6	13/13 (100%)	89
	Motivation and Rewards	The codes in this theme focus on the AMO motivation lens to identify key practices that motivate employees to perform better in sustainability transition initiatives.	6	13/13 (100%)	116
	Personal Drivers and Values	This theme identifies intrinsic motivation factors that firms can cultivate to make certain empowerment practices more effective.	4	12/13 (92%)	52

Research Question	Theme	Explanation Of Theme	Number of Codes in the Theme	Theme Prevalence in Interviews	Total Mentions
Research question 2	Renewable Energy Adoption	This theme describes the context, enablers, and inhibitors that shape how empowerment can be implemented effectively and efficiently.	9	13/13 (100%)	332
	Organisational Culture and Structure	This theme explores how culture, hierarchy, Human Resources (HR), and cross-functional collaboration can be leveraged to drive implementation.	6	9/13 (69%)	22
	Sustainability Strategy and KPIs	This theme explores strategy, KPI alignment, and awareness and engagement drives as tools to operationalise empowerment.	5	12/13 (92%)	112

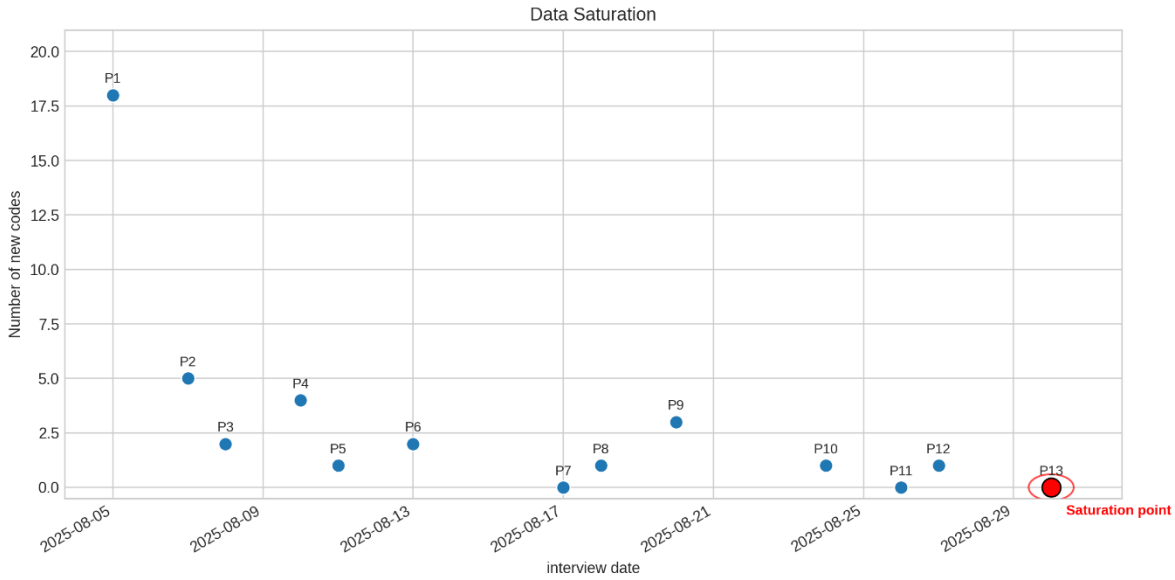
Note. This table presents the themes identified through thematic analysis and their prevalence, grouped by research question. Table developed by the author (2025)

5.1.4. Quality Controls Applied

This study employed credibility, dependability, confirmability and transferability to enhance this research's reliability and validity. To ensure reliability and validity, 13 interviews were conducted. The final four interviews produced only one new code, and two of the last three interviews had zero new codes; therefore, data saturation was achieved by interview 13, as illustrated in Figure 2.

Figure 2

Data saturation graph



Note. This figure shows when data saturation was reached by plotting the number of new codes identified in each interview against the total number of codes across all interviews. Saturation was reached at Participant 13. Figure developed by the author (2025)

This study promoted credibility by providing detailed information detailing the data collection and analysis process. This study also carefully selected and analysed the participant list to ensure it covers a range of roles, firm types, and demographics, thereby enhancing appropriateness. Furthermore, data were engaged attentively and consistently to evaluate whether the findings aligned with the literature.

To ensure dependability, this researcher audited the data frequently and attentively. The researcher kept and maintained audit trails of the data using ATLAS.ti, Microsoft Excel, and Microsoft Copilot. To enhance the reliability of this research measurement instrument,

the researcher conducted two pilot interviews to refine the interview guide following their evaluation.

To enhance confirmability, this research established audit trails and discusses and compared adverse findings with peers and with Artificial Intelligence (AI) platforms such as ChatGPT. To capture participants' real-life experiences, this study used direct quotations in Chapter Five. Lastly, this researcher triangulated data and reflected on their biases during data analysis with the help of peers.

For transferability, this study described the research setting as SA and the telecoms sector; however, the experiences explored within these contexts can be applied to other developing nations and industries that are people-driven and under pressure to transition to sustainable practices.

5.2. Findings: Research Question 1

Research question 1 seeks to identify the key psychological empowerment practices that enhance employees' competence as intermediaries in sustainability transitions. This study focuses on the telecoms sector in SA as it transitions to RE. Therefore, this study interviewed employees in various energy related roles working for different types of telecom firms. This section will present the interview findings thematically and explain how they inform this study.

5.2.1. Employee Psychological Empowerment

Employee Psychological Empowerment emerged as a theme in the data analysis. The theme focuses on defining psychological empowerment, identifying its enablers and barriers, assessing its importance in sustainability transition initiatives, and broadly outlining its practices, based on participants' views and experiences, and on how they impact an employee’s ability, motivation, and access to opportunities. The theme consisted of the following codes: definition of employee empowerment; importance of empowerment for project success; empowerment through training and upskilling; empowerment through participation in decision-making; empowerment through exposure and secondment; empowerment through incentives and rewards; and barriers to empowerment.

5.2.1.1. Definition of Psychological Empowerment

In terms of psychological empowerment in sustainability transitions, participants expressed that being empowered means being educated about how sustainability explicitly links to their role within the firm's broader strategy. Participants also suggested that to be psychologically empowered, they must be equipped to perform their duties through upskilling and access to resources. Furthermore, employees seek to be involved and consulted in decision-making and solution formulation. Other participants added that recognition and rewards for good performance are essential for driving psychological empowerment, as evidenced by a recurring theme of seeking access to growth opportunities.

Participant 1 proposed an interesting angle to the discussion, which touches on autonomy, stating, *"I believe self-empowerment matters too, we shouldn't just wait for opportunities; we should create them."*

A Participant shared their view on what it means to be psychologically empowered:

> For me, empowerment is when employees feel they matter, that they're part of the company's goals. If employees feel involved and visible in projects, are trained, and included in decision-making, they'll work harder and take pride. (Participant 1)

Participant 3 emphasised the importance of equipping employees to perform their duties effectively, stating that *"Employee empowerment is about ensuring that employees are equipped, either with the necessary tools or training, to perform their duties effectively."*

Participant 9 highlighted the importance of empowering employees through sustainability-related education to foster organisational buy-in and collaboration. The participant stated that *"Sustainability is often a small, isolated department… The key is to educate all staff… Empowerment also means allowing employees to learn more and be part of the solution"*

Finally, one of the interviewees, Participant 10, also expressed the importance of career growth as a means of empowering employees, expressing that *"Empowerment is about individual growth within the organisation"*

Participants view psychological empowerment in the workplace as feeling that one matters and that one can be impactful through continuous engagement, being equipped to perform assigned tasks, and being recognised for performing tasks well. Collectively, these sentiments define psychological empowerment as access to opportunities, education,

training, and involvement in decision-making in sustainability transition strategies and projects. The firm primarily implements these practices, but individual employees can also implement them on their own.

5.2.1.2. Importance of Empowerment for Project Success

There was a strong consensus, with virtually every participant stating that employee psychological empowerment is critical to the success of sustainability transition initiatives to RE. Participants expressed that empowered employees across functional teams accelerate the implementation of sustainability transitions. While also stating that the lack of empowerment limits collective and individual buy-in, competence, motivation and engagement, slowing, and in some cases even stopping implementation and halting innovation. However, some participants shared that projects may be completed without direct employee empowerment, but they tend to take longer, and quality is often an issue.

Participant 1 shared their view on firm success, stating that *"Companies succeed through their employees"*. Participant 3 explained why employee empowerment is critical to sustainability transition projects, stating*, "If employees aren't empowered, projects will fail due to a lack of buy-in."* Participant 9 stated *that "Absolutely… without employee engagement and empowerment, it's not possible to achieve ambitious targets like net zero"*, adding to the discussion by translating the importance of employee empowerment in meeting sustainability targets. Participant 8 supports this sentiment and added more detail, stating that a lack of employee empowerment results in *"Stagnation; not listening to employees or clients; best people leave; loss of organisational memory and momentum—it can take 2–3 years to recover."*

However, Participant 5 explained that *"A lack of empowerment may not mean failure, but it will hinder your success and limit your potential"*, which indicates that sustainability projects may succeed without employee empowerment, but at a less effective and efficient rate.

The above sentiments highlight that psychological empowerment practices are vital for enhancing an employee's ability, motivation, and access to opportunities, thereby promoting successful project and strategy implementation.

5.2.1.3. Empowerment Through Training and Upskilling

The participants identified training and upskilling as key psychological empowerment

practices to enhance an employee's ability to perform competently in sustainability transition initiatives. Participants highlighted the following systems as key for improving competence through upskilling: formal learning, such as implementing International Organization for Standardisation (ISO) 50001 certification (a framework for firms to establish, implement, maintain and manage energy usage and management systems); taking structured online courses in RE; development and access to internal learning management systems (LMS) in energy management; job specific training. However, several participants highlighted gaps, including a lack of mentors, senior management support, and access to upskilling opportunities, as well as the limited depth of learning content in the internal LMS.

Participants believe that the Human Resources (HR) department and leaders within technology teams are primarily responsible for ensuring that employees receive adequate training. Though one participant expressed that self-development is not only the responsibility of leaders and HR, but also the individual's responsibility to actively seek out opportunities for self-enhancement.

Participant 11 described how training and upskilling helped them develop their competency:

> I attend organisational training sessions and have completed an MBA, which has improved my leadership, problem-solving, and ability to integrate automation and IoT for increased efficiency. Continuous learning is essential, and I keep improving my soft skills as I manage people. (Participant 11)

Participant 9 shared their firm's approach to ISO certification, while highlighting the associated challenges, stating that *"At Company X, we've invested significant time in getting ISO 50001 certification. The challenge is that we get the certification, but it's not necessarily adopted as a way of working in the business".*

Participant 10 stated that they approach training through *"Structured online training… profiling employees to build a skills and capability database… and advertising roles internally before external recruitment."* Participant 4 expressed that, *"We're tasked with completing Association of Energy Engineers (AEE) courses… but there is a lack of training materials on sustainability in the LMS."* This explains that they are encouraged to improve their knowledge of RE by attending courses, but also notes the limitations of the internal LMS.

Participant 1 added that seeking self-development is also key, stating that they *"come from a background in civil engineering. Even when my role wasn't engineering-focused, I proactively exposed myself to engineering projects"*

The experiences described above identify company-exposed learning and self-learning as crucial psychological empowerment practices to enhance an employee's competence in accelerating sustainability transitions.

5.2.1.4. Empowerment Through Participation in Decision-Making

Many of the participants perceive the opportunity to participate in decision-making as a crucial psychological empowerment measure to promote employee performance in sustainability transition initiatives. Participants believe that when decision-making rights are shared with employees, the adoption of sustainable mindsets and practices increases. Furthermore, employees expressed feeling empowered to ideate and innovate when they are encouraged to participate and responsibly experiment without fear of persecution if experiments fail.

A majority of the participants feel they are encouraged to propose new ideas and solutions before and during sustainability transition projects, which enables them to perform better. However, a few employees reported that the firm's leaders did not encourage employee involvement in decision-making, which led to demotivation, frustration, and indifference.

Participant 7 expressed that their firm encourages employee participation in decision-making with leadership support, stating *that "Employees are encouraged to share ideas and make proposals. Final calls require management approval, but reasonable, well-supported ideas are heard and can be adopted, often via group decisions."*

A participant explained that involvement in solution formation and decision making promotes innovation, stating that:

> Yes. We're encouraged to bring ideas—tools or processes we're building that can help the company. We live in a world of innovation. For example, if someone develops a Power BI solution to filter and summarise data, we're encouraged to present it for the company to use. That fosters creativity and thinking outside the box. (Participant 1)

Another employee expressed their frustration with leaders within firms inhibiting participation:

> Organisations have good frameworks, but sometimes individuals block ideas. There should be a visible platform for submitting and attributing ideas, like an innovation hub. More awareness is needed so that people are aware of these opportunities. (Participant 11)

Participant 2 shared Participant 11's frustration, expressing that they wish their firm would encourage employee involvement:

> No, the company didn't encourage that (participation in decision-making). Any initiative had to come from the individual. I always pushed myself and engaged with leadership, but it would be even better if the company encouraged employees to initiate ideas and communicate openly. (Participant 2)

The above findings show that employees desire to participate in decision-making and solution formulation, thereby improving adoption and accelerating sustainability transitions. However, employees feel that firms can make a more deliberate effort to promote shared decision-making.

5.2.1.5. Empowerment Through Incentives and Rewards

A majority of Participants value recognition for good performance as an important psychological empowerment practice to motivate employees, boosting morale and retention and enhancing their self-determination and impact in sustainability transition initiatives. Interestingly, most employees preferred non-financial recognition — such as awards, visibility, and opportunities — over cash rewards. Participants viewed non-financial rewards as more sustainable than monetary rewards, which can be short-lived.

Participants repeatedly cited KPI alignment as a critical motivator, expressing that if KPI accurately reflect sustainability targets, they would be more motivated, through ownership, to perform to meet those targets. Participants expressed discontent that sustainability KPIs often sit with senior leadership, meaning only senior leaders are rewarded with bonuses for meeting them. This is viewed as a demotivator because employees are not rewarded for driving sustainability transition initiatives that help meet sustainability targets.

Participant 2 expressed the importance of recognition, stating that:

> It (recognition) boosted me. I realised I had qualities I hadn't fully recognised. For instance, when Vodacom onboarded many teams, we worked weekends; later an email came from Vodacom to our management saying, *"Thank you, great job."* Those small acknowledgements matter. (Participant 2)

While another Participant expressed the repercussion of no recognition:

> It would be demotivating—especially if the project significantly helped the company and I played a significant role. You don't always need money or an award; even a simple *"well done"* from management means a lot. Silence kills morale. I would likely ask for feedback, because hearing it directly from the key stakeholders matters. (Participant 1)

Participant 11 gave this view when asked if they would be motivated more by monetary or non-monetary recognition: *"Non-financial recognition is more meaningful… Money comes and goes, but recognition stays with you."*

Participant 2 captured the essence of KPIs, stating *that "Without KPIs, there is no job."* While Participant 4 stated *that "You can't incentivise only the SLT (senior leadership team) for reducing emissions and not the employees doing the work."*, lamenting the misalignment of KPIs to sustainability targets, with the reward going only to senior leadership.

The captured sentiments indicate that rewards, recognition and alignment of KPIs are important motivators to encourage self-determination and enhance employees' impact within sustainability transitions.

5.2.1.6. Barriers To Empowerment

Participants identified silos, KPI misalignment, gatekeeping of information and opportunities, a lack of skills development, low engagement, psychological safety and a lack of recognition as barriers to psychological empowerment in sustainability transitions. The participants attributed these barriers to visibility gaps, poor communication and leadership, inadequate policies and conflicting strategic objectives.

Participant 3 expressed their view on silos and leadership, stating *that "The issue is silos… Managers make all the decisions without input from those on the ground."*. Regarding policy implementation, Participant 4 shared *that "We get the certification, but it's not adopted as a way of working… the organisation is not mature yet."*.

Participant 8 shared a jarring view on psychological safety as an inhibitor to innovation, stating that *"Too often, preconceived notions block the adoption of new models… Challenging them can be career-limiting; people eventually stop trying."*

Participant 5 highlighted their view on the visibility of training initiatives and KPI alignment,

sharing that *"I haven't seen much; if it exists, visibility is low… Sustainability hasn't been tied directly to my KPI/PDP."*

The views above highlight that often the enablers of psychological empowerment are also its inhibitors if not applied correctly.

5.2.2. Competence Development

Competence development emerged as a theme during data analysis and as an overarching employee-ability-enhancing strategy. The theme focuses on identifying competence development practices that psychologically empower employees by enhancing their performance, enabling them to deliver impact within sustainability transition initiatives. This study further explores how the value from these practices can be measured, enabling practitioners to assess delivered value and use it as a guide to selecting appropriate practices for implementation. The codes within this theme include: formal training programmes; on-the-job training and mentorship; knowledge-sharing sessions; continuous learning and self-development; and measuring effectiveness.

5.2.2.1. Formal Training Programmes

Formal, structured learning was frequently cited as a competence development practice (as discussed in section 5.2.1.3), with many Participants deeming it a sound and valuable approach. The formal training programmes included ISO 50001 roll-outs and courses, AEE trainings to obtain certifications such as Certified Energy Manager (CEM), internal training programmes and external training programmes in energy systems from institutions such as the Solar Academy. Participants believe that the programmes offered them a baseline competence in RE systems and management. This credible certification allows them to sign off on RE projects and provides an avenue for continuous professional development. Participants reported that these training programmes empowered them to perform their work competently, gained industry credibility and recognition, and thereby promoted their career development.

Participant 9, a process intermediary responsible for facilitating RE projects, reported that *"We worked with all markets to implement ISO 50001… training teams in each market and developing a training course accessible to all."* Participant 4, a niche intermediary whose primary task is to develop and implement RE solutions and systems, stated that *"We're tasked with completing AEE courses, such as Certified Energy Manager."*, in order to be

competent and credible in RE projects. Lastly, Participant 13 shared that they improve their knowledge base *by "Skills training and upskilling—sending people to a solar academy to learn DC vs AC."*

The sentiments highlight the importance of formal training programmes in bridging the knowledge gap to empower employees with the capacity and credibility to perform effectively in sustainability transitions.

5.2.2.2. On-The-Job Training and Mentorship

Participants expressed that the expertise and experience of personnel are invaluable to the success of sustainability transition projects. As such, participants identified apprentice-style training and learning as common practices for developing the competency of junior employees or those less experienced in the field. This practice entails pairing juniors or less experienced personnel with subject-matter experts (SMEs) on live RE projects to transfer skills. Participants expressed that a significant portion of their competence was developed through on-the-job training and mentorship.

One participant shared that most of her competence was primarily obtained through on-the-job training and exposure, despite attending formal training courses:

> I've been in the field my entire career, starting with large-scale renewable projects. Most of my training has been on-the-job, but I've also completed courses from the Association of Energy Engineers, including Certified Renewable Energy Professional and Certified Energy Manager. Exposure and practical experience have been most valuable. (Participant 9)

When asked how they approach competence development, another participant supported the above sentiment, sharing that leveraging experts enabled them to develop their competence as they transitioned to the RE space:

> Teamwork and cross-functional engagement. Leveraging regional experts and country reps is essential. Personally, I'm adapting and learning new domains to serve our customers better. (Participant 7)

Participant 12 shared the mentorship process and goal for RE projects, stating that *"By month three, the goal is that the person can work independently as a team lead."*

The shared views highlight the importance of skills transfer — from seasoned experts to rookies — as a means of developing competence within the RE space.

5.2.2.3. Knowledge-Sharing Sessions

Participants shared that their firms have implemented various knowledge-sharing initiatives to encourage skills transfer, collaboration, and cross-functional and regional alignment, thereby developing the competence of individuals and teams. Participants listed the following initiatives: net-zero days, workshop and communication campaigns, standing best-practice forums, like a monthly green-energy forum attended by and presented to team members in different regions, innovation-sharing platforms, and town halls. However, other participants have cited a lack of knowledge sharing and visibility regarding sustainability, leading to silos and reduced engagement.

Participant 9 shared that they promote knowledge sharing by *"holding net-zero emissions days and workshops and sending out communication emails"*. Participant 1's firm prefers to *"have town halls where leadership presents the state of the business and invites feedback."*. While Participant 12's team shares knowledge by "meeting weekly—often three times a week."

Participant 11 feels that RE knowledge sharing can be promoted through *"A monthly green energy forum would be valuable for creating awareness and sharing ideas."*

Participant 5 believes knowledge sharing and visibility within sustainability initiatives are not prioritised, stating *that "I haven't seen much; if it exists, visibility is low—that's a gap."* Participant 12 shared that knowledge sharing can also be cultivated through cross-pollination, stating that he wishes there were *"Opportunities and policy changes that allow partial secondments to sustainability projects, with someone helping to cover your responsibilities."*

The above points highlight gaps in knowledge-sharing and key practices to promote team-wide competence.

5.2.2.4. Continuous Learning and Self-Development

Participants highlighted the importance of self-driven growth in enhancing one's competence in their field. This refers to voluntary upskilling through enrolling in academic and training programmes, completing online training sessions on company portals, engaging in cross-disciplinary reading and exposure, and deliberately transitioning into new roles to gain exposure. Collectively, it has been framed as not waiting for opportunities but creating them.

Participant 1 shared his sentiments on self-development, stating that *"I believe self-empowerment matters; we shouldn't just wait for opportunities; we should create them."* Participant 11 shared his self-improvement and continuous learning journey and its benefits, mentioning that *"After completing my MBA, I became a significantly different person… implementing changes to improve efficiency."*

Participant 6 mentioned their approach to self-development, commenting that they *"learned by engaging with product teams and using our company's learning portal."* Participant 8 believes reading is key to enhancing one's contextual knowledge, stating that *"Reading widely… increases visibility into what's possible." Lastly, Participant 2 highlighted curiosity as a driver for continuous learning, adding that they "transitioned into an Energy Solution Manager role to specialise."*

The Participants' insights highlighted the importance of self-determination and indicated various avenues for continuous learning and self-development that enhance one's competency.

5.2.2.5. Measuring Effectiveness

Participants shared that measurement takes many forms, ranging from structured, outcome-based KPI systems to informal measures such as feedback loops. Nevertheless, Participants noted that in some systems, no formal tracking is in place. The data revealed several gaps, including measures intended to improve capabilities that are not formally measured, captured, or reflected in performance management systems.

Participant 11 uses KPIs and a measure of the effectiveness of competency-enhancing initiatives, sharing that *"I regularly assess myself against my KPIs and examine performance before and after training.".*

Participant 4 explained that measurement is not integrated into their performance management system, noting that measurement is *"Not in our PDS (KPI system)… but we can see the difference in decision-making."* Similar to Participant 4, Participant 1 has found other ways of measuring effectiveness, stating that *"We don't have a formal internal measurement system for that. I rely on feedback from customers and colleagues"*

Lastly, Participant 12 measures mentoring effectiveness based on the mentee's apparent competence, explaining that *"By month three, the goal is that the person can work independently as a team lead."*

The Participants' sentiments indicate that there are both formal and informal ways to measure effectiveness. The informal measures that are not coupled with formal ones reveal a gap in firms' performance management systems.

5.2.3. Motivation and Rewards

Motivation and rewards emerged as the third theme from the data analysis. The theme identifies the crucial psychological empowerment practices that enhance an employee's self-determination through motivation, recognition, and rewards, thus increasing their impact in sustainability transition initiatives. The codes within this theme include: financial rewards as a motivator; non-financial rewards as a motivator; recognition and visibility; career growth opportunities; and impact of KPIs on motivation.

Although the practices are effective in enhancing employees' abilities, there remain gaps in implementation, such as misaligned course material, limited visibility and support for knowledge-sharing and training initiatives, and poor tracking of pre- and post-learning impact.

5.2.3.1. Financial Rewards as a Motivator

The views on financial rewards as a primary motivator are mixed; however, many Participants indicated that money does matter. Participants value money as a reward when it is linked to clear, measurable targets and when an appropriate amount is allocated relative to the degree of contribution. Some participants prefer cash as an instant gratification, due to its quantifiable nature. Other Participants prefer cash to be accompanied by promotions and titles, rather than a simple once-off payment.

Participant 6 explained that they prefer monetary rewards, emphasising that *"Monetary rewards motivate me more. Public speeches are nice the first time, but ongoing tangible rewards sustain motivation."* Participant 13 shares this sentiment, stating that *"Employees are generally motivated by money, although recognition is also appreciated."*

Participant 2 builds on the latter part of Participant 13's statement, as they advocate for balance, sharing that *"It should be balanced. An appropriate salary or bonus should accompany titles… We need to quantify contributions and provide suitable titles, as well as compensation."*

The above views show that monetary rewards are important motivators; however, they

are not the end-all and be-all. Other long-term and sustainable rewards must also accompany it.

5.2.3.2. Non-Financial Rewards as a Motivator

The majority of participants value recognition, visibility, and meaningful feedback more than a direct monetary reward. Participants believe that recognition and visibility are more sustainable rewards, as they unlock greater influence and exposure, leading to career mobility and advancement. At the same time, meaningful feedback is valued because it provides an opportunity to continue developing.

Participant 11 summed up the sustainability of non-financial rewards compared to financial, expressing that *"Non-financial recognition is more meaningful to me… Money comes and goes, but recognition stays with you."* Participant 10 agrees with the statement, sharing that they prefer public recognition because *"You cannot quantify the long-term value of that exposure."* Participant 12 also supports the assertions, but from a mindful perspective, suggesting that *"Public recognition… puts your mind in a positive space… cash disappears quickly and is often forgotten."*

Participant 9 prefers neither public recognition of financial rewards, sharing that they prioritise feedback as a motivator, reflected in the following statement: *"For me, it's about doing a good job… I value direct feedback from my manager more than public recognition or financial rewards."*

Participants essentially believe that accepting non-monetary rewards will enable them to earn more money in the future through career advancement driven by exposure, visibility, and constructive feedback.

5.2.3.3. Recognition and Visibility

The above sections broadly discussed recognition and visibility as non-monetary rewards. This section identifies recognition and visibility rewards and presents Participants' direct, detailed views on the topic. Participants identified recognition mechanisms such as awards, acknowledgement in company forums and media releases, direct acknowledgement by the executive leaders, and selection to participate in special developmental programmes. Participants expressed that the recognition and visibility boost confidence and morale. However, Participants have also highlighted that a lack of follow-through on promises undermines the recognition. At the same time, another

Participant shared that a lack of recognition measures implies that firms do not value employees.

Participant 7 shared the recognition measures available at their firm, explaining that *"We have timely incentive awards for key achievements… often published company-wide… annual 'golden person/team' awards. Participant 11 shared that within their firm, "Our CEO recognises people in town halls, and some are selected for business school programmes as a reward."*

Participant 1 highlighted the impact that recognition had on them, stating that *"When I received Employee of the Year, it boosted me… Even a simple 'well done' means a lot—silence kills morale."* Participant 4 shared a similar sentiment but lamented a lack of follow-through, recalling that *"We won the CEO award… Recognition encouraged me, but lack of funding to deploy the solution was discouraging."*

In contrast, Participant 8 felt that within their organisation recognition is not prioritised, which is a demotivator, complaining that *"Sadly, [I've seen] non-executive recognition lacking—it signals undervaluation of employees."*

The Participants' assertions offer recognition measures that can be applied to enhance employee motivation and address the effects of a lack of recognition; however, some gaps remain, such as poor follow-through.

5.2.3.4. Career Growth Opportunities

The Participants' insights reveal that motivation is maximised when recognition translates into career growth. Participants view career growth as increased responsibility, promotions, opportunities to lead important projects, industry exposure and a shift to new roles where they can influence sustainability transitions more.

Participant 11 believes that *"Being made an ambassador or champion… opens doors and accelerates your career." Participant 7 echoes this statement, sharing that "Recognition often leads to increased responsibility, enhanced promotion opportunities, and long-term growth."*

Participant 4 values the influence that comes from being rewarded with an improved role, explaining that *"Being made an ambassador or champion… opens doors and accelerates your career."* Participant 2 seeks career growth as a reward in order to influence the level

of service they can provide, highlighting that *“I value holding an important position… it enables me to provide better service to customers.”*

The Participants' views indicate that career growth is an effective motivator, although each employee has a different reason for wanting to grow their career and take on more responsibility.

5.2.3.5. Impact of KPIs on Motivation

Participants reported that KPIs drive the attention and effort an employee allocates to projects. Participants reported being more motivated to perform well on sustainability projects when performance is linked to and aligned with their KPIs. The Participants shared that they are not motivated or encouraged to perform on projects where sustainability targets are linked only to senior leadership’s KPI. They feel they are expected to do the work, yet only senior leadership is rewarded for well-executed projects.

Participant 9 highlighted the importance of aligning KPIs with sustainability targets, expressing that *“The best way to align an organisation… is to include sustainability in KPIs.” Participant 11 relayed the importance, stating that “I’d be motivated if my KPI had a 20% sustainability component that affected my bonus.”*

Participant 4 shared what they believe is the flaw in the performance management system that hinders employee motivation and project success: *“KPIs are defined for C-level… not cascaded to middle/operational teams.”*

The above responses underscore the importance of aligning sustainability targets and employee performance in sustainability transition initiatives with KPIs, rather than assigning KPIs solely to senior leadership.

5.2.4. Personal Drivers and Values

Personal drivers and values surfaced as a theme, reflecting intrinsic motivation factors that Participants identified as drivers to enhance the effectiveness of psychological empowerment practices. The codes represented in this theme include: personal commitment to sustainability, and passion for learning and growth.

5.2.4.1. Personal Commitment to Sustainability

A strong, common sentiment of a personal desire to contribute and act sustainably was

established among all participants. This sentiment appears to be grounded in professionalism, stewardship and choosing work that advances environmental sustainability. Some Participants contribute their commitment to career identity and a strong sense of responsibility to customers, family, community and the environment.

Participant 1 is sentimental about preserving the planet, sharing that *"This planet is the only one we have… The little each of us does can add up."*

Participant 10 attributes their commitment to bettering society, explaining that *"Being responsible for my own actions and contributing to the building of a better society motivates me."* Participant 11 shares this sentiment, adding that *"Companies could empower employees… when companies empower their employees, those employees can apply what they learn at work to make a positive impact in their communities."*

Participant 5 seeks to preserve the environment for the sake of their family, expressing that they want to *"Leave a liveable planet for our children".* Participant 4 shared a similar sentiment, stating that *"For me, it's about future generations. The impact of carbon emissions isn't always visible now, but if nothing is done, the consequences will be severe. It's about looking ahead."*

Participant 2, on the other hand, is more focused on career development and industry alignment, stating that *"Following the company's [green-energy] strategy… places us where resources and visibility are higher, enabling us to deliver more and build a stronger career track record."*

Another Participant offered a similar view, sharing that:

> I find the field fascinating and fast-paced, with constant developments. I'm passionate about deploying technologies that are competitive with or cheaper than fossil fuels. I'm motivated by finding solutions that benefit both the company and the environment, especially in Africa where growth and job creation are critical. (Participant 9)

The above sentiments on personal commitment to sustainability indicate that employees across the board are motivated to contribute to sustainability transition initiatives, although their reasons vary.

5.2.4.2. Passion for Learning and Growth

A key intrinsic motivation factor identified in the interviews was intense curiosity and a

drive for continuous learning and improvement. Several Participants obtained postgraduate degrees and energy management certifications without undue influence, simply because they wanted to better themselves and perform better on sustainability transition projects. Other Participants deliberately moved into new roles to deepen their knowledge of sustainable energy solutions and management. Many Participants linked continuous learning and improvement to confidence, career growth and better performance in sustainability projects. Some participants derived pleasure in empowering others through learning.

Participant 11 expressed that *“Learning itself motivates me—I love feeding my brain with new information.”*

Participant 8 enjoys reading because it “increases visibility into what’s possible.”

Participant 2 switched roles to enhance their knowledge of sustainable energy solutions and management, stating, *“I transitioned into an Energy Solution Manager role to specialise.”*

Participant 12 perceives upskilling and developing others as the greatest motivator, sharing that *“Watching people I trained progress… is far more satisfying than a cash award.”*

Participants' views indicated that a passion for learning and growth is a key motivational factor in sustainability transitions, whether personal development or colleagues'.

5.2.5. Conclusion of Research Question 1’s Findings

Synthesising the views of the 13 Participants revealed that employees describe psychological empowerment as an employee’s intrinsic sense of ownership and authority over the tasks assigned to them, and as the self-belief that they are sufficiently equipped to perform them successfully in a manner that contributes meaningfully to a firm's bid to accelerate sustainability transitions. In practice, this is created and promoted through hiring employees with an affinity for sustainability, targeted training and upskilling, on-the-job mentoring, involvement in decision-making, and balanced reward structures that offer recognition, visibility, career growth, and fair financial incentives that reflect sustainability KPIs.

This study identified several enablers of employee psychological empowerment in

sustainability transitions, such as KPI integration across all levels and functions, visible recognition, cross-functional alignment, routine knowledge sharing, skills profiling, and career advancement. Barriers identified included silos, gatekeeping of information and resources, lack of sustainability KPIs and rewards, low levels of psychological safety, and poor visibility and recognition for performance in sustainability projects.

When the enabling architecture is in place, inhibitors are addressed and empowerment practices are applied correctly, empowerment fosters motivation, collaboration, buy-in, innovation, and quality, and enhances employee performance in sustainability projects, accelerating a firm's sustainability transition. However, apparent gaps were identified, which revealed that firms are not efficiently and effectively implementing empowerment practices and, as a result, fail to realise the full benefits of the strategy.

5.3. Findings: Research Question 2

According to the findings of research question 1, gaps were identified in the implementation of psychological empowerment practices, thereby limiting the potential benefits of the strategy. Research question 2 builds on the employee psychological empowerment practices identified in research question 1 by detailing how practitioners can effectively implement these practices to accelerate the sustainability transition to RE in the SA telecoms sector. This study aims to use the findings from research question 2 to develop a practical GHRM framework outlining how psychological empowerment practices can be implemented to enhance employees' abilities, motivation, and access to opportunities, thereby promoting employee performance and accelerating sustainability transition initiatives. This section presents the emerging themes from the data and their contributions to this study.

5.3.1. Renewable Energy Adoption

Renewable energy adoption emerged as a theme that detailed and described the context, enablers, and constraints to psychological empowerment in firms, and how these factors can be enhanced or mitigated to implement employee empowerment effectively. The codes identified in this theme include: role in renewable energy projects; company stance on renewable energy; and challenges in renewable energy projects.

5.3.1.1. Role in Renewable Energy Projects

The roles of the participants were well distributed, including solution designers,

consultants, project managers, product managers, sustainability managers, and energy specialists. The participants also represented all types of intermediaries in advancing sustainability transitions, including regime-based, niche, process, and user intermediaries.

Participant 2 described their role, stating *"I design customised solutions… and optimise each site's energy configuration."* Participant 9 explained that *"I coordinate energy leads across markets… and support virtual wheeling."* Participant 10 shared that *"I advised on securing renewable-energy infrastructure while protecting the site."* Finally, Participant 13 reflected that *"I project-managed an 8 kW solar installation."*

By including employees across various roles and representing each intermediary type, this research can observe the psychological empowerment practices most relevant to each intermediary group, guiding firms in implementing empowerment in a targeted manner to accelerate sustainability transitions.

5.3.1.2. Company Stance on Renewable Energy

Participants consistently cited that their firms have strong and sometimes public commitments to decarbonisation as part of their strategy and operations. Some firms are already purchasing energy from 100% RE sources, though this also includes purchasing carbon credits to subsidise operations that still use fossil fuels. Participants working for telecom vendors explicitly identified solar as a strategic direction for powering telecom base stations.

Participant 4 stated that *"Our company is committed… to achieving net zero by 2050 in Africa."* Participant 2 shared this sentiment, adding that *"Renewable energy is our strategic direction… we prefer deploying on-site solar to reduce OpEx."*

Participant 9 explained that a telco company they consult for has made substantial progress in its sustainability transition to RE, sharing that *"COMPANY Y… had a target to source 100% of its purchased electricity from renewable sources by FY (financial year) 2025, which has now been achieved."*

By embedding sustainability in their strategy and operations, coupled with public commitments, firms are more likely to cultivate GHRM strategies, such as employee psychological empowerment, to meet their sustainability targets.

5.3.1.3. Challenges in Renewable Energy Projects

Participants identified several challenges to employee performance in RE projects, including skills, psychological safety, consultation, management support, KPI alignment, and service trade-offs. Participants shared that personnel are sometimes not adequately equipped to perform, ground teams are not consulted at the start of RE projects, and that management support and presence are lacking at times. Participants also identified conflicting operational strategies as a challenge; for example, when switching from fossil-fuel to RE systems, operational interruptions may conflict with the KPI of ensuring 100% site uptime. Finally, Participants cited technology and finance as constraints in RE projects,

One of the Participants lamented a lack of skills training, consultation and management before and during RE projects:

> When Company X transitioned from a telco company to a techno company, they had to send people for training. However, regarding sustainability projects, there was a lack of training to equip employees with the necessary skills to understand the rationale behind these initiatives. (Participant 3)
>
> Yes, if employees aren't empowered, specific projects will fail due to a lack of buy-in. For example, suppose a renewable rollout is happening and the teams on the ground aren't empowered or consulted from the beginning. In that case, they won't take initiative or feel included in the process. Often, decision-makers involve employees only at the implementation stage, so they don't understand the goals or what the company wants to achieve. (Participant 3)
>
> In some regions, managers are highly involved and well-versed in their sites, which makes project implementation easier. Where managers aren't involved, there's less support and more frustration. (Participant 3)

When asked about barriers, Participant 8 brought to light the matter of conflicting KPIs and operational strategies, sharing that *"Conflicting KPIs: short-term commercial targets versus sustainability. Example: Burning diesel to avoid load shedding versus environmental impact—requires a careful balance."*

Another Participant added to the issue of conflicting and unaligned KPIs:

> No, it's (KPIs) not cascaded down. In our team, we have KPIs to roll out projects, for example, but the primary trigger is on the SLT to support and drive the initiatives. Cascading is part of our group strategy, and some KPIs are being pushed down to the markets in an effort to reduce carbon emissions; however, how far that cascades to employees is not yet known. (Participant 4)

Participant 8 lamented a lack of psychological safety as a barrier to psychological empowerment and innovation, complaining that *"Challenging them (leadership) can be career-limiting; people eventually stop trying, and innovation stalls."*

Participant 4 complained about the technological limitation of solar systems, explaining that *"Solar panel efficiency remains relatively low… on-site hydrogen has a low round-trip efficiency… and we lack GIS to design at scale."* While Participant 10 exposed the financial limitations in RE projects, sharing that *"A power-as-a-service model didn't proceed; later there was financial pressure because revenues were linked to that model."*

To promote sustainability transition, innovative firms must consider upskilling employees and involving them in strategy formulation and decision-making. Leadership must be present, knowledgeable and supportive to guide and empower employees. At the same time, KPIs and operational strategies must align with the sustainability vision to drive a common purpose among employees. Additionally, firms must empower employees through targeted training, foster psychological safety, and provide business kits to enable them to design and implement innovative hybrid RE systems and solutions that are technologically, operationally, and financially feasible.

5.3.2. Organisational Culture and Structure

Organisational culture and structure is a theme that explores how culture, hierarchy, HR, and cross-functional collaboration can be leveraged to efficiently and effectively implement psychological empowerment to advance sustainability transitions. The codes encapsulated in the theme include: supportive leadership for innovation; barriers from hierarchical structures; the role of HR in empowerment and sustainability; innovation hubs and idea platforms; and the role of organisational culture in sustainability adoption.

5.3.2.1. Supportive Leadership for Innovation

Participants consistently identified leadership as an important enabler or inhibitor to employee empowerment within sustainability transitions. Participants shared various leadership behaviours that either fostered idea generation and experimentation or, conversely, oppressed employee autonomy. According to Participants, leaders who encourage autonomy and experimentation, while also responding constructively to failure, fostered psychological safety, engagement, contribution and innovation. Participants were also motivated by leaders who recognised and rewarded their efforts; however,

employees also sought career advancement and idea implementation, finding recognition and reward without advancement and implementation discouraging.

Participant shared that they remain motivated to engage and contribute because, *"We're encouraged to bring ideas… and present them for the company to use."* Participant 5 explained that experimentation is encouraged within their team, stating that *"In our division… ideas are encouraged, and time is freed from mundane work… failure on ideas isn't punished."*

Participant 8 expressed the effect of closed-minded leadership on innovation, sharing that *"Too often, preconceived notions block the adoption of new models (e.g., power-as-a-service)."*

Participant 12 shared their team's approach to fostering contribution, stating that *"Every day we ask the team for ideas… If someone's idea isn't adopted, they explain the reasons rather than just saying 'no'."*

Another Participant expressed that psychological safety and innovation are promoted in their team:

> In our division, yes—ideas are encouraged and time is freed from mundane work to think about the future. Innovation involves risk; many ideas fail or are impractical on cost, but you need to try ten to get one that works. Failure on ideas isn't punished, but we must be responsible. (Participant 5)

Participant 4 reflected on their disappointment of the lack of innovation implementation despite receiving an award for their contribution, lamenting that *"We won the CEO award… but lack of funding to deploy the solution was discouraging."*

One of the Participants who won several prestigious CEO awards lamented the lack of career growth despite the financial reward and company-wide recognition:

> Initially, the awards motivated me and made me feel like a high performer. But over time, I realised they didn't translate into real growth within the company. Eventually, I became frustrated because the awards didn't lead to further opportunities, and sometimes even sparked jealousy in others. (Participant 3)

Firms must explicitly include leaders and managers when developing policies and procedures to empower employees. The participants' views show that leaders are central to empowering employees by creating an engaging, psychologically safe environment where employees are encouraged to contribute and given autonomy to ideate and

experiment. Furthermore, for employees to remain motivated to innovate, leaders must not only recognise and reward them with awards but also implement their ideas and provide clear career growth opportunities.

5.3.2.2. Barriers from Hierarchical Structures

Participants have identified command-and-control tendencies as a barrier to empowerment in sustainability transition initiatives. Green strategies are formulated at the top, decisions are centralised, and sustainability KPIs are issued only to senior leadership. According to Participants, the above reduces ownership, engagement, motivation and performance in RE projects.

Participant 1 explained that *"Strategy is set top-down… It flows down by department."* Participant 3 shared how decisions are made, stating that *"Previously, regions had budgets… now decisions are centralised."*

A Participant detailed how sustainability KPIs are set out:

> Yes, there are KPIs defined for our senior leadership, specifically the C-level executives. They have a long-term incentive target linked to a reduction in our Scope 1 carbon emissions. However, it's unfortunately not communicated to middle management or operational teams; it's only on the SLT side. (Participant 4)
>
> It would definitely increase my productivity and effort. There's a disconnect—you can't incentivise only the SLT for reducing emissions and not the employees doing the work. Long-term incentives should be expanded to employees on the ground, so they also benefit from reaching the goal. (Participant 4)

According to Participants, firms can promote psychological empowerment by involving employees in decision-making and strategy formulation, and by cascading KPIs beyond the leadership team to operational teams, so they can also be rewarded for achieving sustainability targets.

5.3.2.3. Role Of HR in Empowerment and Sustainability

The participants view HR as a key facilitator of psychological empowerment. They stated that HR holds the budget and the discretion to enrol employees in training and upskilling programmes. Furthermore, they believe HR can facilitate and amplify policy development and integration, KPI alignment, and the creation of forums and recognition programmes. Participants noted that HR's involvement in sustainability transitions promotes cross-

functional collaboration and buy-in, whereas silence results in silos and misalignment.

Participant 1 explains the importance of HR, stating that *"HR has the final say… manages the training budget and structure."* Participant 10 supports this, adding that *"Group HR is the custodian… now integral to strategic objectives."*

Participant 11 highlights the role HR can play in making the sustainability transition a company-wide endeavour through forums and other engagement platforms, stating, *"If HR leads these initiatives, it can reach the entire organisation."*

Participant 3 shares how HR can foster collaboration, stating that *"The issue is silos. HR needs to be involved to make management aware."*

Psychological empowerment is a GHRM strategy, a function of HR; therefore, participants believe that HR should be a co-owner of sustainability transition initiatives through employee empowerment. HR must intimately understand employees' needs to effectively apply the empowerment practices required to accelerate sustainability transitions.

5.3.2.4. Innovation Hubs and Idea Platforms

Participants explained that firms utilise platforms such as hackathons, idea portals, and recognition programmes to motivate employees and offer them opportunities to innovate. However, these platforms are not always available, nor are they always linked to funded implementation roadmaps, which demotivates. Participants seek visible platforms with attribution, feedback loops and clear pathways for implementation and scaling.

Participant 9 explained their approach to idea sharing, stating that *"markets run communication campaigns and have platforms for employees to submit ideas."*

Participant 4 bemoaned the lack of funded implementation roadmaps, expressing that *"We developed an energy-optimisation ML algorithm… won the CEO award… lack of funding to deploy was discouraging."*

While Participant 11 expressed a desire for ideating platforms, sharing that *"There should be a visible platform for submitting and attributing ideas, like an innovation hub."*

Based on Participants' sentiments, firms should consider creating visible platforms for knowledge sharing, ideation, experimentation, and innovation. This will empower employees by offering them opportunities to participate in solution formulation, and a clear

implementation roadmap will motivate them to continue contributing to solutions that accelerate sustainability transitions.

5.3.2.5. Impact Of Organisational Culture on Sustainability Adoption

Participants expressed that a culture that fosters learning, recognition, transparency, and purpose empowers them by enhancing their abilities, increasing buy-in, and motivating them through participation and rewards. Participants shared that when culture is driven by short-term incentives, vague communication and repetition, motivation and innovation stagnate.

Participant 5 expressed their desire for transparency, stating that *"Better communication of the bigger picture… ESG should advertise and champion this."*

Participant 8 shared their view on how short-term incentives inhibit empowerment, adding that *"Short-term executive incentives often crowd out people-focused choices."*

A Participant encapsulated the importance of broad-based psychological empowerment and cross-functional communication:

> In most organisations, sustainability is often a small, isolated department, not fully integrated into the rest of the business. This leaves employees unengaged and without the empowerment to incorporate sustainability into their day-to-day functions. The key is to educate all staff on sustainability so they understand how it relates to their specific roles and can make changes within their departments. Empowerment also means allowing employees to learn more and be part of the solution, not just leaving it to the energy leads or the sustainability department. (Participant 4)

The Participants' sentiments suggest that sustainability should be a shared cultural norm across the organisation, with firms regularly promoting learning, knowledge sharing, transparent communication, and alignment of incentives and recognition.

5.3.3. Sustainability Strategy and KPIs

Sustainability strategy and KPIs emerged as a theme probing a firm's sustainability strategy and KPI alignment, as well as awareness and engagement in sustainability goals as tools to operationalise employee psychological empowerment. This theme explores the following codes: Integration of sustainability into KPIs; Impact of KPIs on employee engagement; and employee engagement in sustainability goals.

5.3.3.1. Integration of Sustainability into KPIs

Participants suggested that integration is inconsistent with some firms tying sustainability to senior leadership's long-term incentives and offering bonuses for achieving sustainability targets only to R&D and sustainability teams. Frontline employees and middle management often lack explicit sustainability targets, so they are not rewarded for achieving sustainability goals, despite their extensive contributions. Many participants expressed that they would be more motivated to perform if sustainability were explicitly included in their KPIs. Additionally, others cited KPI alignment as the strongest driver of organisational alignment and performance.

Participant 7 expressed their disappointment with the assignment of sustainability KPIs, stating, *"For HQ, R&D, and solution teams, there are targets to sell and deploy low/zero-carbon solutions; not for me (frontline delivery)."*

Participant 1 shared the importance of aligning sustainability KPIs across the organisation, citing that *"I use a chain analogy: for a chain to pull, every link must work"* Participant 10 stated that they would be motivated to perform if sustainability was included in their KPIs, stating that *"Definitely. Everyone has a role to play in sustainability. Tying relevant goals to KPIs would motivate me." Participant 9 reflects these sentiments, adding that "The best way to align an organisation… is to include it in KPIs."*

To promote organisational buy-in to sustainability, firms must consider cascading sustainability KPIs beyond senior leadership and development teams, including all employees who contribute to sustainability targets. KPI alignment is seen as a significant motivator and driver of employee performance in sustainability transitions.

5.3.3.2. Impact of KPIs on Employee Engagement

Participants view KPIs as guides for the tasks they need to perform and the achievements they will be rewarded for. Participants explained that if sustainability is not tied directly to their KPIs, they are less likely to engage in sustainability transition initiatives, citing that it is essentially "someone else's job". Participants feel that it is not important to engage extensively in sustainability projects if they are not rewarded for achieving firm sustainability targets, as such participants view KPI alignment as a motivator, as it leads to financial rewards when they meet the targets.

Participant 2 expresses his direct view on KPIs, stating that *"Without KPIs, there is no*

job… each person must have annual targets." Participant 9 shared the same sentiment, sharing that *"It becomes a focus when it's part of KPIs."*

Participant 11 responded *"definitely"* when asked if a sustainability KPI would motivate them. Participant 4 echoed that view, stating that *"A 20% cash incentive to reduce emissions would increase my productivity and effort."*

The participant's view holds that firms must establish explicit sustainability KPIs for employees expected to contribute to sustainability transitions. The KPIs offer a sense of purpose, direction and motivation.

5.3.3.3. Employee Engagement in Sustainability Goals

Participants showcased that they want to be empowered to understand sustainability transitions beyond their implementation. Responses illustrated that employees seek to understand the "why" behind sustainability strategies. Engagement rises when participants understand "why" and are exposed to recognition pathways and channels for meaningful contribution. On the other hand, engagement drops when employees do not understand why they are doing what they are doing.

Participant 1 expressed that *"First goal is getting people to understand the why behind renewables."*

A participant expanded on the above:

> employees should be made aware of why certain things need to be done, the importance of these actions, the benefits for the company, and the long-term goals. Empowerment is quite key in many companies. (Participant 3)

The views of the Participants underscore the importance of explaining the "why" to employees to drive ownership and add meaning and purpose to their work.

5.3.4. Conclusion of Research Question 2's findings

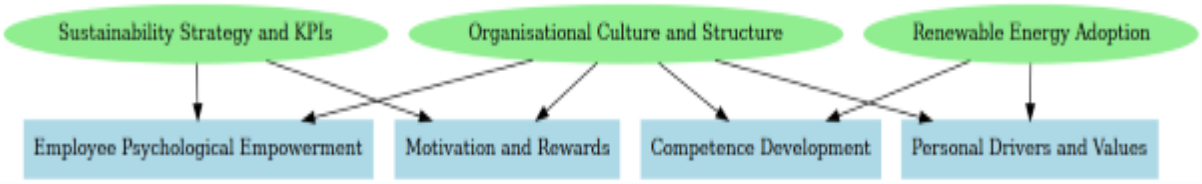
The data that inform Chapter Two underscore the importance of taking a holistic approach to effectively and efficiently implement psychological empowerment to accelerate sustainability transitions. Successful implementation hinges on creating a culture that encourages learning, recognition, rewards, engagement and meaningful contribution. Firms must set clear, measurable sustainability targets and align them with the KPIs of all employees contributing to achieving the goal.

Figure 2 shows the relationship between the themes identified in sections 5.3 and 5.4, which detail research questions 1 (blue boxes) and 2 (green ellipses). The figure illustrates that the organisational functions and contexts in the green ellipses enable the implementation of the psychological empowerment practices in the blue boxes. Organisational culture can promote or inhibit all types of empowerment practices, while a clear sustainability strategy and aligned KPIs can foster practices related to motivation and rewards. RE adoption by firms and employees can promote practices related to competence development and personal drive.

Leadership plays a crucial role in facilitating psychological empowerment practices by promoting psychological safety, sharing information transparently and encouraging experimentation and innovation. On the other hand, HR has been identified as a pivotal enabler by facilitating training, policy integration, rewards and recognition structures and cross-functional collaboration.

Figure 3

Relationship between Research questions 1 and 2's themes



Note. The figure illustrates the relationship between themes identified in research questions 1 and 2. Fugure developed by the author (2025)

Leadership, HR, and employees must come together to overcome barriers to empowerment, such as hierarchical systems, misaligned KPIs, silos, and poor consultation and communication. Ultimately, firms can implement psychological empowerment practices effectively by involving all stakeholders in the design and rollout of empowerment policies, thereby accelerating sustainability transitions.

Chapter Six: Discussion of Results

6.1. Introduction

This chapter will discuss the findings from the data analysis in Chapter Five. Data was sourced by probing 13 participants about their experiences with psychological empowerment practices in sustainability transitions, as the telecoms sector seeks to accelerate its shift from fossil fuels to RE, as detailed in Chapter One. The data-gathering and analysis process was guided by a structured, detailed qualitative research methodology as described in Chapter Four.

The findings in Chapter Five provided a preliminary answer to the research questions posed in Chapter Three; however, this chapter will interpret those findings by comparing them with the literature reviewed in Chapter Two to answer the research questions in Chapter Three and fulfil the research purpose shared in Chapter Two. This research will establish the key psychological empowerment practices for employees (research question 1) and provide a framework to guide practitioners in implementing them effectively (research question 2) to accelerate the sustainability transition to RE in SA telecoms.

This chapter will discuss the themes identified in Table 3, namely: employee psychological empowerment; competence development; motivation and rewards; personal drivers and values; renewable energy adoption; organisational culture and structure; and sustainability strategy and KPIs. Thereafter, the chapter will conclude by synthesising the empirical findings and the literature reviewed to contribute to the practical and theoretical body of knowledge by answering the research questions.

6.2. Discussion: Research Question 1

Research question 1 is outlined in Chapter Three and is as follows: Which employee psychological empowerment practices most effectively support the sustainability transitions towards renewable energy in South Africa's telecoms sector?

6.2.1. Background

In Chapter One, which details the business problem of this study, Case studies from across the globe revealed that stakeholder engagement, particularly employee engagement, is a common barrier to energy sustainability transitions (GIZ, 2023a; GIZ, 2023b; Limberg, 2024; Munkhjargal, 2024; Wangmanaopituk & Charoenlarpnopparut,

2024). This aligns with the sustainability transition literature, which holds that employees, as intermediaries, are crucial to accelerating sustainability transitions (Kivimaa et al., 2019; Kivimaa & Rogge, 2022). However, the literature remains unclear about the HRM practices required to enhance intermediary (employee) abilities, motivation, and access to opportunities to advance sustainability transitions, particularly in developing nations (Kanger et al., 2020).

The AMO framework has been selected as the theoretical lens for this study because, according to AMO, designing HRM strategies which stimulate an employee's ability, motivation, and access to opportunities enhances their performance and facilitates the achievement of firm goals (Hameed et al., 2020; Maheshwari et al., 2024). Within the context of sustainability transitions, HRM strategies must be tailored to meet green targets; as such, GHRM emerges as an operational context for this study, exploring practices that can advance sustainability transitions in firms (Pham et al., 2020). Alas, despite Luu (2019) identifying employees as the centre of implementing sustainability initiatives, specific GHRM strategies that strengthen employees' performance in green projects have not been sufficiently explored and explicitly identified in the literature.

Psychological empowerment seeks to impart meaning and improve employees' competence, self-determination, and impact (Spreitzer, 1995). To address the theoretical gap in sustainability transition literature (uncertainty about the HRM practices required to enhance employee performance), this study identified psychological empowerment as a GHRM strategy to enhance employees' abilities, motivation, and access to opportunities, thereby accelerating sustainability transitions. Several studies have shown that psychologically empowered employees perform better in firms, as they exhibit higher levels of agency — the perception of proximity to power and resources to fulfil their potential (Hameed et al., 2020; Iqbal et al., 2020). Therefore, research question 1 seeks to identify the key employee psychological empowerment practices that accelerate sustainability transitions in SA telecom firms.

To answer research question 1, this study interviewed 13 participants working in various energy-related positions in SA telecom firms. The data from the interviews was thematically analysed with the following themes emerging: employee psychological empowerment, competence development, motivation and rewards, and personal drivers and values. The themes will be discussed in the sections to follow.

6.2.2. Employee Psychological Empowerment

The theme of employee empowerment focused on defining psychological empowerment, identifying its enablers and inhibitors, assessing its importance in sustainability transition initiatives, and highlighting its practices at a high level.

6.2.2.1. Definition of Psychological Empowerment

In section 5.2.1.1, participants shared that psychological empowerment means being: educated and informed about the explicit role they play in a firm's sustainability transition strategy; upskilled and given access to resources to perform tasks effectively and efficiently; involved and consulted in decision-making and solution formulation; and rewarded, recognised and promoted for significant contributions.

Psychological empowerment consists of four cognitions: meaning, competence, self-determination and impact (Maynard et al., 2012). Educating an employee on how their role explicitly ties to and contributes to sustainability targets, and subsequently recognising and rewarding them for that contribution, lets them know they are impactful (Monje-Amor et al., 2020). Upskilling employees and providing them with resources to complete their tasks effectively and skilfully fosters a sense of self-belief in their competence (Iqbal et al., 2020). Involving them in decision-making and solution formulation gives them a sense of control over their work environment, which is seen as self-determination (Motamerri et al., 2020).

The Participants did not mention aligning their beliefs with their assigned tasks and roles in their definitions of psychological empowerment, despite all mentioning in section 5.2.4.1 that they have a personal commitment to sustainability. The literature defines meaning as the alignment of personal beliefs and role, which determines how much employees care about their work (Baird et al., 2020). However, the findings offered a different view, with participants perceiving meaning as a sense of belonging and feeling that they matter to the firm. The Participants view their commitment to sustainability not as the core defining factor of meaning in the definition of psychological empowerment, but rather as one of the components alongside a sense of belonging and feeling valued.

The amalgamation of these views leads this study to define psychological empowerment as an employee’s perception of appreciation and their agency in the workplace. This research aligns with the definitions provided by Spreitzer (1995) and Maynard et al. (2012)

in section 2.3.2 of this paper, which closely link psychological empowerment to Bandura's (1977) self-efficacy theory. However, this research adds the concept of appreciation to the definition, specifically within the meaning cognition of psychological empowerment. This is because Participants added that belief and role alignment are not sufficient to give meaning; an employee must also feel they belong and are valued within the firm.

6.2.2.2. Importance of empowerment for project success

The findings in section 5.2.1.2 establish that psychological empowerment enhances employee performance, a crucial factor in accelerating sustainability transitions. The Participants believe that when psychologically empowered, they are more committed, engaged, and capable. This is supported by Sengers et al. (2019), who found that competent employees are influential in accelerating sustainability transitions, particularly in their role as implementers, as described by Luu (2019). This is attributed to upskilling activities that increase competence and opportunities to contribute, thereby increasing engagement, and to recognition practices that enhance commitment. This aligns with the views of Iqbal et al. (2020), who state that psychologically empowered employees are more likely to be motivated, competent, and engaged, which, in turn, fosters sustainable performance and organisational support and trust. Therefore, this research considers employee psychological empowerment as a key strategy for accelerating sustainability transitions.

6.2.2.3. Barriers to Empowerment

Section 5.2.1.6 identified several barriers to psychological empowerment in sustainability transitions, including silos, KPI misalignment, gatekeeping of information and opportunities, a lack of skills development, low engagement, and a lack of psychological safety and recognition. Silos are caused by miscommunication and gatekeeping, in which information or opportunities, often held and facilitated by management, are not shared or deliberately hidden from employees. Psychological safety is also controlled by management and senior leadership, leading employees to feel disempowered when leaders punish mistakes and ignore contributions and creativity. The common theme is the role of leaders. This has been the critique of empowerment practices: power often remains isolated at the top even after they are applied, leaving employees feeling even more disempowered (Baird et al., 2020; Hölscher et al., 2019).

6.2.3. Competence Development

The theme of competence development emerged as a psychological empowerment strategy to enhance employees' abilities within sustainability transition initiatives. Competence development practices increase employees' baseline knowledge, ensure skills transfer, and encourage knowledge sharing, rapidly building employees' capacity to perform sustainability tasks more effectively and efficiently. This upskills employees and improves performance, allowing firms to fill vacant roles internally, all factors that facilitate project success and accelerate sustainability transitions. This aligns with the ability category within the AMO theoretical framework, which is described as the psychological and physical capacity of an employee to perform their role completely (Pham et al., 2020). Furthermore, according to Köhler et al. (2019), sustainability transitions are accelerated when intermediary-enhancing functions are implemented by design rather than by chance.

The views of participants in section 5.2.2 helped identify the following key practices to enhance employees' abilities: formal training and self-learning programmes; on-the-job training and mentorship; and knowledge-sharing sessions. This is supported by the ability-enhancing practices detailed in the AMO framework, including training and development, selective hiring, and career development initiatives (Bos-Nehles et al., 2023).

Although the practices are effective in enhancing employees' abilities, there remain gaps in implementation, such as misaligned course material, limited visibility and support for knowledge-sharing and training initiatives, and poor tracking of pre- and post-learning impact.

6.2.3.1. Formal Training and Self-Learning Programmes

Internal and external formal training programmes, such as courses in the internal LMS and AEE training to obtain certifications such as Certified Energy Manager (CEM), among others, as detailed in section 5.2.2.1, offer employees a baseline competence in RE systems, industry accreditation, and avenues for career development. According to psychological empowerment theory, this imparts employees with a sense of competence and a belief that they can be impactful (Iqbal et al., 2020; Monje-Amor et al., 2020). The competence arises from newly acquired knowledge, and the impact results from increased capacity to perform on projects.

6.2.3.2. On-The-Job Training and Mentorship

On-the-job training and mentorship, by systematically pairing amateurs with experienced personnel, are among the most significant competence-enhancing practices, as observed in section 5.2.2.2. The practice ensures that valuable skills are transferred, particularly in RE, which is a niche speciality. The addition of skilled personnel can help firms accelerate the delivery of sustainability transition projects (Kiivimaa et al., 2019). Beyond competence and impact, employees are imparted with a sense of meaning when they are strategically groomed for sustainability roles (Baird et al., 2020). When one is selected for career development initiatives, it implies they are seen as valuable and, from a social perspective, offered an opportunity to bond with mentors, creating a sense of belonging.

6.2.3.3. Knowledge-Sharing Sessions

Knowledge-sharing sessions, such as monthly RE energy forums, as observed in section 5.2.2.3, offer employees an opportunity to share regional best practices to accelerate sustainability transitions in RE projects. RE is a niche technology, and by sharing and receiving knowledge, employees gain competency as they are provided with additional information and context, which can help reduce redundancy and errors. This aligns with Kanger et al.'s (2020) view, which holds that niche spaces must be strategically managed and protected to drive sustainability transitions away from the dominant (fossil fuel) regime. Knowledge sharing fosters engagement and collaboration. This involvement in solution formation imparts employees with a sense of self-determination, as they initiate and affect their work environment (Motamerri et al., 2020).

6.2.4. Motivation and Rewards

Motivation and rewards emerged as a theme in the data analysis, serving as a psychological empowerment strategy to strengthen employee motivation in sustainability transitions. The findings in section 5.3.2 illustrated that motivated employees are more inspired, focused, engaged, and determined, elevating their performance and contributions and helping a firm meet its sustainability targets. As described in the motivation category of the AMO framework, motivation rejuvenates and inspires employees to passionately contribute to meeting firm objectives (Hameed et al., 2020). Bhutto et al. (2020) state that engagement and passion are drivers of innovation, which, according to Köhler et al. (2019), is a key component of accelerating sustainability transitions through strategic niche and transition management.

Participants in sections 5.3.2 and 5.2.1.4 identified the following practices as key to promoting motivation in psychological empowerment: financial rewards, non-financial rewards, career growth opportunities, and participation in decision-making. Financial rewards include bonuses and cash rewards for achievements and for meeting performance targets. Non-financial rewards include recognition practices that promote visibility, such as awards, acknowledgement in company forums and media releases, direct acknowledgement by the executive leaders, and selection to participate in special developmental programmes. Career growth opportunities include job promotions and increased responsibilities, like leading a pilot project. Participation in decision-making involves sharing decision-making rights with employees and involving them in solution formulation.

The practices detailed above are similar to the motivation-enhancing practices listed in the AMO framework, namely: regular performance evaluations and appraisals; performance-based compensation; recognition; rewards; and job promotion and security (Bos-Nehles et al., 2023). Although participation in decision making and solution formulation was identified as a motivator, it primarily falls under the opportunities category of AMO, with the framework listing decision making/voice/participation as an opportunity-enhancing practice (Khan & Muktar, 2024)

6.2.4.1. Financial Rewards

The data in 5.2.3.1 showed that employees are motivated by monetary rewards when they deem them fair and equitable relative to their contributions, with clear links to measurable targets and KPIs. This is because money is quantifiable and provides instant gratification. However, participants lamented that sustainability KPIs are primarily given to senior leadership, meaning that although employees contribute to sustainability targets, they are often not financially rewarded for doing so. This practice leads to demotivation and disengagement because employees feel that if sustainability is not explicitly linked to their KPIs, then it is *"someone else's job".* In the AMO framework, fair and regular performance and appraisal and performance-based pay are regarded as motivators; therefore, it is not surprising that poor KPI alignment leads to employee disengagement and demotivation in sustainability initiatives (Hameed et al., 2020). This particularly applicable to employees who are niche and regime-based intermediaries because a large part of their job is promoting and implementing sustainability transitions (Köhler et al., 2019; William & Robinson, 2020).

6.2.4.2. Non-Financial Rewards

The majority of participants preferred non-financial rewards over financial ones, as detailed in 5.2.3.2. This is because recognition and visibility as rewards are perceived as more beneficial in the long term. Being recognised by senior leads and industry colleagues provides employees with clout and credibility, which they can leverage to unlock greater influence for career mobility and advancement. Essentially, by accepting recognition and visibility as rewards, employees can earn more in the long run than they would with a one-off payment. Recognition and visibility are not identified as motivation enhancers in the AMO framework; therefore, these sentiments add new insights to the power of non-financial rewards as motivators in sustainability transitions (Pham et al., 2020).

6.2.4.3. Career Growth Opportunities

Both financial and non-financial rewards are motivating practices that psychologically empower employees by imparting a sense of meaning through recognition (Baird et al., 2020). However, employees expressed their frustration at financial and non-financial rewards that are not followed by career advancement through job promotions and the opportunity to lead and implement pilot projects for the initiatives for which they were recognised. Participants in 5.2.3.4 stated that motivation peaks when recognition and reward translate into career growth. In the AMO framework, under career development, job promotion and security are listed as motivation-enhancing practices; therefore, their absence is expected to demotivate employees (Hameed et al., 2020). On the other hand, leading pilot projects or increased job responsibility are not mentioned as motivation-enhancing practices under career development. Therefore, this research proposes that increased job responsibility be added as a motivation-enhancing practice in the AMO theory.

Career growth opportunities reflect psychological empowerment in terms of meaning, competence, self-determination, and impact. Receiving a promotion shows an employee that they are valued by the firm (Baird et al., 2020). Being given more responsibility means access to more resources, which improves an employee's perception of their competence (Iqbal et al., 2020). Holding a higher position with greater responsibility means an employee can better influence and regulate their work environment, which aligns with self-determination (Motamerri et al., 2020). Lastly, being promoted inherently implies that the employee is impactful (Monje-Amor et al., 2021).

Therefore, this research considers access to career-growth opportunities as an essential factor and a significant contributor to an employee's psychological empowerment. Not only does it motivate, but it also touches on the other two AMO categories — ability and opportunities — and covers all four cognitions of the psychological empowerment theory.

6.2.4.4. Participation in Decision-Making

Participation in decision-making and solution formulation, as described in section 5.2.1.4, is an essential factor of psychological empowerment. It is a motivator, but more importantly, it maximises engagement, which drives communication, buy-in, participation, and innovation — crucial for accelerating sustainability transitions. Participation fosters meaning, self-determination and impact. The invitation to participate promotes meaning by showing employees that they matter (Maynard et al., 2012). By contributing to decisions and solutions, an employee can shape their environment, aligning with the self-determination and impact cognitions of psychological empowerment (Monje-Amor et al., 2021; Motamerri et al., 2020).

Participation encourages a culture of responsible experimentation and psychological safety, both of which are required for innovation. Niche technologies and systems, such as RE, are developed to compete with the prevailing regime (fossil fuel energy) through experimentation, learning and the continuous development of novel technologies (Sengers et al., 2019). Therefore, to accelerate sustainability transitions, firms must encourage employee participation in decision-making and solution formulation.

Furthermore, most employees in firms are regime-based intermediaries, as evidenced by the research sample in Table 2, meaning that their core task is to look after traditional energy systems. At the same time, an explicit sustainability component is allocated to them. To accelerate sustainability transitions, firms must deliberately involve regime-based intermediaries in sustainability transition processes, solutions and decisions (Kivimaa et al., 2019; Köhler et al., 2019)

6.2.5. Conclusion

To answer research question 1, this chapter explored various psychological empowerment practices which arose from the data analysis and related them to the literature reviewed. This study identified the following practices that employees perceive as most effective in developing their competence within sustainability transition initiatives:

formal training and self-learning programmes; on-the-job training and mentorship; knowledge-sharing sessions; financial rewards; non-financial rewards; participation in decision-making and solution formation; innovation and idea channels; and access to growth opportunities. Jointly, these practices enhance an employee's ability, motivation and access to opportunities within sustainability transitions by imparting a sense of meaning, competence, self-determination and impact, which allows them to perform better to accelerate the delivery of sustainability projects (Khan & Muktar, 2024; Monje-Amor et al., 2020; Monje-Amor et al., 2021).

6.3. Discussion: Research Question 2

Research question 1 is detailed in Chapter Three, and asks: How can telecom firms in South Africa implement psychological empowerment practices to accelerate the sustainability transition to renewable energy?

6.3.1. Background

As detailed in Chapter One, due to economic, social and environmental pressures, the telecoms sector in SA is under pressure to transition to sustainable practices (Gil Gómez et al., 2024). Due to its emission-reducing properties, RE has been identified as a technology to drive the industry's sustainability transition (Ibrahim et al., 2021). Employees have been identified as key intermediaries for accelerating sustainability transitions; however, as detailed in section 6.2.1, building on the theoretical problem in Chapter One, the sustainability transition literature is silent on the HRM practices required to strengthen intermediaries' competence to accelerate sustainability transitions (Kanger et al., 2020). Therefore, this study identified psychological empowerment, which is known to improve employee performance, as an HRM strategy to accelerate sustainability transitions (Hameed et al., 2020; Iqbal et al., 2020).

The discussions of research question 1, referencing the analysed data in Chapter Five, revealed the key psychological empowerment practice that enhances an employee's ability, motivation and opportunity as per the AMO framework (Hameed et al., 2020; Maheshwari et al., 2024). These include formal training and self-learning programmes, on-the-job training and mentorship, and knowledge-sharing sessions, which enhance employees' abilities and impart a sense of competence, meaning, self-determination and impact. Financial and non-financial rewards motivate employees, psychologically empowering them through a sense of meaning and appreciation. Finally, access to career

growth opportunities and participation in decision-making and solution formulation fall under the AMO opportunity category, imparting competence, meaning, self-determination, and impact.

The findings in section 5.2 and the discussions in section 6.2 revealed and confirmed that although psychological empowerment practices enhance employee competence, they are often not implemented effectively. The findings and discussion exposed implementation gaps related to silos, information and resource gatekeeping, the lack of sustainability KPIs and rewards, low levels of psychological safety, and poor visibility and recognition for performance in sustainability projects. This confirms the doubts of researchers who questioned the effectiveness of empowerment practices, stating that empowerment is often implemented superficially in firms (Abrahamson, 2020; Baird et al., 2020). To address this theoretical and practical concern, research question 2 will develop a framework specifying how practitioners can effectively implement the psychological empowerment practices identified in section 6.2 (research question 1) to accelerate sustainability transitions.

6.3.2. Renewable Energy Adoption

Renewable energy adoption emerged as a theme detailing the context that enables or inhibits the implementation of psychological empowerment in a firm. Section 5.3.1.2 revealed that all participants worked for firms with strong, often public commitments to decarbonisation and transitioning to RE. To accelerate transitions, firms rely on their employees, as Kivimaa et al. (2019) argued, noting that employees are sustainability transition intermediaries grouped into five categories: System, regime-based transition, niche, process, and user. System intermediaries hold executive leadership positions and, as such, are excluded from this research's population, as detailed in section 4.3.1. The remaining four intermediary types hold employee-level positions, and all play a crucial role in accelerating sustainability transitions.

This research purposively selected 13 participants for interviews, who held various positions and spanned all four intermediary categories. This was done to ensure that the implementation framework that this research seeks to develop is specific, comprehensive and practical. Abrahamson (2020) explained that empowerment is ineffective when it is implemented vaguely and superficially.

As displayed in Table 2, this research grouped energy and infrastructure specialists,

managers, and technical managers as regime-based transition intermediaries. This is because they are primarily responsible for designing and delivering standard energy solutions, but also have an explicit responsibility to facilitate the transition to RE (Köhler et al., 2019). Green energy and sustainability solutions managers were grouped as niche intermediaries because their primary purpose is to promote RE implementation, aiming to eventually overthrow fossil fuels as the dominant regime (Williams & Robinson, 2020). Project managers and energy consultants were defined as process intermediaries because their roles are to facilitate RE projects without personally developing the solutions (Kivimaa & Rogge, 2022). Service delivery managers and project consultants were seen as user intermediaries, as their primary role is to interface with RE solution developers and end-user teams (Sengers et al., 2019).

The research sample consisted of six regime-based transition intermediaries, three process intermediaries, two niche intermediaries and two user intermediaries. This is a representative sample because the dominant regime (fossil-fuel energy) is allocated most of the resources, as it is the incumbent solution. In contrast, the niche system is allocated a few resources in a protected environment to encourage experimentation and innovation until it can challenge and replace the dominant regime (Kivimaa et al., 2019; Kanger et al., 2019; Sengers et al., 2019). Using representative data, this research will identify which psychological empowerment practices are most effective at enhancing the competence of the respective intermediaries.

6.3.3. Organisational Culture and Structure

Organisational culture and structure explore how culture, hierarchy and HR can be aligned to support psychological empowerment in sustainability transitions. The data in section 5.3.2 emphasises the importance of the leader and HR in facilitating psychological empowerment. Leaders and HR often hold the power to initiate and implement policy development, participation training, mentorship, knowledge-sharing, and rewards programmes. In essence, for empowerment to be implemented effectively, leaders must voluntarily share power (control over organisational assets) with employees, as explained by Conger and Kanungo (1998) and Maiorano (2021). Furthermore, leaders enable employee autonomy in the workplace, which is an opportunity-enhancing practice in the AMO framework to psychologically empower (Bos-Nehles et al., 2023).

Leaders are also viewed as drivers of innovation. Participants in section 5.3.2.1 cite that

leaders who encourage autonomy and experimentation and address failures constructively promote psychological safety, contribution and innovation. In the sustainability transition literature, these are all prerequisites for promoting and accelerating the adoption of niche systems, such as RE (Kanger et al., 2022). Leaders and HR must drive the implementation of safe, visible idea spaces, such as innovation hubs, to give employees opportunities to solve sustainability problems collaboratively. The creation of innovation hubs and idea platforms is deemed an opportunity to enhance psychological empowerment practices, as detailed in section 5.3.2.4.

Therefore, this research recommends that firms hire leaders who embody shared leadership and include them in the development of empowerment policies and procedures. HR must also be made co-owners of sustainability transition initiatives, with their role being to implement and facilitate employee empowerment as a GHRM strategy to accelerate the transitions.

6.3.4. Proposed Framework

This section explains and presents the proposed framework detailed in Table 4. The framework builds on the relationships established in Figure 2 and Table 1 in Chapter Two, which illustrate the theoretical interpretive linkages among the theoretical lens, the operational context, and the two constructs of this study. It specifies the key employee empowerment practices identified in section 6.2 to answer research question 1. Each practice is grouped into an AMO and GHRM category, with implementation guides provided for each. To assist in answering research question 2, each practice is allocated to an intermediary group where its perceived benefits are maximised. Lastly, implementation gaps will be detailed for each practice, based on the contents of Chapters Five and Six.

6.3.4.1. Grouping Practices into AMO and GHRM Categories

Formal training and self-learning programmes, on-the-job training, mentorship and knowledge-sharing sessions serve the purpose of enhancing employee ability, as they provide them with the capacity to perform tasks efficiently and effectively (Pham et al., 2020). They all fall under the category of green development with GHRM, as they closely align with its purpose: to equip employees with the requisite skills to enhance their competence in delivering green initiatives (Maheshwari et al., 2024). Formal training and self-learning programmes. Formal training, self-learning programmes, and on-the-job

training also fall under the green recruitment category, as they enable firms to fill vacant sustainability positions with upskilled or mentored employees (Hameed et al., 2019).

Financial and non-financial rewards rejuvenate employees to perform in sustainability initiatives, which aligns with the motivation category of AMO (Bos-Nehles et al., 2023). Employees are rewarded when they perform well on green projects or meet their assigned sustainability KPIs, which align with green performance management and remuneration that measure employee performance against green targets to determine financial and non-financial incentives (Luu, 2019).

Participation in decision-making and solution formation, Innovation and idea channels, and Access to growth opportunities and resources offer employees opportunities to participate in sustainability transition initiatives (Khan & Muktar, 2024). Participation in decision-making and solution formation, as well as in innovation and idea channels, is encompassed by green engagement, which aims to offer employees opportunities to develop and implement green strategies, projects, and solutions (Hameed et al., 2019).

6.3.4.2. Intermediary Fits

Formal training and self-learning programmes are most beneficial for regime-based transition intermediaries because they provide the baseline competence needed to transition from performing tasks related to legacy (regime) energy systems to RE (niche) systems. As explained by Köhler et al. (2019), regime-based transition intermediaries are primarily hired to advance regime systems, but they also have explicit responsibilities to develop niche ideas. On-the-job training and mentorship are particularly beneficial for process- and regime-based transition intermediaries, as skills and knowledge are transferred from SMEs (niche intermediaries) to designers and implementers who are less skilled in the field (Kivimaa & Rogge, 2022; Köhler et al., 2019)

RE knowledge-sharing sessions are helpful to niche and user intermediaries because they allow employees responsible for designing and facilitating the niche system (RE) to share ways of working and best practices, while user intermediaries are required to attend these sessions in order to translate messages between end users and developers (Kanger et al., 2020; Williams & Robinson, 2020)

Aligning KPIs with financial rewards is beneficial for process- and regime-based transition intermediaries, as they operate in niche projects. However, it may not be their primary

role, and as such, to encourage them to perform meaningfully, firms must explicitly tie their performance to sustainability targets (Kivimaa & Rogge, 2022; Köhler et al., 2019). On the other hand, niche intermediaries by nature have sustainability KPIs and are rewarded for achieving them (Sengers et al., 2019). Non-facial rewards motivate niche intermediaries the most because their primary role is to develop and promote niche ideas; therefore, the recognition and visibility fuel performance and reinforce the culture to highlight the importance of transitioning (Kanger et al., 2020)

Participation in decision-making and solution formation, as well as access to growth opportunities, is suitable for process, niche, and regime-based transition intermediaries because, simply put, they are all responsible for either designing or implementing niche solutions; therefore, their participation fosters buy-in, and growth opportunities drive performance (Markard et al., 2012; Sengers et al., 2019).

Innovation and idea channels are helpful to niche and user intermediaries because niche intermediaries are responsible for niche experimentation and innovation, and user intermediaries are responsible for feeding them the user data to design feasible solutions (Köhler et al., 2019; Hölscher et al., 2019).

6.3.4.3. Implementation Gaps

For formal training and self-learning programmes, the identified gap was a misalignment between the course material and the skills required for RE projects. Secondly, training was not visible and accessible to all employees. Lastly, some firms lacked formal measurement systems to track pre- and post-learning impact. The gaps identified in on-the-job training and mentorship were the general lack of skills transfer in the RE domain through a structured mentoring programme backed by senior leadership. Within knowledge-sharing initiatives, the identified gaps were silos, information gatekeeping, and visibility. This prevents the acceleration of sustainability transitions because Employees are not sufficiently equipped to deliver, and the development of a new workforce through skills transfer is limited. This aligns with Kivimaa's (2019) sentiments, stating that intermediary competence must be continuously enhanced to advance sustainability transitions.

It was established that sustainability KPIs were often tied solely to senior leadership targets, leaving employees without financial rewards for contributing to sustainability goals. Furthermore, instances were noted in which short-term incentives promoted the

use of diesel generators to achieve uptime, which conflicts with the strategy to transition to RE. Among non-financial rewards, employees felt demotivated when recognition and awards did not translate into career growth. According to Sengers et al. (2019), a significant and deliberate effort is required to promote niche systems like RE to accelerate sustainability transitions from the incumbent regime. Therefore, these gaps limit the advancement of sustainability transitions because employees are not motivated to perform to move away from the dominant regime.

Employees, particularly, field and regional teams, expressed that the lack of inclusion in decision-making, strategy, and solution formation limited their contributions and engagement in sustainability initiatives, as they did not understand the “why” behind the strategy. Furthermore, they bemoaned leaders who discourage experimentation and autonomy, as it limits innovation. The absence of idea-sharing platforms was identified as a gap in innovation and idea sharing within RE projects. In areas with innovation hubs, good ideas often lacked funding for implementation. Employees were frustrated by recognition and rewards that were not coupled with career growth opportunities. Baird et al. (2019) state that power will remain at the top if empowerment practices do not promote autonomy and psychological safety. Furthermore, Kanger et al. (2020) specify that sustainability transitions require innovation through experimentation. Therefore, these gaps not only disempower employees but also inhibit sustainability transitions.

6.3.4.4. Presentation of Proposed Framework

The proposed framework, as shown in Table 4, brings together the AMO framework as a theoretical lens, key psychological empowerment practices that accelerate sustainability transitions and the GHRM context they fall under, the gaps identified that inhibit the effective implementation of these practices, and the effects on accelerating sustainability transitions.

6.3.5. Conclusion

This chapter explored how psychological empowerment is being implemented in firms, which exposed several implementation gaps and barriers, related to limited consultation and general misalignment, which all inhibit the success of sustainability transitions (Kivimaa & Rogge, 2022; Köhler et al., 2019). To aid in answering research question 2, a framework listing the key empowerment practices and their implementation gaps was proposed.

Table 4: *Proposed framework of this study*

AMO Category	Psychological Empowerment Practice	GHRM Category	Implementation Gaps	Impact On Sustainability Transitions
Ability	Formal training and self-learning programmes	Green development & recruitment	Course material misalignment. Lack of Visibility and accessibility for training programmes No Measurement of training impact	Employees are not sufficiently equipped to deliver and accelerate sustainability transition initiatives.
	On-the-job training and mentorship		Poor skills transfer No official mentorship programmes backed by leaders	The workforce remains limited and niche due to a lack of skills transfers. Therefore, no additional contributions to accelerate transitions are needed.
	Knowledge-sharing sessions	Green development	Silos Information gatekeeping No visibility	Best practices are not shared, efforts are duplicated, and mistakes are not proactively prevented. Thus, delaying the transition initiatives.
Motivation	Financial rewards	Green performance management & remuneration	KPI misalignment Conflicting targets	Employees are not motivated to deliver on sustainability initiatives because they are not rewarded for doing so. Conflicting targets lead to the downgrading of sustainability tasks.
	Non-financial rewards		Recognition with no career advancement	Employees are demotivated, leading to stagnation and reduced effort in sustainability transition initiatives.

AMO Category	Psychological Empowerment Practice	GHRM Category	Implementation Gaps	Impact On Sustainability Transitions
Opportunity	Participation in decision-making & solution formation	Green engagement	Limited operational team involvement in decision-making, strategy, and solution formulation. Low autonomy and experimentation	Participation, psychological safety, and innovation are reduced due to limited engagement, autonomy, and experimentation, which delays the implementation and development of solutions to advance sustainability transitions.
	Innovation & idea channels		Absence of idea-sharing platforms No funding to pilot innovations	Innovation is limited, inhibiting problem-solving in sustainability transition projects.
	Access to growth opportunities	Green development	Recognition with no career growth	Employees are not motivated to contribute because they do not see opportunities for advancement, despite their past performance.

Note. The table presents the conceptual framework, which identifies key employee psychological empowerment practices through the AMO theoretical lens within the GHRM context, the gaps in practice that inhibit their implementation, and the effects they have on sustainability transitions. Table developed by the author (2025)

Chapter Seven: Conclusions and Recommendations

7.1. Introduction

Chapter One introduced the telecoms sector in SA, which is looking to accelerate its sustainability transition to RE under environmental, social, and economic pressure. However, the literature reviewed in Chapter Two exposed limitations in exploring how developing nations can accelerate transitions by leveraging employees in their roles as key intermediaries. In Chapter Three, the following research questions emerged: Which employee psychological empowerment practices were perceived as most effective in advancing sustainability transitions, and how can they be implemented to achieve this goal? Using a qualitative and exploratory approach described in Chapter Four, this study gathered data through semi-structured interviews with 13 telecom employees in SA. The data gathered was analysed thematically in Chapter Five, and in Chapter Six, it was contrasted against the literature to answer the research questions.

Chapter Seven concludes this research study by detailing how the research objectives were achieved. The chapter begins by reflecting on the background, context, and purpose of this study. Thereafter, it details the research questions addressed and the main findings arising from their answers. A Final Integrated Framework is presented, which comprehensively answers the research questions and provides practitioners with a guide and recommendations for implementing psychological empowerment to accelerate sustainability transitions. Finally, the chapter concludes by detailing this study's contributions to literature and business, along with recommendations for future research.

7.2. Background and Context of this Study

SA is a top 10 emitter of greenhouse gases worldwide, driven mainly by its heavy reliance on coal for energy (Akinbami et al., 2021; Tyler & Mgoduso, 2022). To address the uncomfortable statistic above and in line with the UN's SDG 7 (clean, affordable and reliable energy), the South African national government has set out a vision for 2030 to transition to a low-carbon society and economy (National Planning Commission, 2012; United Nations, n.d.). In literature, transitions are the shift from one socio-technological system to another over periods of 50 years or more (Kvimaa & Rogge, 2022). The niche shift to environmentally conscious socio-technical systems is defined as a sustainability transition (Markard et al., 2010). In SA, the state has identified the private sector as a key contributor to meeting its ambitious sustainability transition target for 2030.

7.2.1. Business Context

The telecoms sector is central to national and global connectivity, which is primarily provided through base stations powered by grid electricity (Tang et al., 2021). As SA develops, the need for more telecom base sites is increasing along with the accompanying rise in electricity demand (Deevela et al., 2023). The world, and particularly developing nations, continue to face energy supply uncertainty, exemplified by Eskom, which is failing to meet SA's energy demand, due to unsustainable energy production, resulting in the swift diminution of natural resources, pollution, and the emission of harmful greenhouse gases (Tyler & Mgoduso, 2022; Robinson & Williams, 2020).

Private firms in SA, including Vodacom, have identified energy insecurity as a key inhibitor of performance and growth, with the average firm losing up to 4.9% of annual revenue (Cole et al., 2018). To mitigate grid energy supply shortages, Vodacom spent R700 million in 2023 on backup power solutions (Vodacom, 2023), mainly on the rollout of diesel generators — a common practice in telecoms — emitting pollutants and being expensive to operate. Persistently using environmentally unsustainable practices that harm the ecosystem is proven to damage a firm's reputation, resulting in revenue and shareholder losses (Loock & Phillips, 2020). These financial and environmental constraints, as well as the growing pressure from governments, regulators, shareholders, and customers to transition to sustainable energy practices, have been noted globally by the telecom sector and by SA telecom behemoths, Vodacom and MTN. The telecoms sector globally has committed to achieving net zero by 2050, while Vodacom and MTN have explicitly embedded carbon-emission targets into their medium- and long-term strategies (Gil Gómez et al., 2024; MTN Group, 2020; Vodacom, 2023).

Telecom firms must move away from fossil fuel energy to drive both the national and sector's sustainability transitions to meet SA's Vision 2030, the UN's SDG 7, and the net-zero by 2050 goal. SA is rich in RE sources such as wind and solar; therefore, RE, which has been proven to significantly reduce emissions of harmful gases compared to fossil fuels, has been identified as the energy source to help meet the sector's sustainability targets. (Ibrahim et al., 2021).

7.2.2. Theoretical Context

Sustainability transition research has grown rapidly over the past 20 years, resulting in the formation of the STRN, which has published over 450 papers in peer-reviewed journals

since its inception in 2009 (Köhler et al., 2019). Despite this, the STRN has noted that more studies are required that explore how sustainability transitions can be accelerated in developing nations (Kanger et al., 2020).

Energy sustainability transition case studies from Chile, Indonesia, Mongolia, Thailand, and Colombia have identified stakeholder (employees and the community) engagement and management as one of the key challenges in accelerating transitions from fuel energy to RE (GIZ, 2023a; GIZ, 2023b; Limberg, 2024; Munkhjargal, 2024; Wangmanaopituk & Charoenlarpnopparut, 2024). This aligns with sustainability transition literature, which identified employees as key intermediaries in accelerating transitions (Kivimaa et al., 2019; Kivimaa & Rogge, 2022). Research and practice understand what is required of leaders to formulate and drive sustainability policies; however, the competence required of employees to implement such strategies is underexplored (Bhutto et al., 2021; Luu, 2019). Furthermore, the literature reviewed offers limited insights into GHRM strategies that can be leveraged to enhance employees' competence as intermediaries to accelerate sustainability transitions.

This study identified psychological empowerment as a GHRM strategy to enhance employee competence to accelerate sustainability transitions within firms. Psychological empowerment is clearly defined in literature, and empowered employees have been shown to perform better, thereby contributing more meaningfully to meeting organisational targets (Iqbal et al., 2020; Spreitzer). However, the specific practices and strategies that are required to psychologically empower employees to accelerate sustainability transitions are not evident in the literature. Furthermore, this angle is underexplored in the literature, particularly in the context of developing nations and the telecom sector.

7.3. Purpose and Impact of this Study

Leveraging the literature reviewed and the findings from the semi-structured interviews, this research identified the key employee psychological empowerment practices that can accelerate sustainability transitions to RE within SA telecom firms. This research also developed a framework detailing how they can be practically and effectively implemented.

The findings and recommendations from this research can assist telecom firms in meeting their sustainability targets and help the literature in understanding how sustainability transitions can be advanced in developing nations. Cumulatively, this contributes to a better environment and a more prosperous society for all.

7.4. Research Questions Addressed

This research answered the following questions, detailed in Chapter 3, emanating from the research problems and purpose, and the gaps identified in the literature: research question 1: *"Which employee psychological empowerment practices most effectively support the sustainability transitions towards renewable energy in South Africa's telecoms sector?";* and research question 2: *"How can telecom firms in South Africa implement psychological empowerment practices to accelerate the sustainability transition to renewable energy?"*

To answer the research questions, this study employed a qualitative, exploratory design to uncover deep insights into employee psychological empowerment and its role in accelerating sustainability transitions toward RE in SA's telecom sector. This study adopted an interpretivist philosophy to understand human beings' personal experiences. An inductive approach was selected to develop a practitioner's framework, using a bottom-up approach to contribute to existing theories. The phenomenological strategy was selected because, like interpretivism, this study explored employees' lived experiences to gain profound insights into how they perceive psychological empowerment and its impact on their performance in sustainability transition initiatives.

This study conducted 13 semi-structured interviews at the individual level over a period of three months with telecom employees in SA involved in implementing sustainability transition initiatives towards RE. Executive-level employees were excluded from this study's population as it sought to understand the experiences of employees affected by empowerment practices rather than those who are responsible for developing them. The interview participants were deliberately selected to ensure the data were adequate and representative. To achieve this, a clear selection criterion was set out, and participants were directly sourced from South African telecom firms with public sustainability goals and RE projects by leveraging the researcher's professional networks and professional social media platforms. A detailed interview guide was developed as a measurement instrument for this research, and two pilot interviews were conducted to assess and improve the interview guide.

After data was gathered from the participants, it was analysed thematically, following the six phases of thematic analysis. To promote data integrity, reliability and validity, this research ensured that the data were credible, dependable, confirmable, and transferable.

Once the data were analysed, they were compared with the literature reviewed, and the results were discussed to identify similarities and disparities.

The data analysis and discussion process yielded an answer to research question 1 by identifying the key psychological empowerment practices that most effectively support sustainability transitions towards RE in the SA telecoms sector. This research also proposed a preliminary framework to assist in answering research question 2, by bringing together the AMO framework as a theoretical lens, key psychological empowerment practices that accelerate sustainability transitions and the GHRM context they fall under, the gaps identified that inhibit the effective implementation of these practices, and the effects on accelerating sustainability transitions.

7.5. Main Findings

The findings of this study are presented in the *Final Integrated Framework* (Table 5), which shows that employee psychological empowerment is a GHRM strategy for accelerating sustainability transitions toward RE in SA telecom firms. The Final Integrated Framework builds on the proposed framework in Table 4 by adding a “Roles & Intermediary fit” column and replacing the “implementation gaps” and “Impact on sustainability transitions” columns with “Implementation guide” and “How it accelerates sustainability transitions”.

The “Psychological Empowerment practice” column in Table 5 answers research question 1 by providing the key psychological empowerment practices that employees perceive as most effective in enhancing their competence in sustainability transition initiatives. The practices were identified in Chapter 6, Section 6.2. In Table 5, the practices are sorted into AMO and GHRM categories as detailed in section 6.3.4.1. The “Implementation guide” column answers research question 2 by specifying how to effectively implement each psychological empowerment practice, based on the implementation gaps identified in Chapter Six, section 6.3.4.2, as shown in Table 4.

The “Roles & Intermediary fit” column expands on research question 2’s aim by assigning owners and co-owners, who are responsible for initiating, facilitating, implementing and monitoring them to ensure end-to-end responsibility. Furthermore, each practice will be judged on which intermediary type it offers the most perceived benefit to. Finally, the “How it accelerates sustainability transitions” column details how the effective implementation of each practice can accelerate sustainability transitions.

Table 5: *Final Integrated Framework of this Study*

AMO Category	Psychological Empowerment Practice (Research Question 1)	GHRM Category	Implementation Guide (Research Question 2)	Roles & Intermediary Fit	How It Accelerates Sustainability Transitions
Ability	Formal training and self-learning programmes	Green development & recruitment	Develop a skills gap and existing capabilities database; create a visible, accessible, and structured learning curriculum (internal and external); and fill vacant roles internally. Formally track pre- and post-learning impact.	**Owner:** HR **Contributors:** Technology leaders; Sustainability/ESG; Finance; Line managers. **Intermediaries fit:** Regime-based	Accelerates staffing, rapidly builds the required competence, and maintains relevance to execute and accelerate RE projects.
	On-the-job training and mentorship		Pair amateurs with experienced personnel Routinely allocate independent tasks to test competence. Ensure leader presence and cross-functional teaming.	**Owner**: Line managers/Technical leads. **Contributors**: HR; Sustainability/ESG **Intermediary fit:** Process & Regime-based	Ensures swift skills transfer, providing the firm with more resources for execution
	Knowledge-sharing sessions	Green development	Create compulsory monthly forums for sharing best practices across regions. Forums must be communicated through internal communications.	**Owner**: Sustainability/ESG **Contributors**: internal comms.; Tech SMEs; Regional leads	Shares proven methods to accelerate transitions to avoid unnecessary trials,

AMO Category	Psychological Empowerment Practice (Research Question 1)	GHRM Category	Implementation Guide (Research Question 2)	Roles & Intermediary Fit	How It Accelerates Sustainability Transitions
				Intermediary fit: Niche & User.	duplication and errors.
Motivation	Financial rewards	Green performance management & remuneration	Create clear sustainability KPIs for all levels and tie bonuses to them. Resolve conflicting operational KPI targets.	**Owner**: HR **Contributors**: Sustainability/ESG; Line managers; SLT & finance **Intermediary fit:** Regime-based & Process.	Motivates employees and creates sustainable focus on achieving sustainability targets.
	Non-financial rewards		Recognise employees through company media statements, CEO/CTO shoutouts at Townhalls, issuing awards, and providing them with opportunities to lead bigger projects.	**Owner**: HR & Line managers. **Contributors**: SLT; Sustainability/ESG; Internal coms. **Intermediary fit:** Niche	Inspires others and promotes engagement, contribution, and innovation in sustainability projects.
Opportunity	Participation in decision-making & solution formation	Green engagement	Involve operational teams in strategy and solution formulation and explain the "why" to them. Allow responsible experimentation.	**Owner**: SLT; HR; and Line managers **Contributors**: Frontline teams; Sustainability/ESG **Intermediary fit:** Process, Niche & Regime-based	Creates a culture of psychological safety that promotes engagement and innovation, both crucial to sustainability projects.

AMO Category	Psychological Empowerment Practice (Research Question 1)	GHRM Category	Implementation Guide (Research Question 2)	Roles & Intermediary Fit	How It Accelerates Sustainability Transitions
			Encourage open communication and idea sharing.		
Opportunity	Innovation & idea channels	Green engagement	Create visible portals and platforms for innovation with transparent feedback loops and funding for implementation.	**Owner**: Innovation Office & Sustainability/ESG. **Contributors**: IT/Digital; HR/Comms; Finance; Legal. **Intermediary fit:** Niche & User.	Fosters innovation to overcome operational, financial or logistical constraints within sustainability transitions.
	Access to growth opportunities	Green development	Offer outstanding employees career growth opportunities through promotions and increased responsibility.	**Owner**: HR & Line managers. **Contributors**: SLT **Intermediary fit:** Regime-based, Niche & Process.	Creates new leaders and retains talents who can continue contributing to sustainability transitions.

Note. The table presents the Final Integrated Framework, which identifies key employee psychological empowerment practices through the AMO theoretical lens within the GHRM context, along with the implementation guide, owners, intermediary fits, and the impact they have on sustainability transition. Table developed by the author (2025)

7.6. Recommendations for Practitioners

To answer research question 1, this research has identified the following the key psychological empowerment practices that employees perceive as most effective in enhancing their competence in sustainability transition initiatives: formal training and self-learning programmes; on-the-job training and mentorship; knowledge-sharing sessions; financial rewards; non-financial rewards; participation in decision-making and solution formation; innovation and idea channels; and access to growth opportunities.

To answer research question 2, the following sections detail recommendations for implementing these practices, who should manage them, and which intermediary group they might benefit, as summarised in Table 5.

7.6.1. Implementation Guides, Owners and Benefits

Based on the findings in section 5.3 and the discussions in section 6.3, implantation guides were established to address the gaps identified. The implementation suggestions align with the sentiments of Baird et al. (2020) and Kivimaa et al. (2019), who both state that intermediary competence-enhancing practices must be deliberate, specific and detailed.

7.6.1.1. Formal Training and Self-Learning Programmes

For formal training and self-learning programmes, this research suggests that firms conduct a RE competence skills audit first to identify skills and gaps in their existing workforce. This information is to be stored in a database for reference. Thereafter, the firm can create a structured learning curriculum to address the skills gap. The programme can include internal and external learning, which must be visible and accessible to all the relevant employees. Finally, the firm must establish a formal monitoring process that tracks the pre- and post-training impact of employees. The process must be owned by the learning and development team in HR, with technology leaders, finance and line managers contributing. This will accelerate staffing, rapidly build the required competence, and maintain relevance to execute and accelerate RE projects.

7.6.1.2. On-The-Job Training and Mentorship

For on-the-job training and mentorship, this research recommends establishing a formal mentoring programme that pairs amateurs and junior staff with SMEs. Amateurs must be routinely monitored, assessed, and assigned test projects to determine their competence.

Leaders must be visible in this initiative to encourage buy-in. The programme will be co-owned by line managers and technical leads, with HR and the ESG team contributing. This will ensure swift skills transfer, providing the firm with more execution resources and accelerating delivery.

7.6.1.3. Knowledge-Sharing Sessions

Within knowledge-sharing initiatives, this research suggests creating compulsory monthly RE forums where all regions attend and are given slots to present best practices and lessons learnt. These forums must be owned by the sustainable energy team, with internal communications, technology SMEs and regional teams contributing. This promotes the sharing of proven methods to accelerate transitions to avoid unnecessary trials, duplication and errors.

7.6.1.4. Financial Rewards

To achieve financial rewards, firms should create explicit, measurable sustainability KPIs for employees at all levels that can be used to allocate bonus payments. Additionally, if a firm seeks to transition truly, it should avoid counterintuitive practices that reward the use of fossil fuels. Performance management must be owned by HR, with the sustainability, line managers and SLT contributing. This motivates employees and sustains focus on achieving sustainability targets, accelerating project delivery.

7.6.1.5. Non-Financial Rewards

Among non-financial rewards, this research recommends that firms continue to provide non-financial incentives; however, they must be complemented with opportunities to lead bigger projects. This must be co-owned by HR and line managers with the sustainability team, internal communications and SLT contributing. This will inspire others, promote engagement, encourage contributions, and foster innovation in sustainability projects, thereby achieving project success.

7.6.1.6. Participation In Decision-Making and Solution Formation

To promote participation in decision-making and solution formation, it is suggested that SLT involve operational teams in strategy and solution formulation to encourage buy-in and participation. Line managers must allow employees to experiment responsibly and encourage transparent communication and idea sharing. These initiatives must be driven

by SLT, HR and line managers and supported by frontline and sustainability teams. This creates a culture of psychological safety that promotes engagement and innovation, both crucial to delivering and accelerating sustainability projects.

7.6.1.7. Innovation and Idea Channels

Regarding Innovation and idea channels, this research suggests creating visible portals, such as innovation hubs, to drive idea sharing and collaboration. Where innovation hubs are present, budget allocation must be explicitly dedicated to innovation to support pilot studies. The innovation office and the sustainability team must own this. Support can come from the information technology (IT) team, HR, finance and legal. This fosters innovation to overcome operational, financial or logistical constraints within sustainability transitions.

7.6.1.8. Access to Growth Opportunities

To promote Access to growth opportunities, firms must reward outstanding employees with opportunities to grow, such as promotions or greater responsibility, such as leading pilot or innovation projects. Access to opportunities must be co-owned by HR and line managers, with support coming from the SLT. This creates a new generation of leaders and retains talents who can continue contributing to sustainability transitions.

7.7. Research Contribution to Theory

By exploring the South African telecoms sector, this study offered specialised and contextual knowledge to psychological empowerment and AMO theory, as well as to the sustainability transition and GHRM literature (Appelbaum, 2001; Hölscher et al., 2019; Mahashwari et al., 2024; Spreitzer, 1995). This study contributes to the growing body of knowledge in the sustainability transition literature by exploring how transitions can be accelerated in developing nations, an underexplored context (Kanger et al., 2020). This study also identified psychological empowerment as a key GHRM strategy to accelerate sustainability transitions. Furthermore, this research contributed to the theoretical knowledge base by extending the definitions of the psychological empowerment theory's cognitions, particularly, the meaning cognition. Lastly, this study identified additional practices that added to the listed practices within the AMO theory's categories.

7.8. Research Contribution to Practitioners

In Table 5, this study provided SA telecom practitioners with insights into implementing

psychological empowerment as a GHRM strategy to enhance employees' competence, thereby accelerating sustainability transitions to RE. Beyond telecoms and SA, due to its transferability, this research's findings can be applied to other developing nations and industries that are people-driven and under pressure to transition to sustainable practices.

7.9. Suggestions for Future Research

This research was limited by its narrow scope, which focused on a single industry and country and explored only psychological empowerment among other empowerment strategies. This is a limitation because context, such as national norms, can shape how empowerment is practised and experienced. Furthermore, this study employed a qualitative, exploratory design, as the context was generally underexplored. Therefore, the empowerment practices identified were based on perception, and none were quantified in terms of their impact. Due to time constraints, this study also gathered data cross-sectionally and through a mono-method (semi-structured interviews), which offered depth but limited breadth and statistical generalisability.

Given the limitations discussed above, suggestions for future research will be provided in the sections that follow.

7.9.1. Across Various Sectors and Contexts

As highlighted by Köhler et al. (2019), research on sustainability transitions in developing nations is limited; therefore, future research can explore psychological empowerment in other developing nations across various energy-intensive sectors under pressure to transition, such as mining, manufacturing and transport. This can also be conducted longitudinally to explore the constructs over a sustained period.

7.9.2. Quantitative Studies

Future quantitative research can measure the impact of each psychological empowerment practice identified in this research. This will measure the direct impact of each practice on accelerating sustainability transitions. Furthermore, future research can test the framework developed by this study in firms to evaluate its practical effectiveness.

7.9.3. Other Forms of Empowerment and Sustainability Transitions

Future research can explore other forms of empowerment, such as meso-level structural empowerment across various sustainability transitions, including transport and farming.

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Appendix A. Interview Guide

Study Title: Advancing Renewable Energy Transition Through Employee Empowerment in the South African Telecommunications Sector

Researcher: Mato Ngobeni

Supervisor: Ngwako Sefoko

Programme: MBA – Gordon Institute of Business Science (GIBS)

Date:

1. Introduction and Consent (5 minutes)

1.1. Greeting and Introduction

1.1.1. Good day. How are you?

1.1.2. Firstly, I would like to thank you for taking the time to participate in this study. My name is Mato Ngobeni, and I am an MBA student at GIBS. I am conducting an exploratory study on the role of employee psychological empowerment in promoting the transition to renewable energy within South Africa's telecommunications sector.

1.2. Purpose of this study

1.2.1. The purpose of this study is to identify the key employee psychological empowerment practices that support your firm's transition to renewable energy. This will enable me to develop a green human resource management framework that guides your firm in effectively and efficiently implementing employee psychological empowerment practices to advance its transition to renewable energy.

1.3. Consent and confidentiality

1.3.1. Please note that the contents of this interview will be used solely for academic purposes, and your identity and the name of the firm you work for will be anonymised. Before we begin, please feel free to ask any questions. May I please record this interview?

2. Background (5 minutes)

2.1. Credentials

2.1.1. Could you please introduce yourself, including your name and the firm for which you work, and describe your current role and responsibilities?

2.2. Company information

2.2.1. Could you provide your company's stance on sustainable and renewable energy?

2.2.2. What are your company's current renewable energy initiatives?

2.2.3. Have you been involved in any sustainability or renewable energy projects at your firm? If so, can you briefly share the project details and the extent of your involvement?

3. Implementing Psychological Empowerment Practices (10-25 minutes)

3.1. Within the context of sustainability projects, how would you define employee empowerment?

3.2. Do you believe employee empowerment is critical to the success of renewable energy initiatives, and why?

3.3. Are there any specific practices your firm has implemented to empower employees before or during renewable energy initiatives, such as training, development, rewards, or participation?

3.4. Could you share how these practices have been integrated into your HR practices, KPIs, and company sustainability plans?

3.5. Which functions within your firm have promoted the successful implementation of empowerment practices?

3.6. Have you encountered any challenges or barriers during renewable energy projects, and how have you addressed them?

4. Effective Psychological Empowerment Practices (10-25 minutes)

4.1. From a personal perspective, what drives you to contribute to sustainability transition initiatives?

4.2. Which measures have been most effective in developing your competence to execute renewable energy projects?

4.3. Are there any systems in place to measure the effectiveness of the empowerment initiatives?

4.4. In your view, which is a greater source of motivation–financial or non-financial rewards? Why?

4.5. What rewards would motivate you to engage in and perform well in renewable energy or sustainability projects?

4.6. In your firm, how are employees empowered to contribute towards decision-making and solution formulation in renewable energy initiatives?

4.7. Do you have an example of an employee's input that resulted in positive change or contributed positively to a renewable energy initiative?

5. Closing (5 minutes)

5.1. Closing comments

5.1.1. Do you have any additional questions or comments about this research, employee empowerment and/or sustainability transitions?

5.2. Gratitude and next steps

5.2.1. Thank you for participating in this study. Would you like me to share this study's findings with you?

5.2.2. Before we close, do you know of any candidates who may be a good match for this study? If so, please reach out to them to obtain their consent before sharing their details with me.

5.2.3. Thank you, have a great day ahead.

Appendix B. Consent Letter

I am currently a student at the University of Pretoria's Gordon Institute of Business Science, where I am completing my research in partial fulfilment of an MBA.

I am researching the role of employee psychological empowerment in promoting the transition to renewable energy within South Africa's telecommunications sector. The interview is expected to last approximately one hour and will help us understand how employee psychological empowerment contributes to the success of renewable energy initiatives. Your participation is voluntary, and you can withdraw at any time without penalty. Confidentiality will be strictly maintained throughout the research process, and any information you provide will be securely stored and accessible only to the researcher, supervisor and research committee. No names of individuals or firms will be reported, and all data will be stored without any personal or organisational identifiers.

If you have any concerns, please contact my supervisor or me. Our details are provided below.

Researcher's Name: Mato Ngobeni

Email: 24078752@mygibs.co.za

Phone: 076 735 9744

Research Supervisor's Name: Ngwako Sefoko

Email: nsefoko@gmail.com

Phone: 072 368 4415

Signature of participant: _____

Date: _____

Signature of researcher: _____

Date: _____

Appendix C. List of Codes

Theme 1: Renewable Energy Adoption codes

- Company stance on renewable energy
- Current renewable energy initiatives
- Challenges in renewable energy projects
- Role in renewable energy projects
- Technology limitations (solar, hydrogen, etc.)
- Legislative and regulatory barriers
- Financial constraints in green projects
- Crime and security risks for solar installations
- Innovation in renewable energy solutions

Theme 2: Employee Empowerment codes

- Definition of employee empowerment
- Importance of empowerment for project success
- Empowerment through training and upskilling
- Empowerment through participation in decision-making
- Empowerment through exposure and secondment
- Empowerment through incentives and rewards
- Barriers to empowerment (hierarchy, bureaucracy)
- Impact of empowerment on motivation and performance

Theme 3: Training and Competence Development codes

- Formal training programs (ISO 50001, solar academies)
- On-the-job training and mentorship
- Knowledge sharing sessions
- Continuous learning and self-development
- Attending expos and OEM launches
- Measuring training effectiveness

Theme 4: Motivation and Rewards codes

- Financial rewards as a motivator
- Non-financial rewards as a motivator
- Recognition and visibility (certificates, newsletters)
- Career growth opportunities
- Impact of KPIs on motivation
- Preference for long-term recognition vs short-term cash

Theme 5: Organisational Culture and StructureSupportive leadership for innovation codes

- Barriers from hierarchical structures
- Role of HR in empowerment and sustainability
- Cross-functional collaboration (HR, Technology, Strategy)
- Innovation hubs and idea platforms
- Impact of organisational culture on sustainability adoption

Theme 6: Sustainability Strategy and KPIs Integration of sustainability into KPIs codes

- Impact of KPIs on employee engagement
- Corporate sustainability targets
- Communication and awareness campaigns
- Employee engagement in sustainability goals

Theme 7: Personal Drivers and Values codes

- Personal commitment to sustainability
- Environmental consciousness and future generations
- Desire for convenience and efficiency
- Passion for learning and growth