Gordon Institute of Business Science
University of Pretoria

Adopting Corporate Commitment to Climate Change: The Role of Strategic Foresight in Developing a Competitive Advantage

Student Number: 23992035

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.

04 November 2024

Abstract

Corporations are major contributors to GHG emissions. Despite the urgent need to prioritise climate change, many corporations have shown inaction, maintaining a “business as usual” approach and displaying a “wait-and-see” attitude. This is due to inadequate management approaches that avoid uncertainty, and focus on a short-term outlook.

This study used a qualitative exploratory method to investigate the role of strategic foresight in addressing uncertainty in corporations that have adopted a commitment to climate change action across different industries operating in South Africa. Secondly, the study explored the role of strategic foresight in identifying risks and opportunities in developing competitive advantages.

The sample comprised of 11 corporations from various industries operating within South Africa. Additionally, a policymaker was included in the sample to enrich the data.

The study confirmed that corporations experience different types of uncertainties around climate change. It found that strategic foresight methods play an important role in managing this uncertainty. Additionally, strategic foresight supports corporations in adopting climate change action and building a competitive advantage.

The study highlights the perspective of corporations dealing with relevant and current uncertainties and challenges associated with South Africa’s goal of transitioning to a low-carbon and resilient economy.

Keywords

Corporate commitment to climate change, uncertainty, strategic foresight, competitive advantage

Plagiarism 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. The name of the student and the date should follow the declaration.

Table of Contents

Abstract ii
Keywords iii
Plagiarism Declaration iv
Chapter 1: Introduction to the Research Problem 1
1.1 Purpose statement 1
1.2 Background of the study 2
1.3 Problem statement 3
1.4 Significance of the study 4
1.4.1 Significance for corporations 4
1.4.1.1 Alignment with trends 4
1.4.1.2 Supporting South Africa grow 5
1.4.1.3 Regulatory changes 5
1.4.1.4 Building resilience in uncertain climates 5
1.4.1.5 Calls for accountability on climate change action 6
1.4.1.6 Summary of the significance of the study for business 7
1.4.2 Significance for scholars 7
Chapter 2: Literature Review 9
2.1 Climate change and uncertainty 9
2.1.1 Environmental changes 9
2.1.2 Socio-economic threats 10
2.1.3 Threats to companies 10
2.2 Corporate commitment to climate change 11
2.2.1 Corporate commitment to climate change and uncertainty 14
2.3 Dynamic capabilities 16
2.4 Strategic Foresight 18
2.5 Corporate Commitment and Competitive Advantage 22
2.6 Conclusion 25
Chapter 3: Research Questions 27
Chapter 4: Research Methodology Design 29
4.1 Rationale for the Research Methodology and Design 29
4.2 Philosophy 30
4.3 Approach Selected 30
4.4 Methodological Choices 31
4.5 Strategy 31
4.6 Time Horizon 31
4.7 Population and sample 32
4.8 Unit of Analysis 32
4.9 Sampling Method and Sample Size 32

4.10 Measurement Instrument 34
4.11 Data Collection/Gathering Process 35
4.12 Data Analysis, Interpretation Approach and Storage 35
4.13 Quality Control (Validity, reliability and bias) 37
4.14 Limitation of the Research Method 38
Chapter 5: Findings/Results 39
5.1 Introduction 39
5.2 Sample Description 39
5.3 Data Saturation 43
5.4.1 Familiarisation of the data 44
5.4.2 Generating Initial Codes 44
5.4.3 Search and generating themes (selective codes) 45
5.4.4 Developing and reviewing themes 45
5.4.5 Refining and defining the themes 46
5.5 Themes generated from the analysis 46
5.5.1 Results for Research Question 1 48
5.5.1.1 Commitment to Climate Change 49
5.5.1.2 Leadership's system thinking to climate change 50
5.5.1.3 Strategic Business Action and Adaptation to Climate Change 52
5.5.1.4 Managing Uncertainty 54
5.5.1.5: Stakeholder Engagement and Corporate Responsibility 57
5.5.2 Results for Research Question 2 60
5.5.2.1: Climate Change Scenario Risk Assessments 60
5.5.2.2: Sensing by Leveraging Data, Monitoring and Anticipating Risk 62
5.5.2.4: Information Gathering and Collaboration for Climate Action 66
5.5.2.5: Financial and Economic Implications of Climate Change 67
5.5.2.6: Strategic Foresight Methods 69
5.5.3 Results for Research Question 3 72
5.5.3.1 Organisation Recognition as a Competitive Advantage 72
5.5.3.3 Long-term sustainability as a competitive strategy 74
5.5.3.4 Resource efficiency and economic benefit 75
5.5.3.5 Capabilities built from strategic foresight 78
5.6 Conclusion 79
Chapter 6: Discussion of results 81
6.1 Introduction 81
6.2 Discussion of Research Question 1 81
6.2.1 Commitment to Climate Change 82
6.2.1.1 Comparison and contribution to literature 82
6.2.1.2 Conclusion of discussion 83

6.2.2 Leadership's System Thinking to Climate Change 83
6.2.2.1 Comparison and contribution to literature 83
6.2.2.2 Conclusion of discussion 84
6.2.3 Strategic Business Action and Adaptation to Climate Change 84
6.2.3.1 Comparison and contribution to literature 84
6.2.3.2 Conclusion of discussion 85
6.2.4.2 Conclusion of discussion 86
6.2.5 Stakeholder Engagement and Corporate Responsibility 87
6.2.6 Answering Research Question 1 87
6.3 Discussion of Research Question 2 89
6.3.1 Climate Change Scenarios Analysis and Risk Assessments 89
6.3.1.1 Comparison and Contribution to Literature 90
6.3.1.2 Conclusion of discussion 90
6.3.2 Sensing by Leveraging Data, Monitoring and Anticipating Risk 90
6.3.2.1 Comparison and Contribution to Literature 91
6.3.2.2 Conclusion of discussion 91
6.3.3 Opportunities - Resource Efficiency and Sustainability Investments 91
6.3.3.1 Comparison and Contribution to Literature 92
6.3.3.2 Conclusion of discussion 92
6.3.4 Information Gathering and Collaboration for Climate Action 92
6.3.4.1 Comparison and Contribution to Literature 93
6.3.4.2 Conclusion of discussion 93
6.3.5 Financial and Economic Implications of Climate Change 93
6.3.5.1 Comparison and Contribution to Literature 94
6.3.6 Strategic Foresight Methods 94
6.3.6.1 Comparison and Contribution to Literature 95
6.3.6 Answering Research Question 2 95
6.4 Discussion of Research Question 3 97
6.4.1 Organisation Recognition as a Competitive Advantage 97
6.4.1.1 Comparison and Contribution to Literature 98
6.4.1.2 Conclusion of discussion 98
6.4.2 Resource Efficiency and Economic Benefit 98
6.4.2.1 Comparison and Contribution to Literature 99
6.4.2.2 Conclusion of discussion 99
6.4.3 Long-term Sustainability as a Competitive Strategy 99
6.4.3.2 Conclusion of discussion 100
6.4.4 Capabilities build from strategic foresight 100
6.4.4.1 Comparison and Contribution to Literature 100
6.4.4.2 Conclusion of discussion 101

6.4.5 Answering Research Question 3 101
6.5 Conclusion 102
Chapter 7: Conclusion and Recommendations 103
7.1 Introduction 103
7.2 Principal conclusions per research question 104
7.2.1 Research Question 1 104
7.2.2 Research Question 2 105
7.2.3 Research Question 3 105
7.2.4 Conceptual model 106
7.3 Contributions of the study 107
7.3.1 Addressing the gap for limited research of strategic foresight in the context of corporate commitment to climate change 107
7.3.2 Supports the potential competitive advantage by adopting a corporate commitment to climate change 107
7.3.1 Contributing to the insights from an emerging economy in the developing world 108
7.4 Implications for managers 108
7.4 Limitations of the research 109
7.5.1 Focusing on a homogenous sample from one industry to gain deeper insights 110
7.5.2 Performing a longitudinal study of the research topic 110
7.5.3 Exploring the role of technology on strategic foresight and climate change commitment 110
7.5.4 Exploring barriers to strategic foresight in adopting a corporate commitment to climate change 110
8. References: 113
Appendix A: E-mail to companies 119
Appendix B: Informed consent letter 120
Appendix C: Consistency Matrix 122
Appendix D: Interview Guide 123
Appendix E: Ethical Clearance Approval 124
Appendix F: Codebook - Presentation of open and axial codes 125

List of Figures

Figure 1: Future methods according to functions (Durst et al., 2015; Horton, 1999; Slaughter, 1997; Voros, 2003) 20
Figure 2: Number of new codes per interview 43
Figure 3: An illustration of the coding process in Atlas.ti 45
Figure 4: Thematic map of the role of strategic foresight in adapting to climate change uncertainty 48
Figure 5: Thematic map of sensing climate change risks and opportunities through strategic foresight methods 60
Figure 6: Thematic map of the competitive advantage through climate change commitment and strategic foresight capabilities 72
Figure 7: Conceptual model for Research Question 1. Adapted from (Fink et al., 2005) 88
Figure 8: Conceptual model for Research Question 2. Adapted from (Fink et al., 2005) 96
Figure 9: Conceptual model for Research Question 3 101
Figure 10: Conceptual model for the role of strategic foresight in adopting a corporate commitment and developing a competitive advantage. Adapted from (Fink et al., 2005) ... 106

List of Tables

Table 1: Sample summary and industry cross-representation 34
Table 2: Phases of thematic analysis (Source: Braun & Clarke, 2006) 36
Table 3: Validation of companies meeting the sampling criteria 40
Table 4: Research study participant and interview length information 42
Table 5: Axial and selective codes for the three research questions 47
Table 6: Findings for climate change commitments made by organisations across different industries 82
Table 7: Findings for climate change commitments made by organisations across different industries 85
Table 8: Findings for climate change commitments made by organisations across different industries 86
Table 9: Strategic Foresight Methods 95

Chapter 1: Introduction to the Research Problem

1.1 Purpose statement

The study of business in the context of climate change has shown that corporations (large companies) are significant contributors to greenhouse gas (GHG) emissions (Albitar et al., 2023; Coen et al., 2022; Khan et al., 2023; Littlewood et al., 2018). As a result, there has been an increasing call for corporations to be more responsible to society, take accountability for their actions and play a crucial role by improving their operations and practices aligned with climate change actions and commitments (Albitar et al., 2023; Al-Shaer et al., 2024).

This has led scholars to investigate motivating factors driving corporate commitment to climate action, which include business drivers such as opportunities and threats posed by climate change (Littlewood et al., 2018), as well as the factors enabling action, comprising of climate governance and eco-innovation (Khan et al., 2023). In addition, these studies have highlighted that the efforts from climate change commitments lead to several positive outcomes, including brand enhancement through improved customer relationships and engagement, cost saving, increased resource efficiency and competitive advantage (Albitar et al., 2023; Khan et al., 2023; Littlewood et al., 2018). Furthermore, scholars have also highlighted that business strategies in response to climate change are crucial for sustaining business performance, resilience and competitive advantage (Unter et al., 2023).

Despite companies recognising the significance of climate change and the growing call to address it, their actions have been slow, often inappropriate and ineffective (Slawinski, 2017). In some cases, companies show inaction or “wait-and-see” behaviour (Huiskamp et al., 2022; Slawinski, 2017; Todaro et al., 2021). Moreover, studies have shown that those companies that initially engaged in climate change action reverted to “business as usual” (Wright & Nyberg, 2017), while another study highlighted that companies’ actual performance did not align with their commitments, raising the question of whether their commitments are more symbolic constituting “greenwashing” (Coen et al., 2022; Albitar et al., 2023).

Two reasons cited for companies’ inaction to climate change are uncertainty avoidance and a short-term outlook (Slawinski, 2017). According to this perspective, the challenge is unique for businesses because climate change effects are long-term but urgent in the present; the impacts are future-oriented, but there is limited time to act (Slawinski, 2017). Therefore, standard management practices that contribute to a lower acceptance of addressing uncertainty and focusing on short-term returns lead to climate change inaction (Khan et al.,

2023). As a result, this approach misses the link between short-term concerns and climate change (Nicholls, 2024).

This raises the question of how companies can make sense of and address uncertainty and short-term thinking in the context of climate change so that they can make effective long-term strategic commitments to climate change action.

Scholars investigating strategic foresight have found that it is valuable for firms, particularly in uncertain environments, whereby it improves their ability to adapt and respond to changes (Haarhaus, 2020). According to scholars, strategic foresight is the process of generating potential and likely future views from relevant insights to understand them and guide strategy that addresses and potentially shapes these futures to benefit the company (Durst et al., 2015; Horton A., 1999; Slaughter, 1997).

However, there has been limited research on the role of strategic foresight within companies in the context of the adoption of climate change commitment (Huiskamp et al., 2022).

The purpose of this study is to explore the role of strategic foresight in addressing uncertainty in comapnies across different industries in South Africa that have adopted climate change commitments. Secondly, it will determine whether strategic foresight in identifying risks and opportunities related to their resources and capabilities to develop competitive advantages.

The study intends to gain insights into how companies operating in South Africa make sense of and address the uncertainty around climate change, leading to the response of adopting and adapting to climate change action. Furthermore, it explores how companies can identify potential climate change risks and opportunities to build business resilience through leveraging a competitive advantage. Lastly, it aims to contribute to the literature on corporate commitment to climate change and strategic foresight by integrating these areas of study from the perspective of the developing world.

1.2 Background of the study

The frequency of extreme weather and natural disasters comprising of droughts, wildfires, heatwaves and catastrophic floods has increased significantly in recent years (Unter et al., 2023). Consequently, societies are facing the slow, prominent commencement of adverse conditions brought on by climate change (Unter et al., 2023). These include rising oceans, loss of biodiversity, changes in weather patterns, warmer temperatures and desertification,

which give rise to far-reaching implications in the business context (Khan et al., 2023; Unter et al., 2023).

Climate change is a significant environmental challenge that has become increasingly urgent in recent years. It involves a range of stakeholders, including governments, corporations, value and supply chains, and customers (Albitar et al., 2023; Khan et al., 2023). In response to this change, the United Nations (UN) has developed frameworks to support climate change action, such as the 2015 Paris Agreement. The goal of the 2015 Paris Agreement is to "hold the increase in the global average temperature to well below 2°C above pre-industrial levels" and "pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels" (United Nations, n.d.).

Consequently, many countries around the world, including South Africa, have agreed to net-zero carbon targets by 2050. However, targets alone are not enough because many countries are at risk of not being sufficiently prepared for climate change impact over the next decade (World Economic Forum, 2024). Therefore, transformational actions are required to meet these targets.

Companies are significant contributors to GHG emissions and they have a crucial role in mitigating the impact of human activity on the climate (Todaro et al., 2021). If the companies fail to recognise that not taking climate change action is equivalent to engaging in harmful climate practices (Slawinski, 2017), the necessary transformational to achieve the net-zero carbon emission by 2050 will be unsuccessful.

1.3 Problem statement

Climate change inherently contributes to uncertainty that companies encounter in their decision-making process and strategy development (Huiskamp et al., 2022; Todaro et al., 2021). Scholars have emphasised that traditional and conventional management methods and practices are insufficient in their ability to deal with an increasingly uncertain environment (Haarhaus & Liening, 2020; Huiskamp et al., 2022; Slawinski, 2017).

While studies have focused on corporate strategies for climate change, these have highlighted that limited knowledge and uncertainty around the associated impacts can hamper the effective implementation of such strategies (Weinhofer & Busch, 2013). In addition, studies have shown that companies have limited knowledge about the type of how physical climate

conditions can affect their companies and their ability to achieve a competitive advantage in this context (Unter et al., 2023). Therefore, companies must understand how climate change influences their industry and how they can respond to build business resilience and performance that can lead to a competitive advantage.

Furthermore, while some companies have shown commitments to climate change by adopting disclosure, adaptation and mitigation strategies, some have resisted adopting a commitment to climate, and many approach climate change through symbolic impressions and greenwashing (Coen et al., 2022; Unter et al., 2023).

This highlights the need to explore management methods that improve the capability to anticipate, interpret, and comprehend future-oriented information that addresses uncertainty and mitigates greenwashing. This will help in preparing for climate change risks and opportunities, which can potentially result in a company's competitive advantage.

Therefore, this study aims to address the research problem of how corporations address uncertainty in adopting climate change commitments.

1.4 Significance of the study

1.4.1 Significance for corporations

Climate change has various implications for corporations. In a time of limited resources and significant social and environmental pressures, companies' commitment to minimising their environmental impact and adopting climate change action has become a crucial aspect for decision-making (Albitar et al., 2023).

Responsible climate change practices aim to mitigate climate change by reducing or eliminating harm to the environment through recycling, reducing energy consumption, and decreasing GHG emissions (Albitar et al., 2023).

1.4.1.1 Alignment with trends

In July 2024, the President of South Africa signed the Climate Change Bill into law (South African Government, 2024). The bill shapes the national response to climate change by incorporating actions for both adaptation and mitigation, contributing to the global climate

efforts under the Paris Agreement (South African Government, 2024). Its primary goal is to ensure South Africa can transition to a low-carbon and climate-resilient economy while limiting the risk of job losses and promoting opportunities in the emerging green economy (South African Government, 2024). This highlights the importance for companies to transition to net zero in response to changes and opportunities aligned with the shift towards a low-carbon, green economy. If corporations fail to take action, they risk incurring significant opportunity costs and miss contributing to creating long-term value in a green economy.

1.4.1.2 Supporting South Africa grow

In a radio interview, the Head of Mitigation at South Africa's Presidential Climate Change Commission stressed that addressing climate change requires an "all-of-society" effort with a concern about the timing of the effort (Nicholls, 2024). In addition, Nicholls (2024) highlighted the critical role of the private sector, noting that the government's limited financial resources necessitate private sector investment to help the economy grow.

1.4.1.3 Regulatory changes

Climate change is leading to significant regulatory changes that affect business. According to Nicholls (2024), taking action on climate change provides access to trade in regions, such as the European Union (EU). The EU has implemented the Carbon Border Adjustment Mechanism (CBAM), which imposes a tax on the carbon produced during the manufacturing of carbon-intensive goods (European Commission, 2024). In addition, according to Nicholls (2024), countries such as the United States of America, Japan, Australia and the United Kingdom (UK) are considering implementing similar measures. These developments represent considerable costs for corporations, particularly highlighting the differences in costs of adapting to climate change now versus adapting later.

1.4.1.4 Building resilience in uncertain climates

At a corporate level, climate change poses significant risks with widespread implications. These risks include disturbance to operational activities, damage to assets, broader socio-environmental factors, limitations on natural resources, and unstable service delivery (Albitar et al., 2023; Khan et al., 2023). The limitations on natural resources is of significant importance

to corporations in South Africa, as it is a water-scare country (Elijido-Ten & Clarkson, 2019; City of Johannesburg, 2023).

Furthermore, scholars have highlighted that uncertainty arising from climate change pose significant challenges for companies (Todaro et al., 2021; Khan et al., 2023). These challenges hinder their understanding and limit their ability to implement effective business responses to climate change (Todaro et al., 2021; Khan et al., 2023).

Additionally, scholars have noted that companies often underestimate the risks associated with climate change, leading to insufficient strategies and inadequate responses to these threats (Unter et al., 2023). Consequently, many companies struggle with limited foresight interventions, which hamper their ability to detect changes in changes in uncertain environments and take proactive, effective action.

To contribute to a sustainable future, corporations must reconfigure and enhance their internal capabilities to sense and respond to growing environmental challenges (Khan et al., 2023). From this perspective, if corporations neglect to take action on climate change, they will miss valuable opportunities to develop the capabilities needed to identify and manage risks that affect their operations and their survival.

Research has shown that companies that prioritise climate change strategies are better equipped to recognise and adapt to the rapid changes related to climate change needs, gaining a competitive advantage over others (Albitar et al., 2023). This highlights the company's dynamic capabilities to reorganise and enhance essential resources in response to climate change. For instance, the research conducted by Albitar et al. (2023) demonstrates that companies can significantly contribute to climate change action through effective governance, including the establishment of a climate change committee and the promotion of eco-innovation (Albitar et al., 2023).

1.4.1.5 Calls for accountability on climate change action

Many companies, particularly those that are visible, are facing scrutiny over their climate change commitments to address climate change. For instance, a media article by Davies (2024) questions the sincerity of some South African company’s dedication to climate action. Davies (2024) notes that while these companies often engage in “green talk”, they have not

made meaningful progress in reducing their GHG emissions. As a result, companies must recognise the growing demand for accountability in their climate change efforts.

1.4.1.6 Summary of the significance of the study for business

Climate change affects corporations in several significant ways. Firstly, companies must align with both local and global trends and regulations, such as the South African Climate Change Bill. Additionally, helping economic growth and transitioning to net-zero emissions can help avoid opportunity costs and remain competitive while contributing to a green economy.

Moreover, companies need to mitigate risks, including potential significant costs resulting from regulatory changes. Building resilience against climate change risks is essential during uncertain times by adopting climate change action. Furthermore, addressing uncertainty and understanding how to address climate change right protects brand reputation by avoiding insincere climate action.

Thus, companies must understand how they will respond to climate change to ensure they sustain their performance and resilience. The research is significant to business, as it will focus on different companies in South Africa across different industries.

The purpose of this study is to explore the role of strategic foresight in addressing uncertainty in companies across different industries in South Africa that have adopted climate change commitments. Secondly, it will determine the role of strategic foresight in identifying risks and opportunities to develop competitive advantages.

1.4.2 Significance for scholars

Research on climate change commitment has highlighted both opportunities and risks that climate change presents. For instance, Albitar et al. (2023) developed metric to access companies' commitment to climate change. One of these metrics evaluated whether a company recognises that climate change can poses both commercial opportunities and risks. However, Khan et al. (2023) cautions that often struggle to grasp the significant challenges posed by climate change. Moreover, these researchers emphasis that companies must be aware and comprehend these climate change risks because of their long-term impacts on society (Khan et al., 2023).

Therefore, the question that arises is, in the midst of climate change uncertainty, how can companies identify the risks and opportunities related to climate change and adopt climate change commitment to build a competitive advantage?

A study by Haarhaus and Liening (2020) explored the impact of strategic foresight on developing dynamic capabilities for managing uncertainty. Strategic foresight is a process that involves considering the potential futures and using the relevant insights to guide strategy development and decision-making in the present (Fergnani, 2022; Iden et al., 2017; Slaughter, 1997). Their research emphasises that in uncertain settings, strategic foresight is crucial for companies to make informed predictions about future developments, making it essential (Haarhaus & Liening, 2020).

The study further argues that strategic foresight serves as a precursor to establishing dynamic capabilities such as strategic flexibility and decision rationality (Haarhaus & Liening, 2020). By enhancing a company's ability to adapt to risk and seize opportunities stemming from volatile environmental changes, strategic foresight facilitates the effective reallocation of resources (Haarhaus & Liening, 2020). However, limited studies have examined the role of foresight and strategy in response to climate change action (Huiskamp et al., 2022).

A related study by Huiskamp et al. (2022) examined future-orientated techniques for climate change, focusing on scenario analysis as a tool for informing climate-related business strategies. The research underscores the necessity for further establishing insights into climate change, scenario analysis and relevant references from various companies and sectors (Huiskamp et al., 2022).

While research has primarily focused on the factors driving corporate commitment to climate change, there are increasing calls for studies that explore this commitment in regions other than developing countries, particularly in transitioning and developing economies (Littlewood et al., 2018).

Therefore, this research aims to provide valuable insights into the role of strategic foresight in addressing uncertainty associated with climate change across different industries in South Africa that have adopted climate change commitments. The research heeds the call for studies on corporate commitment in an emerging economy transitioning to net zero carbon emissions by 2050.

Chapter 2: Literature Review

This chapter discusses the existing literature associated with the research constructs, namely, corporate commitment to climate change action, uncertainty, strategic foresight and competitive advantage. It highlights the gaps in the literature, which this study aims to address.

2.1 Climate change and uncertainty

Scholars refer to climate change as the shift in the earth's climate patterns caused by greenhouse gas (GHG) emissions from both human and natural activities (Khan et al., 2023). This subject has become a significant concern for academics, practitioners, and policymakers, often described as a "wicked problem" due to complex implications for both humans and the environment (Benlemlih et al., 2024).

A key aspect of climate change is the uncertainty surrounding it. Scholars define uncertainty as a state made up of indeterminate outcomes, where it is difficult to predict the results and effects of specific events (Mehta et al., 2019). According to scholars, this uncertainty arises from insufficient knowledge systems, environmental changes, risks, socio-economic challenges and shifts in the political economy (Mehta et al., 2019).

The following sections describe the threats that contribute to the uncertainty associated with climate change. It highlights the significance of the interconnected challenges posed by climate change and the importance of taking action to combat them.

2.1.1 Environmental changes

The frequency, intensity, and likelihood of natural disasters such as storms, floods, droughts and rising temperatures are increasing due to climate change (Chen et al., 2024). Scholars argue that the projected intensification of climate variability leads to greater uncertainty regarding the spatial and temporal patterns of rainfall, floods, extreme temperatures, and desertification (Mehta et al., 2019).

For instance, between 2017 and 2018, Cape Town, South Africa, faced unprecedented water shortages. According to Rodina et al. (2024), this water crisis demonstrated that Cape Town's water management system was not resilient to uncertainty linked to unexpectedly low winter rainfall over a three-year period.

2.1.2 Socio-economic threats

Increased climate change poses various risks, including physical impacts in different regions worldwide that can lead to socioeconomic changes in human systems (Khan et al., 2023; Shayegh et al., 2021). These threats are significant because of the interconnected social and economic vulnerability resulting in uncertain economic consequences (Chen et al., 2024).

Scholars have emphasised that the risks associated with climate change adversely impact developing countries, particularly those in Africa, to a much greater extent than they affect developed nations (Chen et al., 2024; Hoogendoorn & Fitchett, 2018). For instance, scholars warn that rising temperatures and changing precipitation patterns adversely affect agricultural productivity (Shayegh et al., 2021). Additionally, the increasing intensity and frequency of extreme weather impact communities and subsequently affect economic growth (Shayegh et al., 2021).

In particular, studies have shown that rising temperatures significantly hinder economic growth in developing countries more than in developed countries (Shayegh et al., 2021). For instance, a study conducted in South Africa by Shayegh et al. (2021) found that the availability of labour decreased when temperature exceeded certain thresholds, particularly for low-skilled workers engaged in outdoor jobs, such as those in the agricultural sector.

2.1.3 Threats to companies

For companies, the risks associated with climate change can be categorised into three main types. These include physical, regulatory, and market-based risks (Littlewood et al., 2018; Sakhel, 2017).

Physical risks arise directly from changes in the natural ecosystem, including frequency of floods, thunderstorms, rising sea levels, and changes in precipitation patterns, which can lead to extreme weather events (Sakhel, 2017). These physical risks can disrupt operational activities, result in resource shortages and challenges in supply chains, and damage business infrastructure and assets, resulting in financial losses (Littlewood et al., 2018; Sakhel, 2017). According to Dube et al. (2023), the damage and associated costs due to extreme weather have considerably increased from 2010-2022.

Regulatory risks emerge from changes in regulations designed to respond to climate change (Sakhel, 2017). These changes aim to reduce companies' harmful environmental impact and combat climate change. However, they can pose a financial risk to companies because

compliance with these regulations often requires increased investments and operating expenses related to climate change action (Littlewood et al., 2018; Sakhel, 2017).

Market-based risks include changes in consumer and financial markets caused by climate change and pressure from non-governmental organisations (Sakhel, 2017). Shifts in consumer and investor attitudes can lead to changes in demand, including boycotts of certain products and services (Sakhel, 2017). These market risks of related to climate change can negatively a company's finances by decreasing consumer trust and demand for its products or services (Sakhel, 2017).
Additionally, scholars argue that biophysical environmental changes can influence the natural resources required by companies (Unter et al., 2023).

Consequently, climate change presents a significant challenge for humanity. It represents a critical turning point where the changes associated with extreme weather, global warming, and natural disasters difficult to accurately measure because of numerous uncertainties (Chen et al., 2024; Ferns & Amaeshi, 2021; Stanton & Roelich, 2021). These uncertainties compound when moving from global to local scales (Mehta et al., 2019). This is relevant for companies looking to expand and grow into different countries (Unter et al., 2023).

Uncertainty is, therefore, inherently part of climate change. Mehta et al. (2019) argue that climate adaptation strategies are diverse because they depend on different contexts, which leverage local knowledge structures. According to this perspective, different industries will address climate change and its associated uncertainties in distinct ways, guided by their unique knowledge and management systems.

2.2 Corporate commitment to climate change

Recent studies indicate that the adoption of corporate commitments to climate change has received considerable academic interest (Albitar et al., 2024; Khan et al., 2023; Dahlmann et al., 2019; Al-Shaer et al., 2024). However, scholars have pointed out that there are still numerous opportunities for further exploration in this area (Littlewood et al., 2018).

Albitar et al. (2024) described corporate commitment to climate change as the implementation of strategies, practices, and measures by companies aimed at reducing their GHG emissions. This includes minimising waste, recycling and conserving energy and using renewable energy, with the goal of preventing or reducing environmental damage.

The importance of corporate commitment to climate change action is paramount because companies are key contributors to greenhouse gas emissions. Scholars argue that either companies can continue with inaction to be major contributors to carbon emissions, or they take proactive steps in mitigating business-as-usual practices that intensify climate change (Albitar et al., 2023; Ferns & Amaeshi, 2021; Sakhel, 2017). To achieve the Paris Agreement established by global leaders, decisive and transformational climate change action is essential (Ferns & Amaeshi, 2021). Therefore, companies have a crucial and unavoidable role in acknowledging their responsibility to this challenge, which offers hope for a sustainable future.

Furthermore, according to Slawinski et al. (2017), if corporations focus on economic growth without absolute reductions in GHG emissions, it would continue to strain our ecosystems with severe consequences for humanity. Therefore, to achieve an absolute reduction in GHG emissions, as corporations grow, their increase in carbon efficiency must surpass the increase in emissions resulting from their growth (Slawinski et al., 2017). This would require transformation changes and building green competence that would take time to move away from carbon-based resources (Slawinski et al., 2017). According to this perspective, companies need to shift from traditional management approaches and incorporate climate change action in their business strategy to meet the required transformational change.

In addition, studies have shown that taking action to address climate change can benefit companies (Unter et al., 2023). For instance, Unter et al. (2023) highlight that climate change action through adaptive strategies can help companies reduce vulnerability to climate change and seize potential opportunities. Certain adaptive strategies described in the literature include anticipatory adaption (recognising and mitigating threats), soft adaption (transforming decision-making, strategy, and processes), hard adaption (changes in infrastructure and technology), and routine adaption (such as performing risk assessments) (Unter et al., 2023).

According to Wright and Nyberg (2017), when companies framed and viewed climate change as both a risk and an opportunity, they invested in developing new capabilities, which would improve their preparation for future possibilities. Furthermore, Khan et al. (2023) argue that climate change risks can transform into opportunities that can enhance customer engagement and stakeholder value.

Additionally, companies can benefit from cost savings by investing in energy-efficient technology that reduces energy consumption or renewable energy that reduces GHG emissions (Albitar et al., 2023; Slawinski et al., 2017; Littlewood et al., 2018).

From this perspective, these scholars argued that there is a win-win association that results from companies adopting climate change action through the positive impacts on a firm's performance and the environment (Boiral et al., 2012; Littlewood et al., 2018). Therefore, this implies that companies would see the value and benefit of adopting climate change action to realise a win-win outcome.

However, despite the potential for a win-win outcome, scholars argue that companies have been sluggish to respond with significant and proactive actions against climate change (Huiskamp et al., 2022; Todaro et al., 2021). An alternative debate presented by scholars suggests that effective climate change action requires a substantial commitment of resources, with uncertain returns, which, in fact, justify a “wait-and-see” approach (Lee & Klassen, 2016).

In addition, recent studies have indicated that many companies remain sceptical about the benefits of addressing climate change, viewing it primarily as a cost rather than an opportunity (Boiral et al., 2012; Littlewood et al., 2018). Therefore, this creates a contradiction between the optimistic perspective that there are economic advantages to carrying out action on climate change and the pessimistic perspective that sees such action as a financial burden.

Furthermore, scholars have argued that numerous companies have shown inaction, while some have taken symbolic (Bryant et al., 2022; Coen et al., 2022; Ferns & Amaeshi, 2021; Littlewood et al., 2018; Wright & Nyberg, 2017;). Scholars have referred to symbolic actions as “cheap talk” (Coen et al., 2022) and “greenwashing” (Bryant et al., 2020; Coen et al., 2022; Wright & Nyberg, 2017). These terms collectively describe companies that promote their commitment and environment-friendly initiatives publically intended to build an appearance and their reputation while suppressing their initiatives that harm the environment or alternatively initiate no considerable climate response to change in reducing their GHG emissions (Bryant et al., 2020; Coen et al., 2022; Unter et al., 2023; Wright & Nyberg, 2017).

For example, a study by Ferns and Amaeshi (2021) performed a longitudinal study to illustrate how BP (Beyond Petroleum), one of the world’s largest oil companies, strategically maintained an ideology that downplayed the necessity for significant climate change solutions.

Unter et al. (2023) refer to business inaction and responses that avoid, defy and resist adopting significant climate change action as resistive strategies. Moreover, research has indicated that certain companies that initially took steps to address climate change eventually returned to previous “business as usual” practices (Wright & Nyberg, 2017). Another study

highlighted that some companies' actual performance did not match their commitments to address climate change, leading to concerns about whether their efforts were merely symbolic (Albitar et al., 2023; Coen et al., 2022).

2.2.1 Corporate commitment to climate change and uncertainty

The question remains: Why is there a contradiction between the optimistic view of the win-win outcome for companies and the pessimistic view of climate change as a cost, as well as outcomes of climate change inaction and greenwashing by companies?

Businesses face a significant a unique challenge regarding climate change. While the issue is urgent, its effects are long-term and expected to worsen, especially as we approach critical tipping points (Slawinski et al., 2017). The urgency stems from the limited time available to develop cost-effective strategies for reducing GHG emissions (Slawinski et al., 2017). Additionally, scholars argue that the degree of climate unpredictability and the scale of climate change impact varies among companies across different industries (Khan et al., 2023; Lee & Klassen, 2016; Todaro et al., 2021).

Scholars assert that corporations' ineffective responses to climate change, whether through inadequate action or inaction, may arise from internal processes that fail to capture and connect to the complexities resulting from the natural environment (Ferns & Amaeshi, 2021). Additionally, they argue that impacts often exceed traditional decision-making capabilities (Todaro et al., 2021).
Furthermore, Todaro et al. (2021) highlight that uncertainty surrounding regulations makes it difficult to anticipate the effects of climate policies on the market and competitive landscape, which inhibits investment. This uncertainty compound by the complexity of modern supply chains and the challenges associated with monitoring an ever-changing market and competitive landscape (Todaro et al., 2021).

Scholars identify several factors that hinder corporations from taking effective action against climate change. These factors include a low tolerance for uncertainty, a dominant focus on and dependence on existing business models, a concern of failure, and a deficiency of understanding of how to incorporate climate change considerations into daily business practices (Albitar et al., 2023; Ferns & Amaeshi, 2021; Huiskamp et al., 2022; Khan et al., 2023;).

Uncertainty avoidance highlights the lack of information regarding the likelihood that anticipated consequences and impacts will materialise (Slawinski et al., 2017).
This emphasis on short-term perspectives is closely linked to uncertainty, leading to inaction. Scholars argue that some companies view reducing GHG emissions as a costly investment that provides no tangible and immediate benefits, while future benefits are seen as delayed or uncertain (Albitar et al., 2023; Slawinski et al., 2017). As a result, companies concentrate on narrow, short-term business issues perceived as more important and urgent.

From this perspective, a lower tolerance for uncertainty or a stronger inclination to avoid it causes companies to overlook climate change risks in favour of short-term goals, like profitability. This leads them to neglect the adoption and implementation of strategies that address climate change, ultimately hindering their ability to achieve long-term sustainable advantages (Khan et al., 2023).

This suggests that conventional management practices, which contribute to a reluctance to address uncertainty and prioritise short-term returns, play a role in the inaction regarding climate change (Khan et al., 2023). In addition, scholars have noted that traditional management strategies are becoming increasingly inadequate for navigating an environment characterised by uncertainty, unpredictability, volatility and rapid change (Haarhaus & Liening, 2020; Schoemaker et al., 2018).
As a result, these conventional approaches are inappropriate, as they tend to focus on short-term results opposed to anticipating the long-term implications of climate change.
In addition, Todaro et al. (2021) emphasise the necessity for companies to leverage and cultivate the right management tools, practices, and capabilities to address climate change.

Therefore, it is essential to understand how companies develop sensing capability and foresight to navigate the uncertainty associated with climate change. This understanding will help companies build greater tolerance to uncertainty and move beyond their preference for short-term benefits.

In addition, some scholars argue that, contrary to the views that uncertainty hinders climate change embracing uncertainty is a comfortable place to be as it can actually be beneficial (Balthasar, 2024). According to this perspective, acknowledging uncertain future developments allows companies to harness its potential by identifying opportunities (Balthasar, 2024).

Therefore, addressing uncertainty not only supports adopting climate change action but also embracing uncertainty benefits companies by identifying opportunities that can shape the future by responding to uncertainty.

Moreover, scholars encourage more research on climate change transitions in non-European countries, as there is an underrepresentation of these regions in existing studies (Scholz & Methner, 2020). In addition, Khan et al. (2023) conducted a study on corporate commitment among companies listed on the London Stock Exchange. They recognised that their findings could not be generalised to other countries and encouraged further research in developing nations.

Furthermore, studies have demonstrated that companies respond differently to climate change (Littlewood et al., 2018). Scholars argue that it is difficult to draw generalised conclusions about commitment of corporations to climate change due to variations across industry sectors as well as geographical and socio-political factors (Boiral et al., 2012).

Therefore, this study aims to gain insights into how companies operating in South Africa, across different industries, address the uncertainty surrounding climate change, leading to their adoption of climate change action.

2.3 Dynamic capabilities

This research uses the theoretical framework of dynamic capabilities to ground the research and address the identified research gap. The dynamic capabilities framework builds upon the the resource-based view (RBV), which explains that companies may attain a sustained competitive advantage centred on their resources (Barney, 1991; Barreto, 2010). However, scholars argue that the resource-based view is inherently static and insufficient for describing competitive advantage in a changing environment (Barreto, 2010).

Teece et al. (1997) defined dynamic capabilities as “the firm’s ability to integrate, build and reconfigure internal and external competencies to address rapidly changing environments.” For clarity, Teece (2017) breaks down dynamic capabilities into three distinct components: “(1) to sense and shape opportunities and threats, (2) to seize opportunities, and (3) to maintain competitiveness through enhancing, combining, protecting and when necessary, reconfiguring the business enterprise’s intangible and tangible assets”.

Scholars emphasise that dynamic capabilities are becoming increasingly becoming increasing important for managing uncertainty (Haarhaus & Liening, 2020). Specifically, they argue that

strong dynamic capabilities, when combined with the ability to explore and learn, enable companies to take decisive action and adapt to high levels of uncertainty (Haarhaus & Liening, 2020). Furthermore, these capabilities are believed to provide long-term advantages, particularly in uncertain environments, as they support a proactive approach to future preparedness (Schoemaker et al., 2018).

However, at the same time, scholars call for further exploration into the processes that give rise to dynamic capabilities and how decision-making processes link to them. For instance, understanding how to sense change can provide insights into how these capabilities can be developed (Haarhaus & Liening, 2020; Schoemaker et al., 2018).

According to Teece et al. (1997), an essential step of the dynamic capability framework is identifying the foundations that facilitate the creation and enhancement of nearly irreproducible advantages.
Therefore, the pertinent element in overcoming the uncertainty associated with climate change would be to identify the foundations that can provide an irreproducible advantage. This speaks strongly toward the sensing and shaping of climate change opportunities and threats within the context of the dynamic capability framework. For instance, Haarhaus and Liening (2020) argue that robust sensing capabilities enable a company to identify vital changes at an early stage that impact the corporate environment and, as a result, afford companies more time to respond to external shocks. According to this perspective, developing the necessary sensing capabilities can be advantageous to identify climate change threats and opportunities specific to an industry context early on and it would help companies adopt climate change actions.
Furthermore, Schoemaker et al. (2018) argue that in order for companies to succeed in a VUCA (volatility, uncertainty, complexity, and ambiguity) world and navigate through the fog of uncertainty, they should adopt a longer-term perspective and develop capabilities to manage limited insight, foresight and build a broad sense and understanding.

Scholars have highlighted an increasing interest in research investigating how strategic foresight relates to dynamic capabilities and how these elements contribute to a company's success and growth in a competitive and uncertain environment (Haarhaus & Liening, 2020). In particular, these studies have concentrated on anticipation and foresight activities that focus on sensing emerging opportunities and threats. This approach enables companies to learn and adapt to changing environments (Haarhaus & Liening, 2020; Vecchiato, 2015).

Some scholars argue that strategic foresight is a dynamic capability. For instance, Fergnani (2022) describes corporate foresight is "a systematic organisational dynamic capability to

interpret changes in the environment, outline and evaluate possible futures based on these changes and use information from these futures for an organisation's competitive advantage." Other scholars have suggested strategic foresight complements dynamic capabilities. For example, Haarhaus and Liening (2020) defined strategic foresight as "a set of techniques and activities that enhance the dynamic capabilities of organisations to persist in uncertain and challenging environments."

Nonetheless, both these perspectives consider strategic foresight as part of the dynamic capabilities framework (Vecchiato, 2015). According to Teece et al. (2016), the micro-foundations of dynamic capabilities include a firm's ability to "sense, seize, and transform" its resources or competencies to adapt to change and create change. As firms create and shape environmental change, their actions are intended to add value to customers while being disadvantageous to competitors (Teece et al., 2016).
According to Vecchiatio (2015), strategic foresight acts as a micro-foundation for "sensing emerging threats and opportunities", enabling firms to anticipate the drivers of future change. It also plays a crucial role in seizing opportunities that establish a first-mover advantage by creating options for responding to changes (Vecchiato, 2015).

This study builds on previous research on strategic foresight. The study aimed to explore the role of strategic foresight in addressing uncertainty in companies across different industries in South Africa that have adopted climate change commitments.

Secondly, it determined the role of strategic foresight in identifying risks and opportunities to develop competitive advantages.

2.4 Strategic Foresight

Scholars argue that uncertainty arises from a lack of information needed to predict the effects of changes, as well as from difficulties associated with collecting, analysing, and interpreting information about the environment (Haarhaus & Liening, 2020).

Additionally, uncertainty continues to challenge companies when decision-makers cannot forecast future developments concerning environmental factors, such as climate change risk and opportunities, competitor behaviour and consumer attitudes (Haarhaus & Liening, 2020; Vecchiato, 2015). Therefore, this perspective emphasises the rapidly changing environment in which companies operate and highlight the necessity of understanding and managing uncertainty, as well as identifying relevant risks and opportunities.

Foresight or future thinking in companies is associated with decision-making and strategic activities (Iden et al., 2017). Scholars have used different terms to describe foresight thinking, such as industry foresight, corporate foresight, and strategic foresight (Iden et al., 2017; Vecchiato, 2015).

Scholars define strategic foresight as the process of creating potential and likely future views from relevant insights to understand them and guide strategy that addresses and potentially shapes these futures to benefit the company (Durst et al., 2015; Horton A., 1999; Slaughter, 1997). In addition, Slaughter (1997) argues that a forward view is a substantial resource as it contributes to management and strategy.

Scholars assert strategic foresight enhances learning abilities during periods of excessive uncertainty (Bourmistrov & Åmo, 2022). From this perspective, learning involves interpreting and making sense of discontinuous environmental changes, which can help companies address future uncertainty and align with their strategic objectives to maintain competitiveness (Iden et al., 2017).

Additionally, scholars argue that the ability to create and implement strategies based on anticipation of future states of the environment, due to foresight, rather than merely reacting to changes that occur, can be a crucial component of sustained competitive advantage (Bourmistrov & Åmo, 2022; Vecchiato, 2015).

The concept of strategic foresight is based on the notion of a rapidly changing world (Slaughter, 1997). According to Slaughter (1997), strategic foresight is not an abstraction or an extension of strategic planning; instead, it highlights real patterns of risks and opportunities that are relevant to a company and need to be developed. Slaughter (1997) argues that if companies attempt to navigate a challenging future in the absence of strategic foresight, forces that are either invisible or overlooked may overwhelm them. While no method can predict the all-future possibilities, Slaughter (1997) asserts that companies practising strategic foresight are better prepared to manage uncertain conditions.

Slaughter (1997) provided a summary of the four future methods categorised according to different functions. According to Durst et al. (2015), foresight is a system of processes as illustrated in Figure X. In addition, the steps in the foresight process are supported by dedicated methods, enhancing value in the creation process from information to action while reducing uncertainty (Durst et al., 2015).

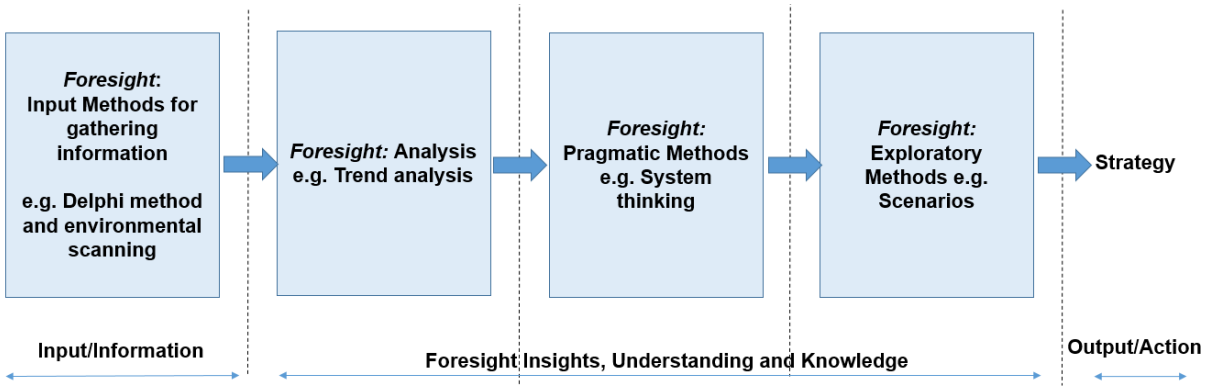


Figure 1: Future methods according to functions (Durst et al., 2015; Horton, 1999; Slaughter, 1997; Voros, 2003)

The first process involves input methods such as environmental scanning and the Delphi method, which are mechanisms of gathering information relevant to the needs of the company (Slaughter, 1997). In addition, Durst et al. (2015) describe the Delphi method as a collaborative and interactive foresight method.

The second category includes analytic methods such as forecasting and trend analysis, back-casting and cross-impact, which support the other categories of future methods (Slaughter, 1997).

The third category involves paradigmatic methods specifically layered causal analysis and system thinking. These methods explore the essential role and significance of paradigms in a social context, offering a holistic perspective (Slaughter, 1997). In addition, scholars have emphasised the need for companies need to move away from traditional cause-and-effect thinking. Instead, they should consider the interconnections between larger systems by adopting system thinking (Fink et al., 2005). According to Fink et al. (2005), system thinking is a foundation for developing scenarios.

The fourth category includes iterative and exploratory methods such as scenarios, future scanning and visioning, which define and explore future conditions, possibilities and strategies (Slaughter, 1997).

Recent studies in strategic foresight have increasingly focused on scenario planning to enhance exploratory and anticipatory strategic management. These studies have highlighted that strategic foresight plays a significant role in developing dynamic capabilities (Bourmistrov & Åmo, 2022; Haarhaus & Liening, 2020; Huiskamp et al., 2022).

For instance, Bourmistrov and Åmo (2022) explored how foresight translates into creative problem-solving and proactive behaviour within the context of strategic management at both organisational and individual levels. The findings from scenario-building workshops indicated that creativity fosters proactive behaviour when individuals adopt specific foresight abilities and styles (“actor”, “tester”, and “adapter”) (Bourmistrov & Åmo, 2022). This perspective highlights that action is catalysed by heightening awareness of emerging issues through adopting foresight. In addition, scholars argue that scenario work facilitates company sense-making, with foresight enhancing creative interpretations (Bourmistrov & Åmo, 2022).

This information is important in the context of climate change. When companies adopt strategic foresight to enhance learning processes, they can better recognise opportunities and threats. This increased awareness helps them take proactive steps to commit and take action against climate change.

Another study conducted by Huiskamp et al. (2022) explored scenario analysis to develop business strategies that are resilient to climate change. The study found that scenario analysis rarely takes place in companies, due to the lack of established processes and insufficient knowledge about climate change. The scholars argue that this failure to implement scenario analysis hinders companies’ ability to build climate change resilience. Furthermore, the study emphasises that routine scenario analysis can enhance the capacity to create climate change scenarios specific and relevant to the context of the company. This helps overcome biases that are overlooked and supports the integration of climate change strategy (Huiskamp et al., 2022).

Strategic foresight involves exploring, sensing, and anticipating futures by uncovering and understanding the factors of environmental uncertainty that will likely shape them while creating strategies to respond to risks and opportunities. Strategic foresight, therefore, enables companies to harness the potential of uncertainty by exploring and identifying opportunities (Balthasar, 2024).

The future is not predictable, and certainly not with the reality of climate change. However, companies can influence it by preparing through their chosen strategic objectives and actions to develop a competitive advantage by exploiting these opportunities and mitigating these risks. This enables companies to develop new strategic narratives, promoting new thinking and innovation in companies, making them resilient against impending shocks (Bourmistrov & Åmo, 2022). This perspective emphasises that foresight heightens the formulation of strategic choices by supporting company members to visualise plausible futures, which broadens their

awareness. In addition, scholars assert that foresight tools can challenge business-as-usual approaches through the ability to sense emerging risks and opportunities, learn and thus respond (Haarhaus & Liening, 2022; Wright et al., 2020).

Strategic foresight plays a crucial role in developing a company's dynamic capabilities, particularly the dynamic capability of sensing. Scholars argue that this capability is essential for addressing uncertainty, which is especially relevant for companies facing challenges posed by climate change (Haarhaus & Liening, 2022; Huiskamp et al., 2022). However, Iden et al. (2017) highlight that further research is needed to understand how strategic foresight contributes to a company's success.

Therefore, this research aims to explore the role strategic foresight plays in South African companies across industries that have adopted commitments to climate change action.

2.5 Corporate Commitment and Competitive Advantage

Barney (1991) defined competitive advantage as occurring when a firm executes a "value-creating strategy" not concurrently implemented by an existing or likely competitor. Furthermore, a sustained competitive advantage occurs when a firm executes a "value-creating strategy" independently and non-simultaneously to competitors, and competitors are incapable of matching the benefits of the strategy (Barney, 1991).

The traditional sources which explain how a firm can sustain a competitive advantage have become inconsistent due to the competitive environment shifting toward being more uncertain, globally interdependent and intense (Dagnino et al., 2021; Haarhaus & Liening, 2020).
For firms to remain sustainable, especially in uncertain environmental contexts due to factors such as dynamic market demand, they need to position themselves with a competitive advantage, temporary or sustainable.

According to Dagnino et al. (2021), a firm can develop a competitive advantage through two fundamental sources. The first source is rooted in the structure-conduct-performance (SPC) model. This perspective asserts a company's competitive advantage is based on the strength of its market position (external context) and the industry environment in which it competes (Dagnino et al., 2021; Porters, 1981).

The second is based on the resource-based view (RBV). This perspective considers resources as strengths that a firm can use to create and implement strategies successfully (Barney,

1991). These resources include knowledge, assets, capabilities, information, and processes (Barney, 1991). The RBV model suggests that a firm can develop a competitive advantage by cultivating and owning valuable, rare, inimitable and non-substitutable resources that capture value (internal context) (Barney, 1991; Dagnino et al., 2021; Huang et al., 2015).
Of particular importance, Dagnino et al. (2021) assert that both perspectives share the assumption that the origin of competitive advantage is founded in the foresight of the company's managers.

However, scholars emphasise that traditional strategic models such as the SPC model and the resource-based view, which have been used to develop a competitive advantage, are embedded with the conception that the world is stable (Barney, 1991; Dagnino et al., 2021; Huang et al., 2015). The world is becoming unpredictable and uncertain due to changes in weather patterns and physical and socio-economic impacts due to climate change (Huiskamp et al., 2022).

Hence, these traditional strategic approaches may provide a temporary competitive advantage but may no longer allow firms to maintain a sustained competitive advantage unless they extend to consider and incorporate uncertainty. This is of significance because a firm's competitive advantage due to its market position could be displaced due to shocks and environmental discontinuities (Huang et al., 2015). An important point is that uncertainty differs from risk, requiring different approaches (Teece et al., 2016). Teece et al. (2016) suggest that uncertainty requires doing the right things more than just doing things right. Many scholars assert that climate change action is the right thing for companies to adopt (Littlewood et al., 2018; Naidoo & Gasparatos, 2018).

Demand uncertainty explains the scenario when a firm has to manage consumer preferences (Dagnino et al., 2021). Consumer preferences can change swiftly with time, requiring firms to react and meet over different market products or services (Dagnino et al., 2021). Consumers are becoming more aware, responsible, and sensitive to climate change. Consumers consider a firm's environmental commitment and attributes and question the level at which they meet them (Papadas et al., 2019). Companies need to consider this to maintain a competitive advantage.

Scholars have also emphasised that the success and, thus, the sustainability of a firm in changing or uncertain environments is achieved by a continuous flow of temporary advantages that would assist in building a sustainable competitive advantage (Dagnino et al., 2021; Huang et al., 2015). In order to achieve continuous temporary advantages, firms would need to have

the ability to sense and apply their decision-making to the changes in the environment and adapt by pursuing opportunities or mitigating threats in response to environmental shifts. Adapting to the shift in the environment is pertinent to policymakers to ensure that existing policies are relooked at to support a conducive environment that can adapt and resources to attain a competitive advantage (Huang et al., 2015). This suggests that firms with valuable, rare, inimitable and non-substitutable resources must reassess their competitive advantage when the environment shifts continuously.

Studies have shown that corporate commitment to climate change action has led to benefits, which can translate, into a competitive advantage. For example, according to Albitar et al. (2023), companies that had a higher commitment to climate change were firms that implemented inventive ways or “eco-innovations” to efficiently control their use of resources, reduce pollution and lessen their environmental impact. According to Littlewood et al. (2018), innovation related to climate change can increase company revenue as well as develop brand credibility, which are advantages for a company.
Commitment to climate change is also enhanced by incorporating it into their governance systems and creating environmental committees and strategies to take meaningful action against climate change (Albitar et al., 2023).
By developing governance structures that integrate climate change considerations and focusing on innovation strategies that reduce their environmental impact, companies would stimulate their existing resources, building their knowledge and experience to make a real commitment to climate change ahead of their competitors (Albitar et al., 2023). These initiatives, especially eco-innovations, create opportunities because building a competence to deal with climate change can help build a competitive advantage and protect the environment. By shifting the company’s attention to climate change and building competence, firms can increase their agility, adapt more easily to regulations, and reduce their carbon emissions at a lower cost (Albitar et al., 2023).

Scholars argue that companies will bear greater risk and incur larger costs if they do not give climate change the required strategic attention (Khan et al., 2023). Therefore, companies that adopt climate change commitments can benefit through acting and learning, thereby reducing their risk and future expenses.

According to Littlewood et al. (2018), due to customer expectations, companies that take proactive climate change action can result in a competitive advantage because of differentiation and by being more responsive to customers' sentiments. Furthermore, Khan et

al. (2023) assert that developing sustainability-oriented strategies creates stakeholder value propositions through customer engagement and, consequently, brand positioning.

Committing to climate change can build the necessary capabilities for firms to accept the responsibility to contribute to a sustainable future and, at the same time, safeguard their future (Khan et al., 2023). In this future, they would have the opportunity to positively impact humanity, adapt to changes in the environment that impact the company's performance, and build a competitive advantage by competing in a low-carbon economy and "decarbonising world" (Khan et al., 2023).

2.6 Conclusion

Chapter 2 explored three research constructs, namely, corporate commitment to climate change action, strategic foresight and competitive advantage in the context of climate change.

Climate change has been a significant issue for academics, practitioners, and policymakers alike. Due to the resulting human and environmental challenges, scholars refer to it as a wicked problem (Benlemlih et al., 2024). Climate change leads to uncertainty, stemming from inadequate knowledge systems, environmental changes, risks, socioeconomic threats or shifts in the political economy (Mehta et al., 2019).

Studies have shown that taking steps to address climate change can benefit both companies and the environment while also building a competitive advantage (Albitar et al., 2023; Littlewood et al., 2018). However, despite these potential win-win scenarios, companies have been sluggish to take meaningful action on climate change, with some companies viewing it pessimistically as a cost (Littlewood et al., 2018; Boiral et al., 2012). The contradiction between the optimistic outlook on economic gains to companies and the pessimistic reception of climate change action as an expense can be attributed to uncertainty avoidance and a short perspective resulting from inadequate and traditional management approaches.

While some scholars emphasise that uncertainty hinders climate change commitments, others have argued embracing uncertainty enables companies to identify opportunities by strategic foresight (Balthasar, 2024).
Strategic foresight plays a crucial role in building organisational dynamic capabilities, particularly the dynamic capability of sensing. Scholars have argued that this capability is vital for addressing uncertainty, especially as companies face the uncertainties posed by climate change (Haarhaus & Liening, 2022; Huiskamp et al., 2022).

Additionally, studies highlight that companies respond differently to the climate crisis (Littlewood et al., 2018). Moreover, scholars argue that drawing generalised conclusions from studies on corporate commitment to climate change is challenging due to the differences in industry sectors and geographical and socio-political factors (Boiral et al., 2012).

Therefore, this research aims to explore the role of strategic foresight companies across industries in South Africa that have adopted commitments to climate change action. Secondly, it will determine the role of strategic foresight in identifying risks and opportunities to develop competitive advantages.

Chapter 3: Research Questions

The purpose of this research study aimed to explore the role of strategic foresight in addressing uncertainty in companies across different industries in South Africa that have adopted climate change commitments. Secondly, it determined the role of strategic foresight in identifying risks and opportunities to develop competitive advantages.

The study aimed to gain insights into how companies operating in South Africa make sense of and address the uncertainty around climate change, leading to the response of adopting climate change action. Furthermore, it explores the role of strategic foresight in companies to identify potential climate change risks and opportunities to build business resilience through leveraging a competitive advantage. It also aims to contribute to the literature on corporate commitment to climate change from the perspective of the developing world.

The formulation of the following three research questions helped meet the objective of this study.

Research Question 1: What is the role of strategic foresight in overcoming uncertainty to adopt a corporate commitment to climate change?

Research question 1 aimed to understand how companies in different industries addressed uncertainty by maintaining a future-oriented perspective. Additionally, it explored whether strategic foresight assisted decision-makers and, hence, the company in adopting commitments to climate change by enhancing their ability to sense, and respond to uncertainty (Haarhaus & Liening, 2022; Huiskamp et al., 2022). According to the literature review in Chapter 2, scholars emphasised that strategic foresight enhances learning capabilities during times of significant uncertainty (Bourmistrov & Åmo, 2022). From this perspective, learning entails making sense of and interpreting disruptive environmental change that reflect future uncertainty, which can then be aligned with a company's strategic objectives (Iden et al., 2017).

Research Question 2: What is the role of strategic foresight in sensing and identifying opportunities and risks of climate change?

Research question 2 aimed to determine whether foresight tools and practices helped companies sense and identify relevant industry opportunities and threats. Scholars argue that foresight methods can challenge business-as-usual approaches by enabling companies to sense emerging risks and opportunities, learn from them, and take action against climate change (Haarhaus & Liening, 2022; Wright et al., 2020).

Research Question 3: How does adopting a corporate commitment to climate change action by practising strategic foresight build a competitive advantage?

Research question 3 aimed to investigate whether adopting corporate commitment had resulted in benefits such as a competitive advantage and whether strategic foresight had played a role in achieving this competitive advantage. According to the literature review in Chapter 2, scholars emphasised that adopting commitments to climate change action leads to a competitive advantage (Albitar et al., 2023; Littlewood et al., 2018).

These questions were specific to companies operating in different industries in South Africa. Scholars emphasise that companies respond differently to climate change, and generalised conclusions should be avoided due to variations in industry sectors, as well as geographical and socio-political factors (Boiral et al., 2012). Therefore, these questions aimed to explore the role of strategic foresight in companies that have adopted corporate commitments to climate change and whether this commitment contributes to building a competitive advantage in the context of the developing world.

Chapter 4: Research Methodology Design

Scholars describe research approaches as the plan and processes that cover assumptions to thorough methods for sampling of participants, data collection and generation, and data analysis interpretation (Crewell, 2014; Mills, 2014).
This chapter describes the research design and methodology used to investigate and answer the research questions. The research methodology serves as a lens for the researcher and, therefore, consists of important philosophical assumptions considered and used for the study, as they shaped the approach and intersected with the research design principles and procedures (Creswell, 2014; Durdella, 2019; Mills, 2014).

The procedure of enquiry was a qualitative, exploratory design. This research methodology explored the role of strategic foresight in addressing uncertainty in companies across different industries in South Africa that have adopted climate change commitments and the role of strategic foresight in identifying risks and opportunities to develop competitive advantages. As this study integrated corporate commitment to climate change and strategic foresight, the exploratory study was appropriate.

.
The research methodology directed and informed the sample population, gathering of qualitative data, analysis, and the measurement instrument used to meet the research objective and determine conclusive findings (Creswell, 2014). Quality assurance techniques used to ensure the creditability of the study are detailed, along with the noted limitations.

4.1 Rationale for the Research Methodology and Design

Qualitative research is a method used to explore, recognise and interpret the meaning groups assign to human challenges (Creswell, 2014; Durdella, 2019, p.5). It is conducted when a complex and detailed understanding is required (Creswell, 2013). It develops theories when existing theories are incomplete or insufficient for sample populations to capture the complexity of the problem under investigation sufficiently (Creswell, 2013).

Climate change presents a significant and intricate challenge for humanity. Hence, the research design was an exploratory study aimed to understand the reasons and methods by which companies committed to addressing climate change.
The study aimed to understand the role of strategic foresight in making sense of uncertainty and identifying risks and opportunities to develop a competitive advantage.

This approach was suitable since addressing uncertainty and adopting climate change is an issue that differs in geographical regions and different industries (Boiral et al., 2012; Littlewood et al., 2018). This can signify a gap in the capability of corporations to sufficiently understand and identify opportunities and risks brought about by climate change.

Limited research exists on the application of strategic foresight in relation to corporate commitment to climate change (Huiskamp et al., 2022). As a result, the design allowed for flexibility in the approach. The limited existing research, particularly in the South African context, motivated the choice of a qualitative and exploratory methodology (Creswell, 2014).

4.2 Philosophy

Scholars described philosophy as the ideas and beliefs guiding our research actions (Creswell, 2013; Saunders & Lewis, 2018). The interpretivism view, often called the constructivist view, believes that individuals seek to understand the world around them (Creswell, 2013; Creswell, 2014). This perspective relates to the study of social phenomena in their natural settings (Saunders & Lewis, 2018). The participants in the study were asked open-ended questions to construct their understanding of the situation. (Creswell, 2014).

The study focused on understanding companies' commitment to climate change in South Africa, strategic foresight, and the companies committed to climate change.

The research aimed to explore how these companies developed their strategies for addressing climate change action and the role of strategic foresight in shaping these commitments. It also explored how the companies sensed and interpreted opportunities and risks to drive their decisions and competitive advantage positioning, particularly in the context of climate change. Consequently, interpretivism was the appropriate philosophy approach for this study, as it aligned with the research study objectives.

4.3 Approach Selected

The research approach used for theory development was inductive. This means that the theory for the role of strategic foresight in adopting a corporate commitment to climate change was developed by gathering and analysing the data from participants involved in climate change actions through interviews (Saunders & Lewis, 2018).

The data was analysed to identify themes and patterns of meaning (Creswell, 2014). These themes included the measures of commitment to climate change and the components of

strategic foresight methods used to make sense of uncertainty to identify risks and opportunities that capture value and build a competitive advantage. Additionally, the study also aimed to comprehend the meaning companies attach to climate change.

4.4 Methodological Choices

The selected methodology for this study was a mono-method qualitative approach, which was well-suited for gaining a comprehensive understanding directly from various companies. This approach enabled an in-depth exploration of how these companies recognised and perceived the need to address climate change, as well as the decision-making process involved in committing to climate change.

4.5 Strategy

A narrative research strategy was utilised to explore and understand how and why the organisation committed to climate change action through the experiences of its relevant employees (Saunders & Lewis, 2018).
This strategy also facilitated the exploration and comprehension of the role and how strategic foresight methods in decision-making, led the companies to commit to climate change action. Furthermore, the narrative research strategy allowed the study to focus on the context in which companies have successfully integrated commitment to climate change within their strategy.

The focus was on companies that had commitments and initiatives toward environmental sustainability related to climate change action and were able to explain how this occurred.

Therefore, this research strategy provided a deeper understanding of the processes involved, including how opportunities and risks were identified and interpreted, which motivated these companies to make tangible commitments to climate change.

4.6 Time Horizon

According to Saunders and Lewis (2018), a cross-sectional design collects data once in a period. The research time horizon was cross-sectional, focusing on the period of time during which the companies had already made commitments to addressing climate change. This enabled the research to gather how companies arrived at adopting climate change commitments, the role of strategic foresight methods, practices or tools in identifying potential risks and opportunities, and whether it resulted in building a competitive advantage.

4.7 Population and sample

The target population consisted of companies across different industries operating in South Africa that had committed to taking active steps to combat climate change. The companies specific to this population participated in sustainability and climate change commitments. The participants for the sample were identified through company internet searches and contacted via e-mail and LinkedIn. In addition, the participants were identified and contacted through the researcher's network.

4.8 Unit of Analysis

The analysis was conducted on an organisational level, focusing on the management approaches of the individual companies as the unit of analysis. This enabled the study to be centred on the role of strategic foresight in how the different companies addressed uncertainty and adopted and implemented climate change commitments. Additionally, this helped facilitate and build an understanding of how companies perceived climate change and how they made sense of it through the experience of their employees, such as sustainability managers or other relevant senior management roles that engaged with climate change.

The analysis also explored the role of strategic foresight in the adoption and implementation processes, including its impact on the organisation's competitive advantage in the context of climate change.
Furthermore, the unit of analysis assisted in collecting data from different companies across different industries to develop insights into their climate change commitment actions and the outcomes of such actions.

4.9 Sampling Method and Sample Size

According to Saunders and Lewis (2018, p. 145), purposeful sampling entails a researcher using their judgment to select the most suitable participants to assist in answering the research questions.
Therefore, the study adopted a non-probability purposive sampling technique to sample both companies and participants.

The study used the "homogeneous" variety method of purposive sampling to select companies from various industries of the particular sub-group, namely those that have committed to climate change action (Saunders & Lewis, 2018, p.146). Even though the sample shared the

attribute of their commitment to climate change, the researcher noted that the sample was not fully homogeneous due to the companies being from different industries.

The selection of companies was crucial, as specific criteria were needed to address the research questions and grasp a comprehensive understanding of climate change commitment.
As such, the parameters used for selecting these companies considered their support for UN SDG 13, their actions to reduce carbon emissions, their engagement in active emission reporting, and their sustainability or climate change reporting. This information was obtained from secondary data, gathered from their websites and annual integrated reports, with the results shown in Chapter 5.

Furthermore, the purposeful sampling technique allowed for carefully selecting qualified company individuals who participated in decision-making, developing or executing the strategy regarding climate change actions and commitments. This selection helped with reliable and insightful information across the different industries. Therefore, these individuals assisted by sharing their experiences, which provided qualitative data for the study.

Data saturation is an important concept in qualitative research (Saunders et al., 2018; Saunders & Lewis, 2018, p.165). It occurs when the collection of additional data yields discontinuing data, leading to few or no new understandings to the research question (Saunders et al., 2018; Saunders & Lewis, 2018, p.165). According to scholars, it is pertinent and cornerstone to determining purposeful sample sizes (Hennink & Kaiser, 2022; Saunders et al., 2018).

Saunders and Lewis (2018, p.165), suggest that the sample size for a homogeneous population typically ranges between 4 and 12 participants, while the sample size for a heterogeneous sample ranges from 12 and 30 participants. Furthermore, Hennink and Kaiser (2022) conducted research into the size of samples required to reach saturation in qualitative research. The scholars found that across many different studies comprising of homogeneous and heterogeneous study populations, the sample size of an average of 12-13 interviews achieved saturation.

Table 1 summarises the sample, highlighting the various industries in which each company operates within South Africa and the participant's role within the company. The sample size consisted of 12 participants.

Table 1: Sample summary and industry cross-representation

	Company Industry	Number of companies	Role of participant in the company
1	Tourism and Hospitality	2	General Manager; Regional Manager
2	Telecommunication	1	Senior Sustainability Manager
3	Banking and Financial services	2	Executive ESG; Executive Corporate Real Estate
4	Beverage manufacturer	1	Chief Executive Officer
5	Insurance	1	Executive
6	Investment Group	1	Chief Executive Officer
7	Mining	1	Director
8	Manufacturing	1	Senior Manager
9	Policymaker expert	1	Senior Manager
10	Chemical Industry	1	Senior Climate Change Specialist
	Total	12	

4.10 Measurement Instrument

The measuring instrument used was an interview guide to facilitate the semi-structured interviews. The interview guide was developed based on insights obtained from existing literature that used questionnaire surveys, ensuring that the research questions presented in Chapter 3 were effectively addressed. Appendix C shows a consistency matrix, which was used to align the interview questions from the guide with the research questions.

A pilot test was performed before the interviews with the population sample were conducted. However, after the first two interviews, the interview questions and process provided more insights into improving the delivery of the interview and the interaction with the participant.

Agee (2019) emphasises that while good research questions may not guarantee successful research, poorly constructed questions pose significant challenges in other areas of the study. Creswell (2013) describes qualitative research questions as “open-ended, evolving and non-directional.” These questions help clarify the purpose of the research in a more detailed manner, starting with what, why or how to facilitate the exploration of the research problem or phenomenon (Creswell, 2013). The interview guide, which includes the list of interview questions, can be found in Appendix D. It was noteworthy that Creswell (2013) indicated that

as the research progresses, the research questions may evolve into new ones, which occurred in this research.

4.11 Data Collection/Gathering Process

The study gathered primary data by conducting semi-structured, in-depth interviews with executives, department heads, strategists, and senior management from companies that were involved in setting or executing climate change policies, processes, targets, and strategies. This process was appropriate for the exploratory qualitative research (Saunders & Lewis, 2018).

The participants from the sample population preferred virtual meetings conducted on Microsoft Teams. Each meeting was recorded after the interviewee had given consent during the interview.

The semi-structured interview process allowed for a combination of specific questions from an interview guide to lead the discussion while also providing flexibility to explore important insights generated from the participant's knowledge and understanding, which might not have been captured through a structured interview.

It was also appropriate as the researcher also probed the outcome of the organisation's climate change commitment, which was sensitive information. The researcher also probed the participants, when they mentioned something that sparked further inquiry. The researcher encouraged the interviewee to be at ease and respond in open dialog so the researcher could record deep insights that would help the exploratory study.

4.12 Data Analysis, Interpretation Approach and Storage

The data obtained from the recorded videos and interview transcripts was analysed using an inductive thematic analysis approach.

According to scholars, the thematic analysis approach comprises six general steps or phases of analysis, and they emphasise that the process is iterative in order to build structure from the unstructured qualitative data as illustrated in Table 2 (Braun & Clarke, 2006; Braun & Clarke, 2021; Naeem et al., 2023; Nowell et al., 2017).

Table 2: Phases of thematic analysis (Source: Braun & Clarke, 2006)

Phase	Description of the process
1	Becoming familiar with the data
2	Developing initial/open codes
3	Identifying themes/selective codes
4	Reviewing themes/selective codes
5	Establishing the names of themes/selective codes
6	Completing the report

The researcher followed the steps detailed in Table 2.
The data from the interview transcripts was analysed and cleaned to remove errors from the recorded transcripts. Thereafter, it was refined before the codes were developed to capture and fit the data (Locke et al., 2022).

The coding process ensured that the codes were mutually exclusive and exhaustive. The researcher created rules to match the data to the relevant code that ensured consistency. Locke et al. (2022) advised that the codes can be developed by referring to literature together with the data. However, Braun & Clarke, (2006) argue that a more inductive approach would be achieved by not engaging with literature in the early stages of analysis. During the initial stages of the analysis, the literature was not engaged when generating the open codes.
Because the research followed an inductive approach, the categorical themes were generated from the qualitative interview data (Saunders & Lewis, 2018).

The codes consisted of short phrases that captured important data attributes. These were analysed to identify patterns and similar characteristics to build code categories or code groups. The analysis then connected the code categories to establish themes, where the relationship between each theme was determined to conceptualise the experience.

The researcher used ATLAS.ti software to assist in analysing the data and derive the themes, including connecting the themes to determine their relationship to answer the research questions. A detailed approach to the data analysis is provided in Chapter 5

The data was stored on a Google Cloud drive and a personal hard drive which ensured it would be available upon request.

4.13 Quality Control (Validity, reliability and bias)

Data validity, reliability, and bias removal are essential quality control factors of the research. These ensure that the data collection is precise in measuring what is needed and that the data gathering and analysis techniques are consistent (Saunders & Lewis, 2018).

Purposive sampling met the data validity requirements. The corporations that were selected to be interviewed met the population sample requirements, which ensured the quality of the measurements obtained from the data. This helped remove sampling bias
As companies from different industries meet the criteria, the findings are more transferable and can be applied to other industries and organisations.

The interview questions, the formed the measurement instrument, were piloted with the researcher's MBA colleagues to help determine if the questions were understandable. The researcher also asked for feedback to ensure that there were no leading questions used when the questions were asked and no excessive explanations were provided.

During the interview, a recording of the online meeting was done to ensure standardisation of supporting accuracy of the qualitative data.
Literature was consulted to guide the researcher with the correct methodology was used when interpreting the data.

4.14 Limitation of the Research Method

There were a number of limitations identified during the study. It is important to highlight these to strive for transparency and credibility of the study.

4.14.1 Bias introduced by the researcher

The researcher began as a novice, lacking training in conducting interviews. However, as more interviews proceeded, the researcher improved their approach and became more comfortable interacting with interviewees. This increased familiarity allowed the researcher to prompt more effectively during the following interviews. Consequently, this improvement could influence the data collection from the initial interviews conducted in the study.

The data analysis could also be affected by the researcher's biases based on their experience and worldview of climate change.

4.14.2 The size of the sample and level of maturity

Even though the sample population comprised of organisations committed to climate change, reflecting homogeneity, the organisations were from different industries. Therefore, the sample was not fully homogenous and therefore a sample size of 12 was a limitation as a larger sample size would be appropriate for a heterogeneous sample.

Furthermore, during the interviews, it was evident that organisations were at different levels of maturity in their journey regarding their commitment to climate change. This would also indicate that the sample was not fully homogenous, and a larger sample size would be appropriate.

The participants' positions were important for this study as the topic was in the field of strategy. The positions of the participants varied from CEOs to senior managers. However, this concern was mitigated by ensuring that the participants were not below senior management level.

4.14.3 Limited availability of time among participants

A limitation encountered during the interviews was the availability of the participants. Although the expected duration of the interview had been communicated in advance, some participants urged the researcher to conclude the interview sooner than planned. This urgency influenced the depth of the interviews and, consequently, the richness of insights gathered from certain participants.

Chapter 5: Findings/Results

5.1 Introduction

There are limited studies examining the role of strategic foresight in the developing world as they adopt climate change commitments and develop competitive advantages. This research study aimed to provide insights into the role of strategic foresight in corporations adopting climate change action and the role of developing a competitive advantage. This study employed a qualitative, exploratory approach to address the three research questions outlined in Chapter 3.

The first research question was, “What is the role of strategic foresight in overcoming uncertainty to adopt a corporate commitment to climate change?” The second research question was, “What is the role of strategic foresight in sensing and identifying opportunities and risks of climate change? The third research question was**,** “How does adopting a corporate commitment to climate change action by practising strategic foresight build a competitive advantage?”

This chapter describes the sample and the analysis process of the qualitative data generated from 12 semi-structured interviews with participants from companies that have committed to climate change action. It also presents the coding and key themes identified from the analysis process, centred on the three research questions found in Chapter 3.

5.2 Sample Description

The research study involved the participation of 12 participants from companies committed to taking action on climate change. These participants represented various industries in South Africa. The selected companies were appropriate for the study because they met one or more of the selection criteria as shown in Table 3. The criteria comprised of sustainability or climate change reporting, emission scope reporting, supported the UN SDG 13 goal, and had targets for reducing their carbon emissions.

Table 3: Validation of companies meeting the sampling criteria

	Identifier code	Company Industry	Sustainability/ Climate Reporting	Emission reporting	Support of the UN SDG 13 goal	Targets for reducing emissions	Secondary Data Source
1	O1	Tourism and Hospitality	X	X	X	X	Website
2	O2		X	-	X	-	Website and 2023 Impact Report
3	O3	Telecommunication	X	X	X	X	2023 Sustainability Report
4	O4	Beverage manufacturer*	X	X	X	X	Media report
5	O5	Banking and Financial services	X	-	X	X	Website, 2022 Climate Policy and 2023 Sustainability Report
6	O6		X	X	X	X	2023 Climate Report
7	O7	Insurance	X	X	X	X	2023 Climate Report
8	O8	Investment Group	-	X	X	X	Website and media report
9	O9	Mining	-	-	X	-	Media report
10	O10	Manufacturing	-	-	X	X	Company report
11	O11	Policymaker expert	-	-	X	X	Website and Annual Review Report
12	O12	Chemical Industry	X	X	X	X	Website

X = met criteria

- = Did not meet criteria

Table 4 illustrates the participants' industries and the roles they held within their companies. The participants' roles were crucial to the study, as their perception of the company was a focus point of the narrative strategy used in the research study. Consequently, positions related to the development, implementation, or execution of strategies were particularly relevant for this study.

The selected participants selected for the study were appropriate for the study, as they held positions such as chief operating officers (CEO), directors, executives, and senior managers. Therefore, the participants had extensive knowledge of the company's strategy and the context of climate change in their industry. Even in cases where senior managers did not directly develop the strategy, their roles were essential for the implementation and execution of the organisation's strategy. This approach also facilitated the gathering of diverse perspectives from senior-level managers around the research constructs.

Additionally, the study included a climate change policymaker in the sample to enhance the richness of the data from another relevant stakeholder viewpoint. The policymaker plays a crucial role in engaging with industry stakeholders to promote sustainability and competitiveness, which is key for the South African economy.

The study anonymised the identities of participants and their companies using unique identifier codes for ease of reference within the research analysis.

Table 4: Research study participant and interview length information

	Identifier code	Organisation Industry	Number of companies	Position of participant in the organisation	Interview Length (minutes)	Pages of Transcripts
1	Participant 1	Tourism and Hospitality	2	General Manager	33	16
2	Participant 2			Regional Manager	33	13
3	Participant 3	Telecommunication	1	Senior Sustainability Manager	47	19
4	Participant 4	Beverage manufacturer	1	Chief Executive Officer	58	18
5	Participant 5	Banking and Financial services	2	Executive ESG	26	9
6	Participant 6			Executive Corporate Real Estate	25	14
7	Participant 7	Insurance	1	Executive	39	10
8	Participant 8	Investment Group	1	Chief Executive Officer	25	9
9	Participant 9	Mining	1	Director	30	15
10	Participant 10	Manufacturing	1	Senior Manager	50	16
11	Participant 11	Policymaker expert	1	Senior Manager	29	12
12	Participant 12	Chemical Industry	1	Senior Climate Change Specialist	50	16
			12	**Total**	**445 minutes (7 hours, 42 minutes)**	**167 pages**

5.3 Data Saturation

The researcher documented the amount of new codes emerging after every interview. Figure 2 provides a summary of the results of this process. The graph shows a considerable decline in the number of new codes after the sixth interview. Notably, approximately 90 percent of the codes were generated from the first eight interviews.

Interview 11, conducted with a policymaker (participant 11), resulted in a slight increase in the number of new codes generated. During interview 12, seven new codes were generated, reflecting only a few number new insights. Therefore, based on the decline rate of new codes generated, together with considering that 90 percent of the codes generated after the eighth interview, it can be concluded that coding saturation was achieved.

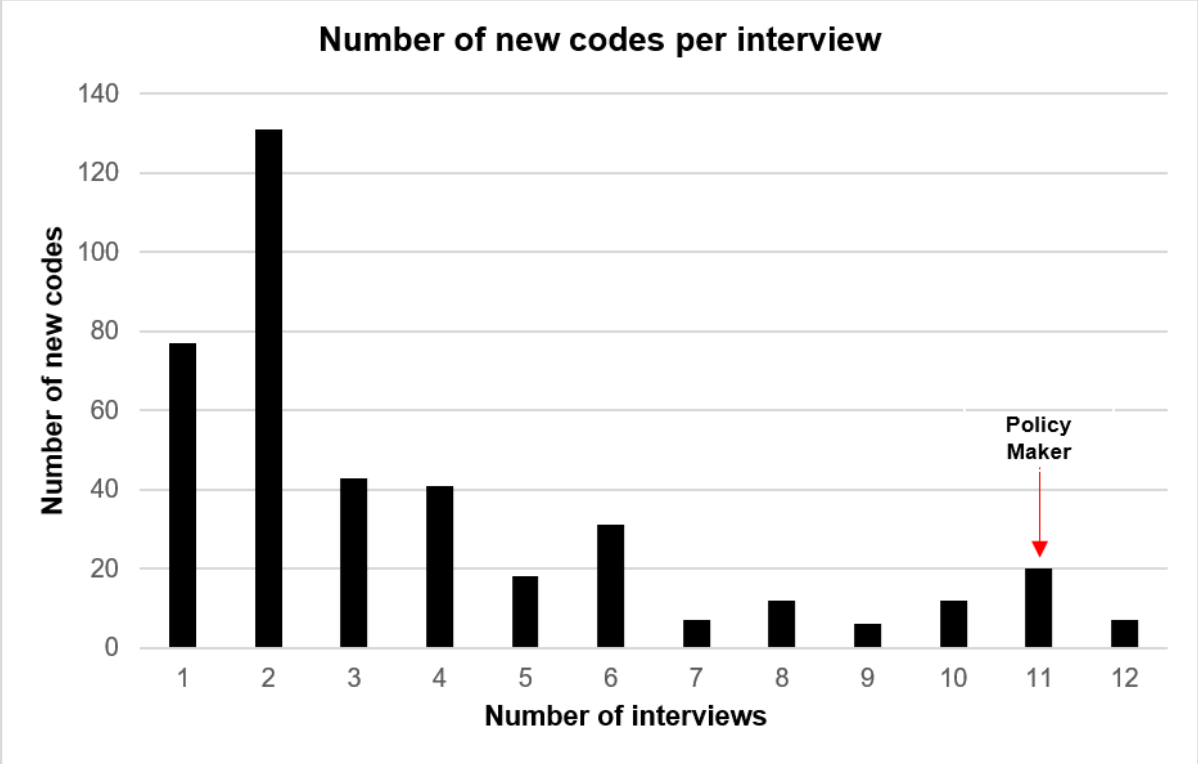


Figure 2: Number of new codes per interview

5.4 Data analysis

The study used an inductive thematic analysis approach to analyse the qualitative data. This approach was appropriate for this exploratory study because it helped identify patterns within the data set. The following section describes the steps used to analyse the interview data, aligning with section 12 in Chapter 4.

5.4.1 Familiarisation of the data

The researcher used Microsoft Teams as an online platform to conduct the interviews with each participant and thereby collect qualitative data. With the permission of each participant, the interviews were recorded, producing video content and transcripts. However, the transcripts generated from Microsoft Teams were of poor quality, which negatively impacted the overall data quality. To address this issue, the recorded videos were used to create accurate, credible and trustworthy transcripts through Otter.ai, ensuring accurately reflected the verbatim accounts of each participant.

The researcher carefully read each transcript to perform a quality check and "cleaned" the data, reviewing the content to identify errors. Additionally, the researcher reviewed the video content for accuracy and made corrections to the transcripts as needed. This step was crucial for the overall analysis, as it facilitated the data preparation and helped the researcher in becoming familiar with the interview data before beginning the coding process.

5.4.2 Generating Initial Codes

After becoming familiar with the data by reading and performing a quality check, the coding process followed. The researcher uploaded each of the 12 interviews in the Atlas.ti software program to facilitate and capture the analysis of each transcript. The researcher generated an initial set of open codes systematically by carefully examining and giving attention to reading each line of the participants' responses to determine keywords and the meaning behind the response.

Each code captured and identified significant features associated with the research constructs in the data set from each interview. This was done by tagging the code against the relevant section of the text, which included words, short phrases or a paragraph.

The coding process followed an inductive and data-driven approach. The objective was to code for as many potential patterns as possible, ensuring there were sufficient codes to discern interesting themes in the next stage of the analysis. Additional texts around the codes were included to preserve the context of what the participant was communicating. Following

the coding process, there were 405 unique open codes generated with 529 quotations from the inductive bottom-up approach.

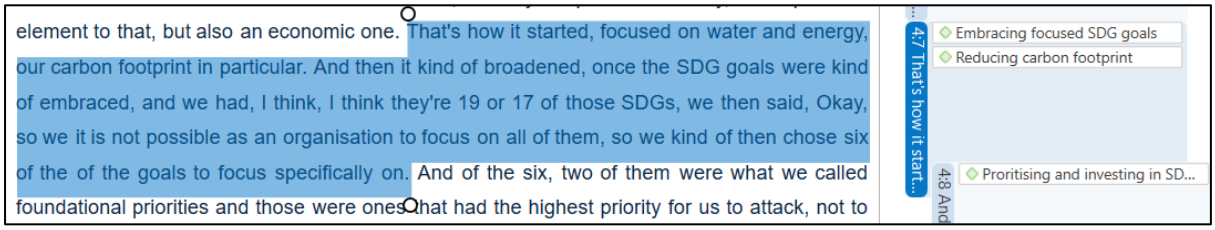


Figure 3: An illustration of the coding process in Atlas.ti

5.4.3 Search and generating themes (selective codes)

After coding all the interview transcripts in Atlas.ti, the next step in the analysis process involved grouping the open codes from the different interview data sets into meaningful and organised axial coding or categories of codes, to generate potential themes.

This process involved exporting the open codes into an Excel document, which made it easier to group the open codes into axial codes. By using tables and interpretive analysis, potential themes were generated. The approach taken involved analysing the codes and interpreting how they could be combined to form themes linked to the research question. The output of the open codes, axial codes and selective codes (themes) is in Appendix F.

The researcher found that the themes linked a considerable number of codes, bringing together components and helping provide structure to the data set.

5.4.4 Developing and reviewing themes

The next step in the analysis involved reviewing the list of the generated themes. The researcher used thematic maps to help make sense of and explore the connections between the generated themes, leading to reviewing and refining the list of themes.

The researcher carefully assessed the codes within each theme to ensure each code fit into a coherent pattern of the theme, contributing to the overall meaning of the theme. This reflective process asked whether there was any issues with the theme or its fit with data when combining the codes the codes.

Once the research was satisfied with the resulting thematic map, the next phase of the analysis began.

5.4.5 Refining and defining the themes

After completing the thematic maps, the process involved defining the names of the developed themes and explaining the meaning and story that each theme captured with regard to the research questions. The researcher recorded interesting attributes of each theme together with the reasoning behind the thought process for each theme. The next phase involved writing up the findings from the research analysis.

5.5 Themes generated from the analysis

The coding process produced 405 codes with 529 quotations. The codes were grouped into 15 axial codes (sub-themes), which formed three selective codes (themes), as shown in Table 5.

Table 5: Axial and selective codes for the three research questions

Research Questions	Axial codes/Second-order themes	Selective codes/ Aggregated Themes
Research Question 1: What is the role of strategic foresight in overcoming uncertainty to adopt a corporate commitment to climate change?	Axial code 1.1: Commitment to Climate Change Axial code 1.2: Leadership's System Thinking to Climate Change Axial code 1.3: Strategic Business Action and Adaptation to Climate Change Axial code 1.4: Managing Uncertainty Axial code 1.5: Stakeholder Engagement and Corporate Responsibility	Strategic Foresight in Adapting to Climate Change Uncertainty
Research Question 2: What is the role of strategic foresight in sensing and identifying opportunities and risks of climate change?	Axial code 2.1: Climate Change Scenario Risk Assessments Axial code 2.2: Sensing by Leveraging Data, Monitoring and Anticipating Risk Axial code 2.3: Opportunities: Resource Efficiency and Sustainability Investments Axial code 2.4: Information Gathering and Collaboration for Climate Action Axial code 2.5: Financial and Economic Implications of Climate Change Axial code 2.6: Strategic Foresight methods	Sensing climate change risks and opportunities through strategic foresight methods
Research Question 3: How does adopting a corporate commitment to climate change action by practising strategic foresight build a competitive advantage?	Axial code 3.1: Organisation Recognition as a Competitive Advantage Axial code 3.2: Resource Efficiency and Economic Benefit Axial code 3.3: Long-term Sustainability as a Competitive Strategy Axial code 3.4: Capabilities Built from Strategic Foresight	Competitive advantage through climate change commitment and strategic foresight capabilities

The presentation of the findings derived from the research analysis is centred on the research question presented in Chapter 3 and the semi-structured interview guide shown in Appendix D.

5.5.1 Results for Research Question 1

The first research question in the study was, “What is the role of strategic foresight in overcoming uncertainty to adopt a corporate commitment to climate change?”

During the interviews, participants were asked how their companies had committed to climate change action and to elaborate on their company’s climate change strategy and targets. They were also asked if they had experienced uncertainty regarding climate change and how their companies had helped them address the uncertainty.

The responses from the participants contributed to the development of theme one, “strategic foresight in adapting to climate change uncertainty”, as illustrated in Figure 4.

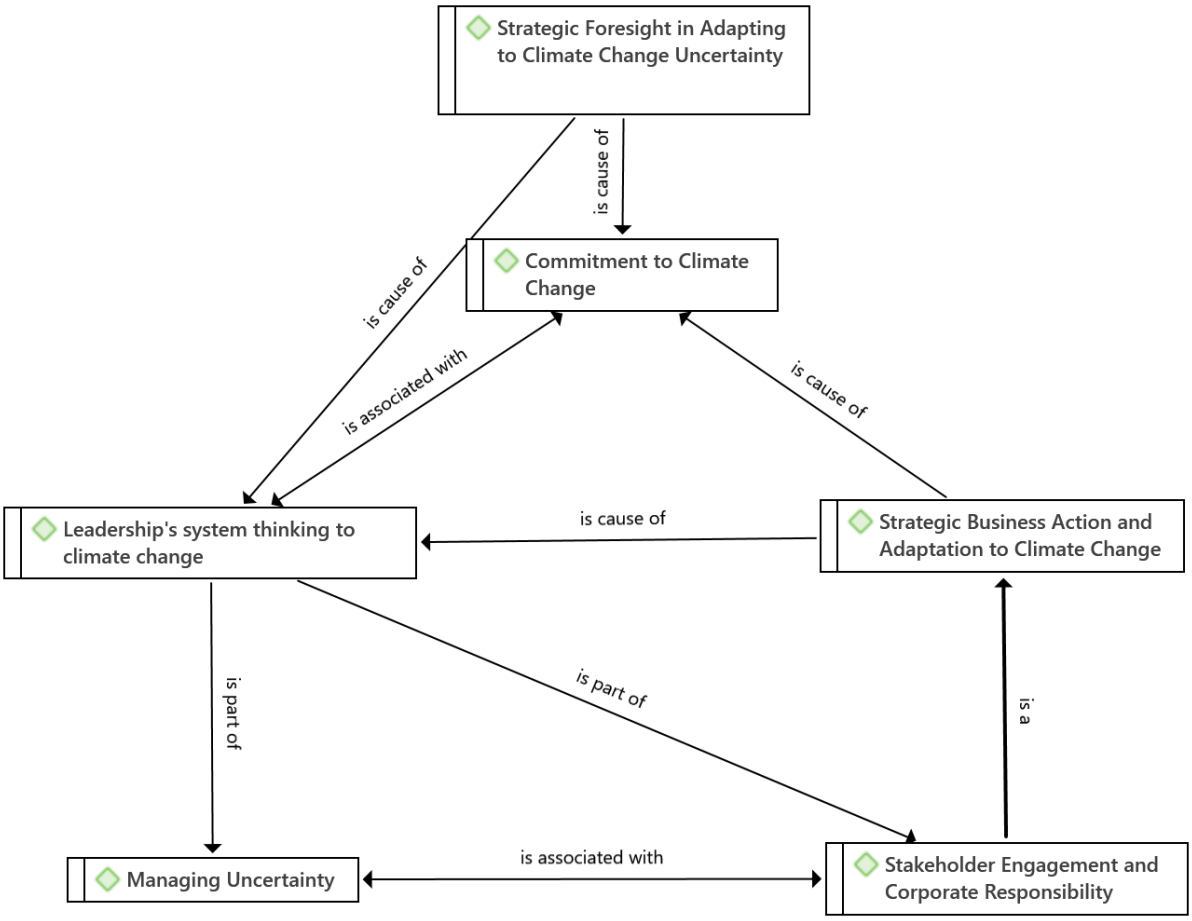


Figure 4: Thematic map of the role of strategic foresight in adapting to climate change uncertainty

Understanding each company's commitments, strategy and targets, including how they addressed uncertainty, provided insights into the role of strategic foresight in adopting climate change action and addressing uncertainty.

The following section describes each of the generated second-order themes, supported by evidence extracted from the qualitative data.

5.5.1.1 Commitment to Climate Change

According to the research question, it was crucial to understand how the participants viewed their organisation's commitment to climate change across the different industries. The researcher noted that this was an important reference point of the study, and hence, the definition, understanding and consolidation of commitments to climate change from the participants was essential.

The majority of the participants described it as their commitment to decarbonise within their operations and reach net carbon zero by 2050 or sooner.

> "We saw our footprint increasing, and then we said, we need to do something about it. So in that, a bold decision was made to commit to net zero, in line with well, our sector has a commitment for 2050 to hit net zero, and our organization made the decision to be even more ambitious and hit net zero by 2040." **(Participant 3)**

> "We've committed to climate change, and we're committed to the sort of net zero by 2050, yes, as an organisation. So that's definitely something that we want to strive towards." **(Participant 6)**

> "The point is that, that's a focus area where we feel we can make a positive contribution. And our approach is where we can, we should, and the reason we should as business is because these problems are coming at us very fast, and we're very significant players in these markets. We've got assets, we've got capability, we've got leadership resources, we've got influence, we've got value chains. They're not a lot of actors with that kind of influence and the problem is, is that if we don't act, and if we don't step up, who is going to like we can all just sit in the tragedy of the commons, or we can act, **and our choice is to act**" **(Participant 8)**

> “So from us establishing where we are, we are then able to say, where do we need to get to, for us to get to, for us to reach the goals that we have, for instance, net zero.” **(Participant 11)**

Two of the participants described their commitment as making their environment better and as the right thing to do.

> “It's really just about making sure that we are doing what we can do to make where we are a better place.” **(Participant 1)**

> “We do what we do is because it is business based practice, because it makes strategic sense to consider things like climate change and the impact and the impact that that this is all having, and it's the right thing to do.” **(Participant 2)**

While many see it as making a positive contribution, one participant indicated it as an industry requirement.

> “Of course, a requirement for corporates that are operating in this energy is to comply with the 2050 or to have a plan or a strategy for 2050. Net Zero targets, which is a Paris target, as you know so, and those are, I would say, a requirement when in this industry, operating in an energy industry.” **(Participant 10)**

This means that organisations’ commitment involves making a deliberate choice to act and contribute positively to addressing climate change. This involves changing existing practices and setting longer-term goals to decarbonise their operations and reduce their impact on the environment.

5.5.1.2 Leadership's system thinking to climate change

Leadership drives commitment to climate change action. The participants’ responses revealed a leadership approach of system thinking, considering the ecosystem in which they operate, as well as foresight through aspirational goals were evident from the responses. The participants defined leadership as recognising the impact on society, the fact that business does not exist in isolation, and hence the bigger role that the organisation needs to play in climate action.

“Climate change is quite a narrow perspective, so it's an element of the greater **environmental poly risk environment** that the world is facing, yes, and climate change is one of that, whether you believe, because of that, the things that stem or that are running in conjunction to that. So biodiversity loss, nature loss. You know, the critical areas of biodiversity that we have are remaining, are under threat, and so that is in conjunction with climate change. So we often, mainly are concerned about but it's a different layer or and part of climate change. So there's a conservation element or layer to climate change.” **(Participant 2)**

“Yes, climate is important, but really look the way I was trained, we don't pull out climate the way I've seen it pulled out now in this Telco space, we always approach it in a very holistic space. So we look at climate, we look at what. We look at waste. So that's where we always speak about environmental management and not so much climate change. You'd speak about an environmental management system, and then you'd say, in terms of our high-rated aspects, or most material activity, it's climate impacts” **(Participant 3)**

“So they're all kind of fitted into the broader, I suppose, aspiration of recognising that we don't exist in isolation to others that use other resources on the planet, and that our role in society being a sensitive one, we needed to go a lot further than just kind of express a desire to play a responsible role in society. We actually needed to set pretty stringent aspirations, or define aspirations, and then set targets and then measure and allocate money, people, and resources to achieving those targets.” **(Participant 4)**

“So we know that you know, our businesses need to succeed in one in a world where climate change is a reality and two themselves be positive actors. It's very important to us that our businesses act in a positive way and act and make their contribution to addressing the climate crisis.” **(Participant 8)**

“The world today is not what it was few 10s of years ago, and it's a call upon each organisation to be responsible enough in his practices, in his business models to make sure that like effects of climate change, like your global warming, do not come and impact people” **(Participant 9)**

> “I guess our vision is obviously a net zero for South Africa, yes, uh, encompassing of all sectors” **(Participant 11)**

> “Our board has oversight of climate change management, and we understand their role in terms of really managing climate change. So it's very important that you know, our CEO and the GEC have that oversight when it comes to the climate change, and this framework allow us in terms of how should they actually do that?” **(Participant 12)**

The capability of leaders to think holistically and consider the broader impact of the business, along with their role in fostering positive change, is a common theme evident from the participant’s responses. This theme is associated with commitment to climate change.

5.5.1.3 Strategic Business Action and Adaptation to Climate Change

Through commitment and the holistic thinking approach by leadership, the business has been able to build the capabilities necessary to adapt to climate action. Setting aspiration targets and initiatives requires the company to adapt and reorient itself for effective action. Participants discussed business adaptation by developing standard operating procedures, establishing sustainability teams, promoting accountability, implementing governance structures, and aligning across their value chains

> “We have a philosophy, Net Zero philosophy. We have SOP, standard operating procedures. We have governance, we have emission specialists, supporting the teams the OPCOs in their in their specific areas. Then, we have an internal audit.” **(Participant 3)**

> “I will also say that that team that was account or entrusted with the accountability had to work through the broader actors in our organisation, through the whole. Value chain, yes, and they were mandated to, in fact, ensure that all of our activities actually firstly met with our aspirations or aligned to our aspirations, and then those functions in the organisation in the value chain add to in turn, commit to the same targets, allocate resources, etc., and define and drive initiatives to reduce a carbon footprint on society, reduce the amount of energy and fossil fuels that we were using and also reduce our water consumption.” **(Participant 4)**

> “I think it's largely around planning and scenario planning and then setting targets for ourselves. And the targets are not just like net zero targets, they would be targets around initiatives. So we want to increase water resilience by X percentage, and that means, you know, having backup water supplies across our campuses as an example, we would have wanted to baseline our waste to landfill measures.” **(Participant 5)**

> “As much as it was a tough call to make changing our resources and our business models, it had to, first of all, dawn upon us to say, Guys, this makes sense. How do we then pivot towards contributing to reducing carbon emissions? So I think the long and short of it, it made sense by saying it is happening now, let's make change. It may not be immediate or imminent, but it had to be gradual towards getting into these places that we are not known for in the past.” **(Participant 9)**

One participant emphasised the need for adaptation by referring to the need for an organisation to transform.

> “Instead, we just try to do things that will minimise the risk or mitigate the risk, but now we need to actually transform the business. So transforming the business will need us to put a different head of opportunities. What are opportunities out there for us that needs to actually come into like, you know, the strategy and also this task force framework, it actually have, like, you know, the risk management like it helps us to really have processes in place that will enable us to identify, assess and manage some of this risk.” **(Participant 12)**

Taking action to climate change comes are a result of commitment through the choice to act and leadership recognising its impact on the ecosystem in which it operates. In order to prepare and meet the organisation’s aspiration long-term targets, the business needs to build capabilities to adapt for climate change action.

5.5.1.4 Managing Uncertainty

Understanding the uncertainty that organisations face in relation to climate was an important construct to explore. Participants described various types of uncertainty, particularly in quantifying the magnitude, pervasive and volatility of climate change impacts. One participant acknowledged that climate change could create a new normal for business and affect the security of their supply chains. One participant specifically highlighted the uncertainties associated with transitioning to climate change action.

> “The biggest uncertainty was more a sort of an academic one on so just how big a problem is this, how pervasive and how volatile is the impact of climate change on the economic fortunes and the social fortunes of the business sector that we operated in, and, of course, the communities that we were serving.” **(Participant 4)**

> “So uncertainties is a, is an understatement, um, we are mitigating the risks where we can. Because, importantly, we have to be like I said. We have to keep our solvency ratios where they are, yes, that we remain solvent, in order to pay claims, in order for customers to be covered and the entire sector to remain sustainable. You know, when I say sector, I'm not just talking insurance. I'm talking about the supply chain that sits within it too” **(Participant 6)**

> “So we try to make sense in terms of the impact of the business that we are under, which is the production of electricity in a fossil fuel environment, and to say, how do we then transition? How do we then develop those technologies, considering that the future of energy is not in this current business, more especially when you look at the portfolio in South Africa, in South Africa, where we are mainly producing more than 80% of electricity via the fossil fuel, via coal” **(Participant 10)**

> “the sort of messiness of a change cycle, you know, and these kinds of big tectonic shifts are not a straight line, and they're quite messy, and it requires new strategic and muscles in the business. It requires new leadership capabilities to navigate that kind of uncertainty and to navigate with complex trade-offs that they haven't historically had to navigate. So I'm putting the uncertainty question in three buckets. There's the actuarial uncertainty or certainty about how much impact and whether risk is going to be underwritable. Yes, there's, there's uncertainty related to security of supply of goods and services. There's uncertainty, as in a new a new normal for business about having

to navigate complex, short, medium and long-term trade-offs in a different way" **(Participant 8)**

Uncertainty posed challenges for some participants, one of whom note that the unpredictable time horizon of climate change impacts makes it difficult to manage climate change within their organisation.

> "I think the challenge is sometimes, especially for climate and environment, it doesn't always, it's not an immediate impact. So whereas with safety or, you know, or a human's rights issue. It's very much immediate. Somebody's life is in danger now, as opposed to climate, where you may have a very bad rainfall event in two years' time. So I think it's that time horizon that makes it a bit challenging when it comes to climate management in an organisation." **(Participant 3)**

Two participants were concerned and highlighted their uncertainty around the required climate change technology. Secondly, there was uncertainty about whether this technology could be affordable to help organisations in South Africa transition.

> "we have R and D, which is working on breakthrough technologies. And some of the breakthrough technologies, you know, we even though we can estimate, but we're not sure if we are going to be able to develop a technology that will be cost-effective, you know, which is very, very important, because if you develop a technology, it has to be cost-effective." **(Participant 10)**

> "I think one of the uncertainties we did get to the technology that you know is going to take time for us. We are considered like a hard to abate industry and to scale up the technology is going to take a huge capital" **(Participant 12)**

However, participants highlighted various approaches in which their companies used to manage uncertainty. Majority of the participants highlighted the use of foresight methods such scenario planning to model and project future risk. This information helped their organisations set targets effectively.

> "So look on the uncertainty. What we did last year was a risk assessment, a physical risk assessment. So we've done risk assessments in terms of physical risks and

transitional risks. So we're trying to look at it over different timelines and over different energies" **(Participant 3)**

"We do lots of scenario planning, and then we have continued discussions and set our targets accordingly, based on our planning. We then set targets for ourselves, and then we measure ourselves against those targets." **(Participant 5)**

"So we work with a lot of sectors, but a lot of what we do, yes, is sort of like scenario modelling on what is the best situation for us, what are the outcomes if we, we, if, if we continue like with business as usual, obviously, like our base case, which is untenable for anyone. And I think a lot of what we've seen obviously, is the effects of like business as usual is now, is the effect on our economic growth, right? So we do modelling on. On Yes, the climate risk." **(Participant 11)**

"So the planning also comes it's it is pretty it is scenario, it is scenario planning, but it's using those tools that we work with to think about and develop actionable targets for businesses to implement." **(Participant 2)**

"The physical climate risks that already are locked in in terms of climate and then what the models and the projections are saying in terms of the expected or the future risk that we are facing. So now, taking those models and different scenarios is to say, as an organisation, are we resilient? Is our supply chain resilient? What are we doing? Where can we actually build resiliency?" **(Participant 12)**

One participant highlighted the role of the culture of monitoring and evaluation.

"So the best way to counter any uncertainty is monitoring and evaluation. Strong, a strong, strong cultures of monitoring and evaluation, I would say, and planning and strong planning cultures, yeah, training and education." **(Participant 2)**

While one participant emphasised the importance of reinforcing climate change within the organisation's purpose, strategic agenda and business routines with embeds the commitment into culture.

"So the more you kind of reinforce and embed those in the purpose of your organisation and in your senior management discussions, and the more effort you put into making that part of your kind of strategic agenda, but also your monthly management routines,

the more it becomes a way of life or life as if you'd be selling and marketing to your consumers" **(Participant 4)**

Uncertainty is an inherent aspect of climate change, particularly concerning its impacts, time horizons and the uncertainty of transition to decarbonisation. However, the participants mention approaches to managing this uncertainty, focusing on foresight methods such as scenario planning, investing in research, and integrating climate change action into the organisational culture. This theme is a part of the leadership's system thinking to climate change theme.

5.5.1.5: Stakeholder Engagement and Corporate Responsibility

The theme of stakeholder engagement and corporate responsibility is related to two key themes. It is a part of the leadership's system thinking to climate change, as well as managing uncertainty theme as illustrated in Figure 4.

Majority of the participants described the importance, responsibility and value of engaging with stakeholders such as employees, communities, industry bodies and councils.
Two participants emphasised the need to involve and engage with employees. One participant described the CEO's role in working with their management team to ensure that climate change action as is considered as non-negotiable.

> "I think you start by making your top team and then your broader organisation, aware of your purpose as an organization and your broader role in society, in order for you to realize that purpose. And that's an all-encompassing kind of role that a CEO must play, that they have to actually clarify, keep communicating and stay the course on the organisation's purpose, its goals, initiatives and actions to realise that purpose of which sustainability, addressing major societal issues like poverty, yes, like responsible alcohol consumption and like climate change, are absolutely non-negotiable." **(Participant 4)**

The other participant described instilling an adaptation and resilient mindset with their employees to facilitate climate change adaptation.

> “Work with people on the ground to instil the adaptation mindset, and the resiliency mindset in terms of whatever capital projects are on the pipeline that think about those projects in a resilient way. Is there a resiliency within them towards the physical climate risks that are being projected in the future? So it's very important for us to adapt to these environmental changes. And then hence, like we have also some of the adaptation tools that can help us to really have adaptation strategy. We have an adaptation strategy, but now, with regard to really ensuring that we are resilient to these environmental changes, we need to put money aside to really ensure that we are resilient.” **(Participant 12)**

Engagement and interaction with external stakeholders was key to managing uncertainty, by enabling the exchange of climate change information.

> “But they the value is also in dealing with a community that thinks the same around the world and different problems occur at different places in the world, but sometimes quite similar. So we might have something in Costa Rica property that is dealing with something that is appropriate to South Africa, and that's where our value lies with the XXX, and the benefit of that, because you are encouraged by the community, the XXX community, and there's this exchange, it's like a two-way street, and it's not just okay.” **(Participant 1)**

> “So we work with the GSMA. The GSMA is, our industry body, and our industry body has what's called a climate task force, so we work very closely with them, and in terms of making sense of climate change, we also benchmark ourselves in the climate Task Force. We benchmark ourselves against our competitors to see where we're sitting. Does the does do our actions?” **(Participant 3)**

> “I think I mentioned that we've created an area that now focuses on research and development and what's going on in the industry. We are closely associated with the Greenbelt Council. In fact, my boss was the head of real estate for our group. He was the chair of the green board council at one stage. So we are closely associated with the green board Council. We target green or the green build practices and accreditations. So green star ratings, etc. And then we are closely associated with the

industry bodies like Sapoa, the South African Council, shopping centres, etc. And so we leverage off the work that they do." **(Participant 5)**

"We work a lot with, you know, the South African Reserve Bank for our climate risk modelling, we work with national treasury looking at, you know, climate impact on like the fiscals." **(Participant 11)**

"So in terms of the climate change, like we have actually participated with the DFFE is like your department of fishery, forestry and environment, where, for example, they are actually coordinators of the National Climate Change task teams in terms of what is happening nationally. So also our, our, our VP is part of, like, your presidential commission to the climate change the PPC." **(Participant 12)**

Stakeholder engagement and corporate responsibility are essential for managing uncertainty by actively involving employees. Furthermore, engaging with external stakeholders, such as industry bodies, local councils and communities, supports both the exchange of information and making sense of climate change. This approach also demonstrates corporate responsibility by helping others on the journey of climate change action.

5.5.2 Results for Research Question 2

The second research question was, “What is the role of strategic foresight in sensing and identifying opportunities and risks of climate change?” The participants were asked to describe the tools their organisations used for anticipating climate change impact on the business, the significant threats and opportunities they perceived climate change brings to their organisations and how their companies sense and analyse climate change risks and opportunities.

The participants’ responses contributed to the development of theme two, “sensing climate change risks and opportunities through strategic foresight methods.”

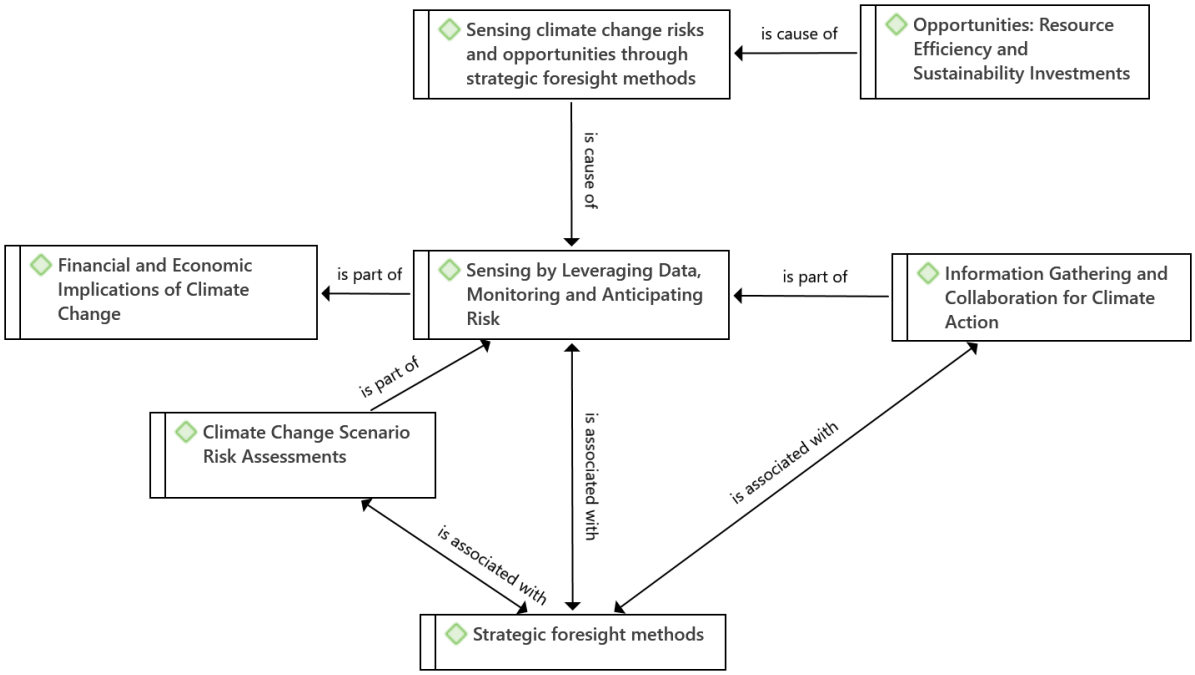


Figure 5: Thematic map of sensing climate change risks and opportunities through strategic foresight methods

5.5.2.1: Climate Change Scenario Risk Assessments

A salient aspect in identifying climate change risks based on the participants’ responses, involved conducting scenario risk assessments related to climate change. The risk assessments highlighted the impacts on the business and its assets by taking into account physical and social risks.

Various climate scenarios were used as a basis for these risk assessments, including scenarios that projected increasing temperatures and a business-as-usual approach, where

no action is taken. This process supported the company to assess its resilience to the potential future risk identified.

> “So we do it over different time horizons and climate scenarios, and we did it for different types of assets. And when I mean assets, I mean data centres, BTS, sites, warehouses and buildings. And then we also did it in different countries, so to try and limit that uncertainty. Certainty, we try and do risk assessments, and then to manage that.” **(Participant 3)**

> “We also had a risk committee, and that looked at the broader risk profile of various issues of which climate change ranks ranked very, very high.” **(Participant 4)**

> “Through our sustainability team, they run a number of scenarios for us, including working with our risk colleagues, on resilience planning and so through one looking at the impacts of climate change that we can understand from the research that has been done so El Nino and El Nina, for example, we would have done significant research on both phenomenon and how they would impact us on our real estate and that then drives our resilience planning.” **(Participant 5)**

> “Yeah, I mean, so we've got something called the environmental, social risk assessment tool that we've built, which really tries to develop a somewhat scientific way of trying to understand environmental and social risks in our credit environment. And that's really actually been very, very powerful in, you know, supporting, in supporting the overall ambition, but it's very focused around risk.” **(Participant 7)**

> “So we work with a lot of sectors, but a lot of what we do, yes, is sort of like scenario modelling on what is the best situation for us, what are the outcomes if we, we, if, if we continue like with business as usual, obviously, like our base case, which is untenable for anyone. And I think a lot of what we've seen obviously, is the effects of like business as usual is now, is the effect on our economic growth, right? So we do modelling on. On Yes, the climate risk.” **(Participant 11)**

> “So we have, like, a scenario planning team in the strategy and sustainability, and we have a risk team as well who do risk assessment to better understand these future outcomes. So we in we do these scenarios. So we look into the scenario of saying, if we do nothing now, what's going to happen, and if we invest in so much, for example, what's going to happen? But if we now align with the one 1.5 degrees of the Paris Agreement, what does that look like? Yes. So, in terms of those particular instruments and frameworks on scenario planning, it helps us to better understand what we can do as an organization.” **(Participant 12)**

One participant highlighted the risks associated with transitioning to a decarbonised economy that impacts the company’s assets.

> So climate, sorry, physical risks on the one side and then, and then transition risks on the other side, so the risk at which an asset is susceptible to change from a policy regulatory, changing customer and consumer preferences, even all of those, the risks to which a client or an asset is susceptible to, to those kinds of changes, from from from a climate slash, ESG perspective, **(Participant 7)**

The ability to identify climate change risks is pertinent to develop resilience to climate change. This process requires a future orientated approach that uses different scenarios to evaluate a company’s resilience based on its ability to mitigate both physical and social risks that may affect it. This theme is associated with the strategic foresight methods theme.

5.5.2.2: Sensing by Leveraging Data, Monitoring and Anticipating Risk

It was noted that the ability to monitor and leverage data is key in sensing and anticipating climate change risk. Participants highlighted the importance of leveraging data from climate change reports and public information to benchmark against the industry. They also discussed the need to identify best practices and track the frequency of climate change events using business-related metrics.

> “And then when we look into the details of what, and based on, of course, this is all from climate reports and public information, when we look at it, we say, oh, it's because our businesses have different approaches and different designs and how, how, maybe perhaps your BTS sites work and things like that. Is it contracted out or not? So, yeah,

so you get that, you'll get a surprising amount of information available. And we definitely cross check in terms of our competitors and the industry. Then for this, for example, for the scope 3 strategy, we went to, we went back to the GSA themselves, and said, Hey, can we have a little bit of your time and we just sense, checked it with them." **(Participant 3)**

One participant highlighted the importance actively monitoring of trends from multiple sources including the UN SDG reporting, World Health Organisation, their industry, and activism, to identify best practices.

"We had a corporate affairs function, monitoring, all the reporting, all the trends and all the kind of cases of best practice through the UN and through the World Health Organization, to the extent that our industry has an impact on health. So yeah, so they monitored every bit of activism, reporting or best practice that both our industry and the broader FMCG consumer goods industry was actually embracing, adopting and try and getting on top of. So I would, I would describe our organisation as one that actively monitored and screened and assessed through all The UN SDG reporting" **(Participant 4)**

One participant indicated their ability to use their business metrics and data from industry experts to sense the frequency and severity of climate change events.

"Just the frequency and the severity of these things, right? You can look at your average cost per claims, the frequencies that happen of these storms, yes. And you can, you can see, you know, like, you don't have to, like I said, you know you could, if you, if you, if you, if you went down to Durban just after those, those sort of floods in 2022, you know you would, I mean, we saw containers, video footage of containers floating down the end too. You know, yes, you know, it's not Yeah, so, yeah. So that's from a sensing point of view, you can distinctly see what's happening, yeah, and you've got sort of old data to use and industry experts to help us out here." **(Participant 6)**

One participant highlighted that their organisation leverages data as an input for future studies by sensing changes in industries such as the banking industry.

> "I mean, we've seen this with the banks. The commercial banks have really gone on a huge drive to finance things like energy and sort of like other mitigation measures. So those were insights that we could then take into sort of like forward looking studies." **(Participant 11)**

One participant asserted that data is core to their tools, which drives their strategic planning and adjusting their processes and supporting their climate change commitment.

> "The tools, like at the core of their tools, is data. So they give us the data, they provide that data, and that helps us to really have that data-driven insight in terms of, you know, informing our strategic planning, and how do you adjust our operations. So these tools are very important because when we have that data and it can actually support, we have something that can support social alignment on climate commitments, because at the core of climate commitments is science, yes. So they say that, you know, whatever that we do, it has to be science based." **(Participant 12)**

Sensing and leveraging data is key in monitoring and anticipating risk. Additionally, it supports organisations track climate change events, identify effective practices and assist them in achieving their climate change commitments.

5.5.2.3: **Opportunities**: Resource Efficiency and Sustainability Investments

There are several opportunities arising from climate change action that can benefit companies. Many participants indicated that embracing climate change initiatives can lead to economic advantages, help meet stakeholders expectations such as investors, and create a positive perception of the company's efforts to combat climate change. Additionally, it allows companies to support customers in their decarbonisation goals.

> "I think this value is, goes back to that consideration of return on investment that people want to see so often that most, the greatest line of correlation there is of resource efficiency practices that are implemented. So water efficiency, energy electricity efficiencies, there you see a nice correlation between how you address threats and threats, and the correlation you know, the business practices you implement, and a

nice clear correlation of return on investment and cost saving. So that is the one that is most, most often applied in terms of value and time to come" **(Participant 2)**

"Are there some realities that you've also got to see as opportunities? Do you use glass as opposed to aluminium cans? What's the impact? Glass is probably better, although in the early phases, we felt maybe glass has got a higher footprint, CO2 footprint, just given it's the way it's done. But then once you embrace returnable, the use of returnable glass, now you're using that same bottle seven to nine times, maybe higher. Suddenly, the economic life of that asset is an opportunity, economic and social opportunity that reduces there's an economic one on your income statement, a balance sheet, but actually there's a sustainability opportunity that's being addressed at the same time." **(Participant 4)**

"I think the second reason is that related to the first is that, you know, there is, you know, a growing set of expectations amongst clients, amongst investors, amongst regulators, amongst customers and the communities in which we operate, for us to be seen, to be doing something about it" **(Participant 7)**

"That doesn't have, I would say, electricity, or we need to provide a cleaner sort of electricity. That means, then we move to a second pillar, which is the decarbonise. So we develop this pillar of decarbonise, because we do have, I would say, customers that are using, I would say, our technologies to generate electricity in a carbon space, let's say using the coal, you know, so now we need to assist those customers to decarbonise so that means they need to lower the emissions, you know" **(Participant 10)**

"I would say reports, we approximately help generate 25% of the world electricity, and there is still a lot of electricity, also in terms of the customers that want to decarbonise, in terms of, you know, them buying our technology in terms of us helping them to meet their targets, you know of decarbonisation. So there are opportunities to decarbonise, to help customers to decarbonise". **(Participant 10)**

One participant highlighted that there is many opportunities for businesses to transition and participate in a green economy particularly in the context of South Africa.

> “Everyone's so scared the world is ending, but I do also think that there's a lot of opportunity there for businesses to sort of see how best they could transition into greener economies. I think that carries a lot of development opportunity, especially for us as South Africa and as a developing nation.” **(Participant 11)**

It is evident from the participants’ responses that they are aware of the opportunities related with climate change action and transitioning to decarbonisation. These opportunities include economic benefits, positive sentiment from customers and investors, participation in a green economy, and helping their customers meet their own decarbonisation targets.

5.5.2.4: Information Gathering and Collaboration for Climate Action

Information gathering is associated with the theme of Sensing by Leveraging Data, Monitoring and Anticipating Risk. It was noted that the participants actively participate in forums, sustainability conference and engage with specialists and stakeholders to collaborate for climate change action. By engaging and collaborating with stakeholders, they can be at the forefront of information and help drive positive change.

> “So we have discussions or meetings with other likeminded individuals, and you discover new things as you go, you know, we have these sort of sustainability conferences, and you learn about soldier flyers and something else and something else. So it's, it's all just quite, quite interesting.” **(Participant 1)**

> “We are closely associated with the Greenbelt Council. In fact, my boss was the head of real estate for our group. He was the chair of the green board council at one stage. So, we are closely associated with the Green Board Council. We target green or the green build practices and accreditations. So green star ratings, etc. And then we are closely associated with the industry bodies like Sapoa, the South African Council, shopping centres, etc. And so we leverage off the work that they do.” **(Participant 5)**

> “So there's a lot of these forums where we belong and so that we have that information of what is happening. How can we participate? How do we pivot? What are some of these things that are coming, whether it's risks to the business, and then what is the implication of it? How do we prepare for those things? So we have that landscape that view, from a lot of industrial forums and partnerships that we have formed that really, like, you know, focus on climate change” **(Participant 12)**

One participant highlighted collaborating with carbon specialists to pick up blind spots in their organisation climate strategy.

> “We also went to specialists in the field. So the likes of like some of the big five carbon specialists, to say, hey, we have a good relationship with you. What do you think of our strategy? Our revised strategy does a sense check? Are there some obvious red flags or, you know, sometimes when you're working on something, you can get quite tunnel vision. You think what you're doing is amazing, and then you've missed a whole section. So definitely, in those engagements, some blind spots were picked up” **(Participant 3)**

Additionally, one participant indicated by broaden their network of stakeholders, they can be at the forefront of information and support positive change.

> “We are mainly involved in terms of ensuring that we broaden our network with all the stakeholders that are involved. You know, we drive. We are in the forefront of also driving the policy change, you know.” **(Participant 10)**

From the participants’ responses, it is evident that information gathering and collaborating with stakeholders plays a key role in obtaining data that supports organisations to sense and respond to climate change.

5.5.2.5: Financial and Economic Implications of Climate Change

Climate change brings both risks and opportunities that have significant economic implications. It was evident that sensing and recognising climate change risks and opportunities highlight financial and economic implications related to climate change. Participants highlighted the implications of legislation, which introduce carbon tax that increases costs of doing business.

> “many companies supply chains of come from Africa, or have an element of Africa, and that is going to be very cost heavy for many industries in Africa. So to give you an example, my husband farms flowers. Yes, the green legislation that's coming in Europe is going to require the farmer that farms flowers to have all sorts of green considerations, which is going to be a huge cost implication, and similarly, the same in tourism.” **(Participant 2)**

> “you're looking at the threat of like carbon taxes, because a lot of what we produce right for the automotive sector is obviously exported To the EU and other markets. But now the EU is sort of introducing this carbon border adjustment mechanisms, which is essentially like a carbon tax, and saying that by a certain time when we export our stuff to them, they're going to tax it heavily because they want to transition to EVs” **(Participant 11)**

The participants also highlighted that there are costs implications for an organisation to adapt for climate change action.

> “there's a different form of uncertainty, which is, how much do we really have to do, how quickly? Yes, and it's going to cost a lot, and do we really need to do all of that right now” **(Participant 11)**

However, one participant emphasised that the costs for adaptation will increase the longer organisations prolong committing to climate change action.

> “It costs money to adapt. It is going to cost us a lot of money to adapt, and the longer we leave, adaptation is going to cost us even more. So building resilience in our environment is very important, and it's very pivotal.” **(Participant 12)**

Two participants highlighted the economic impact on communities that are vulnerable to climate change events and workers in carbon intensive industries, which may be at risk of retrenchments and downsizing.

> “Climate change affects the most vulnerable and the poorest of the further for the hardest, yes and often, the wealthiest are shielded from the real impact, and both in their pockets because they don't. They don't have to feel the same impact in food, bread, basic staples, as a result of the added cost of climate change that companies

and industries pass on. So they often feel the brunt of it, and they're awfully often living in highly vulnerable areas, either water stressed or droughts" **(Participant 4)**

"That's one part of it, and the other part of it is to say climate change also comes with other social, economic challenges, where, for example, coal companies have been forced specifically to retrench. But what we have done is to say, instead of retrenching, let us place these people into some commodities that are deemed to be clean." **(Participant 9)**

Climate change commitments leads to significant financial and economic costs implications. These costs have broader implications where it affects communities and workers in carbon-intensive industries. Prolonging commitment and adaptation to climate change action can results in increased costs for companies in future.

5.5.2.6: Strategic Foresight Methods

It was noted that the methods used for sensing climate change risk and opportunities were primarily strategic foresight methods. The strategic foresight methods identified in the interviews included of future-orientated scenario planning and analysis, trend analysis, environmental scanning, and information gathering through engaging with experts. By consolidating these, the theme of strategic foresight emerged. This theme is associated with themes comprising of Climate Change Scenario Risk Assessments, Sensing by Leveraging Data, Monitoring and Anticipating Risk, and Information Gathering and Collaboration for Climate Action.

One of many participants described the use of scenario planning in their company.

"And so we do a lot of the research done by our sustainability team, with our risk colleagues, would help us plan for scenarios. We do lots of scenario planning, and then we have continued discussions and set our targets accordingly, based on our planning. We then set targets for ourselves, and then we measure ourselves against those targets." **(Participant 5)**

> “Well, we do a lot of stress testing. We do a lot of scenario analysis as well. But that's not really my, forte, because I'm more in the in the front office environment.” **(Participant 7)**

One participant described the use of trend analysis in their organisation.

> “Now we have all these grand plans, such as the NDP, all the SDG goals, so we try to sort of situate ourselves in such a way that within our industries, we're making sense, of what's happening globally.” **(Participant 11)**

One participant described the use of information gathering in their organisation.

> “So there's a lot of these forums where we belong and so that we have that information of what is happening. How can we participate? How do we pivot? What are some of these things that are coming, whether it's risks to the business, and then what is the implication of it? How do we prepare for those things? So we have that landscape that view, from a lot of industrial forums and partnerships that we have formed that really, like, you know, focus on climate change” **(Participant 12)**

Two participants highlighted environmental scanning through displaying their awareness of the external environment comprising of the EU’s Carbon Boarder Adjustment Mechanism (CBAM).

> “Um, there is EU legislation coming in called the Green Claims Directive that is making. So it's a couple of things. It's making businesses think about their supply change and the integrity and credibility of their supply chain, yes. Um so, even though I'm speaking from a tourism business, this is relating to businesses, relating to businesses of all, of all industries, yes. Um so, I mean, that will be a really important one that looking at that legislation, um, for your strategic for your topic, because that is going to have a massive impact on industries in Africa.” **(Participant 2)**

> “For example, when you look into your cbem, that's like your carbon border adjustment mechanism. Our Chemical currently has a high carbon intensity, and they are saying that, like, you know, we are going to if you're not going to decarbonise at the pace, that we are actually saying you should, your chemicals should never come to our doors. And that is our market. So that market dynamic, it's a huge uncertainty for us.” **(Participant 12)**

It is evident from the participants' responses that strategic foresight methods are essential in sensing climate change risks and opportunities. By performing scenario planning and analysis, trend analysis, environmental scanning, information gathering and forecasting leveraging experts, companies are able to sense climate change risks and opportunities.

5.5.3 Results for Research Question 3

The third research question was, “How does adopting a corporate commitment to climate change action by practising strategic foresight build a competitive advantage?”

The participants were asked to describe how adopting a commitment to climate change action could influence their company’s competitiveness. Their responses led to the development of theme three, “Competitive Advantage through Climate Change Commitment and Strategic Foresight Capabilities”.

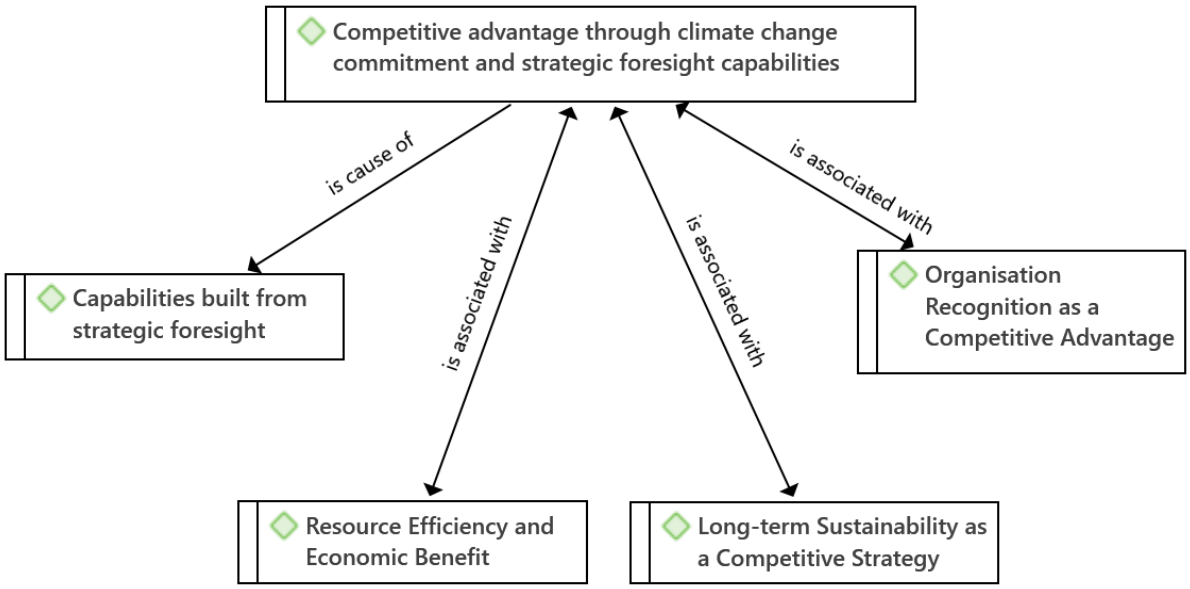


Figure 6: Thematic map of the competitive advantage through climate change commitment and strategic foresight capabilities

5.5.3.1 Organisation Recognition as a Competitive Advantage

A competitive advantage is crucial for the sustainability of a company. From the interviews, it was noted that a commitment to climate change could lead to significant competitive advantages. Many participants indicated how this commitment enhances the company’s reputation, particularly with investors, leading to a greater recognition and credibility in the market.

> “Let me say that our investors care deeply. Sometimes I think too much about Okay. They every other week I receive a request to ask more about how we're performing on climate and this year, in particular, circularity, they have been asking a lot about

circularity this year. So definitely, in terms of competitiveness, I would say that our investors care about our performance in the space." **(Participant 3)**

"Yes, and I do believe sort of, you know, there are many UN Sustainable goals, development goals, that that that the company is living by not just climate change, but the other eight that were that we've endorsed, you know, as a company. It might not be coming through as much in a conversation around climate change, but it definitely puts the company in good stead with, you know, with customers, with the general public, and with sort of stakeholders, all stakeholders which creates sort of competition or gives you a competitive advantage" **(Participant 6)**

Two participants highlighted a competitive advantage comprising of respect and recognition for their commitments to climate change, which led to them receiving awards.

"I think it gives the organisation gravitas in the way of respect, in not only the hospitality community, so with amongst our peers and our competitors as an example. So if you talk to someone in hospitality in South Africa and even the world now, and you mentioned Organisation 1, they might not know exactly what we're doing, but they know that we're doing good things, and that's because we've won awards along the way, and community awards and conservation initiative awards." **(Participant 1)**

"Look, we did win an award for being perceived as one of the most sustainable brands," **(Participant 3)**

One participant spoke about recognition through positive stories that can enhance the organisation's reputation and hence develop into a competitive advantage.

"And then I think now we just need to really continue embracing sustainability, continuing enhancing our reputation. Because sometimes when you come to some of these functions, you're like, why do you work in successful it's like, Oh, you are the big emitters. Like, so sometimes it's like, I don't think you want to know where I come from. That reputation. We need to actually build it on, on, on some of those things. And I think importantly, like, we don't know how to tell a good social story, so we need to actually learn to teach that. And that, by itself, is a competitive advantage, that we are doing beautiful things as an organisation." **(Participant 12)**

It is evident from the participants' responses that commitment to climate change can lead to competitive advantages including recognition of valuable stakeholders such as customers and importantly investors.

5.5.3.3 Long-term sustainability as a competitive strategy

The long-term sustainability of a company is essential for its ability to operate and grow. It has been observed from the participants' responses that long-term sustainability serves as a competitive advantage. When a company consistently maintains its sustainability over time, it is better positioned to outlast its competitors. Additionally, a strong commitment to long-term sustainability tends to attracts investors.

Two participants described their commitment to climate change an important factor that investors consider. This is because it is aligns to their long-term view on creating value by reducing risk.

> "So firstly, we're an investment group. So, you know, we drive this as part of our shareholder performance agenda across all of our businesses in our group, as well as through some of our impact-led and philanthropic activity as well. So, you know, we do it in very diversified ways. Um, we, you know, we as a group, we have set ourselves the goal of growing businesses and creating long-term value that is both financial and social and environmental, and so, and we take a long-term view on value, and it's an intergenerational business" **(Participant 8)**

> "the issue of funding we I would say, I'm not sure if it's a tool or a process, but it was one of the drivers that met us to pivot towards the cleaner sources of energy, because our funders, our investors, were making calls to say, you need to be seen, to be having, you know policies SOPs that support climate change, and for us to continue to support you in pouring funds in the businesses that you're running, you need to be having something that aligns with climate change." **(Participant 9)**

> "So in terms of that, to also ensure that we attract investment, because investments now are going to be attracted to operations that are low carbon. So, and that is the only thing that can actually put us at a competitive advantage, but also, as like our Fisher trope, technology puts us at a competitor advantage because we can actually adjust it to have feedstocts that are more on the low carbon side" **(Participant 12)**

One participant highlighted their commitment to climate change was aligned with their long-term strategy. It contributes to their objective to ensure their organisation is able to operate in the future.

> "This commitment has to really reflect in our long-term strategy that we are committed to the climate change and also to adhere to some of this global agreements that we sign up. For example, your Paris Agreement. So for us also, the commitment is also to ensure that we, can we have license to operate in the future? Is more of business making sure that business can operate in the future? So this is the commitment to ensure that we have this long term business commitment to operate as well in the future." **(Participant 12)**

Long-term sustainability is a competitive advantage, and a long-term view that aligns with climate change commitment is attractive to investors when organisations mitigate climate change risks to ensure they operates in the future.

5.5.3.4 Resource efficiency and economic benefit

Commitment to climate change encourages companies to rethink about their operations and minimise their environmental impact. From the participants' responses, it was observed that commitment to climate change through implementing sustainability practices results in greater resource efficiency and cost savings. In addition, companies are able to avoid passing costs onto customers due to the cost savings from their resource efficiency.

The participants described water and energy efficiency practices that correlate with addressing climate threats, producing a return on investment and cost savings.

> "I think this value is, goes back to that consideration of return on investment that people want to see so often that most, the greatest line of correlation there is of resource efficiency practices that are implemented. So water efficiency, energy electricity efficiencies, there you see a nice correlation between how you address threats and threats, and the correlation you know, the business practices you implement, and a nice clear correlation of return on investment and cost saving. So that is the one that is most, most often applied in terms of value and time to come" **(Participant 2)**

> "Secondly, we're keeping we're moving to a stable supply, because it'll be our solar panels that we'd be using. Then once we've gotten over the capex costs, we are seeing cost savings in terms of operations." **(Participant 3)**

One participant highlighted how their organisation's ability to use fewer resources resulted in managing its costs, enabling it to limit the cost passed onto its customers.

> "I would always put that slightly higher, but having said that, the good news look, after addressing some of the things that I've described is it actually does enhance your competitiveness, because you're using less. A non-renewable set of resources, which in turn have a low impact if you use less of them on climate and the warming of the planet, the global warming effect. And by using less economic cost of doing that actually has a direct impact on the competitiveness on your business, and much of those costs don't need to be passed on to the consumer." **(Participant 4)**

One participant described the financial benefit associated with recycling within their operations.

> "Sometimes you only know the value when you've done it already and you realise, oh, wow, I didn't think that was, the repercussion of our action, you know? And you realise as you go that, wow, that's, that's something that, I mean, something that's just sometimes so simple at the end of the day. You know the way, who thought that weighing waste to see how much we send into to the waste centres would be valuable. But actually you realise it is extremely valuable because there's benefit in making sure you reduce that and maybe there's even a financial benefit to recycling. **(Participant 1)**

> "Definitely on the opportunities. I'm seeing the up goes making more investment into green energy, or pushing for more investment into green energy and providing things like very clear ROI is. For their projects to say, look, it's not just good for the environment. Actually, I never hear them talk about the environment. They say, they say it's good for business and it's good for their project" **(Participant 3)**

Two participants described the benefits of obtaining carbon credits by reducing their organisation's carbon footprint.

> "We sequester more carbon than we use as an operation, and that actually comes from pretty much, we're quite lucky, in a way, with that land management, so that that procedure of controlling burns at certain times of the year. So we'll do it in the autumn months or in spring when the weather's cooler. So it's not a hot burn, it tends to be a cooler burn, and for those exact reasons, also to maintain the carbon in the soil. So, if

you have this super-hot, windy, dry day that would be disastrous. It just like fuels, the carbon release, we do it in a managed perspective, and that counts in our favour from our carbon credits perspective, because they look at that." **(Participant 1)**

"Yes, in time, they have started a process of biodiversity credits. So the monitoring and evaluation need, if that comes off, there will be also, again, a critical correlation between the biodiversity and the value of something like where you own a piece of pristine biodiversity, and the biodiversity credits that you're able to get. Or if you do your carbon foot printing and are audited in terms of the carbon foot printing process, the carbon credits are that are of credible value that you can then sell will also be a good correlation. So that's a nice other one of value to consider." **(Participant 2)**

Two other participants described positive correlations between sustainability and financial metrics such as return on equity.

"What I saw was that when you perform well on your ESG, you get a bump up. You get there's a positive correlation in different areas, like ROE. So there's definitely a positive correlation and that helps you financially. So that financial measure does increase, improve. Of course, it's very specific to your context, your operating context. **(Participant 3)**

"I think at another level, more now, from a, from a more core finance perspective, and I'm not, I'm not an accountant, by the way, but you know my hypothesis is that you know, the organisations that are seen as ESG leaders, You know, have an alpha in terms of their total shareholder returns." **(Participant 7)**

Sustainability practices are beneficial not only good for the environment but also for companies. For instance, reducing an organisation's carbon footprint can result in economic benefits such cost savings, obtaining carbon credits and correlate to positive financial metrics.

5.5.3.5 Capabilities built from strategic foresight

Organisations committing to climate change actions entail that they adapt their operations, invest in technology and develop strategies that help them prepare and deal with the climate change crisis.

Three participants indicated that their commitments had strengthened their organisation strategically by enhancing their capabilities. This improvement is achieved through the adoption of new technologies and knowledge, as well as the development of strategic approaches, and human resources, including sustainability teams, which have placed them in a competitive position.

> "I think the Organisation 2 is strategically well placed. It has its tools. It has a people in it that has a lot of have a lot of technical expertise. So we're well placed competitively because we understand the threat, we understand the need for strategic leadership and strategic business sort of operational efficiencies to be implemented. So the sustainability space across industries is like mushrooming. Um, I'm seeing green, green, sustainable, whatever leaves platforms. Yes, it's growing. Like growing like, like, I see a different one every single day. Um, but I think because of the longevity of the Organisation 2 um and the strategic perspective of the organisation, and we're well placed in terms of that competitiveness" **(Participant 2)**

> "So we focus a lot on this leadership capability question, and we in fact, running a program ourselves at the moment, for executives across our group on shared value and dealing with we just call it shared value, but it's basically social and environmental and financial all in one place. Yes, the fact that we hold our executives accountable for performance on all three, but actually managing all three is quite complex. Yes, yes, definitely. And our executives are building their capability to deal with that complexity." **(Participant 8)**

> "You know we feel that you know the technologies that we are working on right now will make us to be competitive in a market, and will help us combat the climate change and be able to reach the target that we have, as I've mentioned, the technologies that we are very much big on right now." **(Participant 10)**

> "And so we do a lot of the research done by our sustainability team, with our risk colleagues, would help us plan for scenarios. We do lots of scenario planning, and

then we have continued discussions and set our targets accordingly, based on our planning. We then set targets for ourselves, and then we measure ourselves against those targets." **(Participant 5)**

"And then within the organisation, you know, we have a sustainability now team. So the sustainability is there to ensure that we have that forward looking and also the business building kind of teams that are going to ensure that we have businesses that are resilient to the environment." **(Participant 12)**

"So I think our vision, for example, is to ensure that that transition to lock up on future is something that is done justly. Hence, we have that the just transition within the organisation that also advises or also is, is a pillar within our strategy to ensure that while we are actually investing in the renewable and increasing our energy efficiency, we are adopting some of these technologies to really reduce, like, you know, the carbon intensity of our operations." **(Participant 12)**

Commitment to climate change can lead to developing capabilities that enhance preparedness for the climate change crisis. Additionally, it can enhance the organisation's capabilities, placing it in a competitive position when facing climate change.

5.6 Conclusion

This chapter discussed the data analysis using the thematic analysis approach for the results obtained from the semi-structured interviews. This method helped develop aggregated themes for the three research questions.

The research questions were formulated to explore the adoption of corporate commitment to climate change and the role of strategic foresight in developing a competitive.

The first research question was "What is the role of strategic foresight in overcoming uncertainty to adopt a corporate commitment to climate change?" The second research question was "What is the role of strategic foresight in sensing and identifying opportunities and risks of climate change?" The third research question was "How does adopting a corporate commitment to climate change action by practising strategic foresight build a competitive advantage?"

The findings showed that strategic foresight enables an organisation to sense both climate change risks and opportunities. Strategic foresight methods such as information gathering, consulting experts, scenario planning, and trend analysis were the methods that have featured from the qualitative data.

Chapter 6 compares the results against the literature to develop a conceptual model and answer the research questions.

Chapter 6: Discussion of results

6.1 Introduction

This chapter discusses the results presented in Chapter 5, derived from the 12 semi-structured interviews with participants, including CEOs, directors, executives and senior managers from various organisations across different industries in South Africa. The discussion aims to address the problem statement presented in Chapter 1 and, therefore, is structured around each of the three research questions presented in Chapter 3. The findings are compared with existing literature presented in Chapter 2, focusing on constructs of uncertainty, strategic foresight and competitive advantage in the context of corporate commitment to climate change.

The purpose of comparing the literature with the findings is to identify similarities, differences or new insights regarding the role of strategic foresight in adopting a corporate commitment to climate change and its role in developing a competitive advantage. The comparison examines how the study's findings contribute to the existing literature by either confirming, contradicting or extending it in the context of the developing world.

6.2 Discussion of Research Question 1

Research Question 1: What is the role of strategic foresight in overcoming uncertainty to adopt a corporate commitment to climate change?

Research Question 1 was important to this study as it aimed to explore the types of climate change commitments made by the different companies through the participants' perceptions.

According to scholars, the predictability and the scale of climate change impact are uncertain for many companies in different industries (Khan et al., 2023; Lee & Klassen, 2016; Todaro et al., 2021). Furthermore, uncertainty avoidance was a factor highlighted that deterred organisations from taking climate change action (Albitar et al., 2023; Ferns & Amaeshi, 2021; Khan et al., 2023; Huiskamp et al., 2022).

Consequently, this research question sought to explore the role of strategic foresight in addressing uncertainty and supporting these organisations in adopting their climate change commitments.

The second-order themes emerging from this research question included (1) commitment to climate change, (2) leadership's system thinking to climate change, (3) strategic business action and adaptation to climate change, (4) managing uncertainty, and (5) stakeholder engagement and corporate responsibility.

6.2.1 Commitment to Climate Change

One of the interview questions asked the participants to describe their company's commitment to addressing climate change. The findings from these interviews helped create a shared understanding of the commitment to climate change across the different industries. Establishing this first theme was essential to establish, as it is one of the focal points of this study. Table 6 summarises the findings for the second-order theme of commitment to climate change.

Table 6: Findings for climate change commitments made by organisations across different industries

	Climate change commitments
1	A choice taken to act with a focus on a positive contribution to climate change
2	Long-term goals (net zero ambitions by 2050 or sooner) to decarbonise their operations and reduce their impact on the environment.
3	Net zero philosophy
4	An understanding that it is the right thing to do

By using secondary data, the findings in Table 6 were consistent and credible with those described in Table 3 in Chapter 5.

6.2.1.1 Comparison and contribution to literature

According to scholars, corporate commitment to climate involves companies implementing strategies, practices and measures aimed at reducing their GHG emissions, minimising waste, recycling and conserving energy, and using renewable energy to prevent or reduce environmental damage (Albitar et al., 2024).

An interesting finding linked to climate change commitments to a recognition that taking action is the right choice. This suggests that addressing climate change is connected to the company's value system.

6.2.1.2 Conclusion of discussion

The comparison of the research findings reflects that the participants' responses in reducing their carbon emissions are consistent with the literature and, therefore, support the literature regarding commitments to climate change.

6.2.2 Leadership's System Thinking to Climate Change

The second theme associated with the role of strategic foresight in addressing uncertainty to adopt a corporate commitment to climate change was the leadership's system thinking of climate change. This theme was associated with commitment to climate change and resulted from the interview question about why their organisation made a commitment to climate change.

The findings contributing to this theme comprised the participants' responses describing a holistic leadership approach. This approach involves system thinking, where leaders consider the ecosystem in which their business operates and the broader implications of their actions.

The participants described their leaders as recognising the business activities that affect the environment and society, acknowledging that business does not exist in isolation, and emphasising the larger role that the organisation needs to play in climate action.

The findings also revealed that this process included foresight by developing aspirational goals for their commitments to climate change.

6.2.2.1 Comparison and contribution to literature

Slaughter (1997) described four foresight methods (input methods, analytical methods, paradigmatic methods and exploratory methods). Each of these methods serve different functions and supports other foresight methods. One method that the scholar described was system thinking, which is part of paradigmatic methods. This future-oriented method explores the significance of subjects in a social context resulting in a holistic perspective.

According to Fink et al. (2005), system thinking is a foundation for scenarios, which is an exploratory method as described by Slaughter (1997). These scholars argue that companies need to move away from outdated "cause and effect thinking" that focus on isolated sub-systems (Fink et al., 2005). Instead, they suggest that companies should understand the

outputs of complex systems by focusing on the interconnections among the relevant within of a larger ecosystem (Fink et al., 2005).

6.2.2.2 Conclusion of discussion

The comparison of the research findings to the literature reflects that the participants' responses related to the theme of leader's system thinking of climate change align with strategic foresight methods in literature as described by Fink et al. (2005) and Slaughter (1997). However, this adds to the context of commitment to climate change by highlighting the importance of system thinking to understand a holistic perspective and recognise the boarder impact of climate change. The broader impact would align with the ecosystem in which organisations operate.

6.2.3 Strategic Business Action and Adaptation to Climate Change

The third theme associated with the role of strategic foresight in addressing uncertainty to adopt a corporate commitment to climate change was strategic business action and adaptation to climate change.

This theme results from and, therefore, forms a link to the themes of commitment to climate change and leadership's system thinking of climate change. With a commitment to climate change and the holistic system thinking approach by leaders, the business is able to take proactive steps to adapt to climate action. Setting aspiration targets and initiatives means that the business needs to adapt and reorient itself for action.

The findings contributing to this theme are the participants' responses, which comprised of business adaptation through developing standard operating procedures, establishing sustainability teams, promoting accountability, implementing governance structures, and setting the same targets for their value chains.

6.2.3.1 Comparison and contribution to literature

Scholars highlight that organisations can respond to climate change by inaction or proactive steps in mitigating business-as-usual practices that intensify climate change (Albitar et al., 2023; Ferns & Amaeshi, 2021; Sakhel, 2017). In order to meet the Paris agreement, transformation is required (Ferns & Amaeshi, 2021).

6.2.3.2 Conclusion of discussion

Consequently, the findings from the participants represent proactive measures to move away from business-as-usual practices by adapting the organisation toward its climate change commitment, which supports the literature.

6.2.4 Managing Uncertainty

The fourth theme associated with the role of strategic foresight in overcoming uncertainty to adopt a corporate commitment to climate change was managing uncertainty. This theme linked to leadership's system thinking and was associated with stakeholder engagement and corporate responsibility. Table 7 summarises the type of uncertainties around climate change described by the participants.

Table 7: Findings for climate change commitments made by organisations across different industries

	Type of uncertainty around climate change collected from the participants
1	Uncertainty around quantifying how big, pervasive and volatile is the impact of climate change
2	Uncertainty around the "new normal" for business that climate change will bring
3	Uncertainty around transitioning to decarbonise and a green economy
4	Uncertainty around the time horizon of climate change impact
5	Uncertainty around the climate change technology advancement and affordability of this technology

One question from the interview guide asked the participants how their organisations helped them overcome the uncertainty. The participants' responses, which helped generate the theme of managing uncertainty are summarised in Table 8.

Table 8: Findings for climate change commitments made by organisations across different industries

	Findings contributing to the theme of managing uncertainty
1	Performing risk assessments that cover future (different timelines) physical and transitional risks.
2	Using scenario methods for modelling future outcomes and therefore creating plans and targets
3	Using monitoring and evaluation
4	Leadership reinforce and embed the purpose of the organisation in order to make it a part of the strategic agenda

The findings demonstrated that organisations take proactive steps to manage uncertainty and make sense of it through future-oriented methods, such as modelling scenarios over different timelines. Risk assessments identify physical, transitional and social risks. Monitoring and evaluation are integral activities that help to manage uncertainty. These activities help build information for anticipating impact and, therefore, guide the company to set targets for the appropriate goals and initiatives.

An interesting finding was the role of leadership in reinforcing and embedding the company's purpose; making climate change a part of the strategic agenda and monthly routines, so that it becomes a part of a way of life within the company.

6.2.4.1 Comparison and contribution to literature

According to scholars, uncertainty avoidance and a short-term view are linked to climate change inaction (Slawinski et al., 2017). Uncertainty avoidance results from an information deficit about the anticipated consequences of climate change (Slawinski et al., 2017). A short-term view focuses business attention on short-term matters, giving this greater importance and urgency. Additionally, some businesses see investment in reducing carbon emissions as high costs with no tangible short-term benefits (Albitar et al., 2023; Slawinski et al., 2017).

6.2.4.2 Conclusion of discussion

The research findings support the literature, as the participants described proactive steps that their organisations take to manage uncertainty. These activities are future-oriented and generate information that explores different future scenarios and risks, which guides their response.

An interesting finding was the leadership role in reinforcing and embedding climate change in the organisational purpose and incorporating new practices and routines aimed at managing the uncertainty by making it a way of life within the organisation. The findings, therefore, add to the literature by describing the ways organisations manage uncertainty, moving away from uncertainty avoidance and a short-term view.

6.2.5 Stakeholder Engagement and Corporate Responsibility

The fifth theme associated with the role of strategic foresight in overcoming uncertainty to adopt a corporate commitment to climate change was stakeholder engagement and corporate responsibility. This theme linked to the themes of leadership's system thinking, strategic business action and adaptation to climate change and was associated with managing uncertainty.

The findings indicated that the majority of the participants recognised the importance, responsibility and value of engaging with stakeholders, including employees, communities, industry organisations, and councils. Furthermore, the role of the CEO was highlighted as important in working with their management team to facilitate awareness of climate change action as non-negotiable. These findings describe proactive steps to manage uncertainty with an emphasis on the importance of stakeholder engagement comprising of the broader eco-system in which businesses operate. These steps show corporate responsibility by helping others on the journey of climate change action.

When compared to the literature, this research theme again supports managing uncertainty by addressing uncertainty avoidance and promoting a longer-term view. This theme adds to the literature by describing the ways organisations manage uncertainty, moving away from uncertainty avoidance and a short-term view.

6.2.6 Answering Research Question 1

Research Question 1 was "What is the role of strategic foresight in overcoming uncertainty to adopt a corporate commitment to climate change?"

The aggregated theme developed from the five second-order themes is strategic foresight in adapting to climate change uncertainty. It answers Research Question 1 by confirming that organisations face uncertainty in the context of climate change. It highlights the importance of

the future method of system thinking, which provides a holistic perspective of the broader aspects of climate change impact, including the ecosystem in which organisations operate. This forms a foundation for scenario planning whereby organisation develop plans around risks. This is pertinent in managing uncertainty as it generates information on the future possibilities and impact of climate change.

Stakeholder engagement driven by the most senior management is vital to communicating the importance of climate change action. These results in building practices that reinforce and take the stakeholders on a journey towards the company's climate change action.

Figure 7 shows the conceptual model that captures the answer to Research Question 1.

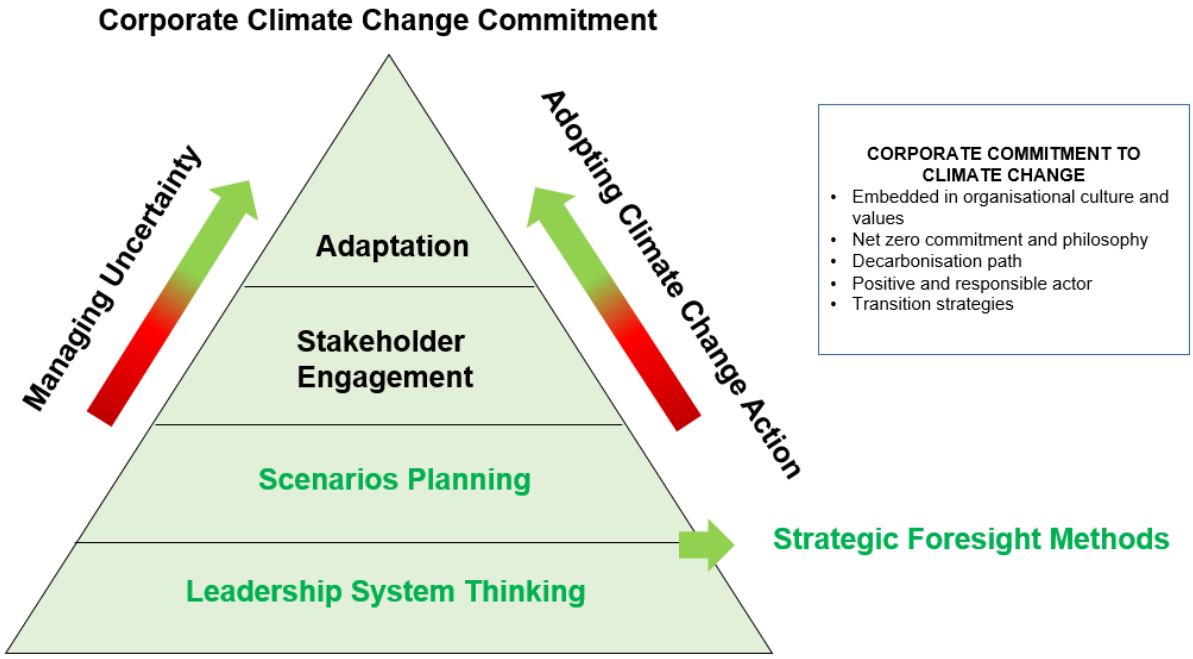


Figure 7: Conceptual model for Research Question 1. Adapted from (Fink et al., 2005)

6.3 Discussion of Research Question 2

Research Question 2: What is the role of strategic foresight in sensing and identifying opportunities and risks of climate change in South Africa?

According to scholars, when companies view climate change as both a risk and an opportunity, they are more likely to invest in developing new capabilities that enhance their preparedness for future possibilities (Wright & Nyberg, 2017). Therefore, research Question 2 was important for the study because it helped explore the role of strategic foresight methods used by organisations in sensing opportunities and risks related to their business operations.

This question looked at both perspectives of climate change in terms of a positive light comprising of opportunities and the opposite view comprising the risks and threats climate change brings to organisations. The ability to sense the changing environment due to climate change is pertinent for decision-making for adapting to opportunities and emerging threats.

The second-order themes emerging from this research question included (1) Climate change scenario and risk assessments, (2) Sensing by leveraging data, monitoring and anticipating risk, (3) Opportunities: resource efficiency and sustainability investments, (4) Information gathering and collaboration for climate action, (5) Financial and economic implications of climate change and (6) Strategic foresight methods.

6.3.1 Climate Change Scenarios Analysis and Risk Assessments

One of the interview questions asked the participants to describe how their companies made sense of climate change in relation to their industry. The findings generated from the interviews helped establish the theme of climate change scenarios and risk assessments.

The findings indicated that the majority of the participants performed climate change scenarios analysis, projections from modelling, and risk assessments based on these scenarios. The findings showed that sustainability teams worked with risk assessment teams of committees. The scenarios included climate change inaction, investment scenarios and alignment with the 1.5ºC Paris Agreement. The ranking of the risks identified helped the companies make sense of climate change risks. This also informs the company on how resilient the business and its assets are in terms of the risks. The risks that the participants highlighted include environmental, physical, transitional, consumer preferences and social risks.

6.3.1.1 Comparison and Contribution to Literature

According to scholars, climate change risks comprise of physical, regulatory, and market-based risks (Littlewood et al., 2018; Sakhel, 2017). The physical risks are due to climate change, weather events such as floods, thunderstorms, and extreme weather patterns (Sakhel, 2017). These can disrupt business operations and create a shortage of supplies (Littlewood et al., 2018; Sakhel, 2017).

The findings from the participants' responses support the literature regarding the types of climate change risks that businesses face. Furthermore, the findings highlight the importance of the strategic foresight method, comprising of scenario analysis and risk assessments, to make sense of climate change in relation to their industry.

6.3.1.2 Conclusion of discussion

The comparison of the research findings reflects that the participants' responses in climate risk are consistent with the literature. The findings highlight the role of scenario analysis, therefore, providing insights into how organisations make sense of climate change.

6.3.2 Sensing by Leveraging Data, Monitoring and Anticipating Risk

The second theme related to the role of strategic foresight in sensing and identifying opportunities and risks was "Sensing by leveraging data, monitoring and anticipating risk." This theme is connected with other themes, such as "climate change, scenario analysis and risk assessments", "strategic foresight methods", and "information gathering and collaboration for climate action".

The findings contributing to this theme comprised the participants' responses describing the importance of data and monitoring data in enabling organisations to anticipate risk. The role of data was significant as it enabled organisations to crosscheck and benchmark against industry competitors and thereby sense best practices in relation to climate change. Furthermore, monitoring trends support sensing climate change-related information. The sources of data comprised climate change reports, UN SDG reports and activism trends.

The findings revealed that leveraging the data supported organisations as inputs to perform future studies to help sense changes in their industries.

6.3.2.1 Comparison and Contribution to Literature

According to scholars, uncertainty is due to the lack of information and the inability to collect information needed to analyse, make sense and anticipate changes in the environment (Haarhaus & Liening, 2020).

Moreover, scholars argue that uncertainty remains in companies if decision-makers are unable to forecast how environmental factors such as climate change risk and opportunities, competitor behaviour and consumer attitudes will develop over time (Haarhaus & Liening, 2020; Vecchiato, 2015).

The findings support the literature whereby companies collect data and information from trends to make sense of climate change risks, gain insights into best practices and support future studies for anticipating risk.

6.3.2.2 Conclusion of discussion

The research findings compare well, reflecting that the participants' responses to collecting and analysing information to make sense of climate change are consistent with the strategic foresight literature. The findings, however, support the literature in the context of climate change.

6.3.3 Opportunities - Resource Efficiency and Sustainability Investments

The third theme related to the role of strategic foresight in sensing and identifying opportunities and risks was "Opportunities: Resource Efficiency and Sustainability Investments."

The findings that contribute to this theme are based on the participants' responses regarding the opportunities that arise from climate change, which are beneficial to organisations to identify and capitalise on. According to the participants, these opportunities resulting from a commitment to climate change included economic benefit, meeting stakeholders' expectations, enhancing social responsibility in relation to climate change and helping customers in achieving their decarbonisation goals. The findings also highlighted that investments in renewable energy can yield returns on investment through cost savings.

Consequently, the findings emphasise that climate change presents opportunities for participation in a green economy and the transition to decarbonisation, particularly in South Africa, a developing economy.

6.3.3.1 Comparison and Contribution to Literature

Scholars argue that climate change risks can change be transformed into opportunities that enhance customer engagement and improve stakeholder value (Khan et al., 2023). Scholars also assert that companies can achieve cost savings by investing in energy-efficient technology that lowers energy consumption or renewable energy that reduces GHG emissions (Albitar et al., 2023; Slawinski et al., 2017; Littlewood et al., 2018).

The finding highlighted a key opportunity for helping customers decarbonise by turning climate change risks into opportunities, including achieving cost savings from investing in renewable energy.

6.3.3.2 Conclusion of discussion

The research findings compare well with existing literature, reflecting the participants' responses to opportunities related to climate change action. It was also evident from the participants' responses that they are aware of the opportunities related to climate change action and transitioning to decarbonise.

6.3.4 Information Gathering and Collaboration for Climate Action

The fourth theme associated with the role of strategic foresight in sensing and identifying opportunities and risks was "information gathering and collaboration for climate action". This theme was associated with the theme of "strategic foresight methods" and is a part of "sensing by leveraging data, monitoring and anticipating risk".

The findings contributing to this theme comprised of the participants' responses describing their active participation in associations, forums and sustainability conferences and engagement with specialists and stakeholders to collaborate on climate change action. These mechanisms assisted companies in broadening their sensing network and gather important information, thereby enhancing their ability to monitor climate change. The finding highlighted that by working with carbon specialists, companies can leverage their expertise to identify blind spots in their climate change strategy.

Information gathering and collaboration with stakeholders play key roles in obtaining data that support comapnies in sensing and responding to climate change.

6.3.4.1 Comparison and Contribution to Literature

Scholars highlight that strategic foresight methods improve learning abilities in events of uncertainty (Bourmistrov & Åmo, 2022). From this perspective, learning can involve sense-making and interpreting abrupt environmental changes that highlight future uncertainties and enhance competitiveness (Iden et al., 2017). The mechanisms described in the findings support companies gathering information that enhances their learning from sustainability conferences about climate change.

Durst et al. (2015) described the Delphi method as a collaborative and interactive foresight method. Furthermore, the scholars added that within the holistic foresight process, the output of one foresight method might act as an input to another foresight method (Durst et al., 2015). Slaughter (1997) described the Delphi method as a foresight method comprising of gathering information. Therefore, organisations engaging with specialists align with the Delphi method for gathering information and, hence, support learning.

6.3.4.2 Conclusion of discussion

The research findings compare well with the literature, which highlights how participants gather and interpret information. However, this literature primarily focuses on strategic foresight methods. As a result, these not only reinforce but also offer new insights into the application of strategic foresight methods in the context of climate change commitment.

6.3.5 Financial and Economic Implications of Climate Change

The fifth theme associated with the role of strategic foresight in sensing and identifying opportunities and risks was “financial and economic implications of climate change.” This theme is a part of “sensing by leveraging data, monitoring and anticipating risk”.

The findings related to this theme included of the participants’ responses describing the financial implications of both climate change action and inaction.

The findings highlighted cost implications due to legislation such as the European Union’s Carbon Border Adjustment mechanism, which imposes a carbon tax and raises the cost of doing business.

Additionally, the findings reported the costs associated with adapting to climate change would increase over time if organisations prolonged taking climate action.

Another important finding highlighted the economic impact on communities that are vulnerable to climate change events and on workers in carbon-intensive industries who are at risk of retrenchment.

6.3.5.1 Comparison and Contribution to Literature

According to Khan et al. (2023), companies will face much more severe risks and bear higher costs if they fail to give climate change the necessary strategic attention. This perspective outlines the benefit of action, as it promotes learning and limits future risks and costs.

The research findings support the literature as the participant's responses align with the costs associated with climate change, particularly the increase in the cost of climate change inaction.

6.3.5.2 Conclusion of discussion

The findings highlight the financial implications of legislation and companies' decisions to act or to respond with inaction. The participants are aware of the cost of inaction, with costs increasing over time associated with prolonging climate change action.

6.3.6 Strategic Foresight Methods

The sixth theme associated with the role of strategic foresight in sensing and identifying opportunities and risks was "strategic foresight methods". This theme was associated with three other themes: "climate change scenario analysis and risk assessments", "sensing by leveraging data, monitoring and anticipating risk", and "information gathering and collaboration for climate action".

The findings related to this theme included, participants' responses describing various strategic foresight methods. The findings are summarised in Table 9, highlighting the methods described by the participants.

Table 9: Strategic Foresight Methods

	Strategic foresight methods
1	Information gathering
2	Environmental scanning
3	Delphi method
4	Trend analysis
5	System thinking
6	Scenario planning and analysis

6.3.6.1 Comparison and Contribution to Literature

Slaughter (1997) divided foresight methods into four categories: input methods, analytical methods, holistic perspective, and the fourth is exploratory methods. Additionally, scholars argue that in the holistic foresight process, the output of one foresight method can serve as an input for another foresight method (Durst et al., 2015).

The findings highlight each of these methods from the participants' responses to Research Questions 1 and 2.

6.3.6.2 Conclusion of discussion

Strategic foresight methods are integral to various stages of the holistic foresight process. The research findings for Research Questions 1 and 2, which explored the role of strategic foresight, highlighted several different foresight methods that have been previously discussed. These findings support the existing literature on strategic foresight methods by offering insights into the application of strategic foresight within the context of corporate commitment to addressing climate change in the developing world.

6.3.6 Answering Research Question 2

Research Question 2: What is the role of strategic foresight in sensing and identifying opportunities and risks of climate change?

The aggregated theme developed from the six second-order themes is "sensing climate change risks and opportunities through strategic foresight methods". It answers Research

Question 2 by confirming that companies are aware of both climate change risks and opportunities climate change presents. It also outlines how companies employ strategic foresight methods to identify these risks and opportunities.

Information and data are essential in expanding the company's sensing network. The methods for information gathering include foresight methods such as environmental scanning, the Delphi method involving engagement with experts, associations and conferences, and trend analysis.

Gathering Information and data serve as a foundational input for scenario analysis and risk assessments. Sustainability and risk teams use the information to develop various scenarios and analyse these by conducting risk assessments. By ranking these risks, companies can evaluate their resilience to climate change risks. Additionally, they can identify which risks may be transformed into opportunities for the company.

As a result, companies committed to addressing climate change, use strategic foresight methods to sense and identify both risks and opportunities.

Figure 8 shows the conceptual model that captures the answer to Research Question 2.

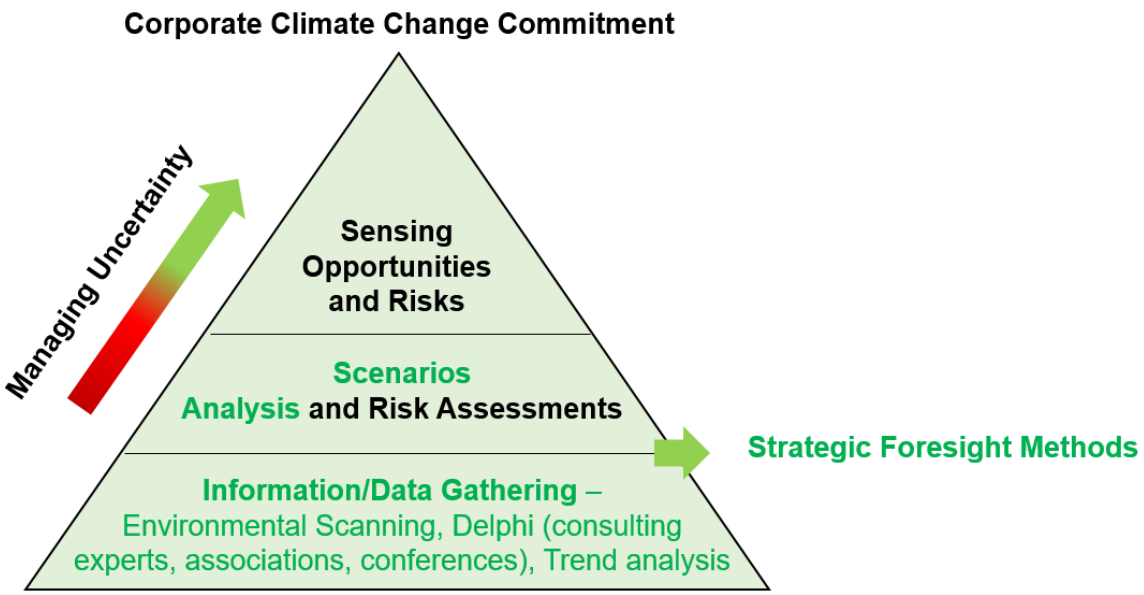


Figure 8: Conceptual model for Research Question 2. Adapted from (Fink et al., 2005)

6.4 Discussion of Research Question 3

Research Question 3: How does adopting a corporate commitment to climate change action by practising strategic foresight build a competitive advantage in South Africa?

Research Question 3 was important for the study as it aimed to explore how adopting a corporate commitment to climate change through strategic foresight, can create a competitive advantage.

This question investigated the types of competitive advantages that arise from the climate change commitments made by various companies based on the perception of the participants.

Studies suggest that corporate commitment to climate change action can lead to benefits that translate into a competitive advantage (Albitar et al., 2023; Littlewood et al., 2018).

The second-order themes that emerged from this research question included (1) organisation recognition as a competitive advantage, (2) resource efficiency and economic benefit, (3) long-term sustainability as a competitive strategy and (4) capabilities built from strategic foresight.

6.4.1 Organisation Recognition as a Competitive Advantage

One of the interview questions asked the participants to describe how they saw adopting a commitment to climate change influencing their organisation's competitiveness.

The findings generated from the interviews helped establish the theme of "organisation recognition as a competitive advantage".

The findings showed that most participants indicated that committing to climate change positively impacted their standing with stakeholders, including organisational recognition from both peers and competitors that led to receiving awards.

Additionally, an interesting finding was that positive narratives about the company helped enhance its reputation, which can leveraged as a competitive advantage.

6.4.1.1 Comparison and Contribution to Literature

Scholars have highlighted the significance of observing company's inaction on climate change and their insincere environmentally friendly initiatives and referred as greenwashing (Bryant et al., 2020; Coen et al., 2022; Wright & Nyberg, 2017). Greenwashing carries a negative connotation, which can tarnish a company's reputation.

Additionally, scholars have found that innovation related to climate change can boost company revenue and enhance brand credibility (Littlewood et al., 2018).

Consequently, the findings suggest that when companies commit to addressing climate change, their efforts can lead to recognition and awards that enhance their reputation and credibility.

6.4.1.2 Conclusion of discussion

The research findings support existing literature showing that climate inaction or action, in this case, influences a company's reputation.

Engaging in climate change action can lead to positive recognition and enhance a company's image through inspiring stories about its initiatives.

6.4.2 Resource Efficiency and Economic Benefit

The second theme associated with the role of strategic foresight in building a competitive advantage when adopting a commitment to climate change was "resource efficiency and economic benefit".

The findings showed that companies that reevaluate their processes and adapt to climate change by implementing climate change and sustainability initiatives could achieve both resource efficiency and economic benefits. The findings from the participants described that water and energy initiatives and investing in renewable energy produced a return on investment and cost savings. Moreover, focusing on resource efficiency allowed companies to use fewer resources, leading to additional in cost savings.

Additionally, the findings showed that companies gained economic benefits through recycling and acquired carbon credits by lowering their carbon footprint.

6.4.2.1 Comparison and Contribution to Literature

The findings support literature, which asserts that companies can benefit from cost savings by investing in energy-efficient technology that reduces energy consumption or renewable energy that reduces GHG emissions (Albitar et al., 2023; Slawinski et al., 2017; Littlewood et al., 2018).

Additionally, the findings also support existing literature that suggests that commitment to climate change leads to resource efficiency when aiming to reduce environmental impact (Albitar et al., 2023).

6.4.2.2 Conclusion of discussion

The findings support the literature, indicating that companies committed to addressing climate change can achieve economic benefits through resource efficiency and cost savings. Economic benefits arise by investing in renewable energy with the additional benefits of carbon credits because of sustainability initiatives that reduce carbon emissions.

6.4.3 Long-term Sustainability as a Competitive Strategy

The third theme associated with the role of strategic foresight in building a competitive advantage when adopting a commitment to climate change was long-term sustainability as a competitive advantage.

The findings showed that organisations focus on long-term sustainability because it is pertinent for organisations to ensure that they operate in the future. The findings also indicated that investors are interested in companies that mitigate climate change risks to ensure that they are an important factor for investors. Therefore, committing to climate change supports an organisation’s long-term sustainability and attracts investors due to organisations creating long-term value.

6.4.3.1 Comparison and contribution to literature

Scholars assert that organisations that take responsibility to contribute to a sustainable future also safeguard their own long-term viability (Khan et al., 2023). Since investors care about climate change, these findings align with existing literature, demonstrating that companies can secure their future by attracting investment.

6.4.3.2 Conclusion of discussion

By taking action on climate change, companies can benefit as it helps them reorient themselves to create long-term value and prepare for future challenges. Additionally, companies that commit to addressing climate change can investments. Investors are increasingly mindful of climate change as they recognise that companies addressing these issues are better positioned to mitigate risk and achieve long-term sustainability.

6.4.4 Capabilities build from strategic foresight

The fourth theme associated with the role of strategic foresight in building a competitive advantage when adopting a commitment to climate change was building capabilities from strategic foresight.

The findings indicate that companies committed to addressing climate change adapt their operations by adopting new technology, implementing best practices, broaden their sensing network, and building resources, expertise and knowledge. This approach enhances their capabilities, which in turn contributes to their competitive advantage. By being better prepared for climate change, these companies can actively participate in a low-carbon economy, thereby placing them in a competitive position.

6.4.4.1 Comparison and Contribution to Literature

The findings align with the dynamic capability framework. Teece et al. (1997) defined dynamic capabilities as “the firm’s ability to integrate, build and reconfigure internal and external competencies to address rapidly changing environments.” The findings indicate that companies sense risks and opportunities. By committing to climate change action, they reconfigure their operations to meet these climate change commitments to address climate change.

The findings also align with the literature, which asserts that companies can build the necessary capabilities and contribute to a sustainable future by committing to climate change (Khan et al., 2023). Furthermore, it also supports scholars that highlight that organisations can build a competitive advantage by transitioning to a low-carbon economy and “decarbonising world” (Khan et al., 2023).

6.4.4.2 Conclusion of discussion

When organisations commit to climate change, they adapt their organisation and operations. This results in organisations building capabilities through their adaptation initiatives, such as building sustainability teams and adopting new technology. These capabilities serve as a competitive advantage and can enable it to transform and transition to a low-carbon economy.

6.4.5 Answering Research Question 3

Research Question 3: How does adopting a corporate commitment to climate change action by practising strategic foresight build a competitive advantage in South Africa?

The aggregated theme developed from the four second-order themes is a "competitive advantage through climate change commitment and strategic foresight capabilities". It answers Research Question 3 by demonstrating that companies can build a competitive advantage by actively committing to climate change. The importance of strategic foresight is evident in its ability to manage uncertainty, promote system thinking and sense opportunities and risks related to climate change.

Achieving competitive advantage includes building long-term sustainability, improving resource efficiency, reducing costs, increasing organisational recognition and attracting investors.

Therefore, organisations that have committed to climate change can establish a competitive advantage with the support of strategic foresight. Figure 9 illustrates the conceptual model that captures the answer to Research Question 3.

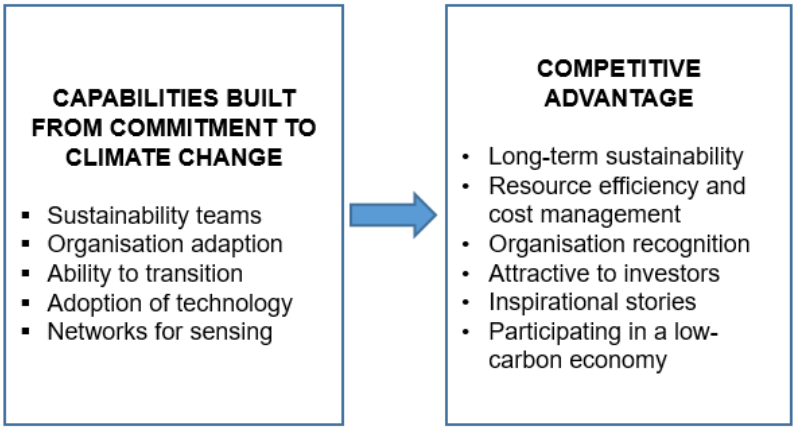


Figure 9: Conceptual model for Research Question 3

6.5 Conclusion

This chapter conducted a comparison of the findings from the study to the literature. The findings for each research question are as follows:

Research Question 1: The foresight methods play a role in information gathering and providing a holistic perspective for leadership to consider the broad implications of climate change on the ecosystem in which the companies operate.

Research Question 2: The outputs of the information gathering and system thinking set the foundation and are inputs for exploring and analysing scenarios through risk assessments. This helps companies make sense of risks and opportunities. It also enables organisations to engage with valuable stakeholders such as employees and communities, taking them on a journey to climate change action.

Research Question 3: As the company manages uncertainty, it is able to adapt the business and its operations by building capabilities that translate into a competitive advantage for the organisation.

A conceptual model was developed for each research question. These models are combined to create a comprehensive conceptual model for the research study, which is discussed in Chapter 7.

Chapter 7: Conclusion and Recommendations

7.1 Introduction

Corporations play a significant role in contributing to GHG emissions (Albitar et al., 2023; Coen et al., 2022; Khan et al., 2023; Littlewood et al., 2018). As a result, there have been urgent calls for companies to take accountability and adopt commitments to address climate change (Albitar et al., 2023; Al-Shaer et al., 2024). Despite the urgent need to prioritise climate change, many corporations have shown inaction, maintaining a “business as usual” approach and displaying a “wait-and-see” attitude (Huiskamp et al., 2022; Slawinski, 2017; Todaro et al., 2021).

Furthermore, it is paramount that corporations understand how to respond to climate change and its impacts on their operations, recognising both risks and opportunities. This understanding is vital to ensure they can sustain performance, build resilience and, most importantly, gain a competitive advantage in a low-carbon economy.

Scholars argue that climate change inaction takes place because of avoiding uncertainty and a short-term perspective toward climate change (Slawinski, 2017). Climate change inherently increases the uncertainty that companies face in decision-making and strategy development (Huiskamp et al., 2022; Todaro et al., 2021). Consequently, scholars argue that traditional management methods are inadequate for addressing an increasingly uncertain environment (Haarhaus & Liening, 2020; Huiskamp et al., 2022; Slawinski, 2017).

Strategic foresight is a field of practice found to be valuable for corporations as it improves their ability to adapt and respond to uncertainty (Haarhaus, 2020). However, research on strategic foresight in relation to corporate commitment to climate change is limited, particularly in the developing world (Huiskamp et al., 2022; Khan et al., 2023).

Therefore, this study used a qualitative exploratory method to investigate the role of strategic foresight in addressing uncertainty in corporations that have adopted a commitment to climate change action across different industries operating in South Africa. Secondly, the study explored the role of strategic foresight in identifying risks and opportunities in developing competitive advantages.

This chapter summarises the principal findings and conclusions for the three research questions presented in Chapter 3, based on the qualitative data gathered from 12 semi-structured interviews. It discusses how the findings contribute to business practitioners and existing literature. Additionally, it highlights the limitations of the study and suggests areas for future research.

7.2 Principal conclusions per research question

The research focused on answering three research questions, exploring the role of strategic foresight in addressing uncertainty in corporations that have adopted a commitment to climate change action across different industries operating in South Africa and the role of strategic foresight in identifying risks and opportunities in developing competitive advantages.

7.2.1 Research Question 1

What is the role of strategic foresight in overcoming uncertainty to adopt a corporate commitment to climate change?

Corporations encounter various uncertainties related to climate change. These include challenges in quantifying the impact and time horizon of climate change, the unpredictability of the “new normal” that may emerge, uncertainties surrounding the transition to decarbonisation, the timeframe over which climate change impacts will be felt and the advancement and affordability of climate change-friendly technology.

System thinking is a foresight method that provides a holistic perspective of the broader aspects of climate change impact, including the ecosystem in which organisations operate. The outputs from system thinking form a foundation for scenario planning, whereby organisations develop plans around risks. This is pertinent in managing uncertainty because it generates scenarios and information on future possibilities, including the impact of climate change on corporations.

Once this information is established, it is essential for senior management to engage actively with stakeholders to communicate the importance of taking climate change action. Consequently, this helps build practices and adaptation that guide stakeholders on a journey towards the corporations’s climate change initiatives.

7.2.2 Research Question 2

What is the role of strategic foresight in sensing and identifying opportunities and risks of climate change in South Africa?

Information and data empower decision-making and help organisations manage uncertainty. Gathering information and relevant data is essential in broadening the organisation's sensing capabilities and network. Organisations employ information-gathering mechanisms that include foresight methods such as environmental scanning, the Delphi method by engaging with experts, associations, and conferences, and trend analysis.

Information and data gathered by organisations provide a foundation for scenario analysis, a foresight method, and risk assessments. Sustainability and risk teams use this information to develop scenarios and conduct risk assessments. By ranking risks, organisations can evaluate their resilience to climate change risks. Additionally, organisations can identify which risks can transform into opportunities.

Consequently, organisations committed to addressing climate change use strategic foresight methods to recognise both risks and opportunities.

7.2.3 Research Question 3

How does adopting a corporate commitment to climate change action by practising strategic foresight build a competitive advantage in South Africa?

Committing to climate change can provide corporations with a competitive advantage. The importance of strategic foresight is evident in managing uncertainty. By gathering information, employing system thinking, and using scenario planning, corporations can sense opportunities and risks, which ultimately supports their commitment to climate change action.

The competitive advantages resulting from climate change commitment include building long-term sustainability, enhancing organisation resource efficiency and releasing cost savings, increasing organisation recognition, enhancing their reputation, and attracting investors.

When corporations commit to climate change, they adapt their operations, enhance their resources and adopt technology that supports their goals. This builds an corporation's capabilities and enhances its preparedness to deal with the climate change crisis.

In addition, investors care about climate change. Consequently, corporations can leverage inspirational stories about their commitment to climate change that enhance their ability to attract investors.

Therefore, corporations that have committed to climate change can build a competitive advantage with the support of strategic foresight.

7.2.4 Conceptual model

Combining the conceptual models for Research Questions 1, 2 and 3 presented in Chapter 6, helped develop a conceptual model, depicted in Figure 10, for the research problem statement. The conceptual model demonstrates how strategic foresight addresses uncertainty, senses climate change opportunities and risks, and ultimately provides a competitive advantage through a corporate commitment to climate change.

Figure 10: Conceptual model for the role of strategic foresight in adopting a corporate commitment and developing a competitive advantage. Adapted from (Fink et al., 2005)

Each level of the pyramid builds onto the previous level. Moving from the base of the pyramid to higher levels improves the management of uncertainty and moves corporations toward climate change commitment.

At the base of the pyramid resides the strategy foresight methods of information gathering and system thinking. The progression to the next level is dependent on collecting information for experts, associations and conferences. Additionally, the consideration ecosystem in which the corporation operations are required prior to proceeding to the next level. These form inputs into the foresight method of scenario planning.

Once the scenario analysis provides various futures that affect the corporation, the leadership can move forward to mitigate identified risks, pursue opportunities, and engage with stakeholders to take them on the climate change journey. This supports corporations in moving to the take level, which comprises of adaptation and building capabilities. The resulting capabilities can provide a corporation with a competitive advantage.

7.3 Contributions of the study

7.3.1 Addressing the gap for limited research of strategic foresight in the context of corporate commitment to climate change

This study contributes to the existing literature by illustrating the role of strategic foresight in managing uncertainty. It specifically integrates strategic foresight with corporate commitment to climate change. Although many studies focusing on corporate commitment to climate change, few studies have explored the role of strategic foresight within this context (Huiskamp et al., 2022). Therefore, the research addresses this gap by providing new insights into understanding how organisations use strategic foresight in an anticipatory and holistic approach to managing uncertainty, identifying risks and opportunities to prepare and hence, adapt the organisation for climate change action. This integration aims to enrich existing literature for organisations responding to the climate change crisis.

7.3.2 Supports the potential competitive advantage by adopting a corporate commitment to climate change

The research adds the dimension of exploring the competitive advantage organisations perceive by adopting a corporate commitment to climate change and climate strategies, using strategic foresight in a proactive approach, and moving away from traditional management approaches. This perspective shows that strategic foresight plays a role in long-term value creation and overcomes short-term perspectives that see climate action as a cost. This also

supports the competitive gain of climate change action extending beyond environmental responsibility.

7.3.1 Contributing to the insights from an emerging economy in the developing world

Researchers have asserted that there have been a greater focus on climate change studies in Europe (Boiral et al., 2012; Scholz & Methner, 2020). This study contributes by providing diverse insights into the underrepresented developing world, particularly through the contextual focus on South Africa. South Africa is transitioning from coal energy as it has committed to the Paris Agreement. The study, therefore, highlights the perspective of corporations dealing with relevant and current uncertainties and challenges associated with the country's goal of transitioning to a low-carbon economy.

7.4 Implications for managers

The study provided insights from a policymaker who expressed a goal of transitioning as many industries in South Africa as possible into a low-carbon economy. The study, therefore, highlights valuable implications for managers in South Africa and other economies transitioning to low-carbon economies.

The study demonstrates how strategic foresight can help manage different types of uncertainties related to climate change. This helps managers move away from avoiding uncertainty about climate change within their industries.

Additionally, it shows that strategic foresight can help identify broader implications relevant to their organisation by providing a holistic management approach. By understanding the ecosystem in which the organisation operates, managers can determine the risks and the associated costs related to long-term scenarios of both climate action and inaction. This insight can support the decision-makers to ensure that investments in climate change initiatives prevent higher future costs and help develop a climate strategy for operating sustainably into the future. This helps managers move away from short-term perspectives that can support the organisation in creating long-term value for shareholders.

Moreover, the conceptual model presented can serve as a guide to help managers understand the levels, steps, and journey required for adaptation toward a climate change commitment.

7.4 Limitations of the research

A number of limitations were identified during the study. It is important to highlight these to strive for transparency and credibility of the study, which has been presented in Chapter 4.

The researcher was a novice lacking training in conducting interviews. However, as more interviews were conducted, the researcher improved their approach. This may influence the data collection from the initial interviews conducted in the study.

The sample population were not fully homogeneous, even though the corporations were committed to climate change. This was because the corporations were different industries. Therefore, a larger sample size would be appropriate for a heterogeneous sample.

Furthermore, it was evident that organisations were at different levels of maturity in their journey regarding their commitment to climate change. This would also indicate that the sample was not fully homogenous, and a larger sample size would be appropriate.

The participants' positions were important for this study as the topic was in the field of strategy. The positions of the participants varied from CEOs to senior managers. However, this concern was mitigated by ensuring that the participants were not below senior management level.

The availability of the participants was another limitation of the study. Although the expected duration of the interview had been communicated in advance, some participants urged the researcher to conclude the interview sooner than planned. This urgency influenced the depth of some interviews and, consequently, the richness of insights gathered from certain participants.

7.5 Recommendation for future research

The following recommendations for future areas of research consider the study's limitations and insights from the research participants.

7.5.1 Focusing on a homogenous sample from one industry to gain deeper insights

This study focused on a cross-sectional representation of different industries. Therefore, an increased sample size would have been more appropriate. Future research should focus on a homogenous sample comprising of corporations from the same industry. This would help confirm the reliability of the research findings and possibly add more depth to the research.

7.5.2 Performing a longitudinal study of the research topic

The researcher performed this study over a cross-sectional time horizon. Future research could focus on a longitudinal time horizon. This will help in understanding how strategic foresight sustains corporate commitment to climate change and how it sustains a competitive advantage over the long term.

7.5.3 Exploring the role of technology on strategic foresight and climate change commitment

During the interviews, participants mentioned the importance of technology in assisting the transition to decarbonise their operations or in helping customers meet their climate change goals. An area for future research can focus on the role of strategic foresight in adopting technology for climate change commitment.

7.5.4 Exploring barriers to strategic foresight in adopting a corporate commitment to climate change

Strategic foresight has been important in managing uncertainty (Haarhaus, 2020). However, it would be important to determine potential barriers that inhibit the use of strategic foresight in organisations. A future area of study could determine the barriers in organisations that pose challenges to the implementation of strategic foresight to adopt a corporate commitment to climate change.

7.6 Conclusion (related to the research problem)

"*We have the stories that we can actually showcase to in terms of commitment to change. So how we put it and how we get viewed in that is very important. And I think in some of the questions like they, you try to get that out of us, so also that it's an ecosystem. You know, developing some of these things is as an ecosystem. It's a lot of things that we need to understand and balance to ensure that, you know, our Strategic Foresight is anchored around the context of where we operate and if we are going to adapt to the climate change is a localised solution. Yes, something that has to be painted at the same brush. And those nuances are actually some of the things that we need to understand., To appreciate, maybe the pace that we are taking is not seen that we are doing something by developed countries. But to understand that our pace is it holds a lot of balancing that sometimes can make us look like we are not moving at the speed that is expected of us from some of our peers"* (**Participant 12)**

When facing uncertainty, especially related to climate change, traditional management approaches that focus on short-term gains while overlooking long-term perspectives or avoiding uncertainty are inadequate to effectively cope and address the climate change crisis. Therefore, it was important to explore an alternative management method that improves the organisational capability to sense and anticipate future risks and opportunities and hence, manage uncertainty by comprehending future-oriented information.

Consequently, the study explored the role of strategic foresight in adopting a corporate commitment to climate change and its role in developing a competitive advantage. By focusing on corporations operating in South Africa, the study contributed to insights from the developing world.

The study confirmed that corporation experience different types of uncertainties around climate change and that different corporations approach climate change differently. However, the study found that strategic foresight methods play an important role in managing the uncertainty that climate change brings. This is an important finding as it supports corporations make sense of climate change in the context in which they operate. One participant as illustrated in the quote in the begging of this section, described strategic foresight as anchored in the context in which they operate, and adapting to climate change requires a localised solution.

The foresight methods help gather information and provide a holistic perspective for leadership to consider the broad implications of climate change on the ecosystem in which the corporation operates.

The results from information gathering and system thinking provide the foundation for exploring and analysing scenarios through risk assessments. This process helps corporations anticipate risks and opportunities. Additionally, it enables corporations to engage with valuable stakeholders such as employees and communities, guiding them on a journey to climate change action. As the corporation manages uncertainty, it is able to adapt the business and its operations by building capabilities that translate into a competitive advantage for the corporation.

8. References:

Agee, J. (2009). Developing qualitative research questions: A reflective process. *International Journal of Qualitative Studies in Education*, *22*(4), 431-447.

Albitar, K., Al-Shaer, H., & Liu, Y. S. (2023). Corporate commitment to climate change: The effect of eco-innovation and climate governance. *Research Policy*, *52*(2), 104697. https://doi.org/10.1016/j.respol.2022.104697

Al-Shaer, H., Liu, Y. S., & Albitar, K. (2024). Driving businesses towards a better climate: Macro and micro mechanisms to protect the planet. *Business Strategy and the Environment, 33*(3), 1810-1833.

Balthasar, D. (2024). Futuring Fragility: Embracing uncertainty, identifying opportunity, unlocking development. *Development Policy Review*, e12779. https://doi.org/10.1111/dpr.12779

Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, *17*(1), 99-120.

Barreto, I. (2010). Dynamic capabilities: A review of past research and an agenda for the future. *Journal of management, 36*(1), 256-280.

Benlemlih, M., & Yavaş, Ç. V. (2024). Economic policy uncertainty and climate change: Evidence from CO2 emission. *Journal of Business Ethics, 191*(3), 415-441.

Boiral, O., Henri, J. F., & Talbot, D. (2012). Modeling the impacts of corporate commitment on climate change. *Business Strategy and the Environment, 21*(8), 495-516.

Bourmistrov, A., & Åmo, B. W. (2022). Creativity, proactivity, and foresight. *Technological Forecasting and Social Change, 174*, 121215.

Braun, V., & Clarke, V. (2021). One size fits all? What counts as quality practice in (reflexive) thematic analysis?. Qualitative research in psychology, 18(3), 328-352.

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. Qualitative research in psychology, 3(2), 77-101.

Bryant, A., Griffin, J. J., & Perry, V. G. (2020). Mitigating climate change: A role for regulations and risk-taking. *Business Strategy and the Environment, 29*(2), 605-618.

Chen, J., Luo, X., & Ding, Q. (2024). Climate risk and renewable energy technological innovation: An institutional environment perspective. *Risk Analysis*, *44*(3), 566-581.

City of Johannesburg. (2023). *Water security strategy*. Retrieved from Johannesburg Water Security Strategy _ October 2023 - edit 06 (mcusercontent.com)

Coen, D., Herman, K., & Pegram, T. (2022). Are corporate climate efforts genuine? An empirical analysis of the climate 'talk–walk' hypothesis. *Business Strategy and the Environment, 31*(7), 3040-3059.

Creswell, J. W. (2013). *Qualitative inquiry and research design. Choosing Among five approaches*. Sage publications.

Creswell, J. W. (2014). *Research design: Qualitative, quantitative, and mixed methods approaches*. Sage publications.

Dagnino, G. B., Picone, P. M., & Ferrigno, G. (2021). Temporary competitive advantage: a state-of-the-art literature review and research directions. *International Journal of Management Reviews, 23*(1), 85-115.

Dahlmann, F., Branicki, L., & Brammer, S. (2019). Managing carbon aspirations: The influence of corporate climate change targets on environmental performance. *Journal of business ethics, 158*, 1-24.

Davies, T. (2024, May 2). Corporates' climate talk is hypocrisy of the highest order. There's a yawning chasm between what large companies say about climate change and what they are doing about it. *Financial Mail*. https://www.businesslive.co.za/fm/opinion/on-my-mind/2024-05-02-tracey-davies-corporates-climate-talk-is-hypocrisy-of-the-highest-order

Dube, K., Nhamo, G., Kilungu, H., Hambira, W. L., El-Masry, E. A., Chikodzi, D., ... & Molua, E. L. (2023). Tourism and climate change in Africa: informing sector responses. *Journal of Sustainable Tourism,* 1-21.

Durst, C., Durst, M., Kolonko, T., Neef, A., & Greif, F. (2015). A holistic approach to strategic foresight: A foresight support system for the German Federal Armed Forces. *Technological Forecasting and Social Change*, *97*, 91-104.

Elijido-Ten, E. O., & Clarkson, P. (2019). Going beyond climate change risk management: Insights from the world's largest most sustainable corporations. Journal of Business Ethics, 157, 1067-1089.

European Commission. (2024, October 31). Taxation and Customs Union: *Carbon Border Adjustment Mechanism*. Retrieved from https://taxation-customs.ec.europa.eu/carbon-border-adjustment-mechanism_en

Fergnani, A. (2022). Corporate foresight: A new frontier for strategy and management. *Academy of Management Perspectives*, *36*(2), 820-844. https://doi.org/10.5465/amp.2018.0178.

Ferns, G., & Amaeshi, K. (2021). Fueling climate (in) action: How organizations engage in hegemonization to avoid transformational action on climate change. *Organization Studies, 42*(7), 1005-1029.

Fink, A., Marr, B., Siebe, A., & Kuhle, J. P. (2005). The future scorecard: combining external and internal scenarios to create strategic foresight. *Management Decision*, *43*(3), 360-381.

Haarhaus, T., & Liening, A. (2020). Building dynamic capabilities to cope with environmental uncertainty: The role of strategic foresight. *Technological Forecasting and Social Change*, *155*, 120033. https://doi.org/10.1016/j.techfore.2020.120033

Hennink, M., & Kaiser, B. N. (2022). Sample sizes for saturation in qualitative research: A systematic review of empirical tests. Social science & medicine, 292, 114523.

Hoogendoorn, G., & Fitchett, J. M. (2018). Tourism and climate change: A review of threats and adaptation strategies for Africa. *Current Issues in Tourism, 21*(7), 742-759.

Horton, A. (1999). A simple guide to successful foresight. Foresight, 1(1), 5-9.

Huang, K. F., Dyerson, R., Wu, L. Y., & Harindranath, G. (2015). From temporary competitive advantage to sustainable competitive advantage. *British Journal of Management, 26*(4), 617-636.

Huiskamp, U., ten Brinke, B., & Kramer, G. J. (2022). The climate resilience cycle: Using scenario analysis to inform climate-resilient business strategies. *Business Strategy and the Environment, 31*(4), 1763-1775.

Iden, J., Methlie, L. B., & Christensen, G. E. (2017). The nature of strategic foresight research: A systematic literature review. *Technological Forecasting and Social Change, 116*, 87-97.

Khan, H., Gupta, S., Kumar, V., & Kumar, B. (2023). Managing climate change risks and creating stakeholders' value via sustainability-focused B2B brand strategies. *Industrial Marketing Management, 115*, 198-213. https://doi.org/10.1016/j.indmarman.2023.09.017.

Lee, S. Y., & Klassen, R. D. (2016). Firms' response to climate change: The interplay of business uncertainty and organizational capabilities. *Business Strategy and the Environment, 25*(8), 577-592.

Littlewood, D., Decelis, R., Hillenbrand, C., & Holt, D. (2018). Examining the drivers and outcomes of corporate commitment to climate change action in European high emitting industry. *Business Strategy and the Environment, 27*(8), 1437-1449.

Mehta, L., Adam, H. N., & Srivastava, S. (2019). Unpacking uncertainty and climate change from 'above'and 'below'. *Regional Environmental Change, 19*, 1529-1532.

Naeem, M., Ozuem, W., Howell, K., & Ranfagni, S. (2023). A step-by-step process of thematic analysis to develop a conceptual model in qualitative research. International Journal of Qualitative Methods, 22, 16094069231205789.

Naidoo, M., & Gasparatos, A. (2018). Corporate environmental sustainability in the retail sector: Drivers, strategies and performance measurement. Journal of Cleaner Production, 203, 125-142.

Nicholls, S. (2024, September 25). South Africa's climate commitments in urgent need of overhaul, says presidential climate commission head [Radio interview]. In Bingwa, B. (Interviewer), *Breakfast with Bongani Bingwa*. 702 FM Radio Station. https://omny.fm/shows/the-breakfast-show-702/time-for-action-south-africas-climate-commitments

Nowell, L. S., Norris, J. M., White, D. E., & Moules, N. J. (2017). Thematic analysis: Striving to meet the trustworthiness criteria. International journal of qualitative methods, 16(1), 1609406917733847.

Papadas, K. K., Avlonitis, G. J., Carrigan, M., & Piha, L. (2019). The interplay of strategic and internal green marketing orientation on competitive advantage. *Journal of Business Research*, *104*, 632-643.

Pitelis, C., & Wang, C. L. (2019). Dynamic Capabilities: What are they and what are they for? *British Journal of Management*, *30*(4), E1-E6.

Porter, M. E. (1981). The contributions of industrial organization to strategic management. *Academy of Management Review*, *6*(4), 609-620.

Rodina, L., Harris, L., Ziervogel, G., & Wilson, J. (2024). Resilience counter-currents: Water infrastructures, informality, and inequities in Cape Town, South Africa. *World Development, 180*, 106619.

Sakhel, A. (2017). Corporate climate risk management: Are European companies prepared? *Journal of Cleaner Production, 165*, 103-118.

Saunders, B., Sim, J., Kingstone, T., Baker, S., Waterfield, J., Bartlam, B., & Jinks, C. (2018). Saturation in qualitative research: exploring its conceptualization and operationalization. Quality & quantity, 52, 1893-1907.

Saunders, M., & Lewis, P. (2018). Doing research in business and management. England: Pearson.

Schoemaker, P. J., Heaton, S., & Teece, D. (2018). Innovation, dynamic capabilities, and leadership*. California management review, 61*(1), 15-42.

Scholz, G., & Methner, N. (2020). A social learning and transition perspective on a climate change project in South Africa. *Environmental Innovation and Societal Transitions, 34*, 322-335.

Shayegh, S., Manoussi, V., & Dasgupta, S. (2021). Climate change and development in South Africa: the impact of rising temperatures on economic productivity and labour availability. *Climate and Development, 13*(8), 725-735.

Slaughter, R. A. (1997). Developing and applying strategic foresight. *ABN Report, 5*(10), 13-27.

Slawinski, N., Pinkse, J., Busch, T., & Banerjee, S. B. (2017). The role of short-termism and uncertainty avoidance in organizational inaction on climate change: A multi-level framework. *Business & Society, 56*(2), 253-282.

South African Government. (2024, July 23). *President Cyril Ramaphosa assents to climate change bill*. Retrieved from https://www.gov.za/news/media-statements/president-cyril-ramaphosa-assents-climate-change-bill-23-jul-2024

Stanton, M. C. B., & Roelich, K. (2021). Decision making under deep uncertainties: A review of the applicability of methods in practice*. Technological Forecasting and Social Change, 171*, 120939.

Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic management journal, 18*(7), 509-533.

Teece, D. J. (2007). Explicating dynamic capabilities: the nature and microfoundations of (sustainable) enterprise performance. *Strategic management journal, 28(*13), 1319-1350.

Teece, D., Peteraf, M., & Leih, S. (2016). Dynamic capabilities and organizational agility: Risk, uncertainty, and strategy in the innovation economy. *California management review*, *58*(4), 13-35.

Todaro, N. M., Testa, F., Daddi, T., & Iraldo, F. (2021). The influence of managers' awareness of climate change, perceived climate risk exposure and risk tolerance on the adoption of corporate responses to climate change. *Business Strategy and the Environment, 30*(2), 1232-1248.

United Nations (n.d.). *The Paris Agreement*. Retrieved May 19, 2024, https://unfccc.int/process-and-meetings/the-paris-agreement

Unter, K. M. M., Park, S., & Rivera, J. (2023). Business Response Strategies to Climate Change: An Integrative and Research Frontiers Outlook. *Organization & Environment*, 10860266231202819.

Vecchiato, R. (2015). Creating value through foresight: First mover advantages and strategic agility. *Technological Forecasting and Social Change, 101*, 25-36.

Voros, J. (2003). A generic foresight process framework. foresight, 5(3), 10-21.

Weinhofer, G., & Busch, T. (2013). Corporate strategies for managing climate risks. *Business Strategy and the Environment, 22*(2), 121-144.

Wright, C., & Nyberg, D. (2017). An inconvenient truth: How organizations translate climate change into business as usual. *Academy of management journal, 60*(5), 1633-1661.

World Economic Forum. (2024). *The Global Risks Report 2024.* Retrieved February 2, 2024, from https://www3.weforum.org/docs/WEF_The_Global_Risks_Report_2024.pdf

Appendix A: E-mail to companies

Dear XXX,

My name is Vishal. I am a student at the University of Pretoria's Gordon Institute of Business Science (GIBS), where I am conducting research as part of my MBA program.
My research topic is "Adopting Corporate Commitment to Climate Change: The Role of Strategic Foresight in developing a Competitive Advantage".
I am focusing on how organisations are addressing climate change and how strategic foresight can support them in not only committing to climate action but also in identifying and developing a competitive advantage.
I am excited to see that XXX has made this commitment to address the climate change crisis.

I would greatly appreciate the opportunity to interview you for approximately 30-40 minutes.
The interview can be conducted via Teams, Zoom, or in person at your convenience.
Rest assured, confidentiality will be maintained, and I will not use any identifiers associated with you or your organisation in my research report.
I have attached the informed consent and permission letter, which also includes my supervisor's details.

Your input will significantly contribute to our understanding and help shape future developments adopting corporate commitment to climate change in the South African context.
Thank you in advance for your time and assistance. I look forward to hearing from you and highly appreciate your participation.

Kind regards

Appendix B: Informed consent letter

Informed Consent and Permission Letter

I am currently a student at the University of Pretoria's Gordon Institute of Business Science (GIBS), and I am completing my research in partial fulfilment of an MBA. I am conducting research on organisations adopting a commitment to climate change and trying to understand the role strategic foresight plays in supporting organisations not only to commit to climate change action but also if it helps identify and develop a competitive advantage. Our interview is expected to take about an hour and a half and will help us understand the research topic. The unit of analysis is at an organisational level. However, the interview will draw on your experience to gain insights about the organisation that is related to the research topic. Your confidentiality will be maintained throughout this research.

Your participation is voluntary, and you can withdraw at any time without penalty. All data will be reported without identifiers. By signing this letter, you indicate that it has given permission for:

- The interview to be recorded (either via an online recording or voice recording device)
- The interview recording to be transcribed
- Exact quotations from the interview may be used in the research as long as they do not identify yourself and your organisation.
- The access to secondary data that is publicly available on your website or annual integrated report
- The data to be included in a report that will be made public after the examination process is complete and
- All data to be reported and stored without any identifiers.

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

Researcher name : Vishal R.B Thulasee

Email : 23992035@mygibs.co.za

Phone : 071 8777 088

Research Supervisor Name : Professor Lyal White

Email : WhiteL@gibs.co.za

Phone : 084 522 0022

Signature of participant: _____ Date: _____

Signature of researcher: _____ Date: _____

Appendix C: Consistency Matrix

Title: Adopting Corporate Commitment to Climate Change: Developing a Competitive Advantage through Strategic Foresight				
	Research Questions	Literature Review	Data Collection Tool	Analysis
1	**Research Question 1:** What is the role of strategic foresight in overcoming uncertainty to adopt a corporate commitment to climate change?	Haarhaus & Liening, 2020; Slawinski et al., 2017; Vecchiato, 2015	Questions 1,2, 3 and 4 in the semi-structured interview guide	Content analysis on questions that require an explanation to determine if addressing the uncertainty of climate change provides clarity and input to the strategic objectives.
2	**Research Question 2:** What is the role of strategic foresight in sensing and identifying opportunities and risks of climate change?	Fergnani, 2022; Haarhaus & Liening, 2020; Vecchiato, 2015	Questions 5, 6, 7 and 8 in the semi-structured interview guide	Content analysis is used to uncover types of strategic foresight activities or practices, how these support learning, and the formal structure around the foresight activities?
3	**Research Question 3:** How does adopting a corporate commitment to climate change action by practising strategic foresight build a competitive advantage?	Dagnino et al., 2021; Haarhaus & Liening, 2020; Vecchiato, 2015	Questions 9, 10 and 11 in the semi-structured interview guide	Content analysis to uncover the competitive advantage created by adopting a commitment to climate change action.

Appendix D: Interview Guide

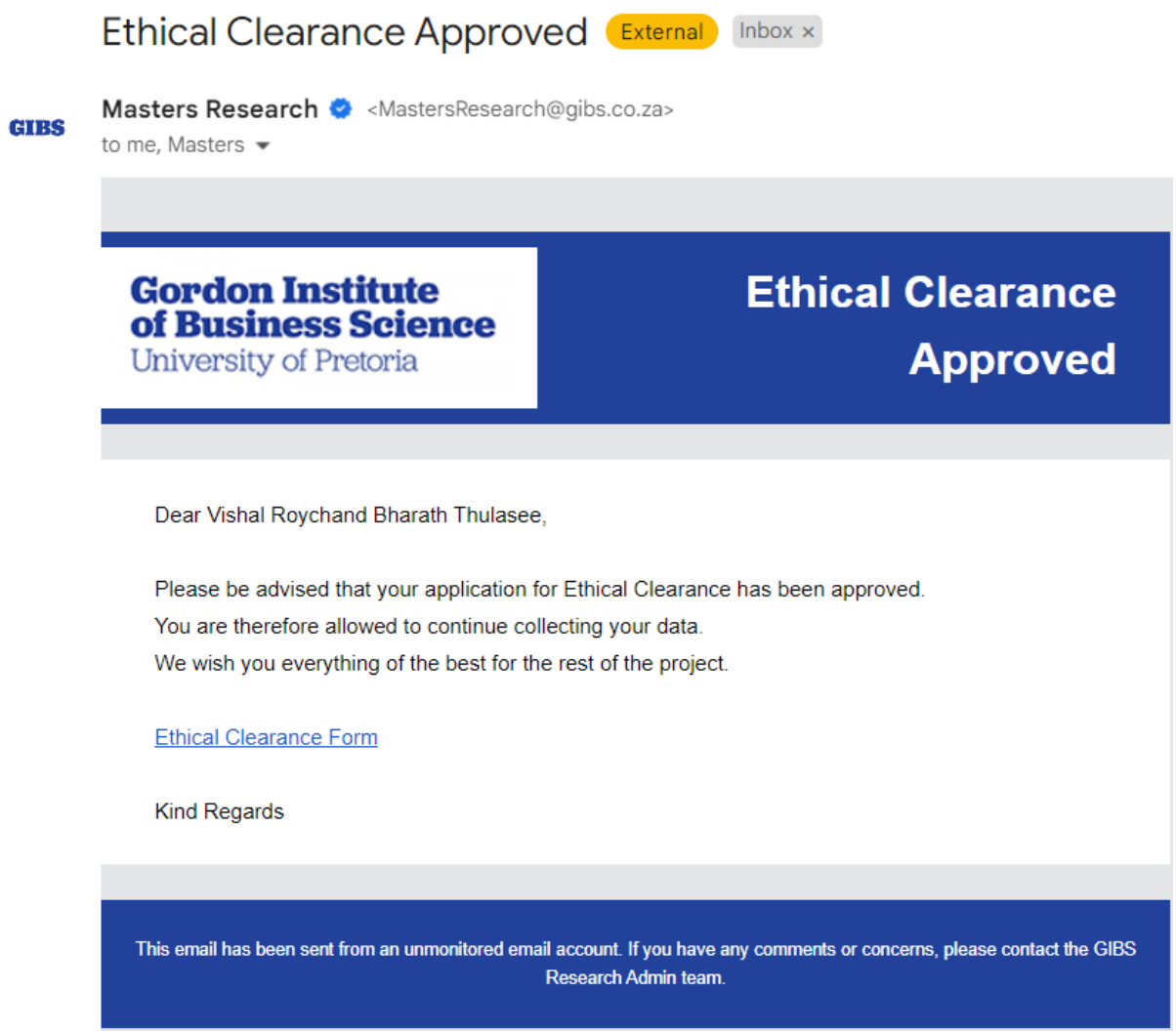
1. Why and how has your organisation committed to climate change action?
2. Please elaborate on the vision, strategy and targets for your organisation's commitment to climate change.

3.1 Did you experience/feel uncertainty associated with climate change?

3.2 If so, how did your organisation address the uncertainty, helping you or others overcome the uncertainty?

4. How has your organisation made sense of climate change in relation to the industry?
5. How would you describe your organisation's practices/processes and tools for sensing, anticipating or foreseeing the impact of climate change on your business segment over the next decade?
6. How would you describe these tools in having supported the organisation to align with its commitments? Please elaborate on how you see this connection.
7. What significant threats and opportunities do you feel climate change brings to your organisation's competitiveness over the next decade?
8. Please describe from your experience how your organisation analyses future climate change opportunities and risks to create value.
9. How has your organisation adapted to the environment change by sensing climate change risk and seizing climate change opportunities?
10. What were the desired outcomes, and have these been achieved by committing to climate change action? If not, how do you see the anticipated outcomes by your organisation for making a commitment to climate change action?
11. How do you see adopting a commitment to climate change action influence your organisation's competitiveness? Please elaborate on the competitive advantage.

Appendix E: Ethical Clearance Approval



Ethical Clearance Approved External Inbox ×

GIBS **Masters Research** <MastersResearch@gibs.co.za>
to me, Masters

Gordon Institute of Business Science
University of Pretoria

Ethical Clearance Approved

Dear Vishal Roychand Bharath Thulasee,

Please be advised that your application for Ethical Clearance has been approved.
You are therefore allowed to continue collecting your data.
We wish you everything of the best for the rest of the project.

Ethical Clearance Form

Kind Regards

This email has been sent from an unmonitored email account. If you have any comments or concerns, please contact the GIBS Research Admin team.

Appendix F: Codebook - Presentation of open and axial codes

Research Question 1: What is the role of strategic foresight in overcoming uncertainty to adopt a corporate commitment to climate change in South Africa?	Code Frequency
Selective code 1: Strategic Foresight in Adapting to Climate Change Uncertainty	
Axial code 1.1: Commitment to Climate Change	
○ Active follower of climate change	2
○ Be a part of the solution	1
○ Biodiversity conservation	1
○ Business model with a conservation agenda	1
○ CEO commitment to explaining the impact of organisational activities	1
○ Commitment as a constructive actor to reduce the impact on climate	2
○ Commitment to net zero by 2050	8
○ Choice to act	1
○ Climate action communication strategy to stakeholders	1
○ Carbon neutral	1
○ Moral imperative beyond competitive advantage	1
○ Journey of understanding and embracing sustainability	7
○ Paris agreement	2
○ Positive actor and contributor to climate action	4
○ Reinforcing organisation's role in society and climate change	1
○ Climate change action linked to doing the right thing	3
○ Playing a responsible role in climate change action	2
○ Prioritising and investing in SDG goals	1
○ Setting aspirational targets	5
○ Going beyond carbon neutral	1
○ Going further than just expressing desire	1
○ Green investment initiatives	3
○ Environmental responsibility	7
○ Helping the environment	1
○ Evolved sense of awareness beyond the organisation	1
Axial code 1.2: System Thinking to Climate Change	
○ Leadership commitment to climate change	5
○ Leadership accountable for performance	1
○ Corporate responsibility	6
○ Leadership guidance	1
○ Leadership role in identifying and driving systemic change	1
○ Increasing clarity on climate change impact	1
○ Impact-led	1
○ Organisation dignity	1
○ Shared value commitment	4
○ SDG commitment embedded in organisation	2
○ Journey never ends	4
○ Follower of best practice	4
○ Foresight planning linked to SDG	2

Continuation of Codebook Axial code 1.2: System Thinking to Climate Change	
○ Envisioning best practices	2
○ Importance of leadership buy-in for climate action	4
○ Maturity index	1
○ Maturity stages of adopting climate change action	3
○ Measuring business impact	5
○ Environmental stewardship	4
○ Environmental values	1
○ Team accountability	1
○ Top management awareness of organisation purpose	1
○ Triple bottom line	1
○ Reflection of industry's role in addressing climate change	5
○ Oversight of the board	1
○ Healthy habitat	1
○ Protecting African carbon sinks	1
○ Recognition of business impact on climate change	1
○ Recognition of flawed thinking on climate change responsibility	1
○ Investment in addressing uncertainty*	1
○ Shifting climate change risk to opportunity*	1
○ National development plan*	2
○ Addressing climate change consequences	4
○ Allocation of resources to achieve targets	5
○ Approaching climate change holistically	3
○ Businesses don't operate in isolation	1
○ Balancing short-term and long-term goals	1
○ Building capability to deal with complexity	1
○ Business dependency in the environment in operates	3
○ Carbon budgets*	1
○ Clear process for target setting for climate action	1
○ Climate change performance linked to incentives	1
○ Climate change organisation exposure	1
○ Climate change polices and governance	2
○ Climate change reporting	2
○ Climate change strategy	4
○ Climate change accreditation	3
○ Ensuring resilience	1
○ Environment conservation	4
○ Emission strategy (Scope 1,2 and 3)	2
○ Environment sustainability structures	2
○ Forward-thinking	5
○ Net zero philosophy	3
○ Decarbonisation goals	1
○ Reducing costs by resource efficiency	3
○ Reducing fossil fuel dependency	3
○ Reducing waste to landfill	2
○ Refining best practice	1
○ Leadership sense-making of climate change impact	4

Continuation of Codebook Axial code 1.2: System Thinking to Climate Change	
○ Long-term thinking	3
○ Strategic foresight approach	1
○ Strategic framework	1
○ Strategic thinking	5
○ Strategic thinking of climate change risk	2
○ Strategies for remaining sustainable as a business	3
○ Strategy development	2
○ Sustainability framework	4
○ Sustainability metrics	6
○ Imposing requirements on supply chain	1
○ Moving from foundational practices to mature practices	1
○ Instilling an adaptation mindset*	2
○ Pathways to adaptation*	3
○ Resilient infrastructure*	3
○ Transitional framework*	
Axial code 1.3: Strategic Business Adaptation and Actions for Climate Change	
○ Independent accountability assessments	3
○ Aligning value chain to carbon footprint reduction	1
○ Aligning operational activities to carbon footprint aspirations	1
○ Aligning organisation purpose to long-term climate action	4
○ Alignment of Conservation with Climate Change	2
○ Alternative energy sources	3
○ Carbon off-set	2
○ Celebrating and encouraging climate change culture	1
○ CDP (carbon disclosure project)	1
○ Reducing carbon footprint	7
○ Climate change action	2
○ Decarbonisation in operations	3
○ Governance committees	2
○ Supply chains	1
○ Supply-chain management	2
○ Sustainability practices	1
○ Exploring alternative energy sources	1
○ implementing initiatives reducing environmental impact	4
○ Tracking tools	4
○ Land management	1
○ Questioning practices	1
○ Process adaption	1
○ Recycling	1
○ Energy footprint	4
○ Energy reduction	2
○ Energy supply from dirty sources	1
○ Ensuring meeting customer needs	1
○ Green buildings	1
○ Green initiatives	3
○ Environment awareness	2

Continuation of Codebook Axial code 1.3: Strategic Business Adaptation and Actions for Climate Change	
○ Environment regeneration	1
○ Environmental compliance audit	1
○ Entrepreneurial energy	1
○ Standard operating procedures	2
○ Staying committed with sacrificing performance	1
○ African businesses	1
○ Pilot program	1
○ Climate change bill*	3
Axial code 1.4: Managing Uncertainty	
○ Uncertainty about climate change impact	5
○ Uncertainty around South Africa's readiness for climate change	1
○ Uncertainty of a new normal for business	1
○ Uncertainty of global, social, environmental trends	1
○ Uncertainty of resource supply	1
○ Uncertainty of time and effort to act	1
○ Future uncertainty	1
○ Impact of CO2 emissions on climate change	2
○ Impact of dilapidated infrastructure on flooding	1
○ Risk committee	1
○ Risk exposure for carbon-intensive industries	1
○ Risk mitigating	1
○ Scenario planning	2
○ Scenario risk analysis	4
○ Need for leadership capabilities to navigate uncertainty	2
○ Need for long-term investment in sustainability	2
○ Need for new strategic muscles	1
○ Need for partnerships to address climate change	5
○ Scenario modelling*	3
○ Uncertainty in meeting climate targets*	4
○ Uncertainty of developing cost-effective technology*	3
○ Threat of inaction*	2
○ Transition risk*	7
○ Technology been expensive*	1
○ Uninsurable assets*	1
Axial code 1.5: Stakeholder Engagement and Corporate Responsibility	
○ Building an ethos for stakeholder to embrace	1
○ CEO communicating climate change action is non-negotiable	1
○ Just transition	1
○ Continuous improvement philosophy	6
○ Continuous learning by doing	6
○ Explaining consequences of climate change on the business to employees	2
○ Explaining impact of organisation practices on climate change	1
○ Explaining the organisation as an actor aiding or stressing the planet	1

Continuation of Codebook Axial code 1.5: Stakeholder Engagement and Corporate Responsibility	
○ Importance of climate change education	1
○ Building movements through climate action	1
○ Climate change impact on communities	1
○ Climate change impact on geographical locations	3
○ Climate change impacts vulnerable and poor most	1
○ Businesses have different climate change approaches	3
○ Catalyst for positive change	2
○ Creating climate change organisational language	1
○ Change in organisation mindset	2
○ Reinforcing and embedding organisational purpose	3
○ Collaboration with organisations/industry bodies	3
○ Collaboration/consulting with carbon specialists	2
○ Collective action	1
○ Collective industry solutions	1
○ Collaborating with value chain	2
○ Communities in which business operates	3
○ Community and conservation initiatives	5
○ Community conservation education	1
○ Community perspective	3
○ Community sustainability education	1
○ Understanding climate change role on business	2
○ Understanding leading to commitment	2
○ Understanding resource usage	3
○ Understanding the role of climate change on communities	1
○ Unsustainable current business practices	1
Research Question 2: What is the role of strategic foresight in sensing and identifying opportunities and risks of climate change in South Africa?	
Selective code 2: Sensing climate change risks and opportunities through strategic foresight methods	
Axial code 2.1: Climate Change Scenario Risk Assessments	
○ Ongoing risk and opportunity assessment	2
○ Climate risk assessments	2
○ Climate change threat to business sustainability	6
○ Climate change threat to existence of business	4
○ Analysing climate change impact	6
○ Assessing how the whole value chain impacts climate change	1
○ Business threat for customer experience	1
○ Comparing business interruption of COVID 19 to climate change	1
○ Considering green legislation	1
○ Threat of biodiversity loss	1
○ Threat of biodiversity shift	2
○ Threat of increase in temperature	2
○ Threat of insecure energy supply	1

Continuation of Codebook Axial code 1.5: Climate Change Scenario Risk Assessments	
○ Threat of resource scarcity	2
○ Threat of species loss	4
○ Changing patterns	1
○ Water scarcity as a business risk	2
○ Window dressing	1
○ Worsening climate change risk	1
○ Day zero	1
○ Storms	2
○ Climate change issue	1
○ Environmental risk	1
○ Resource allocation challenge for long-term issues	1
○ Proactive risk monitoring and management	5
○ Negative impact due to lack of insurance	1
○ Fire management	1
○ Fires	1
○ Flooding	2
○ Day zero	1
○ Delayed climate impact risk on operations	1
○ Early perception of climate change as minimal risk	2
○ High energy intensity industry	1
○ Increase in frequency and intensity of climate change impact	4
○ Infrastructure and climate change challenge	1
○ Operational disruptions due to climate change	3
○ Ranking climate change risks	1
○ Challenge in communicating and resonating impact of climate change	2
○ Challenge in communicating long-term climate change impact	2
○ Challenges in justifying long-term climate initiatives	3
○ Cultural and behavioural resistance to climate change action	1
○ Cultural resistance to climate change responsibility	1
○ Customers unconcerned about climate initiatives	1
○ Data uncertainty in climate change management	1
○ Lack of obvious immediate economic benefit of climate initiatives	3
○ Lack of team understanding in climate action	1
○ Concerned about climate change events	4
○ Climate crisis	1
○ Passing cost to customers	1
○ Realisation the daunting task in tackling climate change	1
○ Reneging promises	1
○ Big climate change impact in Africa	3
○ Short-term thinking	2
○ Unconvinced commercial impact	2

Axial code 2.2: Sensing by Leveraging Data, Monitoring and Anticipating Risk	
○ Baseline studies*	3
○ Sustainability reporting*	2
○ South African context is different*	3
○ Investment in addressing uncertainty*	1
○ Performing research*	5
○ Climate change bill*	3
○ Regulatory framework*	2
○ Monitoring and tracking SDG goals	1
○ Monitoring third-party climate change reports	1
○ Monitoring weather for risk-sensing	1
○ Awareness of data	2
○ Benchmarking against industry participants/competitors	5
○ Climate change sensing	7
○ Climate data is ever-changing	1
○ Data in infancy stage	1
○ Data informing decisions	3
○ Visual confirmation of climate change	1
○ Carbon emission competitor analysis	1
○ Catalytic event to reinforce commitment to climate action	4
○ Working to get the data	2
○ Climate change complexity	1
○ Climate change event	7
○ Data uncertainty in climate change management	1
○ Different modelling tools	1
○ Driving climate change investigation	1
○ Decision-making framework	1
○ Different modelling tools	1
○ Driving climate change investigation	1
○ Large language models	1
○ Larger predictive models	1
○ Global climate change guidance	2
○ Makes sense	2
○ Management and monitoring system	6
○ Mindful of activists	1
○ Correlating impacting of climate change on operations	4
○ Climate change awareness	5
○ Scientific thinking on climate change	3
○ SDG guidance	3
○ Regulators focus on climate change	1
○ Threat of regulations*	2
○ Risk of business as usual*	2
○ Risk of community puts business at risk*	1
○ Risk of losing what we have*	1
○ Physical risk*	7
○ Severe weather events*	3

Continuation of Codebook Axial code 2.2: Sensing by Leveraging Data, Monitoring and Anticipating Risk	
○ Carbon border adjustment mechanisms*	3
○ Brown economy*	1
○ Carbon penalties*	1
○ Carbon tax threat*	2
○ Changing customer preference*	2
○ High emitting sectors*	3
○ Increased competition in the green space*	3
○ Political uncertainty affecting climate action*	1
○ Greenhouse gases*	1
○ South Africa top five global coal exporter*	1
Axial code 2.3: Opportunities: Resource Efficiency and Sustainability Investments	
○ Investigating best practices	5
○ Investors care about climate change	2
○ Sustainability benefits	1
○ Sustainability opportunity	1
○ Waste management	2
○ Water conservation	2
○ Water efficiency opportunity	2
○ Water footprint	5
○ Water recycling	2
○ Water reduction	3
○ Water resource challenge in South Africa	2
○ Embracing focused SDG goals	4
○ Embracing innovation	2
○ Climate entrepreneurship	2
○ Developing systemic solutions	1
○ Climate change opportunities	1
○ Resource efficiency	4
○ Seeing opportunity in sustainability challenges	1
○ Selling carbon credits	1
○ Sharing best practices	2
○ Small business opportunities	1
○ Solar energy investment	4
○ South Africa dealing with energy challenges	1
○ Stable energy supply	1
○ Nature-based solution for climate change	1
○ Organisation transformation	1
○ Renewable energy as an opportunity	5
○ Sustainability cities	1
○ Opportunity for insurance industry to learn from finance industry	1
○ Opportunity of better preparedness for climate change	1
○ Optimised usage of resources	2
○ Attracting investment opportunity*	1
○ Green accreditation*	1

Continuation of Codebook Axial code 2.3: Opportunities: Resource Efficiency and Sustainability Investments	
○ Green economy opportunities*	2
○ Low carbon economy*	3
○ Opportunity to assist customers to decarbonise*	4
○ National development plan*	2
○ Battery technology*	1
○ Carbon budgets*	1
○ Carbon capture technology*	7
○ Policy makers*	1
○ Clean energy commodities*	1
Axial code 2.4: Information Gathering and Collaboration for Climate Action	
○ Being a part of a community with similar climate change values	1
○ Climate change culture embeddedness	7
○ Consumer climate awareness as a driver for business behaviour	1
○ Opportunities for collaboration to combat climate change	4
○ Climate change organisations	1
○ Opportunity to play a catalytic role	1
○ Leveraging data and experts for risk-sensing	1
○ Sustainability conferences	1
○ Monitoring activism	1
○ Monitoring and evaluation to overcome uncertainty	1
○ Belonging to associations*	2
Axial code 2.5: Financial and Economic Implications of Climate Change	
○ Cost implications for industry	2
○ Cost of climate change	1
○ Economic pressure impacting climate action	1
○ Economic solutions to problems	1
○ Financial institution focus on climate change	1
○ Remaining solvent	1
○ Remaining sustainable	1
Axial code 2.6: Strategic foresight methods	
○ Ongoing risk management of climate change strategy	1
○ Analysing climate change holistically	1
○ Considering impact of legislation	1
○ Forward-looking studies*	4
○ Scenario modelling*	3
○ Stakeholder engagement*	3
○ Monitoring climate change trends and best practices	2
○ Climate change sense-making	2
○ Sustainability conferences	1
○ Research and development*	5
○ Belonging to associations*	2
○ Monitoring activism	1

Continuation of Codebook Axial code 2.6: Strategic foresight methods	
○ Monitoring and evaluation to overcome uncertainty	1
○ Environmental sense-making	1
○ Environmental sensing	1
○ Leveraging data and experts for risk-sensing	1
○ Cost of inaction increases with time*	1
○ Climate change networking	1
○ Climate change conferences/meetings	4
○ Climate change information sharing	2
Research Question 3: How does adopting a corporate commitment to climate change action by practising strategic foresight build a competitive advantage in South Africa?	
Selective code 3: Competitive advantage through climate change commitment and strategic foresight capabilities	
Axial code 3.1: Organisation Recognition as a Competitive Advantage	
○ Climate change action enhancing competitiveness	3
○ Climate change action leading to awards	2
○ Organisation recognition leading to competitiveness	4
○ Organisation respect amongst peers and competitors	2
○ First mover advantage*	1
○ Preservation of value*	2
○ Preserving industries*	1
○ Sustainable finance*	3
○ Inspiration stories	1
Axial code 3.2: Resource Efficiency and Economic Benefit	
○ Carbon credit	4
○ Biodiversity credits	2
○ Resource efficiency leading to competitiveness	1
○ Cost savings	3
○ Avoid passing high costs to consumers	1
○ Positive correlation of climate action to financial performance	2
○ Economic benefit leading to competitiveness	1
○ Economic benefits	3
○ Economic opportunity	1
○ Creating value through green initiatives	1
Axial code 3.3: Long-term Sustainability as a Competitive Strategy	
○ Long-term sustainability over competitiveness	1
○ Sustainability is key to long-term survival	1
○ Commercial solutions to problems	2
○ Creating long-term value	1
○ Commitment to climate change leading to good standing	2
○ Licence to operate in future*	2

Axial code 3.4: Capabilities Built from Strategic Foresight	
○ Leader in climate action as a competitive advantage*	5
○ Investing in technology to be competitive*	2
○ Understanding how to transition*	5
○ Understanding climate finance flows*	1
○ Sustainability reporting*	2
○ Belonging to associations*	2
○ Sustainability reporting*	2
○ Clean energy solutions*	10
○ Sustainability team*	3
○ Transition business models*	9
○ Incremental steps in competiveness	2
○ Evolved sense of awareness beyond the organisation	1
○ Adopting technology to reduce carbon emission*	1
○ Opportunity in assisting customers to decarbonise*	4
○ Organisation transformation	1
○ Alternative energy sources	3