Gordon Institute of Business Science
University of Pretoria

***How multinational enterprises (MNEs) develop and leverage managerial and firm capabilities in response to climate change***

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

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**ABSTRACT**

Using the lens of dynamic green capability, the research explores how MNEs respond to climate change from a strategic and an operational perspective by investigating how firms and managers interpret the exogenous phenomena of climate change, identifying the resources and capabilities they view as critical for strategy implementation, gauging the ways in which they harness these resources and capabilities for strategy execution and enquiring about the ways they build capacity for the continual renewal of capabilities. The role of ethical mechanisms and global connectedness, in the execution of dynamic green capabilities, were investigated. Organisational flexibility is also explored as a component of dynamic green capability. A qualitative research method was adopted and in-depth interviews were conducted with 19 risk, strategy and sustainability managers and executives working in (or with) MNEs. Findings supported extant IB literature on the climate change issue and provided additional insights into the climate change context in an emerging market and real-world examples of theorised drivers, process and activities that are antecedents to dynamic green capability.

**KEYWORDS**

Climate change, multinational enterprises, dynamic capabilities

**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 Philosophy International Business at the Gordon Institute of Business Science, University of Pretoria. It has not been submitted before for any degree or examination in any other University. I further declare that I have obtained the necessary authorisation and consent to carry out this research.

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**LIST OF ABBREVIATIONS**

CSA: Country-specific advantage

CEO: Chief Executive Officer

DC: Dynamic capability

DMNE: Developed market multinational enterprise

EMNE: Emerging market multinational enterprise

ESG: Environmental, Social and Governance

EXCO: Executive Committee

FSA: Firm-specific advantage

GHG: Greenhouse gas

GIBS: Gordon Institute of Business Science

IB: International business

KPI: Key performance indicator

MNE: Multinational enterprise

RBV: Resource-based view

SBTI: Science-Based Target Initiative

TCFD: Taskforce on Climate-related Financial Disclosure

UN: United Nations

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# 1. INTRODUCTION

## 1.1 Background to the research problem

It is undisputable that climate change – defined as "human influence which has warmed the atmosphere, ocean and land and caused widespread and rapid changes in the atmosphere, ocean, cryosphere and biosphere" (Intergovernmental Panel on Climate Change [IPCC], 2021, p. 4) – is occurring. Rising temperatures, changing climate patterns and an increase in the unpredictability of the frequency and magnitude of natural disasters are a testament to this (see Appendix 1, Exhibit A1 and Exhibit A2).

Natural environments across the world (75% of the earth's land surface and 66% of its ocean area) have been critically altered by human activities (Intergovernmental Science-Policy Platform on Biodiversity and Ecosystems Services [IPBES], 2021). Climate change is exacerbating the impact of human activity to the extent that, already, one million flora and fauna species face extinction owing to a decline in biodiversity and the health of ecosystems (IPBES, 2021). Shockingly, current rates of degradation are ten to hundreds of multiples of average extinction rates over the past ten million years (IPBES, 2021).

Climate change is already changing human lifestyles (McKinsey, 2021). Yet another measurement highlights the extremity of the situation – Europe experienced the seven warmest years on record (measurements have been taken since 1850) between 2015 and 2021 (World Meteorological Association, 2022).

Climate change is affecting the way businesses conduct their activities across global value chains and how various stakeholders (including local and national governments, regional coalitions, and world bodies) design policies and act on their mandates. The recent passing of the Inflation Reduction Act in the United States of America shows that it is possible to design policies that include national climate priorities (while catering to wider societal needs) (McKinsey, 2022).

Busby (2018) deems that the most significant risks to the functioning of our societies and quality of life are those associated with climate change, with access to resources (and the efficient allocation of available resources) becoming more of a tinderbox geopolitical issue than it already is. In practice, the reality is that the continuity of human existence and quality of life, trade and investment (which speaks to the values and missions of firms) is at stake and there is a dire need to understand business' role in implementing the United Nations (UN) Sustainable Development Goals (SDGs) (Montiel et al., 2021; Sun et al., 2021) which include climate action. Firms also face regulatory pressure in

responding to climate change (Zilja, 2022). Given the continuously changing institutional and socio-political landscapes, the complexity of this multi-level global issue is obvious. Yet, this also presents a significant opportunity for firm competitiveness (Kolk & Pinkse, 2008, 2012; Kolk & Ciulli, 2022).

### 1.2 The research problem

Climate change is one of the most urgent "real-world" issues facing multinational enterprises (MNEs) and it would be valuable to understand the everyday realities facing MNEs as they navigate the challenges (and opportunities) associated with climate change. Do MNEs respond to climate change because of regulatory requirements or of their own volition (Zilja, 2022)? Do MNEs strategies that deal with climate change exist (Ghauri et al., 2021)? Are they adequate (Ghauri et al., 2021)? Should a dynamic approach to strategies be taken (Hitt et al., 2021)? How does an MNE's positioning/self-awareness compare to that of rivals? Climate change has been explored from a business risk and strategic management perspective (Kolk & Pinkse, 2008, 2012) but there are gaps in knowledge regarding the influence of climate change on MNE competitiveness and interactions with their stakeholders in home and host countries (Kolk, 2016).

The issue of climate change encompasses changing geopolitical contexts, fluctuating economic conditions and continuous technological advancement. This means MNEs' operations and efficiencies will continually be impacted by external factors, making it necessary for them to understand how they should re-organise to sustain advantage (Kolk & Ciulli, 2022; Bohnsack, 2021).

The climate change context is a valuable setting for the application of the dynamic capability (DC) paradigm to understand how MNEs strategically re-organise themselves in the face of continual changes brought about by the effects of climate change. There is a strong call for the investigation of the underlying resources, capabilities, processes and routines which give effect to the overarching (higher-order) DC which MNEs employ in response to a changing external business environment (Matysiak, 2018; Verbeke, 2022) – and specifically the employment of dynamic green capability (a purposefully defined higher-order DC given the context) in response to climate change (Buckley, et al., 2017; Ghauri et al., 2021; Kolk & Pinkse, 2008, 2012, 2016; Kolk & Ciulli, 2022; Montiel et al., 2021; Sun et al., 2021).

There is also a need to examine the role of ethical mechanisms in the employment of dynamic green capabilities in response to climate change (Haney, 2017) as well as how global connectedness affects the performance of dynamic green capabilities (Maksimov et al., 2022). It would be valuable to establish what kind of organisational impediments

are experienced by MNEs in the execution of their climate strategies and whether they are able to overcome these impediments to develop organisational flexibility (Grøgaard et al., 2022).

Business research is still lacking for emerging market contexts especially within the ambit of complex global issues (Arikan & Shenkar, 2022; Daddi et al., 2017; Kolk & Rivera-Santos, 2018). It is evident from the discussion above that there is a gap in the research about the detail and nuances of the complexities involved in MNEs' responses to climate change and the activities and processes underlying the managerial and firm capabilities involved in the execution of their strategies, especially in a sub-Saharan African context.

A review of extant literature is laid out in Chapter 2 and a summary of identified research gaps is provided at the end of Chapter 2.

### 1.3 The research questions

The primary research question (RQ) posed by this study is:

*How do multinational enterprises (MNEs) develop and leverage managerial and firm capabilities in response to climate change?*

The subordinate set of RQs are stated in relation to the identified knowledge gaps (see Table 1):

i. **Research Question 1 (RQ1)**
   How do MNEs view climate change as an opportunity for competitive advantage?
ii. **Research Question 2 (RQ2)**
   Which resources and capabilities do MNEs deem to be critical for the implementation of climate change strategies?
iii. **Research Question 3 (RQ3)**
   How do MNEs develop and invest in the resources and capabilities required to implement change strategies?
iv. **Research Question 4 (RQ4)**
   How do MNEs build the capacity for continual renewal and augmentation of resources and capabilities in the execution of climate change strategies?

## 1.4 The research aims

Using a DC lens, the research endeavours to understand how MNEs respond to climate change from a strategic and an operational perspective by investigating how firms and managers interpret the exogenous phenomena of climate change, identifying the resources and capabilities they view as critical for strategy implementation, gauging the ways in which they harness these resources and capabilities for strategy execution and enquiring about the ways they build capacity for the continual renewal of capabilities.

## 1.5 The research contribution

The research aims to marginally contribute to the international business (IB) research domain by applying the DC paradigm to the question of how MNEs develop and leverage resources and capabilities in response to climate change. The research also aims to provide valuable insights into the managerial interpretations of the climate change problem within an emerging market context, the types of organisational impediments that are experienced and how these are overcome.

## 1.6 The research scope

To achieve the aims of the research, insights were gleaned from interviews conducted with managers (operating in strategy, risk and/or sustainability domains) from MNEs operating in various sectors in sub-Saharan Africa. (Chapter 4 and Chapter 5 discuss the research sample in more detail.)

## 1.7 The research roadmap

The research report comprises seven chapters. Chapter 1 introduces the research problem by discussing the business context as well as articulating the academic thrust within IB theory. A review of extant literature is laid out in Chapter 2, beginning with a contextual analysis of climate change from an MNE perspective, then building to an understanding of the DC paradigm and dynamic green capabilities and culminating in a conceptual framework for the research. Chapter 3 explicitly unpacks the main research question into subordinate research questions. Chapter 4 details the research design and methodology used for this study. Chapter 5 presents the findings from the analysis of the collected data. A discussion of the findings is conveyed in Chapter 6. Chapter 7 provides an overarching conclusion to the research and suggests opportunities for future research.

# 2. LITERATURE REVIEW

## 2.1 Introduction

Extant literature was reviewed to understand and frame the phenomena of MNE responses to climate change. Figure 1 provides a roadmap of this chapter. Climate change, as the external context, is examined and explored from the perspective of the MNE. Thereafter, the resource-based view (RBV) is presented as a precursor to the DC paradigm. The DC paradigm is reviewed in generic terms and within the context of an MNE. Dynamic green capabilities are then examined in the form of a meta-analysis. Ethical mechanisms and global connectedness are unpacked as constructs in the dynamic green capabilities framework. Organisational flexibility is then discussed in relation to the execution of DCs. The literature review concludes with an overall conceptual framework and a summary of research gaps.

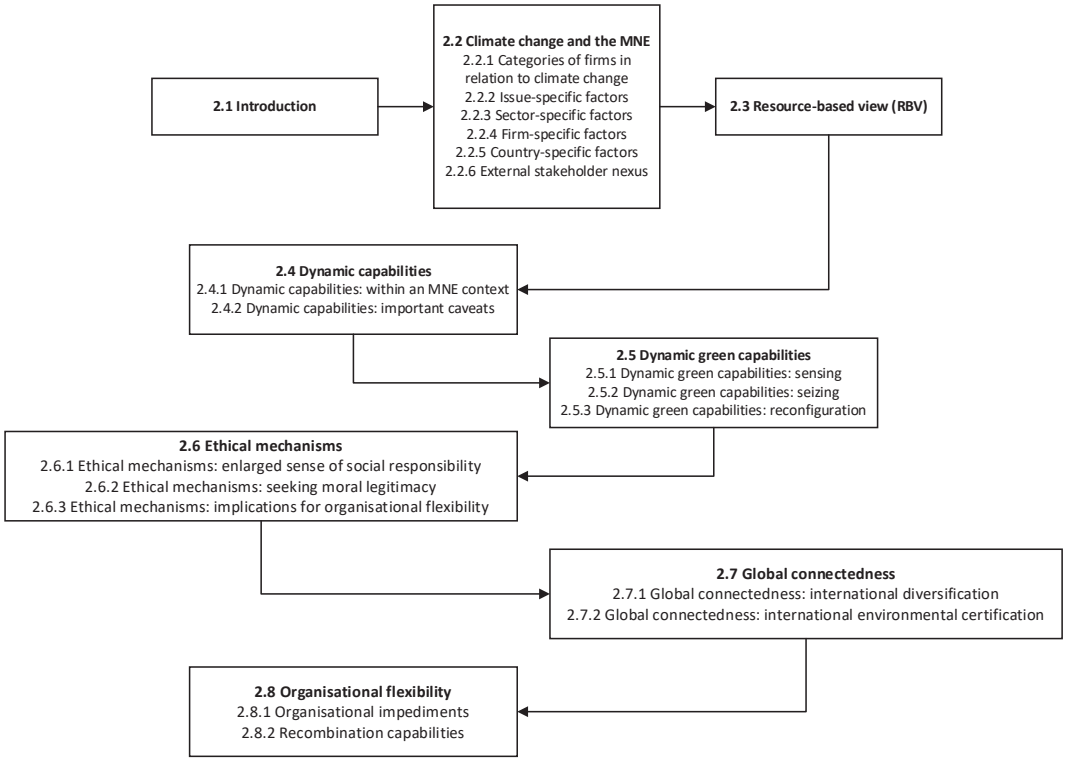


**Figure 1**

***Roadmap of literature review***

*Note.* Author's own composition

## 2.2 Climate change and the MNE

Climate change can be viewed through various theoretical lenses as it is a multi-layered phenomenon involving various types (communities, regulators, customers and suppliers)

and levels (local, national and global) of stakeholders (Ghauri et al., 2021). Daddi et al. (2018) conducted a systematic review of two bibliographic databases to ascertain which organisational and management theories were utilised in climate change studies (there was no specific timespan for the review). The results indicated that 28 different management theories were used. The most frequently used theoretical framework was institutional theory and, thereafter, stakeholder theory. The DC paradigm appeared in the top ten theories utilised by researchers; however, it remains underdeveloped in climate change studies. The authors invited scholars to explore the links between climate change strategies and management theories in future research.

In IB literature, the topic of corporate social responsibility (CSR) predates climate change and papers focused on CSR emerged in the late 1970s through to the 2000s (Kolk, 2016; Kolk & Ciulli, 2022). Climate change has been a focus in IB research since the late 2000s although it remains scarce (Kolk, 2016; Kolk & Ciulli, 2022) – the *Journal of International Business* only published its first paper with a specific focus on MNE behaviour in the context of climate change in 2008 (authored by Ans Kolk and Jonathan Pinkse). The topic of climate change has since been honed into sub-topics such as decarbonisation and long-term energy transitions (Doh et al., 2021; Patala et al., 2021). There remains, however, a strong drive to link or contextualise management theories such as innovation, dynamic capabilities and stakeholder theory, to the themes of sustainability and the wider UN SDGs (Ghauri et al., 2021; Montiel et al., 2021; Sun et al., 2021). There are gaps in knowledge regarding the influence of climate change on MNEs' competitiveness and their interactions in home and host and contexts (Kolk, 2016).

From a sustainability and reputational point of view, MNEs are well-positioned to effect positive change throughout their value chains given the global nature of their operations (Ghauri et al., 2021). From the perspective of IB scholars, climate change is a "grand challenge" (p. 1046) of the future (Buckley et al., 2017) that requires further exploration through qualitative and quantitative studies using a multitude of theoretical lenses. Kolk & Pinkse (2008) maintain that conducting studies in the context of climate change illustrates the "complexities and societal relevance of IB in the current epoch" (p. 1376).

IB literature covering the topic of climate change specifically in a sub-Saharan context is scarce (Kolk & Rivera-Santos, 2018). In a systematic review of business and management research articles (published since 2010) that uses Africa as the jurisdictional focus, Kolk & Rivera-Santos (2018) determine that Africa-based research has still not reached its potential and that there is both the need and opportunity for more context-bound, context-specific and context-free research. Kolk & Rivera-Santos (2018)

also call for more research to be conducted in emerging market contexts especially in respect of global issues and phenomena.

Eden & Neilsen (2020) attribute the extent of the complexity in IB research to the ”multiplicity of entities, multiplexity of interactions and the dynamism of the global business system” (p. 1609-1610). Eden & Nielsen (2020) encourage embracing the complexity inherent in IB research and further state that deconstruction of the research question with respect to “multiplicity”, “multiplexity” and the “dynamism” (p. 1609-1610) of the global business system is necessary for developing interesting and valuable research. Esteemed researchers in the field, with respect to the application of the DC paradigm to empirical research (Helfat & Peteraf, 2009; Verbeke, 2022), suggest that the external context (giving rise to the changes and pressures faced by the firm) must be adequately explained to fully appreciate the drivers for strategic action.

### 2.2.1 Categories of firms in relation to climate change

The degree to which climate change impacts firms varies and is, overarchingly, split into three categories listed in Table 1 (Kolk & Ciulli, 2022; Kolk & Pinkse, 2008, 2012).

**Table 1**

***Relevance of climate change for various categories of firms***

| Category of firms | Impact of climate change issue |
|---|---|
| Firms in high-salience sectors | ▪ Strongly affected in view of energy intensity and dependence<br>▪ Early change in business models might be source of competitive advantage |
| Firms specialised in climate-relevant goods and services | ▪ Can profit by helping firms mitigate climate change impacts or to anticipate, influence or respond to climate policy |
| Remaining firms with low-emission activities | ▪ No main source of profitability/growth, may gain legitimacy from acting visibly<br>▪ Address issue via external markets, possibility for internalization arbitrage |

*Note.* From “Multinational enterprises and climate change strategies” by A. Kolk & J. Pinkse, in A. Verbeke & H. Merchant (Eds.), *Handbook of research in international strategic management* (pp. 472-485), 2012, Edward Elgar; and “International business, climate change and the energy transition: A commentary on the importance of business models and digitalization” by A. Kolk & F. Ciulli, in M. Mithani, R. Narula, I. Surdu & A.

Verbeke (Eds.), *Crises and disruptions in International Business* (pp. 287-303), 2022, Palgrave MacMillan.

### 2.2.2 Climate change: issue-specific factors

Climate change is the epitome of an uncertain context from the perspective of MNEs – there is uncertainty with respect to the timing and extent of physical asset damage caused by climate change (Oh & Oetzel, 2022), the regulatory environment (whether local, regional or international) is constantly evolving and technologies used for the reduction of greenhouse gases (GHGs) are continually developing (Kolk & Pinkse, 2008). The complexity of the issue stems from the fact that it affects all parts of the economy and a broad set of stakeholders at a local, national and global level (Eden & Neilsen, 2020).

The 2015 Paris Agreement is the current, in force global climate accord. The main objective is to keep the average global temperature rise below 2°C and pursue efforts to keep it below a 1.5°C rise (since pre-industrial levels) (United Nations Framework Convention on Climate Change [UNFCCC], 2022). The 1997 Kyoto Protocol established GHG reduction targets mostly for developed market countries (UNFCCC, 2022). A key feature of the 2015 Paris Agreement is that emerging and developing markets countries agreed to submit nationally determined contributions (NDCs) for greenhouse gas reductions (the 2015 Paris Agreement was signed by 196 countries in total) (UNFCCC, 2022). The pathways to achieve targets vary per country. The GHG reduction commitments of MNEs differ and the pathways to achieve the outcome will not be smooth considering the uncertainties (Cadez et al., 2019) and complexities described above. The Financial Stability Board (FSB), established after the G20 summit in London in 2009, was asked by G20 Finance Ministers and Reserve Bank Governors to establish the effects of climate change on the global financial system (Task Force for Climate-related Disclosure [TCFD], 2022). The FSB set up the Task Force for Climate-related Disclosure (TCFD) to standardise a framework for the disclosure of greenhouse gas (GHG) reductions in the financial sector and ensure more transparency in the tracking and monitoring of pathways to 2050 (TCFD, 2022).

Table 2 summarises the issue-specific factors that influence corporate positions on climate change.

**Table 2**

***Issue-specific factors that influence corporate positions on climate change***

- Complexity and uncertainty associated with the issue

- Degree to which the issue and regulation is global
- Institutional infrastructure for addressing the issue
- Multifaceted nature of the issue and its effect on all parts of the economy

*Note.* Adapted from "Multinational enterprises and climate change strategies" by A. Kolk & J. Pinkse, in A. Verbeke & H. Merchant (Eds.), *Handbook of research in international strategic management* (pp. 472-485), 2012, Edward Elgar; and "International business, climate change and the energy transition: A commentary on the importance of business models and digitalization" by A. Kolk & F. Ciulli, in M. Mithani, R. Narula, I. Surdu & A. Verbeke (Eds.), *Crises and disruptions in International Business* (pp. 287-303), 2022, Palgrave MacMillan.

### 2.2.3 Climate change: sector-specific factors

Factors relating to the wider sector, in which the MNE operates, impact strategic decisions made by the MNE in response to climate change. The most pertinent (and obvious) factor would be the degree to which climate change affects the sector. Whether the sector has political power (Kolk & Pinkse, 2007) or close ties to government through the negotiation of sector-specific legislation (Dang et al., 2020) will affect the MNE's view on strategic options in response to the effects of climate change. If the sector is a highly concentrated one, there will be stronger competitive motivation to respond to climate change to be perceived as a first-mover or experienced entity (Kolk & Pinkse, 2012). However, it is also possible for all firms within the sector to then adopt the "leading" benchmark (mimetic action) as a means to achieve cognitive legitimacy (Kolk & Pinkse, 2008, Kolk & Pinkse, 2012; Haney, 2017).

The type of supply chain within the sector will also affect an MNE's position on climate change, especially if there are serious implications for the sustainability of supply chains and the need for alternatives.

Table 3 summarises the sector-specific factors that influence corporate positions on climate change.

**Table 3**

***Sector-specific factors that influence corporate positions on climate change***

- Availability and cost of greener alternatives (input goods, technologies, etc.)
- Degree of competitiveness
- Degree of globalisation and type of supply chain
- Growth prospects and concentration levels
- Nature and extent of threat posed by climate change

- Political power of the sector
- Technological levels

*Note.* Adapted from "Multinational enterprises and climate change strategies" by A. Kolk & J. Pinkse, in A. Verbeke & H. Merchant (Eds.), *Handbook of research in international strategic management* (pp. 472-485), 2012, Edward Elgar; and "International business, climate change and the energy transition: A commentary on the importance of business models and digitalization" by A. Kolk & F. Ciulli, in M. Mithani, R. Narula, I. Surdu & A. Verbeke (Eds.), *Crises and disruptions in International Business* (pp. 287-303), 2022, Palgrave MacMillan.

### 2.2.4 Climate change: firm-specific factors

The ability of MNEs to strategically respond to the effects of climate change depends on numerous factors. An MNE's financial health, current resources and capability base, including its managerial capabilities in respect to climate change knowledge, are major factors in determining how effectively an MNE can implement strategic actions in response to climate change. The geographical scope of the MNE's operations is also key (Kolk & Pinkse, 2008; Kolk & Pinkse, 2012) as it determines its exposure to various markets, regulatory landscapes and natural resources, and thus its experience in handling multiple stakeholders and differing regulations, and can potentially give it advantages through learnt experience from one country and application to another. Whether the impact of climate is felt more upstream than downstream in the MNE's value chain is also a factor to consider, as an upstream impact would prompt the MNE to explore new technologies while a downstream impact would necessitate market-facing functions such as marketing, sales and distribution (Kolk & Pinkse, 2008). The MNE's perception of the climate change (Helfat & Peteraf, 2015) issue also determines the degree to which it will be handled locally or at a global level – if an MNE is of the view that climate change will affect operations globally then it would be likely to handle the issue at an HQ level.

Table 4 summarises the firm-specific factors that influence corporate positions on climate change.

**Table 4**

***Firm-specific factors that influence corporate positions on climate change***

- Ability to anticipate risks, spread vulnerabilities and manage stakeholders
- Availability and quality of internal managerial climate expertise
- Corporate culture and managerial perceptions

- Degrees of decentralisation and internationalisation
- Financial health and market positioning
- History and legacy issues
- Nature of strategic planning process
- Position within the supply chain

*Note.* Adapted from "Multinational enterprises and climate change strategies" by A. Kolk & J. Pinkse, in A. Verbeke & H. Merchant (Eds.), *Handbook of research in international strategic management* (pp. 472-485), 2012, Edward Elgar; and "International business, climate change and the energy transition: A commentary on the importance of business models and digitalization" by A. Kolk & F. Ciulli, in M. Mithani, R. Narula, I. Surdu & A. Verbeke (Eds.), *Crises and disruptions in International Business* (pp. 287-303), 2022, Palgrave MacMillan.

### 2.2.5 Climate change: country-specific factors

Country-specific factors greatly affect MNE strategies in response to climate change (Kolk & Pinkse, 2008, 2012). The characteristics of home and host countries drive many strategic decisions for MNEs (Matysiak et al., 2018; Rugman, 1981). An obvious country-specific factor in the climate change context is the existence of renewable natural resources (such as wind and solar) and the corresponding technological infrastructure required to fully take advantage of these resources. A country's political situation is a major factor in steering a country's climate change agenda (Kolk & Pinkse, 2007). Societal views on the role of MNEs in causing climate change (Bansal & Arjaliès, 2022) can play a part in the customer orientations and the pressure exerted on MNEs to take responsibility for finding solutions to the problem. Societal views in a particular country may also be affected by other serious socioeconomic issues such as inequality or poverty (Rašković, 2022).

Table 5 summarises the country-specific factors that influence corporate positions on climate change.

**Table 5**

***Country-specific factors that influence corporate positions on climate change***

- Health of the economy
- National industrial promotion policies
- National policies and regulations on climate change (i.e., whether climate change is a priority on the national agenda)

- Geography/natural capital (in relation to opportunities for renewal energy generation)
- Sophistication of physical infrastructure in relation to decarbonisation paths (energy transitions)
- Litigiousness
- Political situations (dominant political stances)
- Regulatory culture
- Societal concerns about and attitudes towards climate change
- Societal views on the roles and responsibilities of firms

*Note.* Adapted from "Multinational enterprises and climate change strategies" by A. Kolk & J. Pinkse, in A. Verbeke & H. Merchant (Eds.), *Handbook of research in international strategic management* (pp. 472-485), 2012, Edward Elgar; and "International business, climate change and the energy transition: A commentary on the importance of business models and digitalization" by A. Kolk & F. Ciulli, in M. Mithani, R. Narula, I. Surdu & A. Verbeke (Eds.), *Crises and disruptions in International Business* (pp. 287-303), 2022, Palgrave MacMillan.

### 2.2.6 Climate change: external stakeholder nexus

Firms engage various stakeholders through the ordinary course of business and in the design and implementation of strategies in response to changing external business environments. For MNEs, this is an intensified reality given their cross-border operations and exposure to numerous institutional and regulatory regimes, market conditions and cultural contexts (Eden & Neilsen, 2020; Maksimov et al., 2022). The number and types of stakeholders are effectively multiplied – see Figure 2. The previous section elaborated the various ways in which the MNE has touchpoints with external stakeholders. The external stakeholder nexus includes shareholders or investors (in the case of public companies), customers, suppliers, regulators, government and NGOs (Colvin et al., 2020). MNEs face different kinds of pressure from these stakeholders. Governments can change national climate policies by altering subsidies and taxes in relation to GHG emission reduction (Dang, et al. 2020; Kolk & Pinkse, 2008). Suppliers play a role in the MNE's Scope 3 emission calculations (Bouguerra, et al., 2022; World Economic Forum, 2022). For an MNE, stakeholder engagement should be intentionally and actively managed to understand the stakeholder's position and interests (motives) and effectively work to achieve mutually beneficial goals (Lopes de Sousa Jabbour et al. 2020). Effective and fair solutions to climate change are in the interests of society and the world and it is thus often necessary to work in partnerships or partake in collaborative efforts to achieve a more sustainable future (Pedersen et al., 2021). In this way, MNEs' strategic choices

can also influence or alter the external currents around them (Helfat & Peteraf, 2022). Following the 2015 Paris Agreement, the Greenhouse Gas Protocol (GHG Protocol) was conceived to accurately account for emissions from various industrial and business processes (World Economic Forum, 2022; World Resource Institute, 2022): Scope 1 emissions refers to the emissions produced by all the assets under ownership and control of the firm; Scope 2 refers to the emissions related to the energy consumption and its source of generation (coal, solar etc.); Scope 3 refers to the emissions from the upstream production (on input goods) and downstream utilisation of the product of service (i.e., the rest of the value chain). Thus, the need for greater collaboration across sectors and industries and firms is necessary to achieve a total outcome that is beneficial for the natural environment and human life.

There is a drive to review the climate change problem from the business model perspective to incorporate the stakeholder dynamics that are pertinent and inherent to collaborative sustainability paths for the future (Giannarakis et al., 2017; Kolk & Ciulli, 2022). Teece (2018, p.40) states that the business model provides “a pathway by which technological innovation and knowhow combined with the utilisation of tangible and intangible assets are converted into a stream of profits”. The effectiveness of a firm’s business model depends on the firm’s day-to-day capabilities but in response to changing business environments, the enhancement and transformation of business models are required to sustain competitive advantages and secure longer term climate solutions for future generations (Kolk & Ciulli, 2022).

Figure 2 visually represents the stakeholder nexus discussed above.

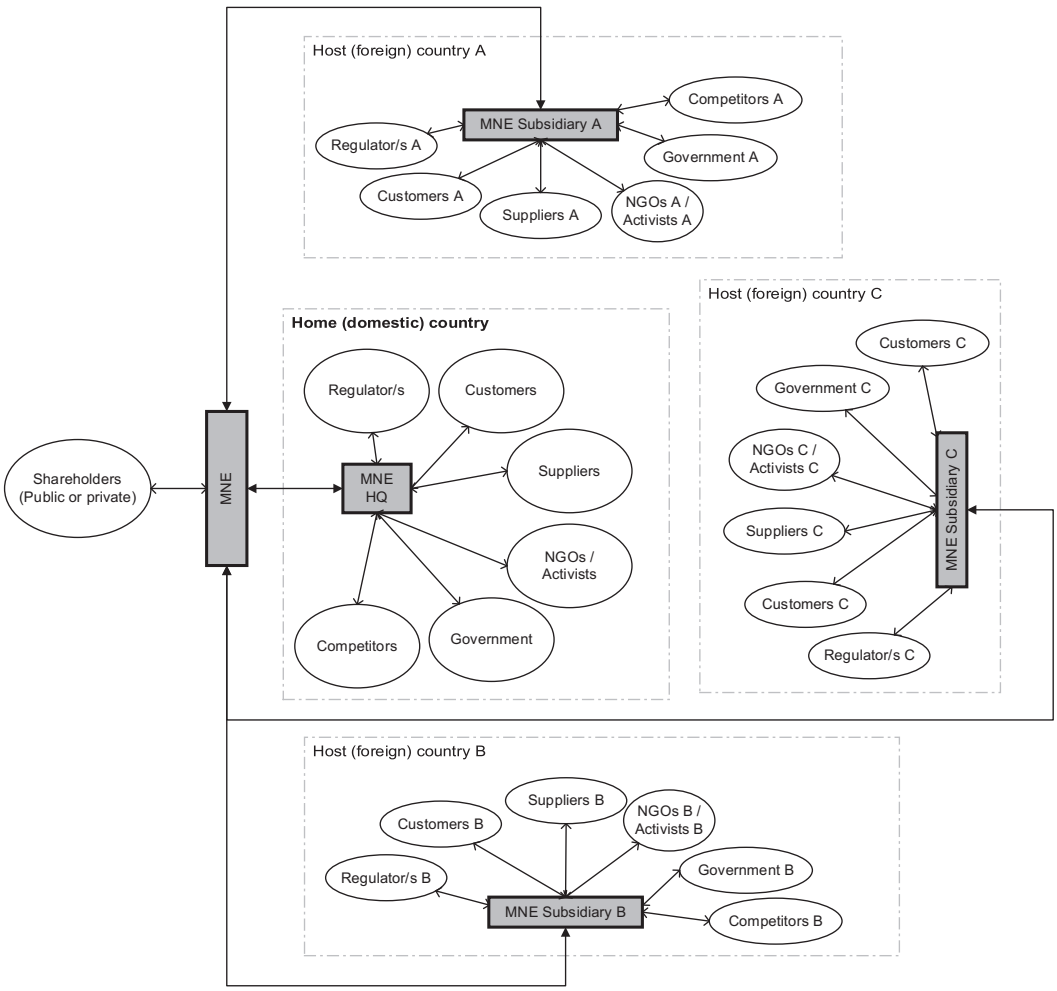


**Figure 2**

***Stakeholder nexus of an MNE***

*Note.* Author's own composition

The preceding discussion provided a detailed understanding of the climate change context as a complex and changing external phenomenon which affects MNEs in a multitude of ways. The following sections move on to deal with firm and managerial resources and capabilities, and how they are utilised by firms in their strategic responses to climate change.

## 2.3 Resource-based view

From the resource-based view (RBV), a firm's competitive advantage is dependent on the existence and effective utilisation of resources and capabilities which are valuable, rare, inimitable and non-substitutable (VRIN) along firm boundaries (Barney, 1991). This

means these VRIN resources and capabilities are owned or managed by one (or very few firms) within the market (Barney, 1991).

Within an MNE context, owing to operations that extend across multiple countries, a locational boundary is prima facie required for the application of the RBV to the MNE context (Kolk & Ciulli, 2022; Matysiak et al., 2018). Accordingly, in an international business context (Kolk & Ciulli, 2022; Matysiak et al., 2018):

i. An MNE's VRIN resources and capabilities (or combinations thereof) which can be utilised to confer competitive advantage in one particular country (or location) only, and which cannot automatically confer advantages to the firm in all countries (locations) of operation, are known as *location-bound* firm-specific advantages (FSAs). Examples include established networks for distribution or logistics in that particular country or fine-tuned capabilities in navigating a country's local political context (Matysiak et al., 2018).
ii. An MNE's VRIN resources and capabilities (or combinations thereof) which can be utilised to confer competitive advantages in any country of operation are known as *non-location-bound* FSAs. An MNE's technological assets or technological prowess are examples of this (Matysiak et al., 2018).

Furthermore, VRIN resources and capabilities that exist in a particular country, and which cannot be exploited outside that country's borders, are known as country-specific advantages (or CSAs) (Rugman, 1981). Accordingly, all firms (foreign or domestic) operating in that country (or location) have access to CSAs. Examples include a low-cost labour force, natural resources (like oil, copper or gold) or a population subset with a highly specialised skillset (Matysiak et al., 2018). Figure 3 is a visual representation of the extension of RBV to the IB context.

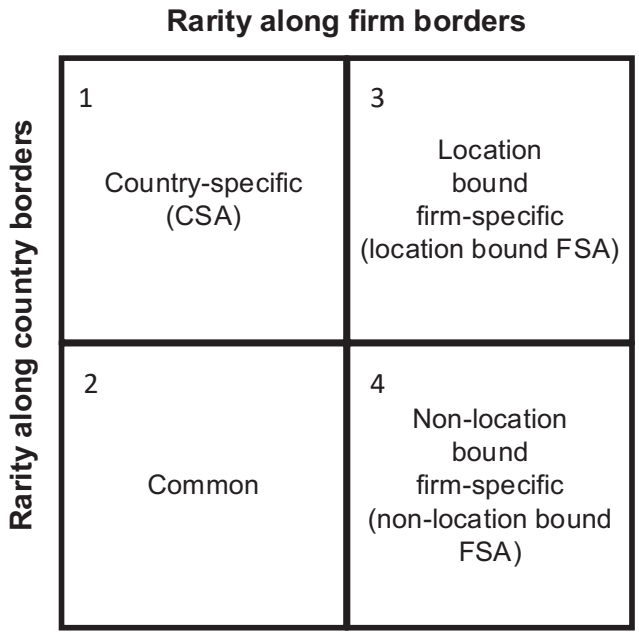


**Figure 3**

***Resource-based view (RBV) in an international business (IB)context***

*Note.* From "Dynamic Capabilities of Multinational Enterprises: The Dominant Logics Behind Sensing, Seizing, and Transforming Matter!" by L. Matysiak, A. M. Rugman, & A. Bausch, 2018, *Management International Review, 58*(2), p. 225-250.

RBV paints a picture of the sources of competitive advantage at a point in time (Matysiak et al., 2018) but given that firms operate in a changing physical world and with evolving economic constraints and operational contexts, there is an intrinsic need for a set of capabilities that can be effectively harnessed in response to these external pressures (Helfat & Peteraf, 2009; Matysiak at al., 2018; Verbeke, 2022) – these capabilities are known as dynamic capabilities (DCs) and it will be seen that RBV is a useful link to, and point of departure for, the application of the DC paradigm.

### 2.4 Dynamic capabilities

The DC paradigm refers to the "firm's ability to integrate, build, and reconfigure internal competencies to address, or in some cases to bring about, changes in the business environment" (Teece, 2018, p. 40). The logic of the DC paradigm is illustrated in Figure 4.

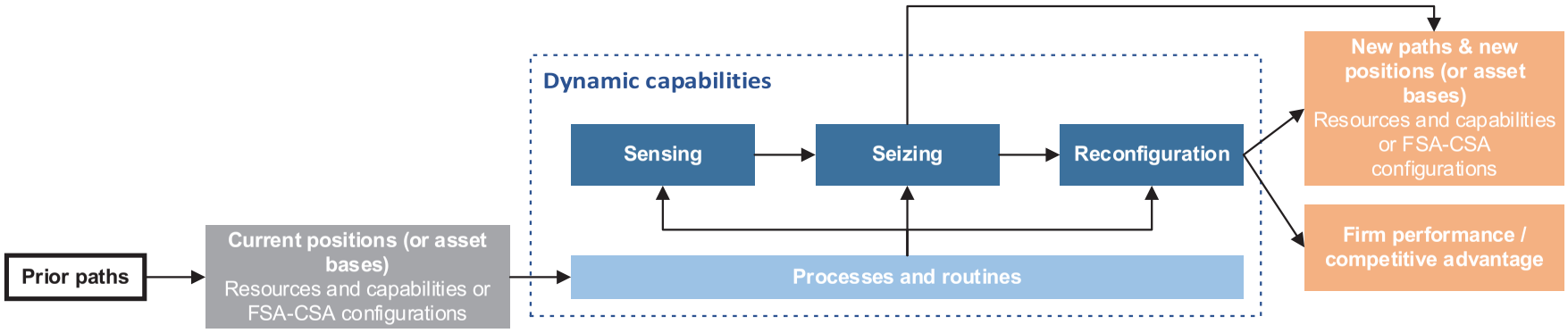


**Figure 4**

***Dynamic capability (DC) paradigm***

*Note.* Adapted from: "Understanding dynamic capabilities: progress along a developmental path" by C. E. Helfat, & M. A. Peteraf, 2009, *Strategic Organization 7*(1), 91-102; and "Explicating dynamic capabilities: The nature and microfoundations of (sustainable) enterprise performance" by D. J. Teece, 2007, *Strategic Management Journal, 28*(13), 1319-1350; and "Dynamic Capabilities and Strategic Management" by D.J. Teece, G. Pisano, & A. Shuen, 1997, *Strategic Management Journal, 8*(7), 509-533.

Historic actions and investments culminate in the current position of the firm (or current asset base or current resources and capabilities or current FSA-CSA combinations in the case of MNEs) (Teece et al., 1997). This is a firm's "starting" point in the DC paradigm and is represented by the leftmost box in Figure 4. In a paper outlining guidance for the application of the DC paradigm in international business research, Verbeke (2022) asserts that the "reservoir of initial resources available to the firm" (p. 577) – the RBV position – must be understood to fully appreciate the DCs employed by the firm in its strategic response to external changes.

The DC is effectuated through organisational processes, routines, managerial competencies and resources (Teece et al., 1997) and unfurls as three disaggregated capabilities (Teece, 2007):

i. **Sensing**

   Activities, processes and tasks associated with sensing involve detecting, diagnosing and intuiting the existence, nature and magnitude of threats and opportunities (Teece, 2007; Helfat & Peteraf, 2014; Verbeke, 2022). Managerial cognisance of risks, shocks and prospects is a foundational step in the evolution of firms' strategic responses. More importantly, to feed the processes of seizing, managers must interpret the information gathered from these activities to generate knowledge that is both valuable and useful for the firm's strategic response (Verbeke, 2022).

ii. **Seizing**

   Seizing refers to the investments made in the potential opportunities or measures to mitigate threats (Helfat & Peteraf, 2009; Teece, 2007). It involves the tangible steps taken to capture potential avenues for value creation.

iii. **Reconfiguration**

   Reconfiguration can be viewed as the steps taken to ensure organisation-wide execution of the overarching strategic initiative – it is the continuation and preservation of the previous investment in resources and capabilities (Helfat & Peteraf, 2009; Teece, 2007). It can also refer to the structural adaptation that is required to embed the strategic action or investment (Altintas, et al., 2022).

The DC can also be referred to as a "higher-order DC" (Teece, 2007, p. 1319) while the disaggregated capabilities of sensing, seizing and reconfiguring can also be referred to as the microfoundations of the DC (Altintas, et al., 2022; Teece, 2007) or as sub-capabilities of the DC (Verbeke, 2022).

Helfat & Peteraf (2009) and Teece (2007) explain that, ultimately, the utilisation of DCs (shown as direct effects in Figure 4):

i. alters the current asset base (resource and capabilities);
ii. sets the firm on new paths;
iii. affects firm performance outcomes (revenue growth, improved profitability, expansion to new markets): and
iv. affects competitive advantage.

The seizing sub-capability can also lead to the creation of new resources and capabilities (alterations in the assets base) and new paths prior to reconfiguration (Helfat & Peteraf, 2009; Teece, 2007).

### 2.4.1 Dynamic capabilities: within an MNE context

IB theory provides sound explanations for why and how firms choose to combine internal and/or external resources (located in home countries or host countries) to pursue cross-border opportunities for competitive advantage, achieve specific performance outcomes such as greater market share or growth in revenue (or profit), improve value chain efficiencies, exploit opportunities for cost arbitrage or access country-specific advantages (Hymer, 1976; Dunning, 1998; Dunning & Lundan, 2010; Narula et al., 2019; Teece, 2014; Verbeke & Ciravegna, 2018). The DC paradigm is coherent with IB theory in that the supposed preconditions for an MNE's successful cross-border operations depends on (Verbeke, 2022):

i. identifying the most effective combination of resources and capabilities (FSAs);
ii. exploiting FSAs (either location or non-location bound) and location advantages (CSAs); and
iii. ensuring sensible governance and rigorous judgment in decision-making in the overarching orchestration of the available FSAs and/or CSAs.

### 2.4.2 Dynamic capabilities: important caveats

It is, firstly, important to note that the higher-order DC under investigation is often treated as abstract in empirical research as it is difficult to measure in practice (Altintas, 2022; Verbeke, 2022). Nevertheless, the higher-order DC can be treated as ostensive or implied to exist through the observation of antecedent processes, routines, resources, capabilities or drivers (Altintas, 2022; Arikan et al., 2022; Verbeke, 2022; Zahra et al., 2022).

Secondly, the DC paradigm in its purest form is not a prescriptive framework as it does not itself provide precise guidelines for achieving a specific DC in practice, nor does it

confirm that specific DCs (independent variables) can lead to guaranteed firm performance outcomes (dependent variables) (Helfat & Peteraf, 2009; Verbeke, 2022). It does, however, reiterate that the inevitability of change means that a firm must have a highly acute sense of awareness in respect of the external business environment and health of its internal operations so that anticipated future changes can be met with the most suitable course of action and investment (Helfat & Peteraf, 2009; Verbeke, 2022). Consequently, the DC paradigm is well-suited as a general framework for exploring firm behaviour in response to external change. There is, however, a need for research that can adequately explain specific scenarios and contexts of firm responses to external threats and opportunities, and especially the activities and processes which give effect to the competencies utilised by firms in doing so (Helfat & Peteraf, 2009; Matysiak et al., 2018; Verbeke, 2022, Zahra et al., 2022).

Lastly, it is imperative to separate the performance of a DC from the DC's causal effect on firm performance. Helfat et al. (2007) provide two measurement concepts that cement the distinction:

i. **Technical fitness**

   This relates to how well the firm performs the DC in question and is conceptualised as "how effectively a capability performs its intended function when normalised (divide) by its costs" (p. 7). This caters for the fact that while many firms can possess a DC, some will perform them better than others i.e., their efficiencies will differ.

ii. **Evolutionary fitness**

   This relates to how well a DC enables the firm to achieve its desired performance outcome.

This implies that the mere possession of a DC does not guarantee positive firm outcomes (Helfat et al., 2007): a firm may possess a DC (or the components of a DC) but might not utilise it at all; or the firm may utilise the DC but not effectively enough (no or low technical fitness) to lead to positive firm performance (no or low evolutionary fitness); or the firm may utilise the DC effectively (technical fitness) but it still might not lead to positive firm performance (no or low evolutionary fitness) maybe owing to an unanticipated shock to the economy from which the firm could not insulate itself, for example.

It is apparent, after assimilating the entirety of section 2.4 (Dynamic capabilities), that the application of the DC paradigm to this research, i.e., to the question of how MNEs develop and leverage resources and capabilities in response to climate change, is itself an answer to the call to explain specific scenarios and contexts of firm responses to

external threats and opportunities, and especially the activities and processes which give effect to the competencies utilised by firms in doing so.

### 2.5 Dynamic green capabilities within an MNE context

The issue of climate change in relation to the MNE context has already been discussed (2.2 Climate change and the MNE). Changing geopolitical contexts, fluctuating economic conditions and continuous technological advancement mean that MNEs' operations and efficiencies are continually impacted by external factors, making it necessary for MNEs to understand how they must re-organise FSA-CSA configurations to sustain advantage (Kolk & Ciulli, 2022; Bohnsack, 2021). In accordance with the previous section, the DC paradigm is a particularly sound basis for analysing the complexity of MNE strategy in response to external changes brought on by climate change (Bass & Grøgaard, 2021). Following guidance from esteemed researchers in the field with respect to the application of the DC paradigm to empirical research (Helfat & Peteraf, 2009; Verbeke, 2022), a definition of the higher-order DC under investigation must be established and the scope of the investigation (of said higher-order DC) must be clearly laid out.

The higher-order DC under investigation is dynamic green capability. Maksimov et al. (2022, p.4) offers the following definition of dynamic green capability: the "ability to build complementary green competencies and reconfigure organisationally embedded resources to pursue competitive advantage in a rapidly changing stakeholder environment". This definition focuses on the reconfiguration sub-capability of the DC paradigm (refer to Figure 4) and inherently assumes the employment of the other sub-capabilities of sensing and seizing. It nevertheless conveys the fact that, in response to a multifaceted stakeholder environment ("rapidly changing stakeholder environment"), dynamic green capabilities depend on: investments along multiple firm domains and potential CSAs in the case of MNEs ("complementary green competencies"), the simultaneous evolution of green and other general competencies, and an intimate understanding of internal firm resources, knowledge bundles and processes ("reconfigure organisationally embedded resources"), and a proactive strategic approach to environmental priorities ("pursue competitive advantage").

The scope of the investigation of the higher-order DC (dynamic green capability) is focused on the underlying resources, capabilities, processes and routines which give effect to this higher-order DC in response to a call for research in this regard (Matysiak; 2018), specifically in the context of climate change (Buckley, et al., 2017; Ghauri et al., 2021; Kolk & Pinkse, 2008, 2012, 2016; Kolk & Ciulli, 2022; Montiel et al., 2021; Sun et al., 2021). This antecedent approach is encouraged and often utilised in empirical

research to provide an understanding of the characteristics of the higher-order DC (Verbeke, 2022; Petricevic & Verbeke, 2019).

Figure 5 illustrates the dynamic green capability framework discussed here.

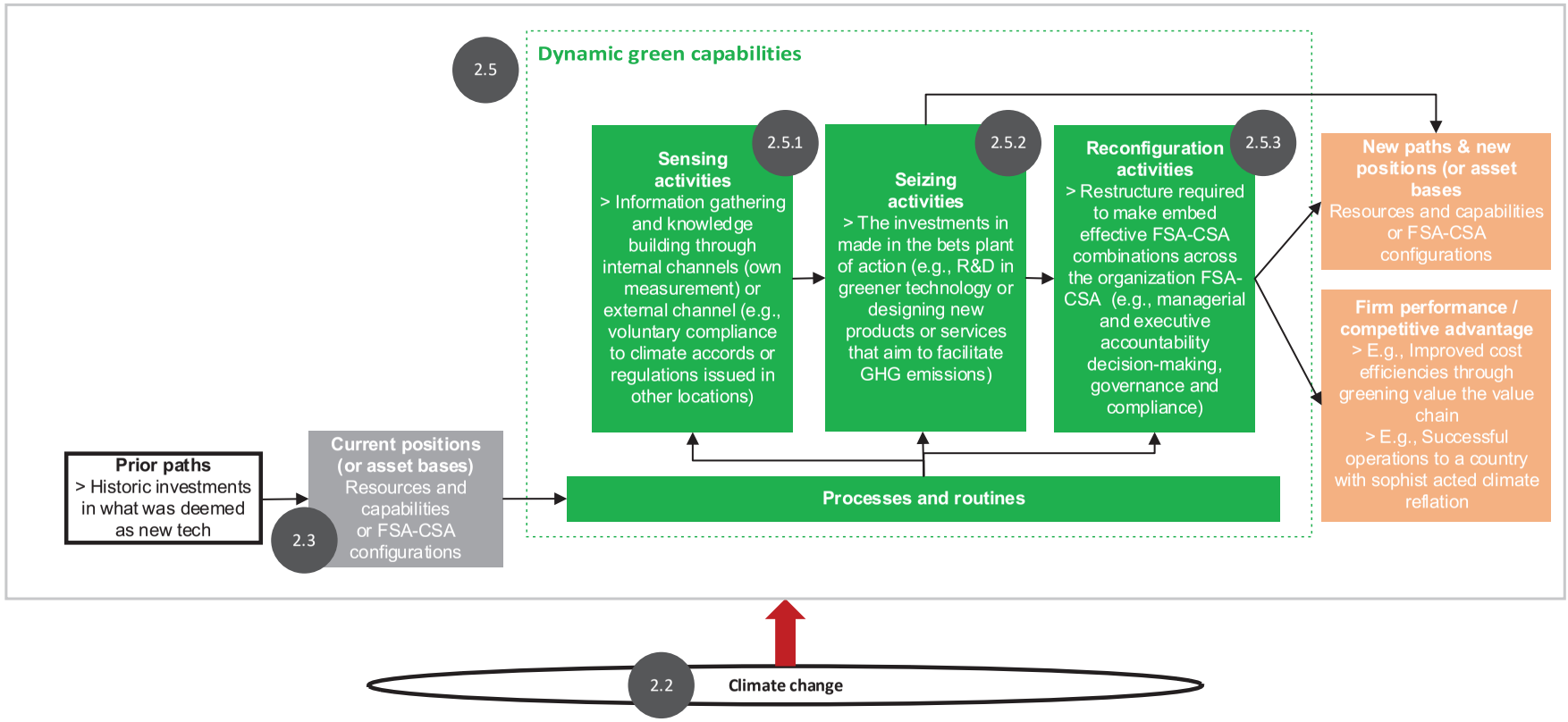
2.5
Dynamic green capabilities
2.5.1
Sensing activities
> Information gathering and knowledge building through internal channels (own measurement) or external channel (e.g., voluntary compliance to climate accords or regulations issued in other locations)
2.5.2
Seizing activities
> The investments in made in the bets plant of action (e.g., R&D in greener technology or designing new products or services that aim to facilitate GHG emissions)
2.5.3
Reconfiguration activities
> Restructure required to make embed effective FSA-CSA combinations across the organization FSA-CSA (e.g., managerial and executive accountability decision-making, governance and compliance)
New paths & new positions (or asset bases
Resources and capabilities or FSA-CSA configurations
Firm performance / competitive advantage
> E.g., Improved cost efficiencies through greening value the value chain
> E.g., Successful operations to a country with sophist acted climate reflation
Prior paths
> Historic investments in what was deemed as new tech
2.3
Current positions (or asset bases)
Resources and capabilities or FSA-CSA configurations
Processes and routines
2.2
Climate change

**Figure 5**

***Dynamic green capability framework***

*Note.* Author's own composition adapted from: "Understanding dynamic capabilities: progress along a developmental path" by C. E. Helfat, & M. A. Peteraf, 2009, *Strategic Organization 7*(1), 91-102; and "Explicating dynamic capabilities: The nature and microfoundations of (sustainable) enterprise performance" by D. J. Teece, 2007, *Strategic Management Journal, 28*(13), 1319-1350; and "Dynamic Capabilities and Strategic Management" by D.J. Teece, G. Pisano, & A. Shuen, 1997, *Strategic Management Journal, 8*(7), 509-533.

### 2.5.1 Dynamic green capabilities: sensing

Being able to detect risks, shocks, threats and opportunities is a preliminary step in the evolution of strategic responses (Matysiak et al., 2018; Teece, 2007). In the context of climate change, sensing activities are inherently centred around knowledge capabilities (Maksimov, 2022). Information can be obtained through internal channels, such as data generated from internal systems and operations, which signal a potential trigger for action (Grøgaard, et al., 2022). It is important to note that capacity to measure, monitor and report key statistics and data (functions of information technology systems and capabilities) is a critical resource for environmental sustainability management (Kolk & Pinkse, 2008; Kolk 2022). For example, energy consumption data could be analysed to reveal that there are cost savings to be made if the MNE switched to renewable energy sources at particular operational locations (Kolk & Pinkse, 2008). Information and data can also be obtained through external channels via subscription to environmental certification standards and/or commitments to global accords (either voluntary or mandatory, depending on the firm, industry and regulatory environment) (Maksimov, et al.). MNEs benefit from exposure to progressive or advanced climate regulations or best practices in multiple jurisdictions and, in some instances, they voluntarily adhere to the most stringent version of regulations across all their operations as a future-proofing strategy which gives them competitive advantage vis-à-vis firms (foreign or domestic) in locations with less sophisticated regulatory regimes (Kolk & Pinkse, 2008, 2012; Kolk & Ciulli, 2022). MNEs can also collect information and data from engagements and discussions with its stakeholders (either through formal forums or routine engagements) across multiple levels (local, regional, national or global). Whatever the means by which the information or data is sought, managers must be able to interpret what is collected (Maksimov, et al., 2022; Verbeke 2022). The gathered information and data must be analysed to create strategic plans which detail potential future scenarios and the various

strategic options or initiatives which could be undertaken by the firm to respond to sensed threats or opportunities. The MNE must have processes and systems in place to ensure that the knowledge and learnings can be shared throughout the organisation and that it is retained and applied in the correct contexts and domains (Maksimov et al., 2022) – this is referred to as climate knowledge absorption (Busch, 2011) or embedded climate knowledge (Stechemesser et al., 2015). Many firms may have access to the same information and data (such as external consumer preference studies in relation to products and services with sustainability certification), but it is through firm-specific managerial interpretation (Barney & Felin, 2013; Helfat & Peteraf, 2014; Kor & Mesko, 2013) that firm responses can be substantially differentiated from the get-go and, as such, have the potential for a larger effect on firm competitiveness (following subsequent seizing and/or reconfiguration steps) (Kolk & Pinkse, 2012; Kolk & Ciulli, 2022).

### 2.5.2 Dynamic green capabilities: seizing

Seizing activities involve investment in a particular course of action, initiative or project (on the back of the perceived opportunities or threats established through sensing activities) (Matysiak et al., 2018; Verbeke, 2022). Managers must be selective about the best potential investment (Grøgaard et al., 2022). Investments in climate-related projects and initiatives require a large amount of firm resources and MNEs often take a cautious position given the uncertainties around climate regulations and policies or past experiences with failed investments (Kolk & Pinkse, 2012; Pinkse & Kolk, 2012; Kolk & Ciulli, 2022). Fundamentally, the investment decision relates to whether and how existing FSA-CSA combinations must be enhanced or replaced (Kolk & Pinkse, 2008). For example, an MNE may consider relocating production facilities to countries with better natural resources and infrastructure to adopt renewal energy options (Kolk & Ciulli, 2022).

### 2.5.3 Dynamic green capabilities: reconfiguration

Reconfiguration activities refer to the structural adaptation required to embed the strategic action or investment and the processes required to augment efforts to create value (Altintas, et al., 2022; Verbeke, 2022). These processes involve governance and compliance-related issues (Matysiak et al., 2018) in establishing new organisational units, establishing new relationships with stakeholders and effecting new FSA-CSA combinations (Verbeke, 2022), as well as the managerial and executive accountability that goes along with these activities (Matysiak et al., 2018). The attitudes and beliefs of executive management about the climate change issue can determine the level of proactiveness or urgency with which climate change initiatives or projects are rolled out

or genuinely embedded within the firm (Li & Liu, 2014; Kolk & Pinkse, 2008; Kolk & Pinkse, 2012; Stechemesser et al., 2015).

The next three sections deal with additional constructs (ethical mechanisms, global connectedness and organisational impediments) which will be incorporated into the overall dynamic green capability framework as it will be shown that they are useful to understand how MNEs develop and leverage managerial and firm capabilities in response to climate change.

## 2.6 Ethical mechanisms

The ability of managers to interpret changes in the external ecosystems (and not only to identify them) is a key component of the sensing capability within the dynamic capabilities paradigm (Helfat & Peteraf, 2014). Managers commonly categorise the interpretation of these changes or pressures as threat or opportunity (Daft & Weick, 1984; Dutton & Jackson, 1987; Matysiak et al., 2018; Verbeke, 2022), with each interpretation requiring different strategic responses, different degrees of managerial intervention and different levels of investment in firm resources (and/or capabilities and/or processes).

Within the context of climate change, Haney (2017) examined how managerial threat interpretation affects firm innovation through ethical mechanisms. In the study, innovation in response to climate change was deemed to be both the enhancement of existing products and services, and the creation of new products and services, to facilitate GHG emission reductions (Haney, 2017).

### 2.6.1 Ethical mechanisms: enlarged concept of social responsibility

By conducting a mixed method analysis on three Carbon Disclosure Project (CDP) datasets over the span of six years, Haney (2017) found that firms with a more mature or advanced level of innovation in response to climate change (i.e., a robust product and service portfolio that facilitated carbon emission reductions) identified and articulated the risks associated with climate change as longer-term in nature and stressed the interconnectedness of the problem vis-à-vis other sectors and stakeholders. These firms did not confine the interpretation of the climate change phenomenon solely within the bounds of the firm itself. The characteristics of these managerial interpretations reflect a loftier and intensified understanding of their firm's place in, and responsibility to, society (Scherer & Palazzo, 2011; Scherer & Voegtlin, 2020). Haney (2017, p. 270) proposes that this ethical mechanism i.e., an "enlarged concept of societal responsibility" positively mediates the relationship between threat interpretation and environmental (green) innovation".

### 2.6.2 Ethical mechanisms: characteristics of seeking moral legitimacy

The implications of these firms' heightened responsibility to society and their longer-term outlook were that their managers prioritised more stakeholder engagement and continual learning (Haney, 2017). Continual learning processes include widening the scope of information gathering by increasing the number of resources dedicated to the activity (Verbeke, 2022), identifying new sources of information (Maksimov et al., 2022) and, importantly, consolidating the insights gained from the engagements with stakeholders (Haney 2017). A firm's awareness and consideration of stakeholder interests (which are often divergent) and its willingness to engage these stakeholders in discussions around climate change indicate a pro-social logic towards gaining moral legitimacy (Scherer & Palazzo, 2011; Scherer & Voegtlin, 2020). Haney (2017, p. 270) proposes that this ethical mechanism, i.e., "characteristics of seeking moral legitimacy positively mediates the relationship between threat interpretation and environmental (green) innovation".

Figure 6 visualises the mediating effects of the two ethical mechanisms (discussed above) on the relationship between threat interpretation and innovation. Haney (2017) makes a call for the propositions to be tested empirically – it would be beneficial to gain insights into how managers frame the climate change issue in relation to their firms, industries and roles.

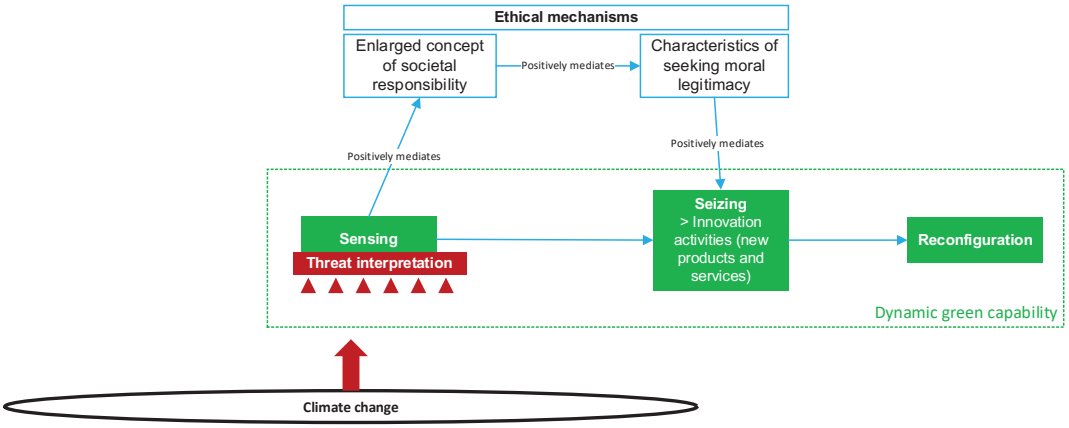


**Figure 6**

***Ethical mechanisms and its mediating effects on the relationship between threat interpretation (sensing) and innovation (seizing)***

*Note.* Author's own composition adapted from: "Threat interpretation and Innovation in the Context of Climate Change: An Ethical Perspective" by A. B. Haney, 2017, *Journal of Business Ethics, 143*(2), 261-276.

### 2.6.3 Ethical mechanisms: implications for organisational flexibility

Haney (2017) also found that those firms with a more mature or advanced level of innovation in response to climate change were able to identify and articulate threats brought on by the effects of climate change early on and were thus in a better position to identify and act on opportunities at a later stage. This reiterates the criticality of experiential and iterative learning, as well as, importantly, the existence of a temporal dimension in the deployment of dynamic capabilities especially in a climate change context where the external business environment is laden with uncertainty and evolving risks (Grøgaard, 2022; Verbeke, 2022). A robust understanding of climate change from a threat perspective means that, in time, and through consolidated and cumulative learning, a firm is better equipped to identify opportunities associated with climate change and, ultimately, enables it to have balanced interpretations of the climate change issue. Because of this, the firm can pursue multiple, and even simultaneous, pathways to value preservation (weather-proofing infrastructure or building contingencies) and/or value creation (investment in new technologies or starting pilot projects) (Haney 2017; Matysiak et al., 2018). This finding indicates that ambivalent interpretations (Bao et al., 2020; Haney 2017) of the climate issue can inspire organisational flexibility in strategic responses and, through exploration and exploitation activities, facilitate organisational ambidexterity which itself is critical to ensuring sustained competitive advantage in the long run (Tarba et al., 2020; Haney, 2017).

## 2.7 Global connectedness

Global connectedness refers to the multiple geographies in which MNEs operate, and the multitude and diversity of the MNE stakeholder networks that exist in each of those geographies, as well as those stakeholders that transcend borders and operate at a supranational level (for example, the United Nations, World Economic Forum and the OECD) (Maksimov et al., 2022; Turkina & Van Assche, 2018). Fostering connections with all its stakeholders enables an MNE to gather more information and knowledge about climate change and other environmental sustainability issues as well the requisite knowledge to enhance its own environmental sustainability capabilities and subsequent strategic responses to external pressures and a changing business landscape (Maksimov et al., 2022; Van Zanten & Van Tulder, 2018).

### 2.7.1 Global connectedness: international diversification

Global connectedness can be achieved through international diversification (Maksimov et al. 2022; Turkina & Van Assche, 2018). International diversification is the expansion of the firm's operations to new geographic locations and is achieved through the effective

employment of firm resources and capabilities to achieve a targeted outcome (Hymer, 1976; Dunning, 1998; Dunning & Lundan, 2010; Narula et al., 2019; Verbeke & Ciravegna, 2018).

In their quantitative study of 2937 MNEs from 30 home countries, Maksimov et al. (2022) evidence support for their hypothesis that international diversification negatively moderates the relationship between sensing and seizing green opportunities. By growing more internal and external connexions across its global operations, an MNE can increase its access to information and data, facilitate better dissemination of collected information and share its findings and knowledge bundles across subsidiaries, to adequately inform its seizing and reconfiguring activities (Scalera, 2018). Global connectedness enables an MNE to design and/or improve formal systems of knowledge gaining, learning and interpretation strategies required for the subsequent reconfiguration of organisationally embedded resources (Narula et al. 2015; Narula & Verbeke, 2019; Scalera, 2018; Teece, 2007; Teece, 2014). Therefore, international diversification substitutes sensing activities in an MNE's pursuit of dynamic green capability. Some climate change issues may be more prominent in one local context or can be globally relevant or interconnected with other societal or natural environmental concerns (Kolk & Pinkse, 2008; Kolk & Pinkse, 2012). Owing to the breadth of international operations, there logically exists a greater possibility for MNEs to encounter all the permutations of climate change threats and opportunities, which fosters knowledge gains, experiential learning and iterative learning, and ultimately enables prompt, bespoke and effective responses to specific contexts (Helfat & Peteraf, 2014; Kolk & Pinkse, 2012; Scalera et al., 2018; Van Zanten & Van Tulder, 2018; Verbeke, 2022). For example, engagements with a regulator in country A can provide an MNE with knowledge and foresight of potential future changes to legislation and regulation in countries, B, C and D which have similar political, cultural and societal contexts to country A. The MNE is able get ahead on the adaptation curve in markets B, C and D, compared to local firms in countries B, C and D.

The statistical findings of Maksimov et al. (2022) also support the hypothesis that international diversification positively moderates the relationship between seizing and reconfiguring green resources. Given that MNEs are adept at combining and reconfiguring firm-specific advantages (non-location bound and location-bound) and country-specific advantages to survive and grow in international markets (Narula et al. 2015; Narula & Verbeke, 2019; Scalera, 2018; Teece, 2007; Teece, 2014), they have knowledge advantages and experience with new investments and experimental projects (Maksimov et al., 2022). For example, having developed a more energy-efficient factory process in one country (owing to electrical infrastructure issues in that country), an MNE

can then deploy the solution to other operations where required (Maksimov et al., 2022) instead of initiating a new sensing sub-capability process to respond.

### 2.7.2 Global connectedness: international environmental certification

Global connectedness can also be achieved through international environmental certification. Given the pressures faced by MNEs to respond to climate change threats urgently and adequately, MNEs across the globe are increasingly adopting self-regulation measures that exceed minimum regulatory compliance and are voluntarily subscribing to international environmental certification standards and prescriptions (Haney, 2017). By subscribing to international environmental certification standards, MNEs ensure that they remain connected to the most up-to-date and relevant environmental sustainability practices and knowledge frameworks (Maksimov et al., 2022).

The statistical analysis of Maksimov et al. (2022) supports their hypothesis that international environmental certification negatively moderates the relationship between sensing and seizing green opportunities. Given that international environmental certification and standards combine information from diverse industries and/or insights from a variety of jurisdictions and/or learnings from diverse firms of various sizes, it is essentially an evolving repository of valuable and trustworthy information which MNEs can use as a substitute for other sensing activities or initiatives that need to be deployed by firms who do not subscribe to, or do not obtain, international environmental certification.

The statistical findings of Maksimov et al. (2022) also support their hypothesis that international environmental certification positively moderates the relationship between seizing and reconfiguring green resources. International environmental certifications and protocols comprise best practice and highlight potential areas of operational concern or heightened risk. An MNE can utilise this knowledge to inform its decision-making processes with respect to the efficient and effective utilisation of resources and capabilities (and combinations thereof) (Matysiak et al., 2018; Verbeke, 2022). An MNE is also able to gauge and foresee any potential gaps in capabilities, lack of resources or organisational impediments to the required recombination activities and can sufficiently deploy solutions to overcome these execution barriers (Maksimov et al., 2022). For example, international environmental certification often dictates standards for the treatment of chemical by-products and an MNE pursuing environmental certification will realise that its plant lacks the necessary chemical systems and technologies to meet

those standards and will need to invest in sourcing and installing the asset, ultimately reconfiguring the production process to achieve an improved green outcome.

Figure 7 illustrates the moderating effects of the two aspects of global interconnectedness discussed above. It would be valuable to explore this role of global connectedness in moderating dynamic green capabilities for MNEs operating the MNE response

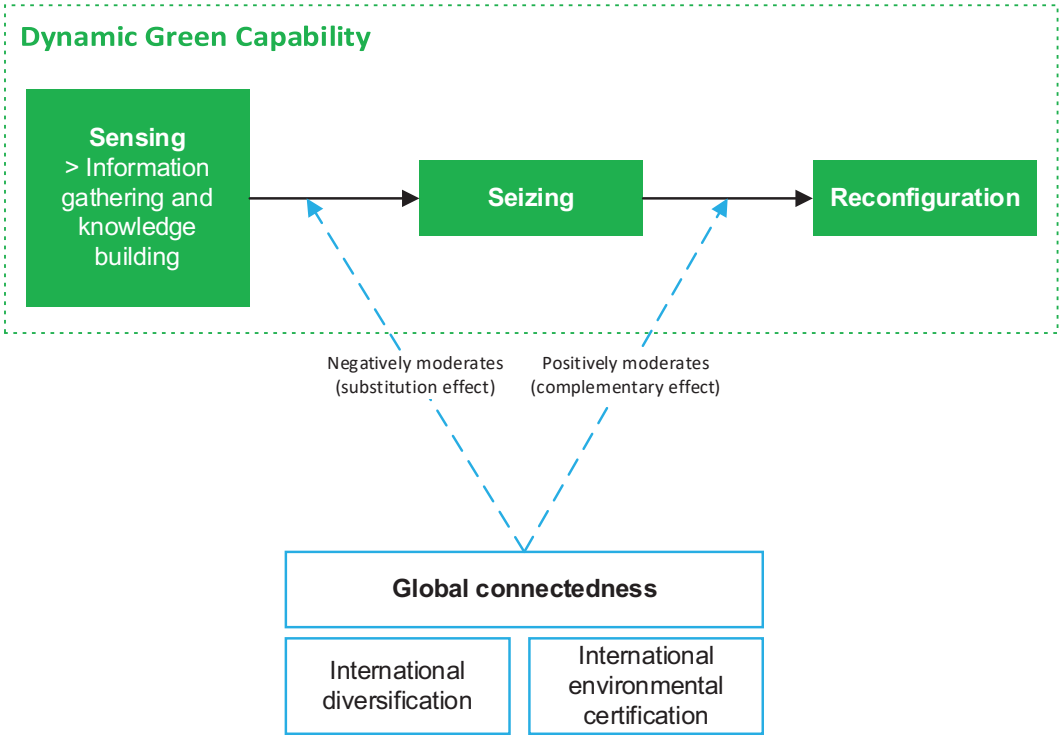


**Figure 7**

***Global connectedness and its moderating effects on the microfoundations of dynamic green capability***

*Note.* Author's own composition adapted from: "Global connectedness and dynamic green capabilities in MNEs" by V. Maksimov, S. L. Wang, & S. Yan, 2022, *Journal of International Business Studies*, *53*(4), 723-740.

### 2.8 Organisational flexibility

Section 2.6 (Ethical mechanisms) discussed the moderating effects of ethical mechanisms in the relationship between threat interpretation and firm innovation and concluded with its implications for organisational flexibility (2.6.3 Ethical mechanisms: implications for organisational flexibility). Organisational flexibility requires the ability to identify, evaluate and respond to threats and opportunities in a changing business

environment, i.e., the employment of dynamic capabilities (Bartlett & Ghoshal, 1983; Schilke et al., 2018)

In a longitudinal qualitative case study, Grøgaard et al. (2022) investigated the organisational flexibility of an MNE's response to the conflicting pressure of global integration and local responsiveness which is a well-established dichotomy in IB literature (Bartlett & Ghoshal, 1983). Nevertheless, their contributions can be applied to other contexts in which conflicting pressures exist, and climate change is quintessentially one of them.

Dynamic capabilities comprise sensing capabilities (identifying threats and opportunities), seizing capabilities (investing in the strategic response which is deemed to potentially yield the most efficient outcome) and reconfiguring capabilities (effecting the structural adaptation required to fully integrate the seizing efforts) (Teece, 2007; Helfat & Peteraf, 2009). It is the dynamic capability of reconfiguration that is disaggregated by Grøgaard et al. (2022). Their findings show that in the employment of dynamic capabilities, MNEs need a separate set of capabilities, referred to as "recombination capabilities" (p. 23), to fully realise the aims and objectives of their reconfiguring decisions. Given their scope, number of operations and multilevel structures, MNEs require additional capabilities, i.e., recombination capabilities, to augment their reconfiguration efforts, especially where the MNE needs to overcome organisational impediments in its pathway to value creation.

Figure 8 provides an overall illustration of the mechanism described above and the following sub-sections continue the discussion with respect to organisational impediments and recombination capabilities.

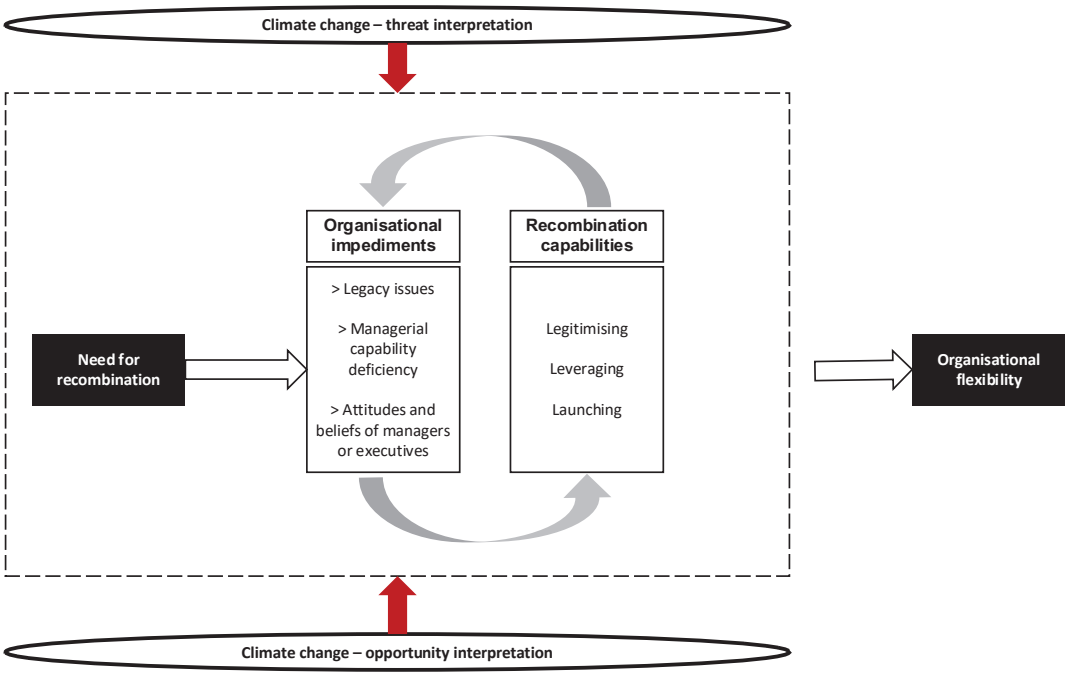


**Figure 8**

***Organisational flexibility, organisational impediments and recombination capabilities***

*Note.* Author's own composition adapted from: "Legitimizing, leveraging, and launching: Developing dynamic capabilities in the MNE" by B., Grøgaard, L. H. Colman, & I. G. Stensaker, 2022, *Journal of International Business Studies, 53*(4), 636-656.

### 2.8.1 Organisation flexibility: organisational impediments

Organisational impediments are internal obstacles which compromise a firm's ability to effectively reconfigure resources and capabilities to achieve a desired performance outcome (Grøgaard et al., 2022). Organisational impediments obstruct pathways to value creation. Firm legacy issues and lack of managerial capabilities are identified as organisational impediments in the Grøgaard et al. (2022) study but they assert that organisational impediments vary depending on the firm in question as well as the nature of the external pressures it faces, implying its transferability to other contexts. Grøgaard et al. (2022) suggest that future research on organisational flexibility and the employment of dynamic capabilities within the MNE context should pay attention to organisational impediments. It would be valuable to uncover the specificities of organisational impediments experienced by firms in their strategic responses to climate change, both as a theoretical contribution and as an insight for business practice. One such example could be prevailing attitudes and beliefs of managers and executives in relation to the short-term sacrifices of foregoing other business priorities that are necessary for

investments in strategies to combat the effects of climate change (where such investments have long-term payoffs) (Kolk & Pinkse, 2012; Kolk, 2016; Kolk & Ciulli, 2022; Maksimov et al., 2022).

### 2.8.2 Organisational flexibility: recombination capabilities

To fully realise the objectives and value of reconfiguration actions, Grøgaard et al. (2022) show that the MNE requires a special and separate set of capabilities to overcome organisational impediments to it strategic actions. These are referred to as recombination capabilities:

i. **Legitimising**

   This refers to legitimising the need for the strategic change by embarking on intentional and purposeful processes to achieve organisational buy-in. In the Grøgaard et al. (2022) study, the MNE used external benchmarking and competitor analysis to provide evidence to subsidiary managers that global integration (the strategic change) was required to adequately compete in the future. The MNE also showed subsidiary managers that some of the global integration initiatives would free up their time for more meaningful and value-creating activities such as client engagement. While it was already "sensed" (by HQ) that this strategic action (global integration) was required for future competitiveness, and while a particular "seizing" course was decided on (by HQ), it was not enough to guarantee the full and effective reconfiguration step until shared understanding of the drivers for the strategic change was achieved and the sense of urgency appreciated by subsidiary managers.

ii. **Leveraging**

   This refers to determining which parts of the existing organisation can be used to create flexibility. This also implicitly acknowledges the value of existing processes (which is an important aspect to overcoming legacy issues). In the Grøgaard et al. (2022) study, the MNE used existing performance measures (bottom-line profitability) and incentivisation frameworks, in line with organisational change theory for MNEs (Verbeke & Lee, 2022), so that subsidiary managers were encouraged to move forward with global integration initiatives (this was a learning from previous attempts to change existing processes and there was reluctance to do so as it was perceived, by subsidiary managers, that bottom-line outcomes would be negatively affected by global integration).

iii. **Launching**

This refers to the thorough assessment of which initiatives should be launched and the subsequent implementation and management of the launch. In the Grøgaard et al. (2022) study, the MNE ensured that the initiatives that were actually launched incorporated some degree of flexibility to cater for the differences in the organisational units within subsidiaries (this was after previous attempts to launch the selected initiatives failed). To facilitate execution, the MNE filled key subsidiary vacancies with experienced expatriates, maintained consistent and clear communication with the broader organisation (as well as external stakeholders in some cases) about the need for global integration and its corporate goals and, importantly, set up formal and informal arenas across the MNE for sharing learnings and experiences.

It is critical to acknowledge the role of experiential learning, both as the proximate cause of the MNE's development of recombination capabilities as well as, subsequently, in being able improve the execution of these recombination capabilities. Through feedback loops and sensed internal tensions, the MNE was able to execute capabilities more efficiently (or, in other words, the MNE became better at using the recombination capabilities in the right ways to overcome the organisational impediments it faced). This is represented by the grey arrows in Figure 8.

Remarkably, Grøgaard et al. (2022) note a deviation from the mainstream DC literature (Teece, 2007; Helfat & Peteraf, 2009) – within an MNE context, they observe that over time, sensing, seizing and reconfiguration sometimes occurred non-sequentially (usually these three dynamic capabilities are defined as being sequential) across the multiple organisational levels and domains in the MNE, and this reiterated the need for the recombination capabilities discussed above. It would be valuable to garner whether MNEs utilise recombination capabilities in their strategic responses to climate change and, if so, how these take effect.

### 2.9 Conclusion

The preceding sections of this chapter discussed each of the constructs shown in the conceptual model shown in Figure 9.

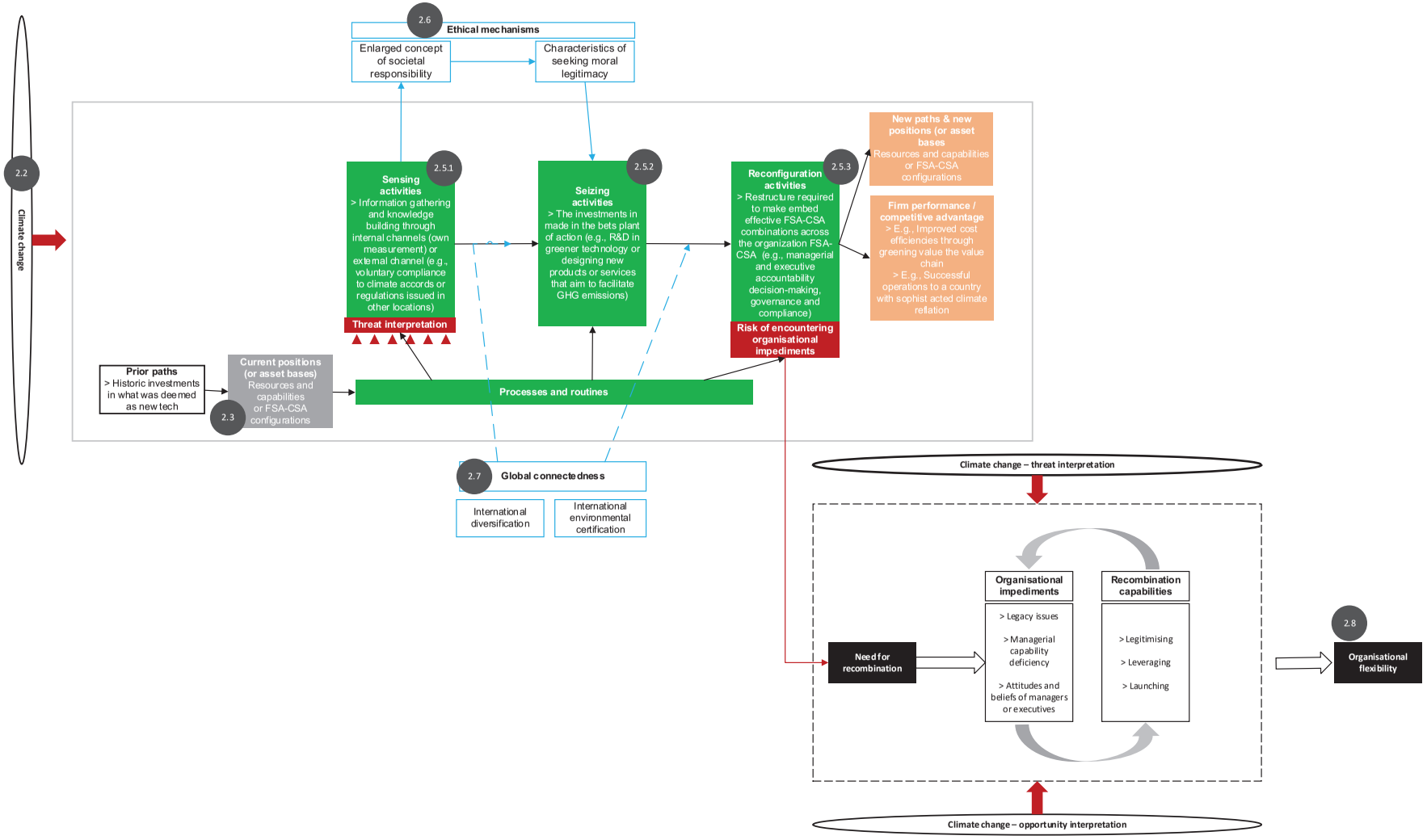
2.2
Climate change
2.6
Ethical mechanisms
Enlarged concept of societal responsibility
Characteristics of seeking moral legitimacy
2.5.1
Sensing activities
> Information gathering and knowledge building through internal channels (own measurement) or external channel (e.g., voluntary compliance to climate accords or regulations issued in other locations)
Threat interpretation
2.5.2
Seizing activities
> The investments in made in the bets plant of action (e.g., R&D in greener technology or designing new products or services that aim to facilitate GHG emissions)
2.5.3
Reconfiguration activities
> Restructure required to make embed effective FSA-CSA combinations across the organization FSA-CSA (e.g., managerial and executive accountability decision-making, governance and compliance)
Risk of encountering organisational impediments
New paths & new positions (or asset bases
Resources and capabilities or FSA-CSA configurations
Firm performance / competitive advantage
> E.g., Improved cost efficiencies through greening value the value chain
> E.g., Successful operations to a country with sophist acted climate reflation
Prior paths
> Historic investments in what was deemed as new tech
Current positions (or asset bases)
Resources and capabilities or FSA-CSA configurations
2.3
Processes and routines
2.7
Global connectedness
International diversification
International environmental certification
Climate change – threat interpretation
Organisational impediments
Recombination capabilities
> Legacy issues
> Managerial capability deficiency
> Attitudes and beliefs of managers or executives
> Legitimising
> Leveraging
> Launching
Need for recombination
2.8
Organisational flexibility
Climate change – opportunity interpretation

**Figure 9**

***Conceptual model***

*Note.* Author's own composition adapted from: "Legitimizing, leveraging, and launching: Developing dynamic capabilities in the MNE" by B., Grøgaard, L. H. Colman, & I. G. Stensaker, 2022, *Journal of International Business Studies, 53*(4), 636-656*;* and "Threat interpretation and Innovation in the Context of Climate Change: An Ethical Perspective" by A. B. Haney, 2017, *Journal of Business Ethics, 143*(2), 261-276; and "Understanding dynamic capabilities: progress along a developmental path" by C. E. Helfat, & M. A. Peteraf, 2009, *Strategic Organization 7*(1), 91-102; and "Global connectedness and dynamic green capabilities in MNEs" by V. Maksimov, S. L. Wang, & S. Yan, 2022, *Journal of International Business Studies*, *53*(4), 723-740; and "Explicating dynamic capabilities: The nature and microfoundations of (sustainable) enterprise performance" by D. J. Teece, 2007, *Strategic Management Journal, 28*(13), 1319-1350; and "Dynamic Capabilities and Strategic Management" by D.J. Teece, G. Pisano, & A. Shuen, 1997, *Strategic Management Journal, 8*(7), 509-533.

The research gaps identified in the review of extant literature are summarised in Table 6.

**Table 6**

***Summary of identified research gaps***

| KNOWLEDGE GAP | CONSTRUCTS | SECTION |
|---|---|---|
| What motivates MNEs to respond to climate change (Zilja, 2022)? How does the MNE's positioning/self-awareness compare to rivals (Kolk & Pinkse, 2008; Kolk & Ciulli, 2022)? What are the MNE managerial perceptions and interpretations of the climate change issues? | Climate change context:<br>> issue-specific<br>> sector-specific<br>> firm-specific<br>> country-specific<br><br>Dynamic green capabilities:<br>> sensing | 2.2<br>> 2.2.2<br>> 2.2.3<br>> 2.2.4<br>> 2.2.5<br><br>2.5<br>> 2.5.2 |
| Which resources and capabilities combinations do MNEs view as being necessary to ensure an | RBV | 2.3 |

| | | |
|---|---|---|
| effective response to climate change (Kolk & Pinkse, 2008; Kolk & Ciulli, 2022; Verbeke, 2022)? | Dynamic green capabilities:<br>> sensing<br>> seizing<br>> reconfiguring | 2.5<br>> 2.5.2<br>> 2.5.3<br>> 2.5.4 |

| KNOWLEDGE GAP | CONSTRUCTS | SECTION |
|---|---|---|
| The practical reality of how climate change influences the strategic directions of MNEs is not well understood or articulated in IB literature (Kolk, 2016). What specific actions do firms take in their response to climate change? What are the real-world "processes and routines" that give effect to dynamic green capabilities (Matysiak et al., 2018)? | Dynamic green capabilities:<br>> seizing<br>> reconfiguring | 2.5<br>> 2.5.3<br>> 2.5.4 |
| Climate change is a multidimensional issue affecting firms throughout their value chains (Ghauri et al., 2021; Van Tulder, 2021) and in multiple geographical contexts. How is the issue of climate change managed throughout the firm? Is climate change viewed by MNEs as a dynamic issue needing continual monitoring and requiring firm agility? What kind organisational impediments exist? | Climate change context:<br>> external stakeholder nexus<br>Dynamic green capabilities:<br>> seizing<br>> reconfiguring | 2.2.<br>> 2.2.6<br>2.5<br>> 2.5.3<br>> 2.5.4 |
| What role do ethical mechanisms play in the dynamic green capability framework (Haney, 2017)? | Ethical mechanisms<br>> international diversification<br>> characteristics of seeking moral legitimacy | 2.6<br>> 2.6.1<br>> 2.6.2 |
| How does global connectedness affect dynamic green capabilities (Maksimov et al., 2022)? | Global connectedness:<br>> international diversification<br>> international environmental certification | 2.7<br>> 2.7.1<br>> 2.7.2 |
| What kind of organisational impediments are experienced by MNEs in the execution of their climate strategies and do they utilise recombination abilities to develop organisational flexibility (Grøgaard et al., 2022)? | Organisational flexibility:<br>> organisational impediments | 2.8<br>> 2.8.1<br>> 2.8.2 |

| | | |
|---|---|---|
| | > recombination capabilities | |

*Note.* Author's own composition

The next chapter unpacks the main research question and subordinate research questions in line with the identified research gaps.

## 3. RESEARCH QUESTIONS

There have been calls to research the role of business in the climate change crisis (Buckley, et al., 2017; Ghauri et al., 2021; Kolk & Pinkse, 2008, 2012, 2016; Kolk & Ciulli, 2022; Montiel et al., 2021; Sun et al., 2021). This research aims to provide an understanding of how MNEs respond to climate change from a strategic and an operational perspective. The primary research question (RQ) posed by this study is therefore:

*How do multinational enterprises (MNEs) develop and leverage managerial and firm capabilities in response to climate change?*

The subordinate set of RQs are stated in relation to the identified knowledge gaps – refer to Table 7:

### 3.1 RQ1

How do MNEs view climate change as an opportunity for competitive advantage?

### 3.2 RQ2

Which resources and capabilities do MNEs deem to be critical for the implementation of climate change strategies?

### 3.3 RQ3

How do MNEs develop and invest in the resources and capabilities required to implement change strategies?

### 3.4 RQ4

How do MNEs build the capacity for continual renewal and augmentation of resources and capabilities in the execution of climate change strategies?

These research questions will be tested in an empirical, qualitative field study. The chosen research design and methodology are discussed in the next chapter.

**Table 7**

***Mapping of research questions in relation to the identified knowledge gaps***

| KNOWLEDGE GAP | CONSTRUCTS & SUB-CONSTRUCTS | SECTION | RESEARCH QUESTIONS |
|---|---|---|---|
| What are MNE managerial perceptions and interpretations of the climate change issues? How does the MNE's positioning/self-awareness compare to rivals (Kolk & Pinkse, 2008; Kolk & Ciulli, 2022)? What motivates MNEs to respond to climate change (Zilja, 2022)? | Climate change context:<br>> issue-specific<br>> sector-specific<br>> firm-specific<br>> country-specific<br><br>Dynamic green capabilities:<br>> sensing<br>> seizing | 2.2<br>> 2.2.2<br>> 2.2.3<br>> 2.2.4<br>> 2.2.5<br><br>2.5<br>> 2.5.2 | <u>RQ 1</u><br>How do MNEs view climate change as an opportunity for competitive advantage? |
| Which resources and capabilities combinations do MNEs view as being necessary to ensure an effective response to climate change (Kolk & Pinkse, 2008; Kolk & Ciulli, 2022; Verbeke, 2022)? | RBV<br><br>Dynamic green capabilities:<br>> sensing<br>> seizing<br>> reconfiguring | 2.3<br><br>2.5<br>> 2.5.2<br>> 2.5.3<br>> 2.5.4 | <u>RQ 2</u><br>Which resources and capabilities do MNEs deem to be critical for the implementation of climate change strategies? |

| KNOWLEDGE GAP | CONSTRUCTS & SUB-CONSTRUCTS | SECTION | RESEARCH QUESTIONS | |
|---|---|---|---|---|
| The practical reality of how climate change influences the strategic directions of MNEs is not well understood or articulated in IB literature (Kolk, 2016). What specific actions do firms take in their response to climate change? What are the real-world "processes and routines" that give effect to dynamic green capabilities (Matysiak et al., 2018)? | Dynamic green capabilities:<br>> seizing<br>> reconfiguring | 2.5<br>> 2.5.3<br>> 2.5.4 | RQ 3<br>How do MNEs develop and invest in the resources and capabilities required to implement change strategies? | RQ 4<br>How do MNEs build the capacity for continual renewal and augmentation of resources and capabilities in the execution of climate change strategies? |
| Climate change is a multidimensional issue affecting firms throughout their value chains (Ghauri et al., 2021; Van Tulder, 2021) and in multiple geographical contexts. How is the issue of climate change managed throughout the firm? Is climate change viewed by MNEs as a dynamic issue needing continual monitoring and requiring firm agility? | Climate change context:<br>> external stakeholder nexus | 2.2.<br>> 2.2.6 | RQ 3<br>How do MNEs develop and invest in the resources and capabilities required to implement change strategies? | RQ 4<br>How do MNEs build the capacity for continual renewal and augmentation of resources and capabilities in the execution of climate change strategies? |
| | Dynamic green capabilities:<br>> seizing<br>> reconfiguring | 2.5<br>> 2.5.3<br>> 2.5.4 | | |

| KNOWLEDGE GAP | CONSTRUCTS & SUB-CONSTRUCTS | SECTION | RESEARCH QUESTIONS | |
|---|---|---|---|---|
| Real-world evidence of the role of ethical mechanisms and the execution of dynamic green capability framework will be valuable (Haney, 2017). | Ethical mechanisms<br>> international diversification<br>> characteristics of seeking moral legitimacy | 2.6<br>> 2.6.1<br>> 2.6.2 | RQ 3<br>How do MNEs develop and invest in the resources and capabilities required to implement change strategies? | RQ 4<br>How do MNEs build the capacity for continual renewal and augmentation of resources and capabilities in the execution of climate change strategies? |
| Insights into the role of global connectedness in dynamic green capability execution (Maksimov et al., 2022) for MNEs operating in an emerging market context, would be useful. | Global connectedness:<br>> international diversification<br>> international environmental certification | 2.7<br>> 2.7.1<br>> 2.7.2 | RQ 3<br>How do MNEs develop and invest in the resources and capabilities required to implement change strategies? | RQ 4<br>How do MNEs build the capacity for continual renewal and augmentation of resources and capabilities in the execution of climate change strategies? |
| What are the types of internal organisational impediments that are experienced by MNEs in the execution of their climate strategies (Grøgaard et al., 2022)? Real-world evidence of the use recombination abilities to overcome internal organisation impediments and develop organisational flexibility would be valuable (Grøgaard et al., 2022)? | Organisational flexibility:<br>> organisational impediments<br>> recombination capabilities | 2.8<br>> 2.8.1<br>> 2.8.2 | RQ 3<br>How do MNEs develop and invest in the resources and capabilities required to implement change strategies? | RQ 4<br>How do MNEs build the capacity for continual renewal and augmentation of resources and capabilities in the execution of climate change strategies? |

*Note.* Author's own composition

# 4. RESEARCH DESIGN AND METHODOLOGY

## 4.1 Introduction

This chapter outlines the research design and methodology used in the field. To achieve a deeper understanding of the phenomena under investigation, the study was explorative in nature and interviews were conducted with research participants to gain insights.

## 4.2 Research philosophy

Given that the researcher aimed to establish a deeper understanding (interpretation) of the complexity of social environments, and the flux of processes and routines that exist therein, the study adopted an interpretivist approach through the examination of multiple perspectives of reality (Bell et al., 2019; Saunders et al., 2019). The associated assumptions are discussed below.

## 4.3 Research assumptions

### 4.3.1 Ontological

The researcher was aware that multiple realities exist in respect of each participant's context and experiences. For example, individuals have differing beliefs and values systems, and firms have differing organisational structures, operational challenges and strategic objectives. In-person and virtual, semi-structured, in-depth interviews were conducted to understand these realities.

### 4.3.2 Epistemological

Each participant's responses were subjective in nature and shaped by their perception and experience of reality (Saunders et al., 2019). Thus, detailed information was drawn from participants using in-person and virtual, semi-structured, in-depth interviews to fully gauge the dynamics of their lived experience.

### 4.3.3 Axiological

The researcher acknowledges their role as the interpreter of the collected data and thus the risk of their values, beliefs and biases having an influence on the research process (Saunders et al., 2019). The researcher has a career in the insurance industry and holds the view that climate change is an existential threat to society and that the responsibility for the development of effective solutions lies with both the public and private sectors. However, the researcher conducted the research from an unbiased perspective and with an open mind (Eden &

Neilsen, 2020), to allow for a true witnessing and appreciation of the participants' lived experiences (see 4.11 Quality Controls).

### 4.4 Research strategy

The research strategy was a mono-method, qualitative study as this is most appropriate for capturing the layers of complexity in the investigation of the participants' lived experiences (Doz, 2011). This method also allows, ex ante, for adaptation and/or follow up engagement which may be necessary for clarity (Saunders et al., 2019). Ultimately, follow-up engagement was not required with any of the participants.

### 4.5 Research design

The study was phenomenological and exploratory in nature as it sought to understand and interpret (Merriam & Tisdell, 2016) the actual experiences of managers (and firms) in their efforts to construct and implement climate change strategies. This study involved multiple in-person and virtual, semi-structured, in-depth interviews (for a more detailed discussion, see 4.10 Data Collection). This enabled the investigation, analysis and interpretation of each individual experience.

### 4.6 Research population

The research population comprised multinational enterprises (MNEs), operating in sub-Saharan Africa. Developed market MNEs (DMNEs) and emerging market MNEs (EMNEs) are subsets of the population.

### 4.7 Unit of observation and unit of analysis

The unit of observation was managers employed within MNEs operating in specific industries (outlined in 4.8 Sampling techniques and sample size). The researcher requested the participation of senior managers involved in the strategic decision-making of the firm (specifically in relation to risk and sustainability) to ensure credibility of the data (Creswell, 2013) (see 4.12.1 Credibility). The unit of analysis was MNEs operating in banking, insurance/reinsurance, mining, manufacturing and retail (outlined in 4.8 Sampling techniques and sample size).

### 4.8 Sampling techniques and sample size

#### 4.8.1 Sampling techniques

Probability sampling was not feasible owing to the difficulty of mapping the full population from which a random sample could be taken, and the time and logistical constraints of field research. Non-probability purposive sampling techniques were used (Bell et al., 2019; Palys, 2008; Patton, 2015), starting with:

#### i. Theoretical sampling

The overall focus on MNEs was required to ensure relevance to the IB body of knowledge. Secondly, in line with the literature review, the study focused on MNEs operating in "high-salience" sectors (fossil fuel-based, high-energy consumption or natural extraction business models) and MNEs that specialise in "climate-relevant" goods and services (Kolk & Pinkse, 2008; Kolk & Pinkse, 2012; Kolk & Ciulli, 2022).

During the initial phase, the objective was to cast the net as wide as possible (within the theoretical sampling parameters set out above) so that there was a built-in contingency for the possibility that some managers may not be willing to participate in the study. Accordingly:

#### ii. Maximum variation sampling

By leveraging as many tiers as possible of the researcher's professional networks, managers from MNEs of various sizes from an array of industries (within the theoretical sampling parameters set out above) were propositioned to participate in the study.

The researcher started the finalisation the scheduling of interviews after obtaining full ethical clearance from the Gordon Institute of Business Science (GIBS).

#### iii. Snowball sampling

As the researcher confirmed and conducted interviews with participants, some participants recommended the that a colleague or professional acquaintance participate the research i.e., snowball sampling occurred (Bell et al., 2019).

The combination of sampling techniques above enabled the researcher to reach a sample size of 19.

### 4.8.2 Sample size

Qualitative research methodology literature provides no consensus about a specific number or range for a sample size (Bell et al., 2019). However, Creswell (2013), Cresswell et al. (2007) and Polkinghorne (1989), recommend five to 25 individual participants to capture experiential possibilities.

The sample for this research comprised of 19 participants. The participants all worked in the areas of risk, strategy or sustainability (or areas of equivalence within their firms) or in roles that involved an intersection of the three areas. Table 8 shows the segmentation of the sample.

**Table 8**

***Segmentation of sample***

| Participant | Firm | Industry | Financial Sector / Non-Financial Sectors | Publicly Listed or Private | HQ (Home) Location |
|---|---|---|---|---|---|
| Participant 1 | MNE 1 | Banking | Financial Sector | Publicly Listed | South Africa |
| Participant 2 | MNE 1 | Banking | Financial Sector | Publicly Listed | South Africa |
| Participant 3 | MNE 2 | Manufacturing (Textiles) | Non-Financial Sectors | Publicly Listed | Mauritius |
| Participant 4 | MNE 3 | Retail (Food and clothing) | Non-Financial Sectors | Publicly Listed | South Africa |
| Participant 5 | MNE 4 | Insurance/Reinsurance | Financial Sector | Publicly Listed | Europe |
| Participant 6 | MNE 4 | Insurance/Reinsurance | Financial Sector | Publicly Listed | Europe |
| Participant 7 | Consultant 1 | Management Consulting (Sustainability) | Consulting | The consulting firm is private | The consulting firm is a domestic firm originating from South Africa |
| Participant 8 | MNE 1 | Banking | Financial Sector | Publicly Listed | South Africa |
| Participant 9 | MNE 5 | Manufacturing (Packaging) | Non-Financial Sectors | Publicly Listed | South Africa |
| Participant 10 | MNE 5 | Manufacturing (Packaging) | Non-Financial Sectors | Publicly Listed | South Africa |
| Participant 11 | MNE 6 | Insurance/Reinsurance | Financial Sector | Publicly Listed | Europe |
| Participant 12 | Consultant 2 | Management Consulting (Sustainability) | Consulting | The consulting firm is publicly listed | The consulting firm is an MNE originating from the United States of America |
| Participant 13 | MNE 7 | Mining | Non-Financial Sectors | Publicly Listed | South Africa |

| Participant | Firm | Industry | Financial Sector / Non-Financial Sectors | Publicly Listed or Private | HQ (Home) Location |
|---|---|---|---|---|---|
| Participant 14 | MNE 8 | Insurance/Reinsurance | Financial Sector | Publicly Listed | Europe |
| Participant 15 | MNE 8 | Insurance/Reinsurance | Financial Sector | Publicly Listed | Europe |
| Participant 16 | MNE 9 | Commercial Real Estate | Non-Financial Sectors | Publicly Listed | South Africa |
| Participant 17 | MNE 10 | Manufacturing (Diversified) | Non-Financial Sectors | Publicly Listed | Europe |
| Participant 18 | MNE 11 | Manufacturing (Cement) | Non-Financial Sectors | Publicly Listed | South Africa |
| Participant 19 | Consultant 3 | Management Consulting (Sustainability) | Consulting | The consulting firm is publicly listed | The consulting firm is an MNE originating from Europe |

*Note.* Author's own composition

The adequacy of the sample size is the point at which data saturation is reached (Creswell, 2013; Merriam & Tisdell, 2016). Data saturation is the point at which no new or relevant data emerges (no unique codes are generated) (Bell et al., 2019; Merriam & Tisdell, 2016; Strauss & Corbin, 1998). The researcher structured the data collection process to allow for data saturation to be monitored (see 4.10 Data Collection). A total of 198 unique codes were used in the thematic analysis. Figure 10 shows the data saturation point across the total sample (n=19). It can be concluded that data saturation trend started at Participant 14 (the 12$^{th}$ transcript to be coded) and was reached by Participant 19 (the 17$^{th}$ transcript to be coded).

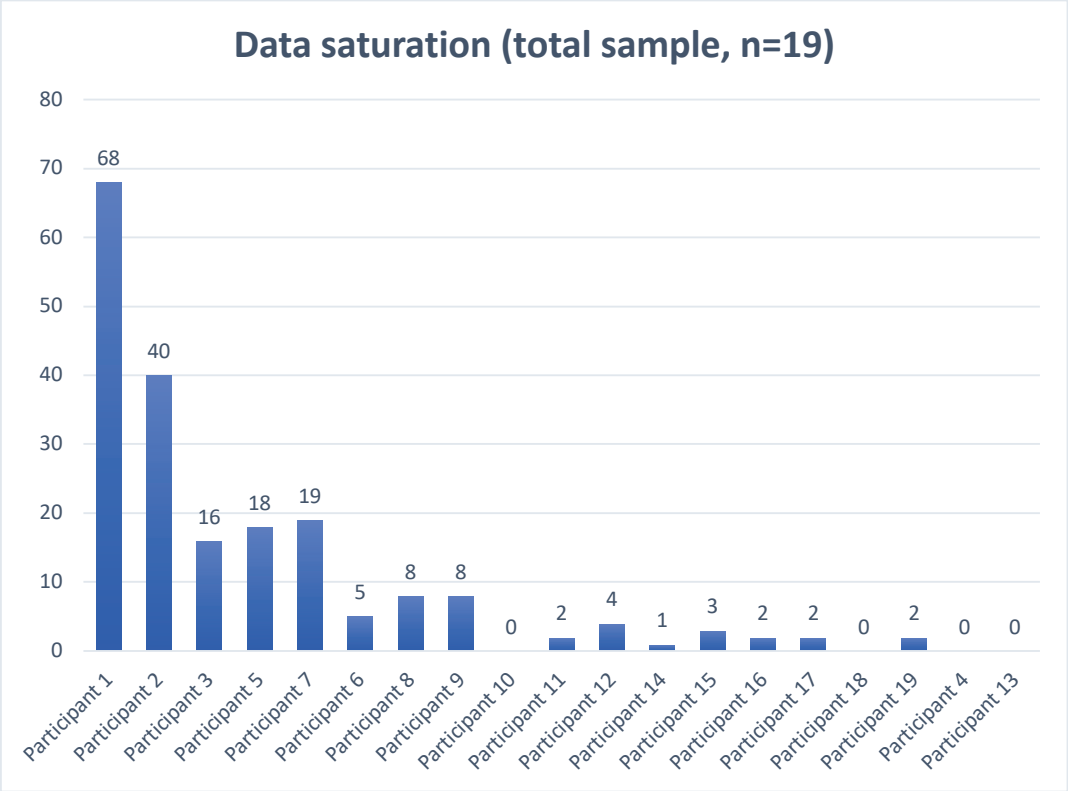


**Figure 10**

***Data saturation (total sample, n=19)***

### 4.9 Research instrument

The baseline interview protocol (see Appendix D) was standard across the interviews and composed and organised in accordance with the subordinate RQs, as indicated in Table 9. The interview protocol purposefully included open-ended questions to allow for thick description of experiences (Geertz, 1973, p. 310) which, according to Bell et al. (2019), is necessary for transferability of the collected data for use in alternate theoretical contexts and individual interpretation (by other researchers). The interview questions were articulated using common business diction to facilitate understanding (Saunders et al., 2019) and trigger an organic response from the participant.

Prior to the start of the formal data collection process (interviews with the final sample set), a pilot interview was conducted with an executive committee member for strategy at the researcher's firm. This allowed the researcher to gauge the overall flow of the interview protocol, whether the questions were easily understood and test timekeeping (Saunders et al., 2019). No material changes to the interview protocol (as submitted to the GIBS Ethics Committee) were required. Only cosmetic changes, relating to the structure of the sentences, were required to convey a more conversational tone.

### 4.10 Data collection

Semi-structured and in-depth interviews were conducted with the participants, in line with the interview protocol (see Appendix D). A degree of structure was required to allow for a meaningful thematic analysis to be conducted (Bell et al., 2019; Creswell, 2013). A marginal threshold of flexibility was employed during the interviews to cater for follow-up (or probing) questions (depending on the participant's answers).

A total of 19 interviews were conducted and generated 890 minutes of audio. The duration of each interview was between 20 and 83 minutes, at an average of 47 minutes in length. Two interviews were conducted in person and 17 interviews were conducted virtually (using Microsoft Teams in two instances and Zoom for the other 15). All interviews were completed in full according to the interview protocol (Appendix D) except in one case. The interview for Participant 19 ended prematurely owing to the participant experiencing connectivity issues and only eight out of ten questions were completed – the gathered data was nevertheless utilised in the sample (as 80% of the interview was completed).

The researcher, through the process of scheduling the interviews, was able to verify the suitability of the participant's involvement in the research by requesting information related to their role, work experience and academic qualifications (see 4.12.1 Credibility). The interviews were recorded with the participant's consent (see 4.13 Ethical considerations) and transcribed for data analysis. In consideration of the overall research timeline, the researcher arranged for each audio recording to be professionally transcribed (see 4.11.1.5 and Appendix E) immediately after each interview was conducted. In this way, the researcher was able to continue conducting interviews while simultaneously analysing the completed interview transcripts (Bell et al., 2019). This allowed the researcher to monitor data saturation (assess the adequacy of the sample size) and decide whether additional interviews were needed.

**Table 9**

***Mapping of interview questions in relation to the research questions and identified knowledge gaps***

| KNOWLEDGE GAP | RESEARCH QUESTIONS | INTERVIEW QUESTIONS |
|---|---|---|
| What are MNE managerial perceptions and interpretations of the climate change issues? How does the MNE's positioning/self-awareness compare to rivals (Kolk & Pinkse, 2008; Kolk & Ciulli, 2022)? What motivates MNEs to respond to climate change (Zilja, 2022)? | RQ 1<br>How do MNEs view climate change as an opportunity for competitive advantage? | 1. What opportunities or threats does climate change present for current operations and the future continuity of a firm operating in your industry?<br>2. Do you think competitors view climate change any differently as an opportunity to gain competitive advantage? If so, why? |
| Which resources and capabilities combinations do MNEs view as being necessary to ensure an effective response to climate change (Kolk & Pinkse, 2008; Kolk & Ciulli, 2022)? | RQ 2<br>Which resources and capabilities do MNEs deem to be critical for the implementation of climate change strategies? | 3. What are the specific resources and capabilities that you believe a firm in your industry needs to have to successfully navigate the effects of climate change on the industry?<br>4. Which of your firms' current resources and capabilities (with respect to the execution of climate change strategy) do you think are or have been important in the execution of strategies? (How should they be developed?)<br>5. Which critical resources and capabilities (with respect to the execution of climate change strategy) do not exist in your firm and how should these be created or cultivated? |

| KNOWLEDGE GAP | RESEARCH QUESTIONS | INTERVIEW QUESTIONS |
|---|---|---|
| The practical reality of how climate change influences the strategic directions of MNEs is not well understood or articulated in IB literature (Kolk, 2016). What specific actions do firms take in their response to climate change? What are the real-world "processes and routines" that give effect to dynamic green capabilities (Matysiak et al., 2018)? | <u>RQ 3</u><br>How do MNEs develop and invest in the resources and capabilities required to implement change strategies? | 6. What actual business process steps are taken (or should be taken) by your firm to mitigate the threat of climate change (reduce negative impact) or to convert opportunities into value creation activities?<br>7. How does the process of managing climate change differ to handling other business challenges? |
| Climate change is a multidimensional issue affecting firms throughout their value chains (Ghauri et al., 2021; Van Tulder, 2021) and in multiple geographical contexts. How is the issue of climate change managed throughout the firm? Is climate change viewed by MNEs as a dynamic issue needing continual monitoring and requiring firm agility? | <u>RQ 4</u><br>How do MNEs build the capacity for continual renewal and augmentation of resources and capabilities in the execution of climate change strategies? | 8. Which external stakeholders influence your firm's climate change strategies and how do you (or how should you) engage with them in the formation and/or execution of strategies?<br>9. How does your firm (or how should your firm) ensure that climate change strategies are carried out throughout the organisation?<br>10. Who do you think is accountable for the successful execution of climate change strategies in your firm, and why? |
| Real-world evidence of the role of ethical mechanisms and the execution of dynamic green capability framework will be valuable (Haney, 2017). | | |

| | | |
|---|---|---|
| Insights into the role of global connectedness in dynamic green capability execution (Maksimov et al., 2022) for MNEs operating in an emerging market context, would be useful. | | |
| What are the types of internal organisational impediments that are experienced by MNEs in the execution of their climate strategies (Grøgaard et al., 2022)? Real-world evidence of the use recombination abilities to overcome internal organisation impediments and develop organisational flexibility would be valuable (Grøgaard et al., 2022)? | | |

*Note.* Author's own composition

### 4.11 Data analysis

An overview of the data analysis process is as follows:

#### 4.11.1 Data sanitisation (ensuring data quality)

Upon receiving each transcript from the professional transcriber (see 4.14 Data Storage and Appendix E), the researcher reviewed the transcripts to detect and remove participants' sensitive personal data and converted any reference to the individual manager to their coded name. The researcher removed words or phrases which could be used to identify the MNE and converted any reference to the MNE to the MNE's coded name.

The researcher reviewed the entire transcript against field notes (made by the researcher during and immediately after the interview) to ensure that the content and meaning experienced and understood in the interview was accurately reflected. The sanitised transcripts (in line with undertakings discussed in 4.13 Ethical considerations) are the versions that are stored by the researcher and uploaded to the GIBS storage drive (see 4.14 Data storage).

#### 4.11.2 Coding and thematic analysis

A process of inductive coding and thematic analysis (Bell et al., 2019; Cresswell, 2013; Merriam & Tisdell, 2016) was conducted using ATLAS.ti (qualitative data analysis software conducted. The researcher coded the raw data using first order codes that were as close to the original intended meaning of the participants' responses. An iterative review of the codes occurred as each successive transcript was coded to refine the code articulation and ensure consistency. The codes were then reviewed inductively to generate larger "clusters of meaning" i.e., code categories, which allowed for more concrete data analysis points. (Moustakas, 1994, p. 121-122). The code categories were then organised into themes and subsequently theoretical constructs in line with the literature review. (Bell et al., 2019; Cresswell, 2013; Merriam & Tisdell, 2016). The codebook is presented in Appendix F.

### 4.12 Quality controls

Guba & Lincoln (1994) elaborate on quality controls to establish trustworthiness and authenticity in qualitative research:

#### 4.12.1 Credibility

Credibility pertains to what extent the research findings are realistic, logical, and believable (Bell et al., 2019; Merriam & Tisdell, 2016). Credibility of the data was ensured as the intended sample comprised professional managers who, at the time of the interview, were involved in the strategic decision-making of the firm (specifically in relation to risk and sustainability), in various industries. The data gathered reflected a large degree of expertise, knowledge, and experience in various industries. For an indication of managerial experience (involvement in strategic decision-making),

knowledge, expertise and academic background, the researcher requested the information detailed in Table 10, from each participant, via email. The researcher communicated that the participant's response was voluntary and that the reason for requesting the information was to support the credibility of the data in the final thesis. The researcher reiterated that no identifying details would be recorded.

**Table 10**

***Information requested to verify credibility of data***

| **Question** | **Answer Options** | |
|---|---|---|
| **What is your total length of work experience, in years?** | *[Open field]* | |
| **How many years of working experience do you have in your current industry?** | *[Open field]* | |
| **What are your academic qualifications?** | **Level** | **Mark "X" if applicable** |
| | Matric | |
| | Bachelor's Degree | Please specify the name of the qualification: *[Open field]* |
| | Honours Degree | Please specify the name of the qualification: *[Open field]* |
| | Master's | Please specify the name of the qualification: *[Open field]* |
| | Doctorate | Please specify the name of the qualification: *[Open field]* |
| | Other | Please specify: *[Open field]* |

| | |
|---|---|
| **Please list the other sectors/industries that you have worked in, if any.** | [*Open field]* |

*Note.* Author's own composition

The summary of feedback is presented in Table 11 (excluding the information relating to academic qualification to reinforce confidentiality measures). The mean length of working experience in the participants' current industry was 15 years, while the mean length for overall work experience was 20 years. The participants were all degreed (a masters level degree was the most frequent level of education within the sample). The fields of academic study included, inter alia, chemical engineering, business sciences (economics and MBA), neuropsychology and environmental science.

Table **11**

**Credibility of data – work experience of research participants**

| Participant | Industry | Financial Sector / Non-Financial Sectors | Total Length of Work Experience [Years] | Work Experience in current industry [Years] |
|---|---|---|---|---|
| Participant 1 | Banking | Financial Sector | 29 | 13 |
| Participant 2 | Banking | Financial Sector | 28 | 12 |
| Participant 3 | Manufacturing (Textiles) | Non-Financial Sectors | 23 | 23 |
| Participant 4 | Retail (Food and clothing) | Non-Financial Sectors | 30 | 26 |
| Participant 5 | Insurance/Reinsurance | Financial Sector | 12 | 12 |
| Participant 6 | Insurance/Reinsurance | Financial Sector | 5 | 3 |
| Participant 7 | Management Consulting (Sustainability) | Consulting | 15 | 15 |
| Participant 8 | Banking | Financial Sector | 14 | 8 |
| Participant 9 | Manufacturing (Packaging) | Non-Financial Sectors | 33 | 23 |
| Participant 10 | Manufacturing (Packaging) | Non-Financial Sectors | 35 | 35 |
| Participant 11 | Insurance/Reinsurance | Financial Sector | 17 | 17 |
| Participant 12 | Management Consulting (Sustainability) | Consulting | 14 | 4 |
| Participant 13 | Mining | Non-Financial Sectors | 9 | 9 |
| Participant 14 | Insurance/Reinsurance | Financial Sector | 30 | 24 |
| Participant 15 | Insurance/Reinsurance | Financial Sector | 27 | 27 |
| Participant 16 | Commercial Real Estate | Non-Financial Sectors | 25 | 10 |

| | | | | |
|---|---|---|---|---|
| Participant 17 | Manufacturing (Diversified) | Non-Financial Sectors | 15 | 10 |
| Participant 18 | Manufacturing (Cement) | Non-Financial Sectors | 20 | 6 |
| Participant 19 | Management Consulting (Sustainability) | Consulting | 15 | 8 |
| | | **Total** | **399** | **288** |
| | | **Mean** | **21** | **15** |

*Note.* Author's own composition

Ensuring sample size adequacy through monitoring and reaching data saturation adds credibility to the findings of the study (Merriam & Tisdell, 2016). This is discussed in more detail in: 4.10 Data collection.

Bias can unintentionally manifest because the researcher leveraged known networks to obtain the sample of final participants (Morse, 2015), i.e., there was a purposive element to obtaining the sample and some of the participants would be known to the researcher prior to the research. This is known as prior engagement bias (Morse, 2015). However, only six of the 19 participants were professionally known to the researcher prior to the research being conducted. The researcher had no prior engagement with 13 participants. This means that the researcher had no prior engagement with 68.42% of the sample and thus prior knowledge bias was deemed to be managed effectively. Figure 10 illustrates how the sample evolved and the degrees of separation from the researcher.

### 4.12.2 Transferability

Transferability refers to whether the research findings can be applied to different contexts (Bell, 2019). A sufficiently large sample (which reaches data saturation) strengthens the generalisability of research findings. "Thick description" results in a substantial database and enables other researchers to make their own judgments and interpretations or test the data against other theories (Bell, 2019).

### 4.12.3 Dependability

The researcher kept extensive records of all phases of the research process (in an audit style format). The final research proposal, final ethical clearance submission, ethical clearance certificate issued by GIBS and signed letters of consent from each participant in the study are stored (see 4.14 Data Storage). Raw data (interview transcripts which do not contain any identifying information in respect of both the participants and their

organisations) was required to be uploaded to the University of Pretoria (UP) system and this serves as evidence of the data collection and basis of findings.

### 4.12.4 Confirmability

Confirmability refers to the extent to which the researcher mitigated against the effects of biases in the data collection process (Bell, 2019; Merriam & Tisdell, 2016). The researcher articulated their potential bias at the outset of the research design process (see 4.2.3 Axiological*)* enabling the researcher to continually reflect on the potential for their identified bias or values to affect their interpretation of the participant's experience. Being explicitly aware of potential bias also assisted the researcher to consciously embark on the process of *epoche* (refraining from judgement) (Merriam & Tisdell, 2016). The researcher conducted the research process in good faith and to the highest ethical standards (see 4.13 Ethical Considerations*).*

### 4.12.5 Data Triangulation

Triangulation of data was achieved through the diversity of the sample (Eden & Neilsen, 2020), as follows:

i. The sample included different managerial perspectives and experiences (19 in total)
ii. The sample included different MNEs (11 in total, excluding the companies which consultants worked for)
iii. DMNE and EMNE perspectives were represented in the sample (four DMNEs and seven EMNEs);
iv. various sectors were represented in the sample: banking, insurance/reinsurance, manufacturing (textiles, cement, diversified, packaging), retail (food and clothing), mining and commercial real estate;
v. the sample included three sustainability consultants who provided an outsider's perspective of firms dealing with the issue of climate change.

## 4.13 Ethical Considerations

Ethical considerations were of critical importance to the researcher and the overall trustworthiness of the research itself. The researcher adhered to the standards prescribed by GIBS. Data was not collected until the researcher obtained full ethical clearance from the GIBS Research Ethics Committee.

An ethical clearance submission, which included the baseline interview protocol (intended for use in the data collection process), was made to the GIBS Research Ethics Committee and approval was subsequently received (see Appendix B).

Participants were necessarily adults (older than 18 years of age) and had an explicit choice to participate in the study. Willing participants were asked to sign a "Letter of Informed Consent"

(see Appendix C) prior to the interview being conducted. No parties were coerced or paid to participate in the study. The researcher did not prevent any participant from exiting the study if they wished to do so. Confidentiality was assured by ensuring that the transcripts and final research report do not contain any identifying information (both in respect of the participants and their organisations). The service provider who assisted with transcription services signed a "Confidentiality and Non-Disclosure Agreement" (see Appendix E).

### 4.14 Data storage

The professional transcriber confirmed that the audio recording files would be deleted after producing the transcripts (see Appendix E). The researcher ensured that the transcripts and the final research report do not contain any identifying information (both in respect of the participants and their organisations).

**4.14.1** Transcripts: these were uploaded to the GIBS storage drive (as required by the GIBS Research Standards) and are also being stored by the researcher in a separate, safe (password protected) location for a period of 10 years.

**4.14.2** Signed letters of informed consent: these were not uploaded to the GIBS storage location but have been stored by the researcher in a safe (password protected) location for a period of 10 years.

### 4.15 Limitations of research design and methods

The immediate limitation of a qualitative study is the absence of quantitative data to support hypothesised relationships between constructs (however, this could potentially be an opportunity for future research). This study did not represent all sectors and industries of the economy. The sample did not include GHG-heavy industries (like oil, gas and petroleum or thermal coal mining) which means that the sample did not included industries facing the most scrutiny and pressure from global society to reduce their GHG footprints. The method of conducting interviews was mostly virtual and while this was convenient for both the researcher and the participants, it may have precluded the researcher from fully observing non-verbal cues.

# 5. RESEARCH FINDINGS

## 5.1 Introduction

Chapter 5 describes the research sample and presents the findings of the study. The findings were arrived at following a thematic analysis of the collected data (see section 4.11 Data analysis). The sections are organised in line with the constructs of the dynamic green capability framework (see sections 2.6, 2.7, 2.8, 2.9 and Figure 9). Key findings within the constructs are discussed and supported with quotes from the participants. A table showing the code categories, themes and theoretical constructs is included in each section. The full code book is presented in Appendix F.

## 5.2 Description of sample and analysis groups

All 19 participants worked in the areas of risk, strategy or sustainability (or areas of equivalence within their firms) or in roles that involved an intersection of the three areas. The suitability of participants for the research was verified by the researcher (see 4.12.1 Credibility).

Three of the participants were sustainability consultants whose clients included MNEs operating in various sectors (two of the consultants worked for consulting firms which were DMNEs from Europe and the United States of America and one worked for a private South African firm). The other 16 participants worked for 11 distinct MNEs which operated in sub-Saharan Africa – seven were EMNEs (six originating from South Africa and one from Mauritius) and four were DMNEs (originating from Europe) – in the following sectors: banking, insurance/reinsurance, manufacturing (textiles, cement, diversified, packaging), retail (food and clothing), mining and commercial real estate.

The researcher split the sample into three analysis groups:

i. **Analysis group – financial sector**

   This group comprised eight participants from four distinct MNEs. The five MNEs in this group operated in the banking and insurance/reinsurance. One of the MNEs (MNE 1) originated from South Africa. The other three (MNE 4, MNE 6 and MNE 8) originated from Europe. Banks play a critical role in the economic stability and economic growth (nationally and globally) as providers of credit, investment products and payment services to firms operating in all other industries (non-financial sectors). Insurers/reinsurers are critical service providers of alternate risk transfer mechanisms to firms operating in all other industries (non-financial sectors). Climate change risks intrinsically affect the balance sheets and profitability margins of financial sector MNEs: more frequent and severe adverse weather and natural peril events result in more expected and actual insured losses (from an insurance perspective) and credit losses (from a banking perspective); and they play a critical role in the economy's effective

transition from fossil fuels through project finance (in the case of banks) and risk protection (in the case of insurers) (Kolk & Pinkse, 2012). The nexus of potential strategic challenges and opportunities that arise for financial sector MNEs, in the context of climate change, offers an intriguing research angle.

**Table 12**

**Analysis group – financial sector**

| Participant | Firm | Industry | Financial Sector / Non-Financial Sectors | Publicly Listed or Private | HQ (Home) Location |
|---|---|---|---|---|---|
| Participant 1 | MNE 1 | Banking | Financial Sector | Publicly Listed | South Africa |
| Participant 2 | MNE 1 | Banking | Financial Sector | Publicly Listed | South Africa |
| Participant 5 | MNE 4 | Insurance/Reinsurance | Financial Sector | Publicly Listed | Europe |
| Participant 6 | MNE 4 | Insurance/Reinsurance | Financial Sector | Publicly Listed | Europe |
| Participant 8 | MNE 1 | Banking | Financial Sector | Publicly Listed | South Africa |
| Participant 11 | MNE 6 | Insurance/Reinsurance | Financial Sector | Publicly Listed | Europe |
| Participant 14 | MNE 8 | Insurance/Reinsurance | Financial Sector | Publicly Listed | Europe |
| Participant 15 | MNE 8 | Insurance/Reinsurance | Financial Sector | Publicly Listed | Europe |

*Note*. Author's own composition

**ii. Analysis group – non-financial sectors**

This group comprised eight participants from seven distinct MNEs. The seven MNEs in this group operated in manufacturing (textiles, cement, diversified, packaging), retail (food and clothing), mining and commercial real estate. One of the MNEs (MNE 10) originated from Europe and one from Mauritius (MNE 2). The other six (MNE 3, MNE 5, MNE 7, MNE 9 and MNE 11) originated from South Africa. The group represents the multitude of industries involved in the extraction and conversion of resources into consumer goods and services. This group has a more tangible value chain considerations in the context of climate change (Kolk & Pinkse, 2012).

**Table 13**

**Analysis group – non-financial sectors**

| Participant | Firm | Industry | Financial Sector / Non-Financial Sectors | Publicly Listed or Private | HQ (Home) Location |
|---|---|---|---|---|---|
| Participant 3 | MNE 2 | Manufacturing (Textiles) | Non-Financial Sectors | Publicly Listed | Mauritius |
| Participant 4 | MNE 3 | Retail (Food and clothing) | Non-Financial Sectors | Publicly Listed | South Africa |
| Participant 9 | MNE 5 | Manufacturing (Packaging) | Non-Financial Sectors | Publicly Listed | South Africa |
| Participant 10 | MNE 5 | Manufacturing (Packaging) | Non-Financial Sectors | Publicly Listed | South Africa |
| Participant 13 | MNE 7 | Mining | Non-Financial Sectors | Publicly Listed | South Africa |
| Participant 16 | MNE 9 | Commercial Real Estate | Non-Financial Sectors | Publicly Listed | South Africa |
| Participant 17 | MNE 10 | Manufacturing (Diversified) | Non-Financial Sectors | Publicly Listed | Europe |
| Participant 18 | MNE 11 | Manufacturing (Cement) | Non-Financial Sectors | Publicly Listed | South Africa |

*Note*. Author's own composition

**iii. Analysis group – consultants**

Three of the participants were sustainability consultants whose clients included MNEs operating in various sectors (two of the consultants worked for consulting firms which were DMNEs from Europe and the United States of America and one worked for a private South African firm). The consultant group serves as an external perspective compared to the rest of the sample, given that they interact with firms on a consulting basis but do not operate as managers within them.

**Table 14**

**Analysis group – consultants**

| Participant | Firm | Industry | Financial Sector / Non-Financial Sectors | Publicly Listed or Private | HQ (Home) Location |
|---|---|---|---|---|---|
| Participant 7 | Consultant 1 | Management Consulting (Sustainability) | Consulting | The consulting firm is private | The consulting firm is a domestic firm originating from South Africa |
| Participant 12 | Consultant 2 | Management Consulting (Sustainability) | Consulting | The consulting firm is publicly listed | The consulting firm is an MNE originating from the United States of America |
| Participant 19 | Consultant 3 | Management Consulting (Sustainability) | Consulting | The consulting firm is publicly listed | The consulting firm is an MNE originating from Europe |

## 5.3 Findings: Climate change

Findings relating to the climate change context are presented in the following sections. It is extremely valuable to understand the external climate change context from the perspective of a variety of MNE managers across various sectors as it provides insights into the cognisance and sensitivities of managerial interpretation. In this section, quotes from across the sample are provided. Perspectives are delineated according to analysis groups where pertinent.

### 5.3.1 Climate change: Issue-specific factors

Table 15 lists the code categories and theme with respect to the issue-specific factors of the climate change conundrum, from a firm perspective.

**Table 15**

**Climate change – issue-specific factors – code categories**

| Code Category | Theme | Theoretical Construct |
|---|---|---|
| Complexity of the issue | Issue-specific factors | Climate change |
| Country context matters | Issue-specific factors | Climate change |

| Code Category | Theme | Theoretical Construct |
|---|---|---|
| Criticality of the climate change | Issue-specific factors | Climate change |

*Note.* Author's own composition

**i. The degree of complexity of the climate change issue is extremely high**

Participants across all sectors continuously referred to the complexity of climate change as a business problem. Even when evoking thoughts and perspectives on firm strategy, processes, resources and capabilities, the complexity aspect was discussed. Notwithstanding the gravity of the issue from an existential threat level, the complexity stems from the fact that climate change is pervasive, affecting all economic actors (albeit in different ways). Even at a firm level, the issue is multidisciplinary because it requires organisational wide competencies for managing the effects and associated strategies.

*Participant 1*

*Which scenario do we choose, why this one and not another one? When [a particular stakeholder] criticises us, how do you make sense of that? You know it is the most… in 13 years in the bank this is the most difficult issue I have ever dealt with.*

*Participant 11*

*[Climate change] touches so many various places of the organisation it really is quite complex from that perspective. I think that is what makes it so different.*

Most sectors of business as well as external stakeholders are still grappling with the issue – and its everchanging characteristics. There is a vast of amount of research being done on the technical aspects (technologies and engineering) as well as the modelling of climate scenarios. The outcomes have continual impacts on the regulatory landscape as well a business risk perspective. The issue evolves and all stakeholders are learning while that unfolds.

*Participant 8*

*[Everything else has a] template and [we can] solve, whereas climate change is not really such a new issue, but as banks it is not a capability we always had, so we are trying to build in that space. So, it is still challenging to fully comprehend new things that come out in that space.*

**ii. The degree of uncertainty of the climate change issue is extremely high**

The uncertainty levels of the climate change issue are unprecedented. This directly effects any risk assessments of potential investments in transitional pathways, purchasing decisions (with respect to natural resources) and even international

(geographic) expansion of business. Uncertainty surrounding the issue is extremely prevalent in the global insurance sector.

*Participant 5*

*We might think that climate change has a 50-year time horizon, it might actually have a 20-year time horizon. Those uncertainties are very, very prevalent in our pricing, in our risk-taking ability, in our capital calculations… It is actually multifaceted, the threats to the insurance industry.*

**iii. Climate change disproportionately affects people**

Climate change disproportionately affects communities and can worsen or cause existing socioeconomic problems like poverty and inequality. This has further implications on the role of business in finding solutions for better and healthier living.

*Participant 7*

*[Climate change exacerbates] inequality at various levels – at local levels, country levels, international level. And the reason is that you've got the physical impacts of climate change manifest differently around the world. Some countries are more at risk than others. Generally, those are developing countries…*

**iv. Climate change presents a vivid temporal disconnect of cost (required action) and benefits**

From a temporal lens, existing corporate status quos regarding short-term outlooks on risk and opportunity are quite obviously not aligned to the inherent long-term nature of the climate change phenomenon.

*Participant 1*

*Climate science, climate models, look at 30 years out; business don't look at 30 years out, business decisions are about what is happening now, what is happening next year, maybe three years' time. How do we know what the world is going to look like in 30 years?*

*Participant 5*

*Short-term thinking where we think about our next P&L and our next kind of [group] report and you know? We are kind of very myopic about what our KPIs are going to be for the next year or the next 18 months at the maximum…we are forced to report on a quarterly and yearly basis because of [regulatory requirements], and it is because of IFRA 17 and because we always have to look at our investors and our analysts and our share price.*

*And so, we have these absolutely stringent short-term goals and then an absolutely strong long-term objective, and they actually don't speak to each other.*

*Participant 9*

*To try and put in a conversation about something that is not concrete and firm but probably a little bit more abstract, into an executive suite, when it is 2050 [the net-zero commitment date] and it exceeds the career span of the executive, that creates its own unique challenges and therefore it needs to be just managed respectfully, to the fact that there are here-and-now dynamics that often crowd out the long-term – and the very long-term indirect impact of something like climate change.*

### 5.3.2 Climate change: Sector-specific factors

Table 16 relays the code category for sector-specific factors.

**Table 16**

**Climate change – sector-specific factors – code category**

| Code Category | Theme | Theoretical Construct |
|---|---|---|
| Sector characteristics | Sector-specific factors | Climate change |

*Note.* Author's own composition

#### i. Competitiveness within sectors

The key finding relating to sector-specific climate change factors pertains to the competitiveness within the sector. Sector type and sector size play a role in the potential competitive advantage opportunity. It was put forward that it is difficult to differentiate when that sector is concentrated.

*Participant 2*

*Because our sector is quite concentrated in terms of the number of firms that are in our sector, it is quite difficult to differentiate yourself.*

Embarking on a greening strategy is viewed as one that will relay competitive benefits. This is an interesting point in contrast to the challenge faced by business from a temporal lens (discussed in 5.3.1 Climate change – issue-specific factors).

*Participant 12*

*Core companies that adapt to a low carbon economy quicker will have a competitive advantage over the rest of the market players there.*

#### ii. Circular economy

Another noteworthy finding relates to the non-financial sectors (manufacturing) where a focus on circular economy models was often mentioned.

*Participant 9*

*I think if you try and position climate change as the only issue, then you are missing the opportunity. So, I am always at pains to make the linkage between how the climate change equation for our industry is very much linked to circular economy, which then drives certain behaviours that meet other waste management issues. And I believe if you can create those linkages elsewhere at that very sort of understandable level, then you have a much more powerful drive throughout the organisation – as opposed to seeing it as this unique animal that has got to be dealt with by 2050.*

**iii. Sector collaboration**

Most participants were of the view that sector collaboration was necessary at this point in time to galvanise implementation of strategic initiatives.

*We talk a lot about this stuff, I know, but sometimes the immediate concerns supersede stuff that we park until next year, and I think maybe from an industry perspective, maybe from a [industry body] perspective, maybe we should just try to do something a little bit more immediate.*

The concern, however, has been the perception of collusion by outside stakeholders or spectators.

*Participant 6*

*It is always super important that we stay within boundaries about which information you can exchange and what can you collaborate on so that in the end we don't … even though we want to do a good thing, we can't breach law on how much we can actually exchange and agree on common targets for instance.*

It is interesting that a few of the participants viewed their firms as being on the mature side of climate change thinking – the interesting point is that they believed their competitors were too.

*Participant 14*

*I wouldn't say that they view it differently, I would say we are all in the same boat*

*Participant 17*

*12 years ago, [my Company] was one of the first to make commitments …and now we're at a point where just about everybody has …. But I think everybody's come on board.*

Given the nascent nature of the problem (from a business strategy point of view) and the scale of the problem on the other, some participants were of the view that collaboration is required to find grander solutions for implementation.

*Participant 12*

*I immediately think about transitioning to a circular economy as opposed to a linear economy. That's sort of all-encompassing. Like if we were running a truly circular economy with renewable energy systems and cradle-to-cradle sort of model, that would be truly addressing those climate change issues.*

Responding to climate change with appropriate strategies will confer benefits based on the quality of execution – thus there is still ample opportunity to differentiate and compete.

*Participant 11*

*Does anyone have a bigger advantage over another? I am not sure. I think everybody has maybe a slightly different strategy when it comes to firstly ESG targets, how they implement those targets, that is clear, that everyone has a slightly different perspective on that. But even in terms of identifying opportunities and using their skills to be able to deal with the problem, I think everyone has got a different approach and a different strategy to that as well.*

### 5.3.3 Climate change: Firm-specific factors

Table 17 relays the code category for firm-specific factors. It is important to note that research engaged managers across various MNEs and the rest of the chapter deals with the granular view at firm and managerial level.

**Table 17**

**Climate change – firm-specific factors – code category**

| Code Category | Theme | Theoretical Construct |
|---|---|---|
| Firm characteristics | Firm-specific factors | Climate change |

*Note.* Author's own composition

#### i. Climate change is a strategic issue

A consistent finding relating to firm is that climate change is being viewed strategically and with genuine intent – this was the position of a near majority of the sample.

*Participant 2*

*What I think you are starting to see more and more, businesses putting it on high level agendas, definitely a top risk, definitely one of those things to think about – but what we*

*are seeing more and more of, and this is what was less apparent, is it is now becoming part of strategic decision making. So, whereas before it was sort of relegated to our risk area, it is now becoming part of the strategic decision and part of the way in which decisions are made*

### 5.3.4 Climate change: Country-specific factors

Participants were highly aware of the country context in which they were operating in. Table 18 relays the code categories for country-specific factors.

**Table 18**

**Climate change – country-specific factors – code categories**

| Code Category | Theme | Theoretical Construct |
|---|---|---|
| Country context matters | Country-specific factors | Climate change |
| Developed market context | Country-specific factors | Climate change |
| Emerging market context | Country-specific factors | Climate change |

*Note.* Author's own composition

i. **Developed markets are ahead of the curve in dealing with climate change**

There was a general acceptance that developed markets are farther along in the sustainability journey and specifically, climate change risk management. Th political economy of the country determines the national priorities.

*Participant 16*

*Now in the context of South Africa, for instance, in a very heavy fossil-fuel energy driven economy, which has direct impact on climate change, it is not top priority. They want to keep the doors of their business open.*

ii. **The societal perception of climate change is an important consideration**

Societies views are shaped by their lived experience of socioeconomic circumstances. Climate change is abstract in harsh realities and firms are aware of this. It was encouraging to note that's some participants consider the abatement of social crises as a business priority with an aim to making the economy more inclusive (see 5.5 Ethical mechanisms).

*Participant 7*

*I haven't seen a big awareness around and concern raised by communities around the physical impacts of climate change. And I think that's wrong. I think a community should be more concerned about the physical impacts of climate change, but I'm not seeing*

*communities going to companies saying, you need to help us build resilience to the physical impacts of climate change. I'm not seeing that…I think they should.*

*Participant 9*

*[Public] attention is elsewhere, you know you don't get people marching for climate change; they are marching for jobs or social equity or social delivery.*

**iii. The absence of government support in resolving the climate change challenge**

Participants were of the view that there is lack of government involvement in the country's plans for dealing with and preventing the effects of climate change. There is a notion that business is unsupported from a public sector point of view. When judged form from developed markets' experience on the journey, enormous shifts without the full support and assistance by government, are not possible especially when the economy is based on coal-generation.

*Participant 5*

*Government is either unaware, unwilling or unable to support PPP initiatives before they are actually needed.*

*Participant 7*

*Government, quite frankly, they've got such a tiny team. So, they'll have someone that's kind of focusing on like, you know, even if it's mining, even within mining there are so many differences in terms of processes, that they don't understand the nuance.*

*Participant 9*

*The biggest challenge is the national local government's ability to execute, even if they do have a strategy or an understanding of what is at stake.*

*Participant 12*

*Stability and reliability in government is massive. We have seen examples where in SA one arm of government and another arm of government are at odds with each other and make each other's lives very difficult. Now if I am a company, a foreign company looking to invest in SA, and especially I want regulatory certainty, and I want high levels of good governance practice in order to make my investment in that country more secure. And if that doesn't exist, I will look somewhere else.*

**iv. The suitability of international policy frameworks for the emerging market absence of government support in resolving the climate change challenge**

The last insightful finding pertinent to country context is that international policy frameworks, reporting frameworks and ESG frameworks do not cater for emerging market conditions.

*Participant 1*

*A lack of pragmatic approaches to dealing with these issues [specific to Africa], and so a lot of the guidance coming out of the global north and competitors and different bodies and so on, is best practice, and it is the Rolls Royce… [but to navigate the African context, we need] a Toyota Corolla approach and we are making it up, we are actually building our own because there isn't actually one out there that we can follow.*

An example of this point is provided by a participant from the manufacturing sector (non-financial sectors).

*Participant 9*

*Let's take somewhere like Nigeria, the recycling happened very, very much so in terms of aluminium where all the aluminium cans are gathered and go back into the informal market and then they reuse that aluminium to make utensils… but [the frameworks for reporting] want formal decarbonisation processes, where they would look to those kind of circular economy activities for [credits] .... But the fact is that those carbon credits do exist, [it is just that the recycling] is being done informally [and there is no mechanism to account for that].*

### 5.3.5 Climate change: nexus of stakeholders

Discussions about stakeholders dotted the participants perspectives and thoughts. The nature of the climate change problem (and the policy and governance around it) necessitates more stakeholder thinking than the ordinary course of business. Table 19 relays the code categories for the nexus of stakeholders.

**Table 19**

**Climate change – nexus of stakeholders – code categories**

| Code Category | Theme | Theoretical Construct |
|---|---|---|
| Multiplicity of stakeholders | Nexus of stakeholders | Climate change |
| Stakeholder collaboration | Nexus of stakeholders | Climate change |
| Stakeholder engagement | Nexus of stakeholders | Climate change |
| Stakeholder pressure | Nexus of stakeholders | Climate change |

*Note.* Author's own composition

**i. Types of stakeholders which MNEs deal with in the context of climate change**

Participants collectively spelt out the types of external stakeholders that are dealt with, or from whom they feel the most pressure, in the navigating the climate change problem: customers (both consumers and businesses or clients), shareholders or investors, suppliers, NGOs, government, the regulator and international bodies (for example, the UN). The multiplicity of the stakeholder environment was evident.

*Participant 9*

*You are not playing on your own, you have got to play within the community of the value chain, the suppliers, the customers, the consumer. Challenging sometimes when you are dealing with government and local municipalities.*

**ii. The importance of stakeholder engagement**

Stakeholder engagement was the most recurring topic within the stakeholder nexus. Engagements with stakeholder occurred for a myriad of reasons and usually represented a willingness on the part of business to ensure effective communication about strategy paths and current and future products and services. One consultant regarding stakeholder engagement as a critical firm capability in navigating the climate change dilemma but also that it should be a well-thought-out endeavour involving planning and foresight.

*Participant 12*

*Having a stakeholder engagement plan is massive and you know you can see, you are looking at companies' interim reports, sometimes that content can be very generic and not specific, whereas if you see a plan of 'these are our stakeholder groups, this is how we engage them, here are the examples of that during the year' you know that company wants to work with and collaborate with their stakeholders more.*

One participant offered cautionary advice for the process.

*Participant 1*

*How you should engage with them, our philosophy as an organisation is that you should always engage legitimate stakeholders, we actually have a definition. So, if groups threaten violence, intimidation, destruction of property – we won't engage with them. But otherwise, we will.*

A frequent topic within stakeholder engagement was the degree of complexity and frequency of engaging business clients. The deals and transactions (whether in the financial sector or non-financial sectors) are large and often complex, requiring more

attention and thoughtfulness about mutual interest, differing interest and finding resolutions.

*Participant 11*

*Everybody has a different interest, and it is just ensuring you understand what those interests are, and then sort of responding with the appropriate level of communication to ensure you address their concerns through the entire process. So, I would say understanding why they are involved, what they need, how to communicate effectively to them to ensure that you address their concerns.*

**iii. The importance of stakeholder collaboration**

Stakeholder collaboration was recurring topic. Participants expressed the need for stakeholder collaboration but only a few were specific about what that should entail. One participant relayed their experience as supplier to a European clothing retailer and the collaborate sustainability plan which they signed up to, to remain on as a supplier. The directives of the plan are clear and compliance with them retains the future business. Working to achieve the compliance with the collaborative sustainability plan has driven efficiencies within the business with respect to water consumption and energy efficiency.

*Participant 9*

*There is a greater degree of a need for collaboration and mutual working through the value chain and pushing back into the suppliers what needs to happen upstream, because particularly for us the biggest carbon emission is in the raw material side of things, the creation of the aluminium or the metal or the plastic that goes into the product that we produce.*

*Participant 11*

*We go on this journey with our clients as well. So, it can't just be us as an entity developing these beautiful strategies but really, we can't do it without not just the buy in of employees, but also the buy in of clients and society in general.*

A few participants discussed the need for collaboration with government in private and public partnerships to launch projects of a large scale and to drive innovation and solutions (see 5.3.4 Climate change: country-specific factors). Section 5.2.(iii) (Climate change: sector-specific factors) presented a finding on the importance of stakeholder collaboration within a sector (or industry) and the challenges associated to it.

## 5.4 Findings: Dynamic green capabilities

The section (5.3.3 to 5.3.5) presents findings relating to the subprocesses of dynamic green capability (sensing, seizing and reconfiguration). Firstly, however, findings related to critical

resources and capabilities (RBV) and the overall execution of dynamic green capability are discussed.

### 5.4.1 RBV: critical resources and capabilities

Some important findings were made in relation to the critical resources and capabilities which are generally required, a priori, for strategic changes. Table 20 relays the code categories and themes for RBV. The four findings discussed below fall into two categories: capabilities and technical expertise.

**Table 20**

**RBV – critical resources and capabilities – code categories and themes**

| Code Category | Theme | Theoretical Construct |
|---|---|---|
| Analytics and risk modelling | Technical expertise | RBV (underlying dynamic green capabilities) |
| Application of climate change knowledge to business | Technical expertise | RBV (underlying dynamic green capabilities) |
| Board and executive capabilities | Capabilities | RBV (underlying dynamic green capabilities) |
| Engineering | Technical expertise | RBV (underlying dynamic green capabilities) |
| External consultants | Technical expertise | RBV (underlying dynamic green capabilities) |
| General firm capabilities | Capabilities | RBV (underlying dynamic green capabilities) |
| Measurement and monitoring | Technical expertise | RBV (underlying dynamic green capabilities) |
| Research and development | Capabilities | RBV (underlying dynamic green capabilities) |

*Note.* Author's own composition

#### i. The importance of board capability

Board and executive capabilities were unanimously regraded by participants as being critical for the implementation of climate change strategy. The prevailing view is that the board grants the initial mandates for all urgent, critical or high-level strategic imperatives. It is then up to the executive management to harness operational and business teams to achieve mandates and furthermore, executive management must be able to go back to the board where required if changes to originals must be made (for example, due to a changing input parameter or external context). A consultant offered insight into the experience of observing how the momentum changes when there is more board and executive management buy-in as well as involvement.

*Participant 7*

*C-Suite execs is when they get it, when they kind of go, okay, it's not just about decarbonising but the world is fundamentally changing – they get the time-periods that are at play here. And it's only when that like switch flips, do you start to see significant action. I mean, it is a bit clichéd, but almost the building up of the understanding and the evidence and arguments that reach that critical threshold that get like the senior people to start saying, okay, we need to take this seriously. And then everything flows from that, and we've seen that, like you know, then the guys need to go and do this and do that, and people move once the CEO tells them to.*

**ii. The importance of a research and development capability**

Research and development capability was viewed as the next key capability. This aids the process from end to end – primary information gathering to staying abreast of the best implementation methods (for climate technologies or sustainable finance options).

*Participant 7*

*Research and meteorological capabilities of the [my Company's R&D division]. So, we have a separate organisation which is part of [my Company] group…it effectively runs research 24/7, the entire year … they look at changes in climate, they look at changes in temperature in sea level – all of these things – they develop tools and they develop guidance. And that is the competitive advantage that we have over other [companies].*

With respect to findings relating to technical expertise, there were two key insights.

**iii. The lack of integration of climate knowledge and business knowledge**

Participants nearly all concurred that there is a lack of integrated climate knowledge within their firms. Participants were referring to the degree to which climate knowledge is institutionalised within all relevant roles and processes in the business.

*Participant 1*

*Science is evolving, the regulatory framework is evolving, it is a very dynamic, rapidly moving field. So, you need people who technically understand things combine understanding of all the climate change things but within the context of a bank and credit risk.*

**iv. The is a strong need for technical knowledge**

The second insight relating to technical expertise is the overall need for technical knowledge and capabilities with respect to engineering, risk modelling, analytics, measurement and monitoring d and then, per the above, a through working knowledge of climate change and its effect on the business and strategy implementation associated to mitigating threats and capitalising on opportunities.

### 5.4.2 Dynamic green capability: overarching view

Table 21 shows the code categories and themes for the overarching view on dynamic green capabilities.

**Table 21**

**Dynamic green capability – overall drivers – code categories and themes**

| Code Category | Theme | Theoretical Construct |
|---|---|---|
| Learning | Driver of dynamic green capability | Dynamic green capability |
| Agency | Driver of dynamic green capability | Dynamic green capability |
| External messaging | Perceived competitive advantage | Dynamic green capability |
| Efficiency of execution | Competitive advantage | Dynamic green capability |
| Competitive advantage | Competitive advantage | Dynamic green capability |
| Financial resources | Driver of dynamic green capability | Dynamic green capability |
| Temporal aspect | Nature of dynamic green capability | Dynamic green capability |
| Strategic thinking | Antecedent process for dynamic green capability | Dynamic green capability |
| Measurement and monitoring of dynamic green capability | Antecedent process for dynamic green capability | Dynamic green capability |

*Note.* Author's own composition

There are two key findings regarding the overall drivers of dynamic green capability.

i. **Learning is extremely vital to the execution of dynamic green capability**

   Firstly, learning (iterative, experiential, and continuous) came through as an absolute imperative. Learning included direct upskilling in relation to climate change as well as learning from execution (trial and error). There was also reference made to organisational learning becoming institutionalised.

   *Participant 7*

   *Yes, you have champions that drive things, and I think there's risk for organisations because you've got a certain level of capacity that sits within an individual, but it's not necessarily institutionalised. And then that individual leaves and then [there is a problem].*

ii. **The level of agency, passion and commitment from managers and executives is critical**

Secondly, the agency, passion and commitment from managerial resources was raised as a key driver. Managerial resources need to have initiative, stay motivated and engage in difficult conversations with stakeholders. Participants were of the view the firms needed to inculcate this ethos in managerial teams and provide methods for staying energised throughout strategy implementation.

*Participant 5*

*… The fact that people still buy our shares, means that our shareholders are well aware and it is something that is published and it is an ethos we live by.*

*Participant 9*

*I think it is just interesting and a wonderful space to be in at the moment, you know? I think that you could potentially have some influence over something that is going to affect downstream*

*Participant 10*

*I am very passionate about the responsibility of any individual or group of individuals or organisations to drive climate change strategy in favour of obviously, minimising the impact as we see already get what's happening.*

*Participant 19*

*They wanted us to do a series of training for their staff because they were like, if these people do not understand, if they are not motivated, if they do not have any sort of moral imperative here to say that this is important you know.*

### 5.4.3 Dynamic green capabilities: sensing

Table 22 shows the code categories and themes for sensing (a sub-capability of dynamic green capabilities). There are four key findings relating to the sensing processes and activities that undergird dynamic green capability.

**Table 22**

**Dynamic green capability – sensing – code categories and themes**

| Code Category | Theme | Theoretical Construct |
|---|---|---|
| Client analysis | Sensing process | Dynamic green capability: sensing |
| Competitor analysis | Sensing process | Dynamic green capability: sensing |

| | | |
|---|---|---|
| Information sharing | Sensing process | Dynamic green capability: sensing |
| Opportunity identification | Sensing activity | Dynamic green capability: sensing |
| Opportunity identification | Sensing process | Dynamic green capability: sensing |
| Risk assessment | Sensing process | Dynamic green capability: sensing |
| Sourcing of data | Sensing activity | Dynamic green capability: sensing |

*Note.* Author's own composition

i. **The policy and regulatory environment relating to climate change changes frequently**

The regulatory and policy environment relating to climate change is a constant state of flux especially in consideration of the multiple locations which MNEs must consider n their strategic responses. MNEs need to keep a handle on those changes to inform the ways in which their process, operations, preconditions methods and overall commitments to GHG-reduction may need to change, to maintain regulatory compliance.

*Participant 6*

*When regulators are convinced that a certain initiative or methodology or approach makes a lot of sense, it is not totally impossible that at some point regulators will see a group of actors doing something and then at some point also recommend or even make it a requirement for everyone in the industry.*

*Participant 9*

*In the past has been very strong on beverage can recycling, and that was a unique feature of what we did. But now the EPRP, the extended producer responsibility organisation national legislation forces all players to do the same thing.*

*Participant 19*

*So, the faster Europe and the UK, the US and Australia sort of make those decisions to make the imports into their countries greener to meet their own targets, it is going to prompt the response in South Africa.*

ii. **Client analysis is invaluable for informing climate-related firm responses**

Participants overwhelmingly referred to engaging with clients to assess their needs and concerns in relation to climate change. Client raised concerns about product and service gaps. In some case, clients needed guidance or assistance in rolling out their own climate strategies or interpreting climate-related policy and information.

*Participant 5*

*Client's buying behaviour to make sure that we are aligned on these types of structures.*

*Participant 1*

*Business teams away to say 'Okay, now go and look at who your clients are, go and look at it your pipeline of deals, and tell us where you can set target to reduce our exposure to climate risks and increase climate opportunities.' And then they had to go and look at those, that pipeline and apply their minds, and look at what is happening in those sectors. So, what is the demand, what are the consumer preferences, what is the changing technology*

*Participant 11*

*How do we ensure that we are using our models to understand the risk but then also using that information then to assist clients and potentially as an area of opportunity then, as a tool that they can use instead of developing their own functionality in terms of how you assess this risk going forward*

**iii. Competitor analysis is invaluable for informing climate-related firm responses**

Participants unanimously referred to analysing their competitors'' actions relating to climate change. This was achieved through monitoring media channels and reviewing published annual company reports to ascertain the commitments made competitors achieve more sustainable business practices or to evaluate the kinds of ways that competitors are going about implement strategy (i.e., which technologies are being used or which environmental standards are being utilised). Some level of understanding the behaviour of competitors was also achieved through client engagements.

*Participant 2*

*[When you] delve deeper and you go into the actual annual reports and you go into the ESG reports, then you start to see the nuance of it and you start to see how the portfolios are made up, how the decisions are made in terms of which portfolios are proved and which are rejected, which deals are rejected and what they do about it. And then what you start to see is that is where the chickens come home to roost*

*Participant 6*

*[When it comes to] the concrete evaluation of certain trends or concrete opportunities, we probably have differences.*

**iv. Active identification of opportunities**

Opportunity identification from the financial sector side included demand for new products and services and potential to increased market share to cater to emerging risks and technologies. With respect to non-financial sectors, opportunity identified included

new technologies for use in the value chain and development of products with more climate-friendly attributes to supply to climate-conscious customers.

### 5.4.4 Dynamic green capabilities: seizing

Table 23 shows the code categories and themes for seizing (a sub-capability of dynamic green capability). There are three key findings relating to the seizing processes and activities that undergird dynamic green capability.

**Table 23**

**Dynamic green capability – seizing – code categories and themes**

| Code Category | Theme | Theoretical Construct |
|---|---|---|
| Competitor analysis | Seizing process | Dynamic green capability: seizing |
| Entrepreneurial culture | Driver of seizing | Dynamic green capability: seizing |
| Funding | Seizing process | Dynamic green capability: seizing |
| Investment decision making | Seizing activities | Dynamic green capability: seizing |
| Motives | Driver of seizing | Dynamic green capability: seizing |
| New products and services | Seizing activities | Dynamic green capability: seizing |
| Strategic implementation | Driver of reconfiguration | Dynamic green capability: seizing |

*Note.* Author's own composition

#### i. An entrepreneurial culture is a driver of climate-related seizing activities

Several participants referenced the creative thinking capacities which are encouraged by their firms and the fact that there are processes in place to raise new product ideas or any initiative which could create value for the firm. Cultivating a culture that encourages solution-thinking is especially important in handling the climate change challenge. Given the broad effects of climate change on the lives of people, often managerial motivations drive the solution-thinking. Thus, having an environment uses those motivations and converts and facilitates them into tangible value-creating activities can give firms a superior position in the exploration of clime-related solutions.

*Participant 11*

*[It is important to enable] very early-stage enablement of these projects and solutions. And there is a number of examples of kind of how we have done that, we have provided guarantees on solar panels as well, in a lot of parts of the world – so really to give the consumer a certain level of comfort that these solar panels will produce over the period*

*of time that the suppliers say it will, and really trying to increase the update of these types of technologies as well.*

*Participant 5*

*[We encourage the] POC, proof of concept, where we will try and say 'let's launch this product, we will give you reinsurance at the back end for this product, like a ¼ share, let's try and launch this product and if you need seed funding or whatever we will do it like a pre-funded commission for example, where we effectively funding the distribution for 'x' period of time, to say let's see if we can reach 1000 policies by the next two months, or 2000 policies by the next two months…*

*Participant 15*

*Anyone with half a brain who has an idea and does their own research, can put together, even if it's not a complete plan, can put together a business plan and say, I would like to support this, or I would like [my Company] to support this for the following reasons.*

**ii. The economic rationale of climate-related projects, initiatives or products motivations drives the seizing activities and processes of the firm**

Despite wanting to act responsibility and pursue climate objectives, participants overwhelmingly stressed that the key motivation behind climate-related investments and projects is the economic rationale of doing so. It was extremely evident that MNEs cannot relinquish the tenet of being profit-making which is understandable given that MNEs are creatures of profit-seeking constructs.

*Participant 3*

*Investing, we always calculate what is going to be our rate of return on it, so if it is not viable then we take obviously all the different conditions into consideration, but the first condition is that it has to be viable…we don't invest into something otherwise.*

*Participant 9*

*So, the profitability impact of the transition needs to be thought about very carefully and particularly in a country like SA where the options are very limited you know.*

*Participant 4*

*[It is often about] the balance of doing the right thing from a sustainability perspective. It means there are costs involved in doing the right thing. So. So that's always gonna be the challenge.*

*Participant 9*

*[Climate-related action] doesn't necessarily give you a financial return. So, in fact it is going to cost you money, like any risk management or risk alleviation process, you do things for other reasons that direct financial benefit, or a long-term benefit. So, it is very difficult sometimes to get some executives to say, 'we need to think about how you are going to get rid of your coal fired boiler when they say, 'But it is the cheapest way of making what we need to do.'*

Some participants noted that because adopting GHG-reduction technologies or following international best-practice on climate-related goals because have cost implications, sometimes there are cost-advantage benefits to not act fast or first (i.e., there are short-term profit margin drivers). Firms have to weigh this up in their deliberations and accept that competitors can be opportunistic in this regard. This relates to discussions about collaboration within sectors (5.3.2 (iii)) and stakeholder collaboration (5.3.2, (iii)).

*Participant 9*

*And again, you understand that propensity about profit and short-term survivability, sometimes the opportunity lies in just being slow to change rather than driving change.*

*Participant 8*

*Bring both worlds [costs and benefits] together, to say 'this is what we are currently doing as a business but this is what other peers are doing and where on the continuum do you want to locate yourself?*

One participant noted, in dealing with MNE clients and suppliers, that while companies commitment to doing the right thing, they can shy away from the cost-implications of doing so.

*Participant 9*

*The higher cost, sometimes, of these responsible management or responsible corporate approaches, doesn't always result in positive benefit, and in some cases you know I mean you have got very large global multinationals that believe that they must drive certain behaviours and expectations, but not have to be responsible to pay for it, and would expect corporations, the value chain to supply them at the same kind of cost break point that they have had historically, and then so they would say something around 'we want to achieve the following' but they are not prepared to pay for it and support it realistically.*

### 5.4.5 Dynamic green capabilities: reconfiguration

Table 24 shows the code categories and themes for reconfiguration (a sub-capability of dynamic green capability). There are three key findings relating to the reconfiguration processes and activities that undergird dynamic green capability.

**Table 24**

**Dynamic green capability – reconfiguration – code categories and themes**

| Code Category | Theme | Theoretical Construct |
|---|---|---|
| Accountability | Governance | Dynamic green capability: reconfiguration |
| Executive buy-in | Leadership | Dynamic green capability: reconfiguration |
| Executive buy-in | Leadership | Dynamic green capability: reconfiguration |
| Governance frameworks | Governance | Dynamic green capability: reconfiguration |
| Internal legitimisation and leveraging | Recombination capabilities | Dynamic green capability: reconfiguration |
| Sound-decision making | Leadership | Dynamic green capability: reconfiguration |
| Strategic implementation | Driver of reconfiguration | Dynamic green capability: reconfiguration |
| Strategic implementation | Driver of reconfiguration | Dynamic green capability: reconfiguration |

*Note.* Author's own composition

#### i. Embedding and integration of strategy throughout business model

The majority of participants noted that the embedding and integration of climate change strategy throughout the business model is imperative for adequately responding to the threats and opportunities resulting from climate change. Participants strongly acknowledged that MNEs need to sufficiently integrate climate-related objectives, knowledge and learnings (from previous experiences in dealing with climate change responses) into their organisations to truly become organisations that can organically respond to the climate-related changes in the external business environment.

*Participant 1*

*So, we have said our climate strategy, the targets are not owned by risk, or sustainability, they are owned by the business; if the head of our corporate investment bank doesn't meet the climate targets they agreed to, he is accountable.*

*Participant 5*

*I don't think everyone inherently believes in all of these things on a personal level, but the manner and way in which it is cascaded down, the way in which these goals are stated, that these are the aims and what we are trying to achieve – getting buy in from local teams, getting buy in from people who may not… you know there are still climate deniers in the world and I am sure even within organisations like ours there might still be a few people that deep down think the climate change is not real. But I think to mobilise such a diverse organisation to pull in one direction, has been really eye opening for me.*

*Participant 9*

*[You have to be] Able to try and assimilate these very varied and impact issues into how they are going to impact your business, both short and long term*

*Participant 11*

*[Climate change] is so much broader. So, it touches almost every aspect of what we do. So, there is policy, there is board approval – board gets involved to approve certain targets – there is underwriting folk that are involved, you know both from the perspective of reporting but also from the perspective of developing the models. Then you have got business units also sort of involved in climate change in terms of opportunity.*

*Participant 19*

*There is a disconnect between what they simply report in to the public and say they are doing versus that sort of building up in their firm from ground level upward and incorporating it into the business.*

**ii. Accountability of the board and executives**

Participants overwhelmingly stated that accountability for the driving and execution of climate-related strategies and objectives lies with the board and executives. They noted that the MNE (the organisation) moves with significant momentum only when there are absolute mandates from the board and concrete directives and involvement from the executive. This relates to the previous discussion on board capabilities (5.4.1 (i)) and the upcoming discussion on overcoming organisational flexibility (5.7.2).

*Participant 19*

*CEOs, CFO, COO. These are the people that are ultimately responsible for the success of the business. And the thing is you cannot detach climate change from the rest of the business. So, if you want a successful business. So, if you want to improve your reputation*

*Participant 4*

*CEO and senior executives fully buying into it because I mean, you could have the best programs in place. But if your leaders don't believe it's the right thing to do, it's not going to be successful. So, I think that's step one in the process then in terms of after having the buy in.*

### 5.5 Findings: Ethical Mechanisms

Table 25 shows the code categories and themes for ethical mechanism. Participants overwhelmingly echoed that business has significant role play in the global response to climate change and reiterated that communities must serve, consumers must be engaged with thoughtfully and that cross-collaboration in the spirit of solutions was imperative. Participants were overall motivated to ensure business prioritised the wellbeing of the Earth and life on it. Some participants expressed the personal satisfaction of being able to contribute, through their work, positively to the global efforts to mitigate against climate change and secure the wellbeing of future generations.

*Participant 15*

*I think it's incumbent on all of us to make sure that we tap into whoever we know, however we know, and whatever resources we may have to try and find ways of combatting this problem. There's no one nation, no one person, no one community that's going to be able to do this.*

*Participant 6*

*There is a lot of interest in working for a company where you also see a certain purpose and you agree with values*

**Table 25**

**Ethical mechanisms – code categories and themes**

| Code Category | Theme | Theoretical Construct |
|---|---|---|
| Moral legitimacy | Characteristics of seeking moral legitimacy | Ethical mechanisms |
| Responsible business | Enlarged concept of social responsibility | Ethical mechanisms |
| Responsible business | Enlarged concept of social responsibility | Ethical mechanisms |

*Note.* Author's own composition

#### 5.5.1 Ethical mechanisms: enlarged sense of societal responsibility

Financial sector perspective:

Participants from the financial sector (insurance) were strongly motivated to find solutions for people and families who are disproportionately affected by natural disasters. There was a sense of failure in not being able to assist in resilience-building for the affected communities.

*Participant 11*

*…the uninsured population and I think that this is often where the biggest effect is felt and really, I think it is the responsibility to ensure that there are these public private partnerships that then ensure that the whole world is more resilient to this risk going forward.*

*Participant 15*

*We are there to protect societies and allow societies to become resilient. And so, it is incumbent on us to find a way, to find the solution.*

*Participant 5*

*Uninsured loss was absolutely massive, the loss to infrastructure was massive, the displacement of people which has a consequence on employment, has a consequence on schooling, has a consequence on healthcare – it has kind of numerous factors; all of those unfortunately don't get captured in a single "here's your flood loss in the insured industry", and it is those nuanced things that we need to start influencing.*

Non-financial sectors perspective:

Participants in this group expressed the social responsibility to their consumers and customers as well as to communities in which they operated.

*Participant 17*

*We have a responsibility to our consumers to make sure we meet those commitments.*

*Participant 9*

*COP, the scientists and the NGOs have played a good role in holding people accounting and going like 'you say this but you are not delivering'. And so that issue around the integrity of being able to do that for the organisation's being held responsible or the national government is being held responsible to the ambitions that they have published.*

*Participant 4*

*Giving back to the communities, I think that's one aspect that I don't believe we are doing sufficiently to create those opportunities, you know to uplift the communities that we operate in.*

Consultant perspective:

Consultants also conveyed their experiences working with clients who have a sense of societal responsibility in their pursuit of sustainable business. A consult reaffirmed the role of business in economic prosperity for the country.

*Participant 19*

*Companies are the ones that are responsible for driving the economy forward.*

### 5.5.2 Ethical mechanisms: characteristics of seeking moral legitimacy

It was evident from participants experiences that MNEs want to be seen by stakeholders not just as being responsible but as legitimate agents of change. The call for more action and implementation was made by participants across all sectors.

Financial sector perspective:

*Participant 6*

*We do consider that and I mean at some point it hurts us, it hurts the clients, but we feel we can only credibly say we contribute if we also go a few steps.*

Non-financial sectors perspective:

*Participant 4*

*We want to be the best citizen related to climate change.*

Consultant perspective:

On one hand, consultants echoed that MNEs are motivated to acquire legitimate standing as socially conscious companies. The reputation of MNEs is also at stake with respect to financial institutions (and their potential to retain or secure more investment or funding).

*Participant 19*

*[Companies] take that seriously, they want to be regarded well in the investor community as opposed to like government recognition.*

On the other hand, consultants provided insight into the lack of implementation behind the sustainability and ESG reports that companies produce annually. Attention must be paid to the detail. There are some MNEs (originating in South Africa) who do not have measured and monitored statistics, making it difficult to understand progress made towards targets.

## 5.6 Findings: Global connectedness

Table 25 shows the code categories and themes for global connectedness. All participants discussed or hinted at the complexities of operating in more than one country – given the multiplicity of country and stakeholder contexts (see 5.3 Findings: Climate change). Global integration was viewed as being necessary to at least the degree to which monitoring, measurement and evaluation could be consisted across operations. However, for some MNEs originating in South Africa, this still presented a challenge especially with integrating operations in Africa despite having some similar home-country conditions. Participants mentioned the

importance of local responsiveness in their product offerings, context-adjusted internal risk matrices (and ESG targets) and methods of stakeholder engagement.

Financial sector perspective:

*Participant 5*

*[We are a foreign, global company] but the fact that we locally capitalise and the fact that the team is local, we feel that we have an obligation to the local market and we feel that as we are a local company, almost that local concept, where it is a global company but actually a local presence.*

*Participant 15*

*I'm passionate about Africa, that we should be deploying as much of [my Company's] capacities and problem-solving capabilities to the African continent. Another competitor might be strong in Latin-America and say, you know, that's where we should be deploying. Another could be in Asia.*

*Participant 11*

*Actually, talk about like supporting initiatives, where are the areas of opportunity, what are some of the ideas that are identified as potential areas, that is definitely comes from across the globe. So, we might have a client that wants to do something in this space; those ideas are then sourced within each local entity and then you know it is the support of the experts that will then drive that particular project forward.*

Non-financial sector perspective:

*Participant 17*

*How we experienced it in South Africa locally is, it was laid out, the strategy, the commitment, the target was really worked out and laid out at a global level and then cascaded to market… Locally, on some other elements, [it is] a little bit more complex and more nuanced, there would be engagement as we [HQ and local office] co-create something.*

Consultant perspective:

Consultants underscored the important of both global integration and local responsiveness and both approaches have their advantages – it seemed the context matter to decide which was more effective.

*Participant 7*

*The [very large mining MNE] is centralised, so you've got like head office dictates to others. Whereas with [smaller South African mining company], you've got a joint venture model.*

**Table 26**

**Global connectedness – code categories and themes**

| Code Category | Theme | Theoretical Construct |
|---|---|---|
| Global network | International diversification | Global connectedness |
| Global standards | International environmental certification | Global connectedness |
| Local responsiveness | International diversification | Global connectedness |

*Note.* Author's own composition

### 5.6.1 Global connectedness: international diversification

International diversification enabled MNEs to call on resources and expertise throughout the global network. The benefits of operating in more than one country included knowledge sharing, access to technical expertise and likelihood for more diverse learning experiences.

Financial sector perspective:

*Participant 11*

*A push/pull kind of culture that exists to ensure that information is flowing in both directions so that you are doing more around empowerment and more around culture, you are doing more around sort of buy in, why we are doing these things – especially from maybe an area where this is less of a topic for us, where there are many other sorts of priorities as well. So, it is really creating that culture where information flows in both directions*

*Participant 5*

*What internal teams do for us, is they vet our ideas and product development and our pricing and solutions against other things that they have seen in other parts of the world, and that is where really tapping into a global company really, really helps; because they might have done the same product in Pakistan for example, or in Mexico or the Philippines and then you can tap into that knowledge and learn from his mistakes and try and do it better or a bit differently.*

Non-financial sectors perspective:

*Participant 17*

*There are targets, there's a big built global commitment, and then by the time it gets cascaded to us, we've got to figure out how to execute on this and meet those targets, and meet those goals*

### 5.6.2 Global connectedness: international environmental certification

International policy reporting frameworks have been widely adopted by MNEs (originating in South Africa). The TCFD and Science-Based Target Initiative (SBTI) were frequently mentioned as the preferred frameworks. The offers MNEs (and all firms) a baseline from which to work towards specific climate objectives. Albeit there is, according to some participants, a lack of climate modelling and risk analysis expertise to accurately fulfil the requirements of these

framework. This was a capability that was widely noted by participants as one needing to be built up in companies or which must be outsourced.

Financial sector perspective:

*Participant 2*

*There are more and more frameworks for reporting, and that is helping us to be able to see how people are performing – [mentions TCFD].*

Non-financial sectors perspective:

Environmental certification is being driven by developed market MNEs (where consumers are more climate aware and where purchase decisions are influenced by whether or not the customer believes that the selling company is a green or good company). International environmental certification or best practice can take the form of collaborative sustainability partnerships between businesses (suppliers and purchasers). This leads to long term sustainability of resources and financial benefit for both parties.

*Participant 3*

*Circular function, meaning that you need to have a component of recycling – so you can have recycled cotton or recycled polyester*

*Participant 10*

*Commitment to some one or another sort of global entity to be able to make a significant difference, whether it's SBTI…*

*Participant 17*

*Collect that more plastic than we sell. That's a big global commitment, right? And they would not have needed to consult anybody on that.*

*Participant 10*

*Through the identification of scope, one, two and three emissions, we are going to be setting targets and align through SBTI to drive our sustainability going forward to reduce our footprint or carbon emission footprint.*

Consultant perspective:

*Participant 19*

*TCFD recently defined their structure, they say you need to look at the strategy, you need to look at risks, you need to look at you know, your matrix and targets and then you have like a suite of matrix and targets. So, they really define how people approach most ESG topics right now. And this is how people should be reporting on everything.*

### 5.7 Findings: Organisational flexibility

Table 27 shows the code categories and themes for organisational flexibility. The findings in relation to organisational flexibility were insightful. Participants expressed the general need for organisational flexibility when looking to collaborate with external stakeholders especially in consideration of partnerships. Organisational flexibility was deemed necessary, by participants, for navigating the changing parameters of the climate change problem.

*Participant 17*

*We need to be able to do things quickly and more flexibly and in a more agile way, and because of the corporate structures that exist, and the industry structures, like these things take time – a long time. Longer time than, you know, our planet has... I wish we were more flexible and agile and faster at executing what we need to execute.*

**Table 27**

**Organisational flexibility – code categories and themes**

| Code Category | Theme | Theoretical Construct |
|---|---|---|
| Challenges | Organisational impediments | Organisational flexibility |
| Internal legitimisation and leveraging | Recombination capabilities | Organisational flexibility |
| Solutions for challenges | Recombination | Organisational flexibility |

*Note.* Author's own composition

#### 5.7.1 Organisational flexibility: organisational impediments

An array of internal organisational obstructions to the execution of climate change strategies were identified by all three analysis groups. However, only three pertinent examples are presented.

i. **Managerial attitudes and perceptions of climate change hindered execution of strategic efforts in response to climate change.**

   Financial sector perspective:

   Societal perceptions and attitudes towards climate change are usually seen as a factor of the external environment in which an MNE operates. A country's national priorities are also a factor for consideration especially of there is a strong political economy arranged in the pursuit of those national priorities. MNES are very large organisations with a high number of employees operating in a single location or country. It is not then impossible for negative societal perceptions towards climate change and its required risk mitigation strategies, to be co-opted into the firm by employees (since employees are subset of that

particular society) and be experienced as a barrier to effective execution of strategic changes required in the business.

*Participant 1*

*Africa as a whole contributes less than 4% of global carbon emissions, so we can switch off all fossil fuels in Africa today, and it won't move the dial on the problem globally, but it will devastate Africa you know… So how do you make the case for climate change? How do you counter that argument? How do you bring in the fact that you have a lot of people who have very firm views about this? You know I think it is conventional accepted wisdom that everyone agrees about climate change – they don't. They definitely don't.*

*Participant 2*

*That is a barrier that is not really spoken about because you know if you are heavy handed you can get around it, but I think that it is important for buy in [from managers].*

Non-financial sectors perspective:

In the manufacturing businesses, negative or ambivalent managerial attitudes and perceptions can also influence the direction of spend and attention.

*Participant 9*

*We have an annual strategic planning process and increasingly we are having to bring the climate change conversation into that…Circumstances in our organisation right now that make that a challenge, but you know, that is a short-term issue, but [yes], there is an increasing need for that to be part of the strategic conversation and to develop more robust conversation in the strategic annual review.*

**ii. The temporal disconnect of the cost versus benefit of climate change projects and strategies was highlighted as a significant issue.**

Participants stressed the difficulty of pushing for green investments and initiatives (or the development of green capabilities) where it is impossible to make the case for any short to medium term benefits (i.e., where there are benefits or gains in six months to two years, in standard corporate time dimensions).

Financial sector perspective:

*Participant 5*

*Short-term thinking where we think about our next P&L and our next kind of GSE report and you know? We kind of very myopic about what our KPIs are going to be for the next year or the next 18 months at the maximum.*

*Participant 1*

*Essentially you are cutting their bonus pool in the future because they are going to be doing less deals in that sector – it is not easy.*

Non-financial sectors perspective:

In the context of productive industries where cost margins can be extremely sensitive to operational changes and where its effects can be tangible, the steering for adoption of projects or initiatives with a long-term payoff can be extremely difficult.

*Participant 9*

*[A potential green investment] doesn't necessarily give you a financial return. So, in fact it is going to cost you money, like any risk management or risk alleviation process, you do things for other reasons that direct financial benefit, or a long-term benefit. So, it is very difficult sometimes to get some executives to say, 'we need to think about how you are going to get rid of your coal fired boiler when they say, 'But it is the cheapest way of making what we need to do.' And again, you understand that propensity about profit and short-term survivability, sometimes the opportunity lies in just being slow to change rather than driving change*

**iii. A lack of multifaceted combination managerial skills was deemed to be a serious challenge.**

Participants stressed that the rollout of climate-related strategies requires resources from all domains within the MNE. Some participants were of the view that each managerial roles across functional areas (business units, marketing functions and finance, for example) should be evaluated against the MNE's overall strategic objective (for example, a commitment to Net Zero) and then be inherently redefined to incorporate climate-related knowledge, capabilities and performance indicators. This would enable a more efficient roll-out of strategic sub-targets. In other words, it would enable the MNE to better integrate climate strategy into the fabric of the firm.

Financial sector perspective:

*Participant 2*

*A lot of those skills are change management skills, political skills, advocacy skills, communication skills. So, the technical skills alone are not enough, the technical scientific arguments are not adequate in terms of getting organizations to deal with this.*

*Participant 1*

*…that requires an understanding of political economy, international relations, advocacy, change management, you have got to know how banking works, you have got to know that in banking you work on three-to-five-year models, climate change is looking at 30-year models, how do you bridge those gaps? It is very, very, very difficult.*

Non-financial sectors perspective:

Participants in the non-financial sectors (where the focus of climate-related strategies is on more efficient and sustainable value chains) communicated the adequacy of general capabilities (logistics and procurement), engineering capabilities and other technical expertise required to monitor and measure efficiencies in the pursuit of climate-related outcomes however one perspective was about simply needing a higher quantity of human resources to launch initiatives, manage stakeholder engagement and quicken the timelines for execution.

*Participant 17*

*I think the biggest problem is, there's never enough people. Like you never have enough, a big enough team or enough resource to get to everything, but I can't think of a specific role or capability or skill that we don't have at the moment. I just wish there were more of those people to do those things.*

Consultant perspective:

In contrast to the perspective above, consultants were of the view that MNEs across sectors needed more multidisciplinary approaches to ensure effective execution of strategy and continual augmentation.

*Participant 7*

*I think part of the challenge in tackling particularly climate change and all the sort of complex challenges linked to climate change, is that you require transdisciplinary, multi-disciplinary teams and sets of skills and experience. And I don't believe that a lot of the time those all reside within one organisation, whether in a consulting company or, you know, in a corporate.*

*Participant 12*

*If you are all engineers, or all accountants, or all lawyers, you miss that variety of skills and that diversity of skills to help you be successful as we navigate the impacts of climate change in the transition towards a low carbon economy.*

*Participant 19*

*…[A] bulk of people in the organization as well…. They do not necessarily have the right background and understanding, and still you know, they [are expected] to deliver.*

### 5.7.2 Organisational flexibility: recombination capabilities

It was enlightening to hear from participants about how internal organisational challenges could be overcome. Some examples included improving the training and learning frameworks within the organisation to build managerial capabilities or foster more sharing of experiences so that learnings could be transferred across different areas of the business. One example, from the financial sector, was extremely valuable.

This MNE was very far along the process of strategy execution. The board had already given the directive to roll out climate-related commitments (related to GHG-reduction) on portfolios within the business (i.e., it would be assumed that activities related to research and data collection were already complete and so too was a presentation of opportunities for investment and divestment). The MNE was at the stage of ironing out the specifics of the policy for a sector (of the economy). The respective business unit was given the lead in self-determining the parameters of what was possible to achieve in their portfolios. Successive rounds of deliberations were had where assumptions, proposals and projections could be tested by the other internal stakeholders, until a resolution was achieved which the board went on to approve. Executive leadership was highly visible in the process and were involved in some of the iterations of negotiation. The business unit in question had custodianship of the targeted performance.

*Participant 8*

*…round of like iteration with each EXCO, [divisional CEO] EXCO, even the teams below him, and then the risk EXCO that [group CRO] heads, then to [group CEO] EXCO and then it went to the board… As a business we led the policy and then risk worked with us. So, I think it is just getting the right collaboration between the different teams*

*Participant 2*

*Not us per se, which I think is interesting, is that we hand it over to the business units responsible for it, and they are actually accountable to EXCOs. So, we quite like the fact that they are not accountable to like the corporate function or a risk function or a compliance function – but this is a business accountability. So, it is not a risk accountability. And that has proved both very beneficial but also a challenge, so it takes a lot longer to embed, but you get better results from it, so, so far, the model is working for us.*

## 5.8 Conclusion

This chapter provided a variety of managerial perspectives and interpretations of the climate change issue as it relates to business. A full and rich glimpse into the participants lived experiences in their role and in their firm's efforts to respond to the risks and threats caused by

climate change, was presented. Each section in the next chapter contains a summary of findings and discusses the findings against the literature review in Chapter 2.. Thereafter, Chapter 7 provides an overall conclusion to the research.

# 6. DISCUSSION OF FINDINGS

## 6.1 Discussion of findings: climate change and the MNE

### 6.1.1 Climate change: Issue-specific factors

The uncertainty and complexity of the climate change problem is extreme especially with respect to the timing and extent of physical asset damage caused by climate change (Oh & Oetzel, 2022; Kolk & Pinkse, 2008; Kolk & Pinkse, 2012). The regulatory environment (whether local, regional or international) is constantly evolving (Kolk & Pinkse, 2008). The findings support the extant theoretical discussions of climate change from an MNE perspective.

| | Finding | Conclusion of discussion |
|---|---|---|
| i. | The degree of complexity of the climate change issue is extremely high | Theory is supported |
| ii. | The degree of uncertainty of the climate change issue is extremely high | Theory is supported |
| iii. | Climate change disproportionately affects people | Theory is supported |
| iv. | Climate change presents a vivid temporal disconnect of cost (required action) and benefits | Theory is supported |

### 6.1.2 Climate change: Sector-specific factors

The degree to which climate change affects the sector plays a role in whether firms from the sector pay attention to and actively respond to climate change. The economic power of the sector and engagement with government through the negotiation of sector-specific legislation plays a role in the MNE's view on strategic options in response to the effects of climate change (Dang et al., 2020; Kolk & Pinkse, 2007). Firm concentration within the sector also plays a role in whether there will be stronger competitive motivation to respond to climate change (Kolk & Pinkse, 2012). It is possible for all firms within the sector to then follow the actions of a perceived market leader to achieve cognitive legitimacy (Kolk & Pinkse, 2008, Kolk & Pinkse, 2012; Haney, 2017). The findings support the extant theoretical discussions of climate change from an MNE perspective. The findings related to sector collaboration provide a real-world consideration of sector-specific factors. While participants largely encouraged sector collaboration, some raised the issue of perceived collusion while another participant offered reasons why perceptions of collusion should not be a concern.

*Participant 11*

*Does anyone have a bigger advantage over another? I am not sure. I think everybody has maybe a slightly different strategy when it comes to firstly ESG targets, how they implement those targets,*

*that is clear, that everyone has a slightly different perspective on that. But even in terms of identifying opportunities and using their skills to be able to deal with the problem, I think everyone has got a different approach and a different strategy to that as well.*

| Finding | Conclusion of discussion |
|---|---|
| i. Competitiveness within sectors | Theory is supported |
| ii. Circular economy | Theory is supported |
| iii. Sector collaboration | Theory is supported. Real-world emerging market experience is provided. |

### 6.1.3 Climate change: Firm-specific factors

Major factors in determining how effectively an MNE can implement strategic actions in response to climate change are the MNE's financial health, current resources and capability base, including its managerial capabilities (Kolk & Pinkse, 2008; Kolk & Pinkse, 2012). Exposure to various markets, regulatory landscapes and natural resources key (Kolk & Pinkse, 2008; Kolk & Pinkse, 2012) as it is an indication of an MNE's experience in handling multiple stakeholders and differing regulations. The overarching finding that climate change is a strategic issue for all MNEs from which the participants came from, supports the literature.

| Finding | Conclusion of discussion |
|---|---|
| i. Climate change is a strategic issue | Theory is supported. Real-world emerging market experience is provided. |

### 6.1.4 Climate change: Country-specific factors

The existence of renewable natural resources (such as wind and solar) and the corresponding technological infrastructure required to fully take advantage of these resources (Kolk & Pinkse, 2012). The characteristics of home and host countries drive many strategic decisions for MNEs (Matysiak et al., 2018; Rugman, 1981). A country's political situation is a major factor in steering a country's climate change agenda (Kolk & Pinkse, 2007). Societal views on the role of MNEs in causing climate change (Bansal & Arjaliès, 2022) can play a part in the customer orientations and the pressure exerted on MNEs to take responsibility for finding solutions to the problem. Societal views in a particular country may also be affected by other serious socioeconomic issues such as inequality or poverty (Rašković, 2022). Findings support the theoretical suggestions that country-specific factors greatly affect MNE strategies in response to climate change.

| | Finding | Conclusion of discussion |
|---|---|---|
| i. | Developed markets are ahead of the curve in dealing with climate change | Theory is supported. |
| ii. | The societal perception of climate change is an important consideration | Theory is supported. Real-world emerging market experience is provided. |
| iii. | The absence of government support in resolving the climate change challenge | Theory is supported. Real-world emerging market experience is provided. |
| iv. | The suitability of international policy frameworks for the emerging market absence of government support in resolving the climate change challenge | Theory is supported. Real-world emerging market experience is provided. |

### 6.1.5 Climate change: External stakeholder nexus

The external stakeholder nexus for MNEs shareholders or investors (in the case of public companies), customers, suppliers, regulators, government and NGOs (Colvin et al., 2020). MNEs face different kinds of pressure from these stakeholders. Governments can change national climate policies by altering subsidies and taxes in relation to GHG emission reduction (Dang, et al. 2020; Kolk & Pinkse, 2008). MNE's Scope 3 emission calculations (Bouguerra, et al., 2022; World Economic Forum, 2022) are influenced by the suppliers and customers in their value chains. To achieve mutually beneficial goals, stakeholder engagement should be intentionally and actively managed to understand the stakeholder's position and interests (motives) (Lopes de Sousa Jabbour et al. 2020). It is often necessary to work in partnerships or partake in collaborative efforts to achieve a more sustainable future (Pedersen et al., 2021). The findings support the extant theoretical discussions of climate change from an MNE perspective.

| | Finding | Conclusion of discussion |
|---|---|---|
| i. | Types of stakeholders which MNEs deal with in the context of climate change | Theory is supported. |
| ii. | The importance of stakeholder engagement | Theory is supported. |
| iii. | The importance of stakeholder collaboration | Theory is supported. |

## 6.2 Discussion of findings: Dynamic green capabilities

### 6.2.1 Dynamic green capabilities: critical resources and capabilities

A firm's competitive advantage is dependent on the existence and effective utilisation of FSAs and CSAs (resources and capabilities) which are valuable, rare, inimitable and non-substitutable (VRIN) along firm boundaries (Barney, 1991; Matysiak et al. 2018). There must be an existing pool of valuable resources to begin and continue the deployment of dynamic (green) capability (Teece et al., 1997; Helfat & Petersen, 2009). Matysiak et al. (2018) and Verbeke (2022) suggest that superior managerial and executive decision-making is required throughout the deployment of dynamic (green) capability. Maksimov et al. (2022) stress the importance of an MNE's research and development capability in gathering information required to inform strategic decision making. The findings support extant literature. The finding that a lack of integrated climate knowledge and business knowledge to fuel climate-related action and augmentation of capabilities, is an extension of theory.

| | Finding | Conclusion of discussion |
|---|---|---|
| i. | The importance of board capability | Theory is supported. |
| ii. | The importance of a research and development capability | Theory is supported. |
| iii. | The lack of integration of climate knowledge and business knowledge | Theory is extended. |
| iv. | The is a strong need for technical knowledge | Theory is supported. |

### 6.2.2 Dynamic green capability: overarching view

To ensure climate knowledge absorption (Busch, 2011) or embedded climate knowledge (Stechemesser et al., 2015), the MNE must have processes and systems in place to ensure that the knowledge and learnings can be shared throughout the organisation and that it is retained and applied in the correct contexts and domains (Maksimov et al., 2022). Managers must prioritise stakeholder engagement and continual learning (Haney, 2017). Continual learning processes include widening the scope of information gathering by increasing the number of resources dedicated to the activity (Maksimov et al. 2022). MNEs encounter a permutations of climate change threats and opportunities across globally diversified operations, which fosters knowledge gains, experiential learning and iterative learning, and ultimately enables prompt, bespoke and effective responses to specific contexts (Helfat & Peteraf, 2014; Kolk & Pinkse, 2012; Scalera et al., 2018; Van Zanten & Van Tulder, 2018; Verbeke, 2022). Matysiak et al. (2018) stress the importance of the role of agency in the effective execution of dynamic (green) capability. The findings relating to the need for continual learning and a high level of agency, passion and

commitment from managers and executives, in the overall execution of dynamic green capability, support extant literature.

| | Finding | Conclusion of discussion |
|---|---|---|
| i. | Learning is extremely vital to the execution of dynamic green capability | Theory is supported. |
| ii. | The level of agency, passion and commitment from managers and executives is critical | Theory is supported. |

### 6.2.3 Dynamic green capabilities: sensing

Being able to detect risks, shocks, threats and opportunities is a preliminary step in the evolution of strategic responses (Matysiak et al., 2018; Teece, 2007). Sensing activities (as a sub-process of dynamic green capability) are centred around knowledge capabilities (Maksimov, The capacity to measure, monitor and report key statistics and data (functions of information technology systems and capabilities) is a pre-requisite for prudent environmental sustainability management (Kolk & Pinkse, 2008; Kolk 2022). The findings covered the active identification of opportunities, continual monitoring of competitor behaviour, the importance of being aware of the needs of and challenges faced by clients and the importance of monitoring changes in the regulatory sphere. The findings, thus, support extant literature.

| | Finding | Conclusion of discussion |
|---|---|---|
| i. | The policy and regulatory environment relating to climate change changes frequently | Theory is supported. |
| ii. | Client analysis is invaluable for informing climate-related firm responses | Theory is supported. |
| iii. | Competitor analysis is invaluable for informing climate-related firm responses | Theory is supported. |
| iv. | Active identification of opportunities | Theory is supported. |

### 6.2.4 Dynamic green capabilities: seizing

Seizing activities involve investment in a particular course of action, initiative or project (Matysiak et al., 2018; Verbeke, 2022). Seizing also involves the selection processes utilised to identify the best course of action (Grøgaard et al., 2022). The finding relating to the fact that MNEs are still motivated by the economic rationale of investments, supports extant theory. Theory is extended by suggesting that entrepreneurial culture plays a role in whether MNE's explore climate-related solutions or plans and whether they adopt the risks of launching these solutions or plans to gain experiential learning from the endeavour.

*Participant 11*

*[It is important to enable] very early-stage enablement of these projects and solutions. And there is a number of examples of kind of how we have done that, we have provided guarantees on solar panels as well, in a lot of parts of the world – so really to give the consumer a certain level of comfort that these solar panels will produce over the period of time that the suppliers say it will, and really trying to increase the update of these types of technologies as well.*

*Participant 5*

*[We encourage the] POC, proof of concept, where we will try and say 'let's launch this product, we will give you reinsurance at the back end for this product…*

*Participant 15*

*Anyone with half a brain who has an idea and does their own research, can put together, even if it's not a complete plan, can put together a business plan and say, I would like to support this, or I would like [my Company] to support this for the following reasons.*

| | Finding | Conclusion of discussion |
|---|---|---|
| i. | An entrepreneurial culture is a driver of climate-related seizing activities | Theory is extended. |
| ii. | The economic rationale of climate-related projects, initiatives or products motivations drives the seizing activities and processes of the firm | Theory is supported. Real-world emerging market experience is provided. |

### 6.2.5 Dynamic green capabilities: reconfiguration

Reconfiguration activities refer to the structural adaptation required to embed the strategic action or investment and the processes required to augment the capability (Altintas, et al., 2022; Verbeke, 2022). These processes involve governance and compliance-related issues (Matysiak et al., 2018) in establishing new FSA-CSA combinations (Verbeke, 2022), as well as the managerial and executive accountability that goes along with these activities (Matysiak et al., 2018). The attitudes and beliefs of executive management about the climate change issue can determine the level of proactiveness with which climate change initiatives or projects are rolled out or genuinely embedded within the firm (Li & Liu, 2014; Kolk & Pinkse, 2008; Kolk & Pinkse, 2012; Stechemesser et al., 2015). The findings relating to the importance of embedding climate change strategy throughout the business and that accountability of climate change strategies lies with the board and executive, supports extant literature. The real-world urgency and degree of importance of embedding climate change knowledge and strategy was established through the findings.

| Finding | Conclusion of discussion |
|---|---|
| i. Embedding and integration of strategy throughout business model | Theory is supported. Real-world emerging market experience is provided. |
| ii. Accountability of the board and executives | Theory is supported. |

## 6.3 Discussion of findings: Ethical mechanisms

### 6.3.1 Ethical mechanisms: enlarged sense of societal responsibility

Haney (2017, p. 270) proposes an "enlarged concept of societal responsibility" positively mediates the relationship between threat interpretation and environmental (green) innovation". Firms with an advanced level of innovation in response to climate change (i.e., a robust product and service portfolio that facilitated carbon emission reductions) identified risks associated with climate change to a broader set of stakeholders (i.e., society) and expressed the need for solutions that incorporate these stakeholders interests (i.e., societal well-being). The characteristics of these managerial interpretations reflect a loftier and intensified understanding of their firm's place in, and responsibility to, society (Scherer & Palazzo, 2011; Scherer & Voegtlin, 2020). Haney's (2017) proposition is supported by the findings. An extension to the theory is suggested by the finding 5.4.4 (ii) relating to the criteria of economic rational in the advancement of seizing efforts. While firms are motivated by their sense of societal responsibility to innovate and find solutions, their efforts may not see a complete adoption or wider rollout (the reconfiguration of the proposed solution or pilot project (the seizing effort) i.e., economic rationale prevents or slows the conversion of seizing activities into reconfiguration steps.

| Finding | Conclusion of discussion |
|---|---|
| Participants from the financial sector (insurance) were strongly motivated to find solutions for people and families who are disproportionately affected by natural disasters. There was a sense of failure in not being able to assist in resilience-building for the affected communities.<br><br>Participants in the non-financial sectors expressed the social responsibility to their consumers and customers as well as to communities in which they operated. | Theory is supported and extended by finding 5.4.4 (ii). |

### 6.3.2 Ethical mechanisms: characteristics of seeking moral legitimacy

Haney (2017, p. 270) proposes that the "characteristics of seeking moral legitimacy positively mediates the relationship between threat interpretation and environmental (green) innovation".

Firms with a heightened responsibility to society have a longer-term outlook and prioritised learning from stakeholder engagement and continual learning (Haney, 2017) and indicate a pro-social logic towards gaining moral legitimacy (Scherer & Palazzo, 2011; Scherer & Voegtlin, 2020). The theory is largely supported by findings however an extension to theory is suggested by the fact that sometimes firms can show the characteristics of moral legitimacy (i.e., communicate the "correct" message externally) without tangible implementation of climate-related strategy or explicit monitoring of progress towards climate-related outcomes.

*Participant 12*

*I mean I have read a lot of integrated sustainability reports over a number of years, and you can tell the companies who have a fleshed out, well thought out strategy because they will say, 'Our targets were this, we made these targets, we didn't make these targets, the reason we didn't make these targets is whatever it might be, and here is our plan to remediate it during the next 12 / 24/ 36 months. You can say 'Right, they know what they are doing. That is a company I would put my money into.' Other companies will spend two pages talking about we care about the environment, we want to be carbon neutral by 2050, and we are engaging with whoever to put in a plan.' You know they are not doing anything. So the former camp is what one wants, so a strategy and those targets and the ability to monitor and measure and report on it, built into it.*

| Finding | Conclusion of discussion |
|---|---|
| It was evident from participants experiences that MNEs want to be seen by stakeholders not just as being responsible but as legitimate agents of change. The call for more action and implementation was made by participants across all sectors.<br><br>On the other hand, consultants provided insight into the lack of implementation behind the sustainability and ESG reports that companies produce annually. Attention must be paid to the detail. There are some MNEs (originating in South Africa) who do not have measured and monitored statistics, making it difficult to understand progress made towards targets. | Theory is supported and extended. |

## 6.4 Discussion of findings: Global connectedness

### 6.4.1 Global connectedness: international diversification

Global connectedness enables an MNE to design and/or improve formal systems of knowledge gaining, learning and interpretation strategies required for the subsequent reconfiguration of organisationally embedded resources (Narula et al. 2015; Narula & Verbeke, 2019; Scalera, 2018; Teece, 2007; Teece, 2014). Therefore, international diversification substitutes sensing

activities in an MNE's pursuit of dynamic green capability (Maksimov et al, 2022). The findings support the extant literature.

| Finding | Conclusion of discussion |
|---|---|
| International diversification enabled MNEs to call on resources and expertise throughout the global network. The benefits of operating in more than one country included knowledge sharing, access to technical expertise and likelihood for more diverse learning experiences. | Theory is supported. |

### 6.4.2 Global connectedness: international environmental certification

MNEs across the globe are increasingly adopting self-regulation measures that exceed minimum regulatory compliance and are voluntarily subscribing to international environmental certification standards and prescriptions (Haney, 2017). By subscribing to international environmental certification standards, MNEs ensure that they remain connected to the most up-to-date and relevant environmental sustainability practices and knowledge frameworks (Maksimov et al., 2022). MNEs can use international environmental certification and standards as a substitute for other sensing activities or initiatives that need to be deployed by firms who do not subscribe to, or do not obtain, international environmental certification (Maksimov et al. 2022). The theory is supported but finding 5.3.4 (iv) extends the extant literature by suggesting that from an emerging market perspective, international policy frameworks, reporting frameworks and ESG frameworks do not cater for emerging market conditions. Thus, there are cases where international environmental standards cannot substitute other sensing activities or initiatives (discussed in 5.4.3).

*Participant 1*

*A lack of pragmatic approaches to dealing with these issues [specific to Africa], and so a lot of the guidance coming out of the global north and competitors and different bodies and so on, is best practice, and it is the Rolls Royce… [but to navigate the African context, we need] a Toyota Corolla approach and we are making it up, we are actually building our own because there isn't actually one out there that we can follow.*

*Participant 9*

*Let's take somewhere like Nigeria, the recycling happened very, very much so in terms of aluminium where all the aluminium cans are gathered and go back into the informal market and then they reuse that aluminium to make utensils… but [the frameworks for reporting] want formal decarbonisation processes, where they would look to those kind of circular economy activities for [credits] .... But the fact is that those carbon credits do exist, [it is just that the recycling] is being done informally [and there is no mechanism to account for that].*

| Finding | Conclusion of discussion |
|---|---|
| International policy reporting frameworks have been widely adopted by MNEs (originating in South Africa). The TCFD and Science-Based Target Initiative (SBTI) were frequently mentioned as the preferred frameworks. The offers MNEs (and all firms) a baseline from which to work towards specific climate objectives. Albeit there is, according to some participants, a lack of climate modelling and risk analysis expertise to accurately fulfil the requirements of these framework. This was a capability that was widely noted by participants as one needing to be built up in companies or which must be outsourced. | Theory is supported and extended by finding 5.3.4 (iv). |

## 6.5 Discussion of findings: Organisational flexibility

### 6.5.1 Organisational flexibility: organisational impediments

Organisational impediments are internal obstacles which compromise a firm's ability to effectively reconfigure resources and capabilities to achieve a desired performance outcome (Grøgaard et al., 2022). Organisational impediments obstruct pathways to value creation. Grøgaard et al. (2022) assert that organisational impediments vary depending on the firm in question as well as the nature of the external pressures it faces, implying its transferability to other contexts. Given that the context of this research (MNE responses to climate change in an emerging market) is an alternative context, the three findings listed below thus present an extension to theory.

i. **Managerial attitudes and perceptions of climate change hindered execution of strategic efforts in response to climate change.**

*Participant 1*

*Africa as a whole contributes less than 4% of global carbon emissions, so we can switch off all fossil fuels in Africa today, and it won't move the dial on the problem globally, but it will devastate Africa you know… So how do you make the case for climate change? How do you counter that argument? How do you bring in the fact that you have a lot of people who have very firm views about this? You know I think it is conventional accepted wisdom that everyone agrees about climate change – they don't. They definitely don't.*

*Participant 2*

*That is a barrier that is not really spoken about because you know if you are heavy handed you can get around it, but I think that it is important for buy in [from managers].*

ii. **The temporal disconnect of the cost versus benefit of climate change projects and strategies was highlighted as a significant issue.**

*Participant 5*

*Short-term thinking where we think about our next P&L and our next kind of GSE report and you know? We kind of very myopic about what our KPIs are going to be for the next year or the next 18 months at the maximum.*

iii. **A lack of multifaceted combination managerial skills was deemed to be a serious challenge.**

*Participant 2*

*A lot of those skills are change management skills, political skills, advocacy skills, communication skills. So, the technical skills alone are not enough, the technical scientific arguments are not adequate in terms of getting organizations to deal with this.*

| | Finding | Conclusion of discussion |
|---|---|---|
| i. | Managerial attitudes and perceptions of climate change hindered execution of strategic efforts in response to climate change. | Theory is extended. |
| ii. | The temporal disconnect of the cost versus benefit of climate change projects and strategies was highlighted as a significant issue. | Theory is extended. |
| iii. | A lack of multifaceted combination managerial skills was deemed to be a serious challenge. | Theory is extended. |

### 6.5.2 Organisational flexibility: recombination capabilities

Recombination capabilities identified by Grøgaard et al. (2022) are: legitimising, which is the need for the strategic change by embarking on intentional and purposeful processes to achieve organisational buy-in; leveraging, which is determining which parts of the existing organisation can be used to create flexibility; and launching, which refers to the thorough assessment of which initiatives should be launched and the subsequent implementation and management of the launch. The theory is supported by findings and another real-world example is provided. The participant in question legitimised the required strategic action by involving senior C-suite executives, leveraged the abilities of the business unit to assess their portfolios and derive their own targets, and launched it by incorporating the climate-related commitment into the KPIs of the business unit.

| Finding | Conclusion of discussion |
|---|---|
| Examples for overcoming organisational impediments include improving the training and learning frameworks within the organisation to build managerial capabilities or foster more sharing of experiences so that learnings could be transferred across different areas of the business. One example, from the financial sector, was extremely valuable.<br><br>This MNE was very far along the process of strategy execution. The board had already given the directive to roll out climate-related commitments (related to GHG-reduction) on portfolios within the business (i.e., it would be assumed that activities related to research and data collection were already complete and so too was a presentation of opportunities for investment and divestment)… The respective business unit was given the lead in self-determining the parameters of what was possible to achieve in their portfolios. Successive rounds of deliberations were had where assumptions, proposals and projections could be tested by the other internal stakeholders, until a resolution was achieved which the board went on to approve. Executive leadership was highly visible in the process and were involved in some of the iterations of negotiation. The business unit in question had custodianship of the targeted performance. | Theory is supported. Real-world emerging market experience is provided. |

## 6.6 Conclusion

This section concludes with relaying three separate interesting insights from reviewing the findings and literature:

i. Waiting for consensus on climate-change actions at a country and sector level takes time. To catalyse tangible progress towards climate-related goals, firms should embark on more climate-related pilot projects and initiatives (even if by themselves) because they can trigger actions by other firms (since it was evident in the study that MNEs are continually monitoring their competitors).

ii. Two participants took the view that the climate change issue is just like any other issue facing business (this is contrary to the other 17 participants). They still expressed the urgency for action, but their reasoning was more aligned to the fact that if it were given the same attention as other business issues and not regarding as a problem that is too complex to fix, then there might be more actions taken to achieve climate outcomes.

## 7. CONCLUSION

Firms have a role to play in the combatting of climate change (Ghauri et al., 2021). The regulatory environment is in a constant state of flux and international best practice is evolving (Zilja, 2022). The stakeholder environment is complex and exerts pressure on firms to find solutions and adapt to more sustainable pathways. For MNEs, the issue is exacerbated by the geographical expanse of operations thereby multiplying the complexity a firm would face operating in one location only (Matysiak et al., 2018). The added twist is that the various locations of operations have differing country contexts which can greatly impact the ways MNEs invest. MNEs need dynamic approaches to navigate the global issue of climate change (Hitt et al., 2021).

A theoretical base for the research was constructed using guidelines provided by academic experts in the field (Verbeke, 2022). Firstly, the climate change context was investigated in detail to full appreciate the length and breadth of the pressures and challenges an MNE faces (Kolk & Pinkse, 2008; Kolk & Pinkse, 2012). Following a review of RBV in an MNE context (Matysiak et al., 2018), the theoretical discussion proceeded to demystify the DC paradigm (Helfat & Petersen, 2009; Teece et al., 1997) so that it could be applied to a specific research context. A derived theoretical framework for dynamic green capability (Maksimov et al, 2022) was proposed. In addition, the relationship of two constructs – ethical mechanisms (Haney, 2017) and global connectedness (Maksimov et al., 2022) – to sub-capabilities within the dynamic green capability was established and included in the framework. Organisational flexibility (Grøgaard, et al., 2022) was introduced to investigate how and why firms manoeuvre when encountering internal organisational impediments.

Empirical field research was conducted to garner insight into real-world experiences of MNE managers. Interviews were conducted with 19 managers (operating in strategy, risk and/or sustainability domains) from MNEs operating in various sectors in sub-Saharan Africa. A thematic analysis was conducted on the data to establish clusters of meaning which could be linked back to the literature.

### 7.1 Principal theoretical conclusions

The research arrived at the following theoretical conclusions:

i. Antecedent processes and activities undergird dynamic green capability. A firm's assets base (resources and capabilities) needs augmentation and renewal considering the threats posed by climate change and managerial and executive capabilities must artfully manage the reconfiguration process.

ii. Ethical mechanisms play a large role in motivating managers to explore new products and services however, economic feasibility of doing will enter the equation at some point and thus, identified opportunities and/or pilot projects may not be fully realised.

iii. Global connectedness plays a significant role in country offices ability to explore solutions, stay in touch with latest trends and learn from experience in other countries.

iv. Organisational impediments can manifest during reconfiguration processes and MNEs needed to find ways to overcome them – these attempts are organic and iterative and with continual learning can manifest into a separate set of capabilities.

### 7.2 Research contributions

The research made three modest contributions:

i. The research applied the DC paradigm to the question of how MNEs develop and leverage resources and capabilities in response to climate change, in an emerging market context. The derived conceptual framework of dynamical green capability was proposed and included ethical mechanisms and global connectedness as a mediator and a moderator, respectively.

ii. The research was able to provide valuable and current managerial perspectives and interpretations of the climate change problem within an emerging market context.

iii. Empirical examples of organisational impediments (Grøgaard, et al., 2022) within the climate change context were uncovered through the research and in one case, an empirical example of the recombination process was uncovered.

### 7.3 Recommendations for management

Climate change is an evolving issue and business will continue to play a key role in achieving sustainability outcomes across the globe (Ghauri et al., 2021; Montiel et al., 2021; Sun et al., 2021). Recommendations for business, derived from this research are as follows:

i. Sustainability and climate change expertise must be embedded into managerial roles and firm structures to ensure that dynamic green capabilities are full embedded in the organisation. Dynamic green capability is a continual process and the efficiency of execution can improve over time if the firm and its managers are cognisant of the temporal element and not adopt a static position. Firstly, the mere possession of valuable resources does not mean the organisational will effectively handle external changes. Secondly, antecedent activities and processes for dynamic green capability do not guarantee performance outcomes and must continually be augmented.

ii. Executives and managers must have acute sense of awareness in respect of the changes, caused by climate change, in their external business environment, especially with respect to changing policy and regulatory environments, customer needs and competitor positions. Executives and managers must also monitor to the health of their internal operations so that anticipated future changes can be met with the most suitable course of action and investment (Helfat & Peteraf, 2009; Verbeke, 2022).

iii. Executives and managers must consider the reconfiguration processes carefully and consider when and where business model innovation may be required as a response especially where collaborative efforts of stakeholders are increasing and circular economy thinking is prevalent (Kolk & Ciulli, 2022. The investment in business model changes may be necessary to full integrate capabilities and resources (old and new) into suitable operational processes.

iv. Recombination capabilities – processes of legitimizing strategic action, leveraging existing units and processes in the business and launching projects and initiatives (Grøgaard, et al., 2022) – must be actively and determinedly used to overcome internal organisational impediments or else these impediments can unexpectedly, and sometimes inconspicuously, stymie the momentum and effectiveness of other dynamic capabilities and sub-processes (which are taking place across the organisation at multiple levels).

### 7.4 Limitations of the research

This study used cross-sectional data which did not allow for the analysis of the evolution of dynamic green capability or its theorised effect on firm performance outcomes and sustained competitive advantage. In any event, it was established in Chapter 2 that the existence of a dynamic capability is not necessarily sufficient for a particular performance outcome or sustained competitive advantage Helfat & Peteraf (2009) Verbeke (2022). A longitudinal case study across a small set of firms would be required to observe and evidence any causal linkages to firm performance outcome or sustained advantages.

### 7.5 Future research opportunities

In a study of more than 4000 small to medium enterprises across the United Kingdom and South Africa, it was established that that SMEs contribute 12% of non-household GHG emissions (Sage, 2022).. Future research could explore the underlying processes, routines and capabilities which underpin SME responses to climate change to unpack applications and guidelines for managers operating within the SME realm which, according to Arikan & Shenkar (2022) is underserved by management science research.

The research showed that external stakeholder engagement and external stakeholder management is key for effective rollout of MNE climate strategies. Future research could explore, in detail, the mechanisms and capabilities required by MNEs for effective stakeholder engagement and management, both from the perspective of the MNE and the external stakeholders themselves.

MNEs operate in global systems and within natural and economic constraints. Future theoretical contributions regarding the circular economy and sustainability networks, at a macroscale, would be valuable for policymaking

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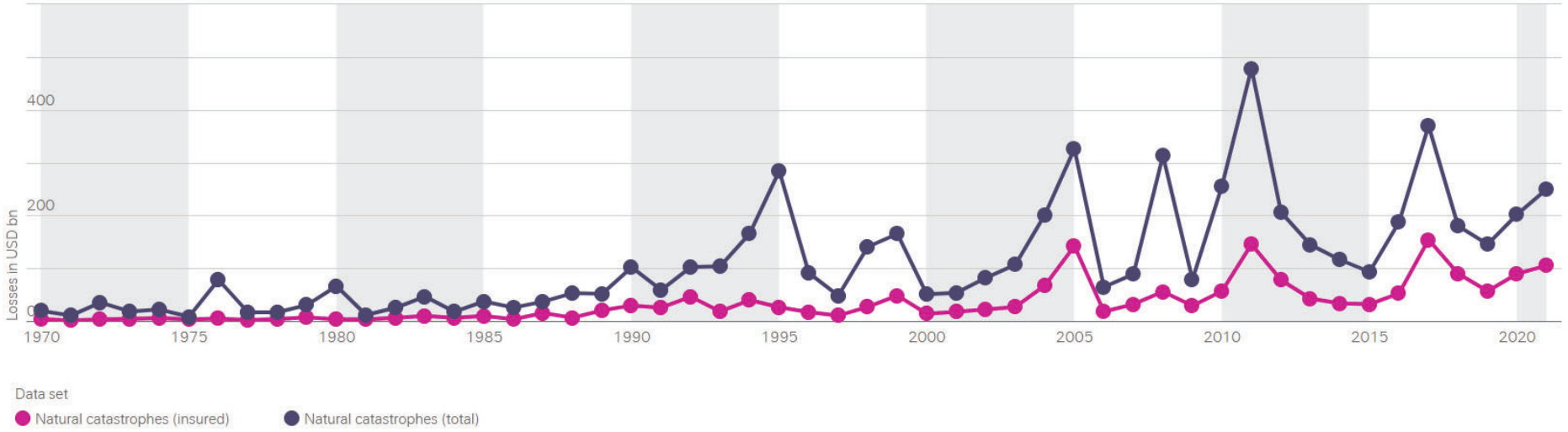
## APPENDIX A: Exhibits

### Exhibit A1

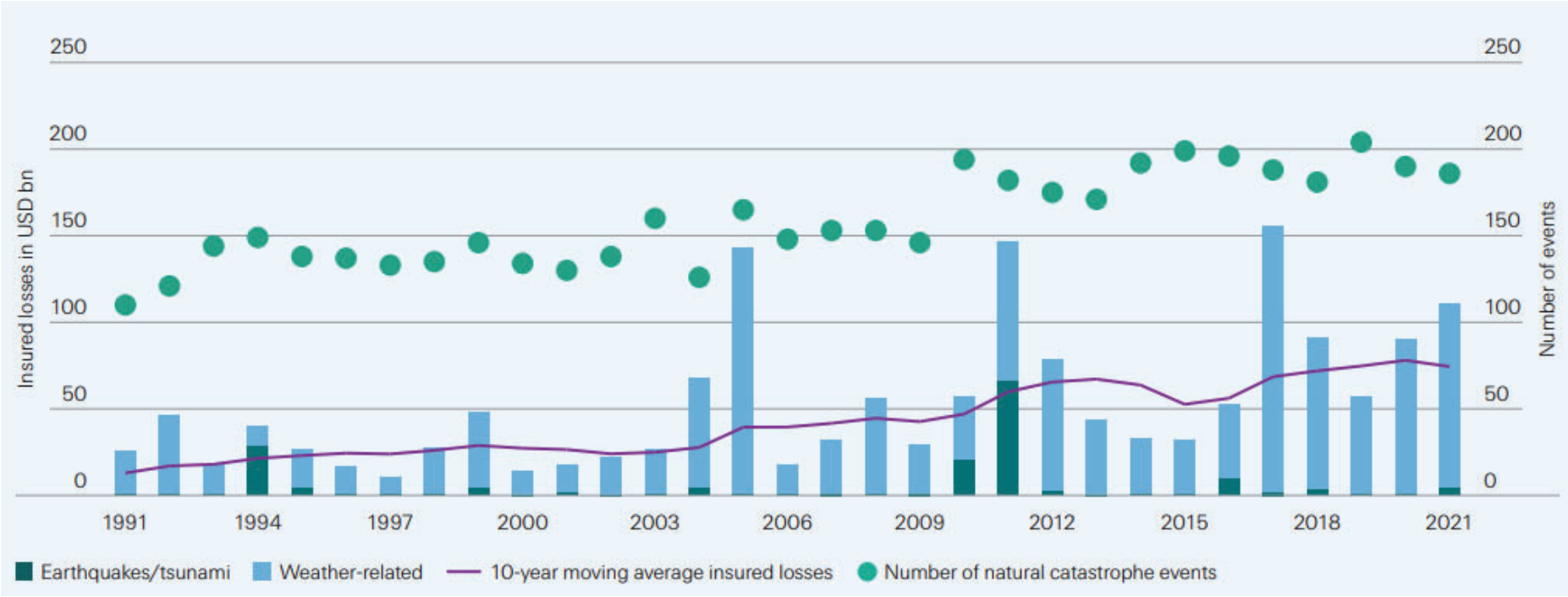
***Insurance Protection Gap: Insured Losses vs Total Losses[1], in USD billion (2021 prices), as result of Natural Catastrophe[2], across all insurance lines, between 1970 to 2021 (based on Swiss Re data)***




*Note.* 1. The Total Losses are all the financial losses – insured and uninsured – directly attributable to a major event, i.e., damage to buildings, infrastructure, vehicles etc. The term also includes losses due to business interruption as a direct consequence of the property damage. 2. Natural Catastrophe is an event caused by natural forces. Such an event generally results in many individual losses involving many insurance policies. floods, storms, earthquakes, droughts/forest fires/heat waves, cold waves/frost, hail and tsunamis. From "Sigma Explorer – Total Losses vs Insured Losses – Natural Catastrophe", Swiss Re Institute, 2021a (https://www.sigma-explorer.com/index.html); and "Information and methodology of sigma explorer data", Swiss Re Institute, 2021b (https://www.sigma-explorer.com/documentation/Methodology_sigma-explorer.com.pdf)

**Exhibit A2**

***Insured Losses, in USD billion (2021 prices), 1970 to 2020 (based on Swiss Re data)***




*Note.* From "Sigma Report 1/2022: Natural catastrophes in 2021: the floodgates are open", Swiss Re Institute, 2022 (https://www.swissre.com/dam/jcr:326182d5-d433-46b1-af36-06f2aedd9d9a/swiss-re-institute-sigma-natcat-2022-en.pdf)

**APPENDIX B: Ethical Clearance Approval**

**Appendix B**

***Ethical Clearance Approval***

Gordon Institute of Business Science
University of Pretoria

Ethical Clearance Approved

Dear [redacted]

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.

*Note.* From author's own email correspondence

**APPENDIX C: Example of the Informed Consent Letter**

Dear Madam / Sir

I am conducting research on how multinational enterprises (MNEs) develop and leverage managerial and firm capabilities in response to climate change.

Our interview, lasting 30 to 60 minutes, will be conducted on _____ [DATE] at _____ [TIME].

Your participation is voluntary, and you can withdraw at any time without penalty. By signing this letter, you are indicating that you have given permission for:

1. The interview to be recorded;
2. The recording to be transcribed by a third-party transcriber, who will be subject to a standard non-disclosure agreement;
3. Verbatim quotations from the interview to be used in the report, if necessary, provided they are not identified with your name or that of your organisation;
4. All data to be reported and stored without identifiers; and
5. The data to be used as part of a report that will be publicly available once the examination process has been completed.

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

| **Researcher** | **Research Supervisor** |
|---|---|
| Name: […..] | Name: […..] |
| Email: […..] | Email: […..] |
| Mobile: […..] | |

**Signature of Participant:** _____

**Date:** _____

**Signature of Researcher:** _____

**Date:** _____

**APPENDIX D: Interview Protocol**

**Appendix D**

***Interview Protocol***

| | |
|---|---|
| **Introduction** | |
| - *Communicate the purpose of the interview*<br>- *Confirm that confidentiality will be maintained*<br>- *Confirm that the researcher will oblige should the participant wish to terminate the interview for whatever reason they may have*<br>- *Communicate that the researcher will avail themselves should the participant wish to reconvene* | |
| **RQ 1**<br>**How do MNEs view climate change as an opportunity for competitive advantage?** | |
| 1 | What opportunities or threats does climate change present for current operations and the future continuity of a firm operating in your industry? |
| 2 | Do you think competitors view climate change any differently as an opportunity to gain competitive advantage? If so, why? |
| **RQ 2**<br>**Which resources and capabilities do MNEs deem to be critical for the implementation of climate change strategies?** | |
| 3 | What are the specific resources and capabilities that you believe a firm in your industry needs to have to successfully navigate the effects of climate change on the industry? |
| 4 | Which of your firms' current resources and capabilities (with respect to the execution of climate change strategy) do you think are or have been important in the execution of strategies? (How should they be developed?) |
| 5 | Which critical resources and capabilities (with respect to the execution of climate change strategy) do not exist in your firm and how should these be created or cultivated? |
| **RQ 3**<br>**How do MNEs develop and invest in the resources and capabilities required to implement change strategies?** | |
| 6 | What actual business process steps are taken (or should be taken) by your firm to mitigate the threat of climate change (reduce negative impact) or to convert opportunities into value creation activities? |
| 7 | How does the process of managing climate change differ to handling other business challenges? |
| **RQ 4**<br>**How do MNEs build the capacity for continual renewal and augmentation of resources and capabilities in the execution of climate change strategies?** | |
| 8 | Which external stakeholders influence your firm's climate change strategies and how do you (or how should you) engage with them in the formation and/or execution of strategies? |
| 9 | How does your firm (or how should your firm) ensure that climate change strategies are carried out throughout the organisation? |
| 10 | Who do you think is accountable for the successful execution of climate change strategies in your firm, and why? |
| **Conclusion** | |

| | |
|---|---|
| | Are there any discussion points that you wish to raise, or do you have any final comments to offer? |
| - | *Offer appreciation for time and effort*<br>- *Re-confirm that confidentiality will be maintained* |

*Note.* Author's own composition

**APPENDIX E: Example of the Confidentiality and Non-Disclosure Agreement (which was placed on a letterhead with the GIBS logo and signed by the Service Provider for transcribing services)**

It is a condition of engagement that students will assist in preserving all confidential information, ideas and plans; any confidential information or any information in respect of any data gathered, captured or analysed in respect of the research work they undertake in fulfilment of GIBS masters or doctoral degree programmes, in this case the research project titled, "How multinational enterprises (MNEs) develop and leverage managerial and firm capabilities in response to climate change**"**, conducted by […..] (the "Student").

The Parties to this agreement are:

i. The "Student": […..]
ii. The "Service Provider": _____

The Parties agree to the following:

1. To apply their best efforts to keep any information confidential which has been acquired or may acquire pursuant to the research work. For the purposes of this clause, confidential information excludes information which:

1.1 is publicly available or becomes publicly available through no act or default of any Party;

1.2 was in the possession of a Party prior to its disclosure otherwise than as a result of a breach by any Party of any obligation of confidentiality to which it is subject;

1.3 is disclosed to the Student by a person which did not acquire the information under an obligation of confidentiality; and

1.4 is independently acquired by the Student and as a result of work carried out by a person to whom no disclosure of such information has been made;

2. No Party shall use or disclose confidential information except with the prior written consent of GIBS or in accordance with an order of a court of competent jurisdiction or in order to comply with any law or governmental regulations by which any Party concerned is bound or as may be lawfully requested in writing by any governmental authority.
3. The Service Provider undertakes to permanently delete any electronic copies of confidential information received and destroy any confidential printed documentation or similar material in their possession promptly once they are no longer required, usually on completion of the Service contracted by the student.
4. On completion of the contracted service on behalf of the Student, the Service Provider is to confirm to the Student that they are not in possession of any confidential information.

Signed at _____ on this _____day of_____ 20___.

On behalf of the Service Provider:

Name: _____ Signature: _____

duly authorised and warranting such authority.

Witness: _____

**APPENDIX G: List of Codes**

| Code | Code Category | Theme | Theoretical Construct |
|---|---|---|---|
| Accountability_Board_ | Accountability | Governance | Dynamic green capability: reconfiguration |
| Accountability_Business Units_Not to separate risk function | Accountability | Governance | Dynamic green capability: reconfiguration |
| Accountability_CEO_ | Accountability | Governance | Dynamic green capability: reconfiguration |
| Accountability_Executives_ | Accountability | Governance | Dynamic green capability: reconfiguration |
| Accountability_Mapping_ | Accountability | Governance | Dynamic green capability: reconfiguration |
| Advocacy in policy and regulatory participation__ | Types of stakeholder engagement | Stakeholder engagement | Nexus of stakeholders |
| Africa__ | Emerging market context | Country-specific factors | Climate change |
| Agency, passion and commitment__ | Agency | Driver of dynamic green capability | Dynamic green capability |
| Agriculture__ | Sector characteristics | Sector-specific factors | Climate change |
| Analysis_Changing technologies_ | Opportunity identification | Sensing activity | Dynamic green capability: sensing |
| Awareness__ | Complexity of the issue | Issue-specific factors | Climate change |

| Code | Code Category | Theme | Theoretical Construct |
|---|---|---|---|
| Balance between business and climate change outcomes__ | Investment decision making | Seizing activities | Dynamic green capability: seizing |
| Board or executive approval__ | Executive buy-in | Leadership | Dynamic green capability: reconfiguration |
| Board__ | Board and executive capabilities | Capabilities | RBV (underlying dynamic green capabilities) |
| Brand and marketing__ | External messaging | Perceived competitive advantage | Dynamic green capability |
| C-Suite championing__ | Executive buy-in | Leadership | Dynamic green capability: reconfiguration |
| Capabilities_Solution_Training | Solutions for challenges | Recombination | Organisational flexibility |
| Challenges_Capabilities_Board | Challenges | Organisational impediments | Organisational flexibility |
| Challenges_Targets are not filtered down_ | Challenges | Organisational impediments | Organisational flexibility |
| Climate change_Transitioning the economy_DMNEs ahead | Country context matters | Issue-specific factors | Climate change |
| Collective accountability__ | Accountability | Governance | Dynamic green capability: reconfiguration |
| Commercial real estate_Technologies_ | Motives | Driver of seizing | Dynamic green capability: seizing |
| Commitments made public__ | Responsible business | Enlarged concept of social responsibility | Ethical mechanisms |

| Code | Code Category | Theme | Theoretical Construct |
|---|---|---|---|
| Competitive advantage_Sustainable Finance_ | Opportunity identification | Sensing process | Dynamic green capability: sensing |
| Competitiveness__ | Efficiency of execution | Competitive advantage | Dynamic green capability |
| Competitiveness_Quality of execution_ | Competitive advantage | Competitive advantage | Dynamic green capability |
| Competitor analysis_ | Challenges | Organisational impediments | Organisational flexibility |
| Competitors_Behavioural analysis_ | Competitor analysis | Sensing process | Dynamic green capability: sensing |
| Competitors_Behavioural analysis_Disclosures | Competitor analysis | Sensing process | Dynamic green capability: sensing |
| Competitors_Behavioural analysis_Media | Competitor analysis | Sensing process | Dynamic green capability: sensing |
| Competitors_Better understanding than_ | Competitor analysis | Sensing process | Dynamic green capability: sensing |
| Competitors_Same position_ | Competitor analysis | Seizing process | Dynamic green capability: seizing |
| Complexity__ | Complexity of the issue | Issue-specific factors | Climate change |
| Concrete decisions and accountability__ | Sound-decision making | Leadership | Dynamic green capability: reconfiguration |
| Consensus can take time and prevents action__ | Challenges | Organisational impediments | Organisational flexibility |

| Code | Code Category | Theme | Theoretical Construct |
|---|---|---|---|
| Constraints and costs__ | Motives | Driver of seizing | Dynamic green capability: seizing |
| Culture of staying informed__ | Sourcing of data | Sensing activity | Dynamic green capability: sensing |
| Customer_Needs regulation drivers in the absence of awareness | Sources of stakeholder pressure | Stakeholder pressure | Nexus of stakeholders |
| Data__ | Challenges | Organisational impediments | Organisational flexibility |
| Data__ | Sourcing of data | Sensing activity | Dynamic green capability: sensing |
| Data_Pricing_ | Sourcing of data | Sensing activity | Dynamic green capability: sensing |
| Decommission products serving high GHG-emitting sectors__ | Sector characteristics | Sector-specific factors | Climate change |
| Demand for commodities_ | New products and services | Seizing activities | Dynamic green capability: seizing |
| Developed countries__ | Developed market context | Country-specific factors | Climate change |
| Direct lens__ | Risk assessment | Sensing process | Dynamic green capability: sensing |
| Disproportionate effects on people__ | Complexity of the issue | Issue-specific factors | Climate change |

| Code | Code Category | Theme | Theoretical Construct |
|---|---|---|---|
| Embedding and integration of strategy throughout business model__ | Strategic implementation | Driver of reconfiguration | Dynamic green capability: reconfiguration |
| Embedding and integration of strategy throughout business model__ | Strategic implementation | Driver of reconfiguration | Dynamic green capability: reconfiguration |
| Energy transition__ | Motives | Driver of seizing | Dynamic green capability: seizing |
| Energy transition_Competitiveness due to cost barrier | Motives | Driver of seizing | Dynamic green capability: seizing |
| Engineers__ | Engineering | Technical expertise | RBV (underlying dynamic green capabilities) |
| Environmental standards_Recycling requirement_SSR | Global standards | International environmental certification | Global connectedness |
| ESG frameworks__ | Governance frameworks | Governance | Dynamic green capability: reconfiguration |
| European firms are more advanced with understanding and implementation__ | Developed market context | Country-specific factors | Climate change |
| Executive management__ | Board and executive capabilities | Capabilities | RBV (underlying dynamic green capabilities) |
| External consultants__ | External consultants | Technical expertise | RBV (underlying dynamic green capabilities) |
| External consultants_Risks due to pace of change in the field_ | External consultants | Technical expertise | RBV (underlying dynamic green capabilities) |

| Code | Code Category | Theme | Theoretical Construct |
|---|---|---|---|
| Financial resources__ | Financial resources | Driver of dynamic green capability | Dynamic green capability |
| Financial sector__ | Sector characteristics | Sector-specific factors | Climate change |
| Firm size and scale of operations__ | Firm characteristics | Firm-specific factors | Climate change |
| Firm_Operating model_ | General firm capabilities | Capabilities | RBV (underlying dynamic green capabilities) |
| Food sector_GHG in the value chain | Sector characteristics | Sector-specific factors | Climate change |
| Global integration_ | Global network | International diversification | Global connectedness |
| Global knowledge_ | Global network | International diversification | Global connectedness |
| ICT__ | Sector characteristics | Sector-specific factors | Climate change |
| Improvement over time__ | Temporal aspect | Nature of dynamic green capability | Dynamic green capability |
| Indirect lens__ | Risk assessment | Sensing process | Dynamic green capability: sensing |
| Industry collaboration_barriers_ | Sector characteristics | Sector-specific factors | Climate change |
| Innovation__ | New products and services | Seizing activities | Dynamic green capability: seizing |
| Internal stakeholder conversations__ | Internal legitimisation and leveraging | Recombination capabilities | Organisational flexibility |

| Code | Code Category | Theme | Theoretical Construct |
|---|---|---|---|
| International environmental reporting frameworks__ | Global standards | International environmental certification | Global connectedness |
| Intersection of multiple disciplines__ | Complexity of the issue | Issue-specific factors | Climate change |
| Iterative internal negotiation | Internal legitimisation and leveraging | Recombination capabilities | Organisational flexibility |
| Iterative__ | Internal legitimisation and leveraging | Recombination capabilities | Organisational flexibility |
| Lack of_General knowledge in the wider firm_ | Challenges | Organisational impediments | Organisational flexibility |
| Lack of_Government involvement_ | Challenges | Organisational impediments | Organisational flexibility |
| Lack of_Government involvement_Contra example | Challenges | Organisational impediments | Organisational flexibility |
| Lack of_Integrated climate change knowledge_ | Application of climate change knowledge to business | Technical expertise | RBV (underlying dynamic green capabilities) |
| Lack of_Measurement and monitoring_ | Measurement and monitoring | Technical expertise | RBV (underlying dynamic green capabilities) |
| Lack of_Multifaceted combination of technical and managerial skills_ | Challenges | Organisational impediments | Organisational flexibility |
| Lack of_Risk management_ | Analytics and risk modelling | Technical expertise | RBV (underlying dynamic green capabilities) |
| Lack of_Technical expertise_Business and product | Challenges | Organisational impediments | Organisational flexibility |

| Code | Code Category | Theme | Theoretical Construct |
|---|---|---|---|
| Learning from experiences teams in other countries_ | Global network | International diversification | Global connectedness |
| Learning_All economic actors simultaneous_ | Learning | Driver of dynamic green capability | Dynamic green capability |
| Learning_Institutionalised_ | Learning | Driver of dynamic green capability | Dynamic green capability |
| Learning_Institutionalised_Lack of | Learning | Driver of dynamic green capability | Dynamic green capability |
| Learning_Iterative_ | Learning | Driver of dynamic green capability | Dynamic green capability |
| Learning_Self_ | Learning | Driver of dynamic green capability | Dynamic green capability |
| Learning_Structured_ | Learning | Driver of dynamic green capability | Dynamic green capability |
| Legislation_Carbon Mechanisms | Risk assessment | Sensing process | Dynamic green capability: sensing |
| Local responsiveness_ | Application to local contexts | International diversification | Global connectedness |
| Managerial attitudes and perceptions of climate change__ | Challenges | Organisational impediments | Organisational flexibility |
| Manufacturing process_resource heavy_ | Sector characteristics | Sector-specific factors | Climate change |
| Manufacturing_Circular economy_ | Sector characteristics | Sector-specific factors | Climate change |

| Code | Code Category | Theme | Theoretical Construct |
|---|---|---|---|
| Manufacturing_Dependent on technologies_ | Motives | Driver of seizing | Dynamic green capability: seizing |
| Manufacturing_Packaging_ | Sector characteristics | Sector-specific factors | Climate change |
| Manufacturing_Supply chain_ | Sector characteristics | Sector-specific factors | Climate change |
| Marketing__ | Communication to stakeholders | Stakeholder engagement | Nexus of stakeholders |
| Mining_Opportunity | New products and services | Seizing activities | Dynamic green capability: seizing |
| Mining_Physical threat | Risk assessment | Sensing process | Dynamic green capability: sensing |
| Mining_Scope 3_ | Sector characteristics | Sector-specific factors | Climate change |
| Mining_Threat | Risk assessment | Sensing process | Dynamic green capability: sensing |
| Mining_Threat | Risk assessment | Sensing process | Dynamic green capability: sensing |
| Moral drivers and legitimacy drivers__ | Moral legitimacy | Characteristics of seeking moral legitimacy | Ethical mechanisms |
| More demand for implementation vs advice_ | Strategic implementation | Driver of reconfiguration | Dynamic green capability: seizing |
| Motives_Economic rationale_Costs | Motives | Driver of seizing | Dynamic green capability: seizing |

| Code | Code Category | Theme | Theoretical Construct |
|---|---|---|---|
| Motives_Energy efficiency_Cost | Motives | Driver of seizing | Dynamic green capability: seizing |
| Motives_Energy transition_Solar | Motives | Driver of seizing | Dynamic green capability: seizing |
| Motives_Long term viability of the business_ | Motives | Driver of seizing | Dynamic green capability: seizing |
| Motives_Risk_Competitor adopts low cost option | Motives | Driver of seizing | Dynamic green capability: seizing |
| Not different from other challenges__ | Complexity of the issue | Issue-specific factors | Climate change |
| Opportunity_Consulting to clients_ | Opportunity identification | Sensing activity | Dynamic green capability: sensing |
| Opportunity_New products_ | Opportunity identification | Sensing activity | Dynamic green capability: sensing |
| Opportunity_Risks present opportunities_ | Opportunity identification | Sensing activity | Dynamic green capability: sensing |
| Opportunity_Sustainability finance_ | New products and services | Seizing activities | Dynamic green capability: seizing |
| Opportunity_Transitional Finance_ | Opportunity identification | Sensing activity | Dynamic green capability: sensing |
| Opportunity_Uncertainty_ | Opportunity identification | Sensing activity | Dynamic green capability: sensing |

| Code | Code Category | Theme | Theoretical Construct |
|---|---|---|---|
| Outward influence__ | Influence on stakeholders | Stakeholder engagement | Nexus of stakeholders |
| Performance and incentive structures__ | Internal legitimisation and leveraging | Recombination capabilities | Dynamic green capability: reconfiguration |
| Physical risk__ | Risk assessment | Sensing process | Dynamic green capability: sensing |
| Plus other crises__ | Complexity of the issue | Issue-specific factors | Climate change |
| Present_Analytical_ | Analytics and risk modelling | Technical expertise | RBV (underlying dynamic green capabilities) |
| Present_Business and product_ | Application of climate change knowledge to business | Technical expertise | RBV (underlying dynamic green capabilities) |
| Present_Measurement and monitoring_ | Measurement and monitoring | Technical expertise | RBV (underlying dynamic green capabilities) |
| Present_Research_ | Research and development | Capabilities | RBV (underlying dynamic green capabilities) |
| Present_Risk management_ | Analytics and risk modelling | Technical expertise | RBV (underlying dynamic green capabilities) |
| Present_Sector specific knowledge_ | Application of climate change knowledge to business | Technical expertise | RBV (underlying dynamic green capabilities) |
| Process_Clients_Analysis of needs and preferences | Client analysis | Sensing process | Dynamic green capability: sensing |

| Code | Code Category | Theme | Theoretical Construct |
|---|---|---|---|
| Process_Clients_Analysis of sectors and operations | Client analysis | Sensing process | Dynamic green capability: sensing |
| Process_Competitors_Behavioural analysis | Competitor analysis | Sensing process | Dynamic green capability: sensing |
| Process_Embedding climate strategy_ | Strategic thinking | Antecedent process for dynamic green capability | Dynamic green capability |
| Process_Input from business_ | Information sharing | Sensing process | Dynamic green capability: sensing |
| Process_Measurement, monitoring and evaluation_ | Measurement and monitoring of dynamic green capability | Antecedent process for dynamic green capability | Dynamic green capability |
| Process_Measurement, monitoring and evaluation_Carbon footprint, emissions | Measurement and monitoring of dynamic green capability | Antecedent process for dynamic green capability | Dynamic green capability |
| Process_Policy and regulatory environment_ | Risk assessment | Sensing process | Dynamic green capability: sensing |
| Process_Policy and regulatory environment_Loss of competitive advantage | Risk assessment | Sensing process | Dynamic green capability: sensing |
| Process_Product review_pipeline | Client analysis | Sensing process | Dynamic green capability: sensing |
| Process_Training managers_ | Learning | Driver of dynamic green capability | Dynamic green capability |

| Code | Code Category | Theme | Theoretical Construct |
|---|---|---|---|
| Product substitution__ | New products and services | Seizing activities | Dynamic green capability: seizing |
| Proof of concept projects__ | Entrepreneurial culture | Driver of seizing | Dynamic green capability: seizing |
| Responsibility of business__ | Responsible business | Enlarged concept of social responsibility | Ethical mechanisms |
| Retention of skills__ | Sound-decision making | Leadership | Dynamic green capability: reconfiguration |
| Sector__ | Sector characteristics | Sector-specific factors | Climate change |
| Selective__ | Investment decision making | Seizing process | Dynamic green capability: seizing |
| Sharing information internally__ | Information sharing | Sensing process | Dynamic green capability: sensing |
| Societal or national priorities__ | Country context matters | Country-specific factors | Climate change |
| Stakeholder collaboration_Client_Downstream_ | Types of stakeholder collaboration | Stakeholder collaboration | Nexus of stakeholders |
| Stakeholder collaboration_Competitors_ | Types of stakeholder collaboration | Stakeholder collaboration | Nexus of stakeholders |
| Stakeholder collaboration_Cross-sector__ | Types of stakeholder collaboration | Stakeholder collaboration | Nexus of stakeholders |

| Code | Code Category | Theme | Theoretical Construct |
|---|---|---|---|
| Stakeholder collaboration_Partnerships__ | Types of stakeholder collaboration | Stakeholder collaboration | Nexus of stakeholders |
| Stakeholder collaboration_Suppliers_Sustainability programmes_ | Types of stakeholder collaboration | Stakeholder collaboration | Nexus of stakeholders |
| Stakeholder engagement_Clients_Business customers_ | Types of stakeholder engagement | Stakeholder engagement | Nexus of stakeholders |
| Stakeholder engagement_Complex__ | Nature of stakeholder engagement | Stakeholder engagement | Nexus of stakeholders |
| Stakeholder engagement_Consumers__ | Types of stakeholder engagement | Stakeholder engagement | Nexus of stakeholders |
| Stakeholder engagement_Defined and controlled__ | Nature of stakeholder engagement | Stakeholder engagement | Nexus of stakeholders |
| Stakeholder engagement_Financial institution_ | Types of stakeholder engagement | Stakeholder engagement | Nexus of stakeholders |
| Stakeholder engagement_International processes__ | Types of stakeholder engagement | Stakeholder engagement | Nexus of stakeholders |
| Stakeholder engagement_International processes_Emerging market viewpoint_ | Types of stakeholder engagement | Stakeholder engagement | Nexus of stakeholders |
| Stakeholder engagement_NGOs__ | Types of stakeholder engagement | Stakeholder engagement | Nexus of stakeholders |

| Code | Code Category | Theme | Theoretical Construct |
|---|---|---|---|
| Stakeholder engagement_Regulator__ | Types of stakeholder engagement | Stakeholder engagement | Nexus of stakeholders |
| Stakeholder engagement_Regulator_Banking_ | Types of stakeholder engagement | Stakeholder engagement | Nexus of stakeholders |
| Stakeholder pressure_Clients not on the journey_EMNEs_ | Sources of stakeholder pressure | Stakeholder pressure | Nexus of stakeholders |
| Stakeholder pressure_Clients_Business customer_DMNE | Sources of stakeholder pressure | Stakeholder pressure | Nexus of stakeholders |
| Stakeholder pressure_Customers__ | Sources of stakeholder pressure | Stakeholder pressure | Nexus of stakeholders |
| Stakeholder pressure_Customers_None_ | Sources of stakeholder pressure | Stakeholder pressure | Nexus of stakeholders |
| Stakeholder pressure_Government__ | Sources of stakeholder pressure | Stakeholder pressure | Nexus of stakeholders |
| Stakeholder pressure_NGOs__ | Sources of stakeholder pressure | Stakeholder pressure | Nexus of stakeholders |
| Stakeholder pressure_NGOs_Banking_ | Sources of stakeholder pressure | Stakeholder pressure | Nexus of stakeholders |
| Stakeholder pressure_Regulator__ | Sources of stakeholder pressure | Stakeholder pressure | Nexus of stakeholders |
| Stakeholder pressure_Shareholders and investors__ | Sources of stakeholder pressure | Stakeholder pressure | Nexus of stakeholders |

| Code | Code Category | Theme | Theoretical Construct |
|---|---|---|---|
| Stakeholder pressure_Staff_None_ | Sources of stakeholder pressure | Stakeholder pressure | Nexus of stakeholders |
| Stakeholders_Activists_Shareholder and non-shareholder_ | Types of stakeholders | Multiplicity of stakeholders | Nexus of stakeholders |
| Stakeholders_Government_Climate change commission, presidency_ | Types of stakeholders | Multiplicity of stakeholders | Nexus of stakeholders |
| Stakeholders_Information sharing__ | Types of stakeholders | Multiplicity of stakeholders | Nexus of stakeholders |
| Stakeholders_International__ | Types of stakeholders | Multiplicity of stakeholders | Nexus of stakeholders |
| Stakeholders_Labour, trade unions__ | Types of stakeholders | Multiplicity of stakeholders | Nexus of stakeholders |
| Stakeholders_Level of technical understanding__ | | Multiplicity of stakeholders | Nexus of stakeholders |
| Stakeholders_Mining communities_ | Types of stakeholders | Multiplicity of stakeholders | Nexus of stakeholders |
| Stakeholders_Sector organisations__ | Types of stakeholders | Multiplicity of stakeholders | Nexus of stakeholders |
| Stakeholders_Shareholders and investors__ | Types of stakeholders | Multiplicity of stakeholders | Nexus of stakeholders |
| Strategic level__ | Criticality of the climate change | Firm-specific factors | Climate change |
| Strategic planning_account for changes_ | Strategic thinking | Antecedent process for dynamic green capability | Dynamic green capability |
| Strategic planning_specific outcomes_ | Strategic thinking | Antecedent process for dynamic green capability | Dynamic green capability |

| Code | Code Category | Theme | Theoretical Construct |
|---|---|---|---|
| Strategic planning_TCFD_ | Strategic implementation | Driver of reconfiguration | Dynamic green capability: seizing |
| Supply chain, logistics, procurement__ | General firm capabilities | Capabilities | RBV (underlying dynamic green capabilities) |
| Temporal disconnect of cost vs benefit__ | Challenges | Organisational impediments | Organisational flexibility |
| Temporal disconnect__ | Complexity of the issue | Issue-specific factors | Climate change |
| Temporal_Experiential from implementation_ | Learning | Driver of dynamic green capability | Dynamic green capability |
| Transitional finance_Collaboration required_ | Funding | Seizing process | Dynamic green capability: seizing |
| Transitional finance_Example_ | Funding | Seizing process | Dynamic green capability: seizing |
| Transitional finance_Need for_ | Funding | Seizing process | Dynamic green capability: seizing |
| Transitional finance_Still costly_ | Funding | Seizing process | Dynamic green capability: seizing |
| Transitional risk__ | Risk assessment | Sensing process | Dynamic green capability: sensing |
| Translation to business__ | Complexity of the issue | Firm-specific factors | Climate change |
| Uncertainty__ | Complexity of the issue | Issue-specific factors | Climate change |

| Code | Code Category | Theme | Theoretical Construct |
|---|---|---|---|
| Uncertainty_Global integration vs local responsiveness_ | Global network | International diversification | Global connectedness |
| Urgency of action_Competitiveness_ | Criticality of the climate change | Issue-specific factors | Climate change |
| Versus past_Improvement_ | Criticality of the climate change | Issue-specific factors | Climate change |
| Versus past_Urgency_ | Criticality of the climate change | Issue-specific factors | Climate change |