

Declaration

I confirm that this is my own work and the use of all material from other sources has been properly and fully acknowledged.

Name:..... JAMES ROBEY

Date:..... 24 JULY 2016

Signature:.....

An Exploration of the Drivers and Outcomes of Corporate Sustainability within Large Commercial Organisations

Thesis submitted in partial fulfilment for the Degree of
Doctor of Business Administration

Henley Business School, University of Reading

James Robey

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Abstract

This thesis examines the drivers and outcomes of corporate sustainability within the context of large commercial organisations by examining insights collected from corporate sustainability practitioners. A driver-outcome model based on stakeholder theory (Freeman, 1984), sustainability theory (Dyllick and Hockerts, 2002), and organisational psychology (Mael and Ashforth, 1992; Morgan and Hunt, 1994) is conceptualised linking the business case drivers of sustainability as well as CEO and organisational commitment to sustainability, with both corporate sustainability performance and sustainability practitioner engagement. This new model makes a theoretical contribution by combining the above concepts in a single model for the first time, and an empirical contribution by testing the model quantitatively.

The empirical model is tested with data collected using a quantitative survey completed by sustainability practitioners employed at 177 large corporate organisations. Partial Least Squares structural equation modelling is employed to assess both the reliability and validity of the indicator measures as well as the structural model, and to provide insights relating to the path coefficients and their explanatory power and predictive relevance.

In addition, the thesis explores how factors such as organisational culture (measured by Hofstede et al.'s (1990) six dimensional culture framework) and the sustainability practitioners' own belief systems (measured through social axioms (Leung et al., 2002) and Mayer and Frantz's (2004) Connectedness to Nature scale) act as moderating variables on the conceptualised driver-outcome model. This was completed using a multi-group analysis technique developed by Henseler et al. (1990).

The study results indicate that the business case drivers of sustainability identified (employee, client, and owner expectations, together with access to natural resources and opportunities for efficiency gains), together with both CEO and organisational commitment to sustainability, are important factors in driving perceived corporate sustainability performance. More specifically, organisational commitment to sustainability is shown to partially mediate the relationship between the business case drivers and perceived corporate sustainability performance, and fully mediate the relationship between CEO commitment and perceived performance.

The research makes several significant contributions. It provides a theoretical model, supported by empirical findings, linking the drivers and outcomes of corporate sustainability in the context of large commercial organisations. It also contributes through the development of new instruments for the measurement of under-researched constructs such as the business drivers of corporate sustainability, CEO and organisational commitment to sustainability, and also corporate sustainability performance. Finally, it provides some useful insights about the effects that sustainability practitioner beliefs and organisational culture have on the conceptualised theoretical model of corporate sustainability.

Dedication

For Joanne, whose constant faith in my ability to finish never wavered,

and for

Joshua, Cameron and Naomi

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After somewhat more years than I had envisaged when embarking upon my doctoral journey, the writing of this page marks the very final assignment in the completion of my DBA thesis. Accordingly, I would like to thank a few of the many people who have supported me over the past few years.

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Forward – An Insight from History

Easter Island was named after its day of discovery (Easter Sunday, 1722) by the Dutch Admiral Jacob Roggeveen (Ponting, 1991). Its inhabited history however stretches far back to circa 500 A.D. when its first immigrants arrived on the lushly forested island and established a rich and complex Polynesian culture whose population rapidly grew (Brander, 2007).

The turning point for the Easter Island population came with the deforestation of the island. While the population grew to an estimated 7,000 by 1550 A.D. (Ponting, 1991), the forests which islanders relied on for housing, cooking and making canoes were almost completely decimated (Diamond, 2006). With the trees gone, islanders had to resort to caves and simple stone structures for shelter, and to reeds for making boats which were unfit for long voyages (Ponting 1991). Even more seriously, the removal of the forest also reduced rainfall and water retention, depleting agricultural output. Consequently, the population of the island declined sharply, internecine warfare broke out, and cannibalism was not uncommon (Brander, 2007).

This was the situation in which Roggeveen discovered the Easter Islanders. Perhaps the most sobering thought in this story is that on such a small island (Easter Island measures approximately 15 miles by 7 miles) nobody stopped the deforestation that must have been apparent to see – particularly as the final few trees were felled.

Many have drawn parallels between Easter Island and the global sustainability predicament that humanity now faces (Ponting, 1991, Diamond, 2006, Brander, 2007). As Brander (2007: 4) asserts "the central sustainability question can be restated as asking whether the world as a whole is like Easter Island writ large or whether a major cyclical downturn can be averted."

Chapter 1 Introduction and Thesis Overview

This chapter provides an overview of the nature and purpose of the research study described in this thesis including the motivation for the research and the practical importance of the study. Section 1.1 provides an introduction to the overall thesis before section 1.2 describes the background to the research problem. Section 1.3 introduces the key research questions and the tasks involved in the study, while section 1.4 describes the order in which the research activities were completed. Section 1.5 provides an overview of the structure of the thesis and finally section 1.6 discusses the practical importance of this research.

1.1 Introduction

This thesis describes a research study undertaken to explore corporate sustainability from the perspective of sustainability practitioners working in large corporate organisations. The empirical research is divided into two distinct stages:

- First, the development and assessment of a model of *Corporate Sustainability* considering how the *Business Drivers of Sustainability* combine with *CEO Commitment to Sustainability* and *Organisational Commitment to Sustainability*, to drive both *Corporate Sustainability Performance* and also *Sustainability Practitioner Engagement* with their organisation.
- Second, an analysis of the effects of organisational culture and the belief systems of the corporate sustainability practitioner on the research model.

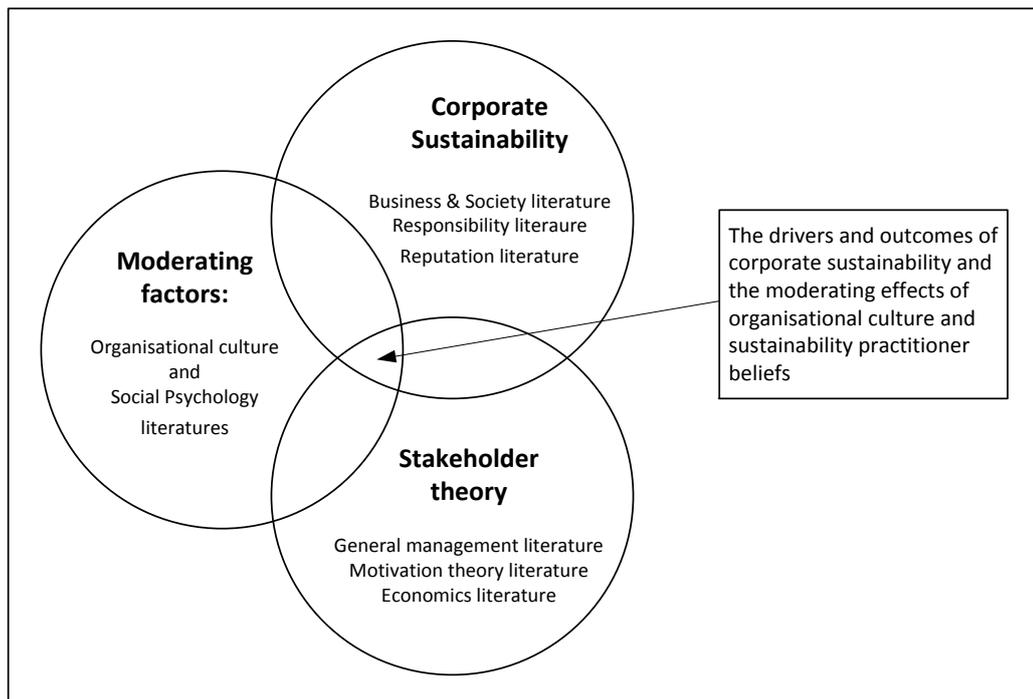
This is accomplished using empirical data which was obtained through a questionnaire survey sent to sustainability practitioners working at large companies. The final sample data, representing the views of sustainability practitioners employed at 177 companies with 10.5 million employees and combined annual sales of GBP 2.7 trillion, were input into the research model which was assessed using Partial Least Squares (PLS) assessment techniques.

From a conceptual perspective, a major contribution of this thesis is in bringing together a number of different fields of academic inquiry. These include: (i) the developing research field associated with corporate sustainability; (ii) the field of stakeholder theory; and (iii) the fields of

social psychology and organisational culture. Consequently, this thesis draws upon existing literature in the areas of general management theory, economics, business and society, corporate reputation, corporate responsibility, stakeholder relationships, and employee motivation theory as well as organisational culture and social psychology.

The interplay of these areas is depicted in figure 1.1 below.

Figure 1.1: Fields of Exploration in this Thesis



Based upon an extensive literature review (set out in chapter two), the concept of corporate sustainability is defined and includes three important components: a focus on the environment and society alongside the imperative of generating economic returns (for example: Elkington, 1999); the consideration of multiple stakeholder groups (for example: Angus-Leppan et al., 2010); and an intertemporal focus on both the short and long term (for example: Caprar and Neville, 2012; and Lackmann et al., 2012).

This conception is then employed in the development of a driver-outcome model of corporate sustainability considering the linkages between the business drivers for organisational investment in sustainability, together with CEO and organisational commitment to sustainability, and the outcome of corporate sustainability performance (Pavláková Dočekalová

et al., 2015; Artiach et al., 2010). The model is extended to consider the linkages to the sustainability practitioner's own level of engagement with their organisation based on employee engagement theory developed by authors such as: Mael and Ashforth (1992), Morgan and Hunt (1994), Bergami and Bagozzi (2000), and MacMillan et al. (2004).

Finally, the model is assessed for the effects of a series of potential moderating factors, including both organisational and practitioner related factors. Several dimensions of organisational culture, as conceptualised by Hofstede et al. (1990), are examined as well as several dimensions of practitioner beliefs such as Connectedness to Nature (Mayer and Frantz, 2004), short / long term orientation (Sharma, 2010) and socio-axiomatic beliefs (Leung et al., 2002).

The research aims to make contributions in three important dimensions: conceptual (theoretical), empirical and methodological (Summers, 2001).

Conceptual contributions

This research study has made conceptual contributions in both theory building and theory testing. The theory building aspects include: an improved conceptual definition of corporate sustainability; the development of a theoretical model linking key components in the fields of corporate sustainability, employee engagement, organisational culture and practitioner belief systems; and the development and testing of new measurement scales required to measure a number of the constructs within the research model. The theory testing aspects include the testing of the linkages within the core research model as well as the organisational culture and practitioner related moderators.

Empirical contributions

An important empirical contribution of this research study is the testing of the various theorised linkages between the constructs in the research model, many which had not previously been investigated. This provides a number of theoretical and practical insights into the field of corporate sustainability including the implications of organisational culture and practitioner beliefs.

Methodological contributions

The main methodological contribution of this research study is the application of the statistical technique (Partial Least Squares (PLS) structural equation modelling) in the field of corporate sustainability. Whilst relatively established in academic fields such as information systems and marketing (Hair et al., 2014), PLS analysis has been less commonly employed in corporate sustainability related research projects.

1.2 Background to the Research Problem

For several decades, researchers' interest in the topic of sustainability has been steadily increasing across a number of different academic fields. Notable landmarks over the past half century have included Rachel Carson's *Silent Spring* originally published in 1962, the work of the Club of Rome in the early 1970s which first explored *Limits to Growth*, the 1987 Brundtland Commission Report containing perhaps the most famous definition of sustainable development, and the first Rio Summit in 1992 which brought climate change to centre stage in the sustainability debate. Throughout all this discussion and debate, one fundamental question permeates: is humanity consuming too much? (Arrow et al., 2004).

More recent academic studies have investigated the topic of sustainability from various perspectives including: economics (Pezzey, 2004; Ruth, 2006), business (Elkington, 1999; Bansal, 2005), psychology (Mayer and Frantz, 2004), production theory (Azapagic, 2004; Braungart et al., 2007), and motivation theory (Aguinis and Glavas, 2012). Yet many questions remain. As a sustainability practitioner working in a large multi-national company, the author of this thesis has long been interested in how organisations make decisions relating to sustainability, what criteria or drivers are employed in organisations' business cases for investing in corporate sustainability initiatives, how organisational commitment to becoming more sustainable is developed, and the outcomes from such initiatives.

This thesis has developed out of the author's curiosity to investigate the drivers and outcomes of corporate sustainability. By investigating the topic through the perspectives of corporate sustainability practitioners, the author also seeks to understand how practitioners are personally motivated towards their organisations. First, the thesis attempts to draw together

existing themes from the academic literature, initially proposing a framework linking together the motivators or drivers of corporate sustainability (including factors such as client, employee and investor demand, and CEO commitment) with sustainability outcomes (including corporate sustainability performance and sustainability practitioner engagement).

Secondly, the thesis attempts to explore how factors such as organisational culture (measured by Hofstede et al.'s (1990) six dimensional culture framework) and sustainability practitioners' personal belief systems (measured through social axioms (Leung et al., 2002) and Mayer and Frantz's (2004) Connectedness to Nature scale) can act as moderating variables on the driver-outcome framework.

1.3 Research Questions and Tasks

Based on the critical review of literature set out in chapters two, three and four of this thesis, a series of research questions are identified that need to be investigated in order to provide an enhanced understanding of the drivers and outcomes of corporate sustainability:

1. *How should the construct of corporate sustainability be conceptualised?*
2. *What factors drive corporate organisations to invest in corporate sustainability initiatives?*
3. *What constitutes corporate sustainability performance?*
4. *How can the above concepts be measured?*
5. *How does a company's own corporate sustainability performance impact the employee engagement of their sustainability practitioners?*
6. *What effects do organisational culture and the beliefs of the sustainability practitioner have on the above questions?*

The following four research tasks have been identified as suitable to address the research questions highlighted above:

Task 1: To understand the key constructs of *Corporate Sustainability, Corporate Sustainability Performance, CEO and Organisational Commitment to Sustainability, and Employee Engagement.*

Task 2: To propose a theory of how the above constructs interact. This includes development of the theory, research model, as well as the selection and, where necessary, the development of suitable measures for each construct.

Task 3: To subject the proposed theoretical model to appropriate empirical testing and to highlight conceptual and practical implications.

Task 4: To further empirically test the theoretical model to assess the impacts, if any, of organisational culture and sustainability practitioner beliefs, and to highlight conceptual and practical implications.

1.4 Research Activities

To accomplish the four research tasks described in the previous section, the following research activities were undertaken:

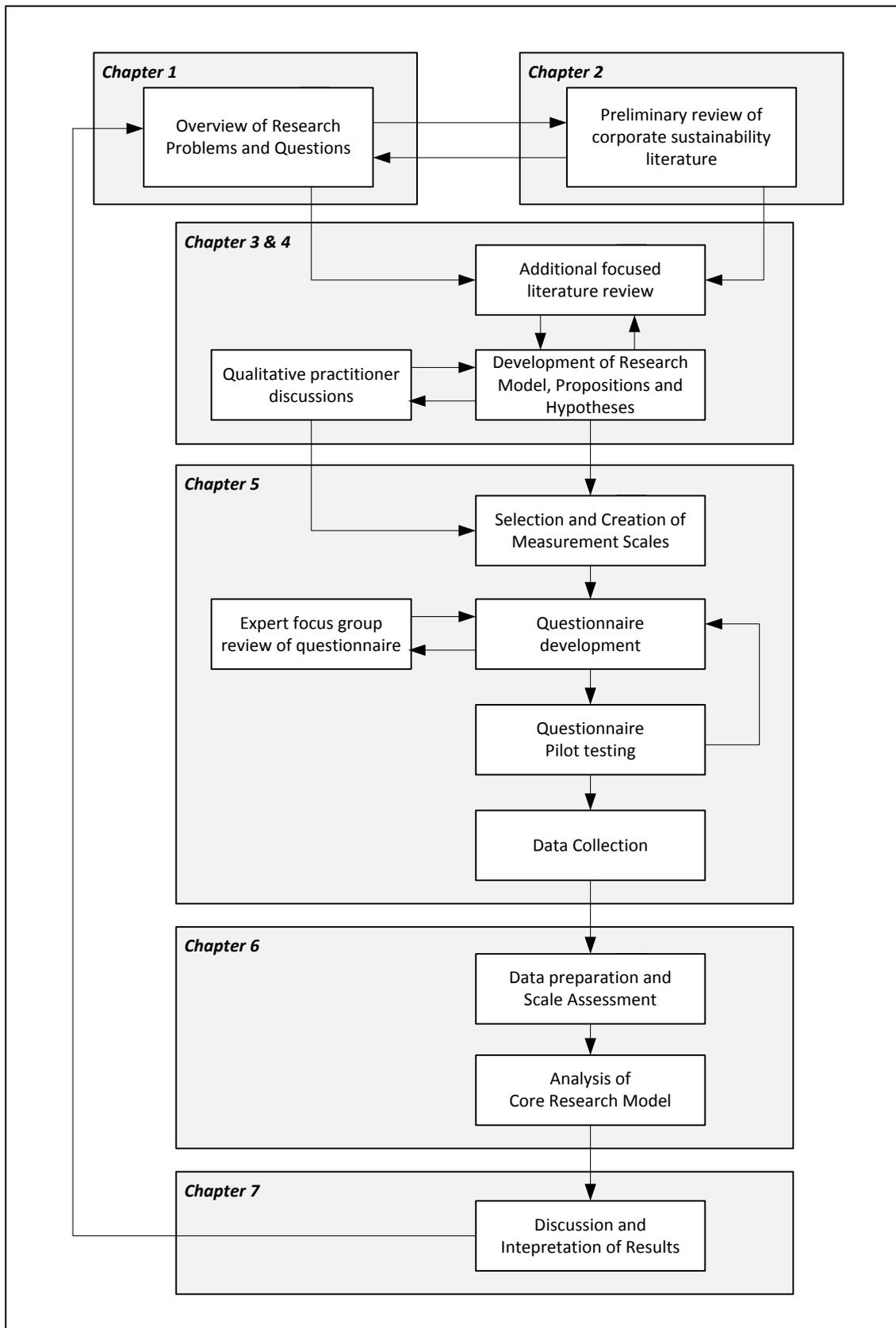
1. A **literature review** based upon the broad objectives of the research study and the previous experience and readings of the researcher. The literature initially came from the following main areas: general management theory, economics, business and society, corporate reputation, corporate responsibility, and stakeholder relationships. It was subsequently extended to include employee motivation theory, organisational culture and social psychology.
2. The clearer definition of the **research objectives** followed by a more focused literature review covering both the core research constructs as well as literature relating to research techniques and methods.
3. The development of the **core research model** including the **research propositions** and associated **research hypotheses**.
4. The selection and where necessary the development of appropriate **measures for the constructs** within the research model. Following the process recommended by Bagozzi et al. (1991), scale instruments were developed to measure: the *Business Drivers of*

Sustainability; CEO Commitment to Sustainability; Organisational Commitment to Sustainability; and Corporate Sustainability Performance.

5. The creation of an online ***self-completion questionnaire***. The questionnaire was subjected to thorough testing through both a practitioner / academic focus group together with piloting with a group of sustainability practitioners.
6. The selection of appropriate ***statistical assessment techniques***. First, techniques such as exploratory and confirmatory factor analysis were required to test the reliability and validity of the measurement scales. Second, Partial Least Squares (PLS) structural equation modelling was selected to test the overall research model. Finally, further PLS techniques for assessing moderating and mediating variables in PLS were selected for the final stage of the analysis.
7. ***Data collection*** was administered using an online survey platform to collect and collate the majority of the empirical data required for model testing. Additional data was collected from secondary sources (such as the online database OneSource) to complete the dataset.
8. ***Data analysis*** was completed using the statistical packages IBM SPSS Statistics 21 and SmartPLS 3, with the results and practical implications from the hypothesis testing set out in chapters six and seven of this thesis.

The eight-stage research process described above is discussed further and justified in chapter five. The process is also presented graphically in figure 1.2 (overleaf) providing the reader with a visual representation of the sequence of research together with corresponding chapters in which each stage is discussed.

Figure 1.2: Flow Chart of the Research Activities



1.5 Structure of the Thesis

This chapter provides a brief summary of the nature and purpose of the research together with an overview of the thesis and the key research activities undertaken.

Chapter two reviews the academic literature relating to corporate sustainability in order to conceptualise a working definition of the term which is then employed throughout the research. The definition highlights the importance of aspects such as environmental and social responsibility, stakeholder engagement and a long term outlook. The chapter then concludes with a review of the business case drivers which lead to organisational investment in sustainability.

Chapter three focuses on two outcomes of corporate sustainability. It initially considers the outcome of corporate sustainability performance and how the concept can be measured before examining the outcome of employee engagement with a specific focus on corporate sustainability practitioners.

Chapter four combines the drivers and outcomes identified in the first two chapters to elaborate a driver-outcome based research model of corporate sustainability together with an initial set of research propositions and associated research hypotheses. It then examines a number of factors identified as having the potential to moderate the path relationships within the core research model. These include: practitioner factors such as their socio-axiomatic beliefs, temporal orientation (a short versus long term outlook), and connectedness to nature; as well as organisational factors such as corporate culture. Additional research propositions and associated research hypotheses are developed and presented.

Chapter five sets out the research methodology for the study including a detailed description of the strategy employed for the scale and questionnaire development, sampling, data collection and analysis.

Chapter six describes the initial data preparation processes including assessments for missing data, outliers and normality before providing an overview of the demographics of the final sample in terms of both the respondents and the organisations they represent. The PLS

structural equation model is then assessed in the following three steps: first, the reliability and validity of the measurement model is assessed; second, the structural model is evaluated and the associated hypotheses tested; and finally, the moderating variables are introduced and remaining hypotheses tested.

Chapter seven provides of a discussion of the results of the analysis and practical implications with reference to the literature reviewed in chapters two, three and four. This is followed by a discussion of the limitations of the research study, suggestions of areas for future research, and a summary of the key practical implications for sustainability practitioners.

1.6 Practical Importance of the Study

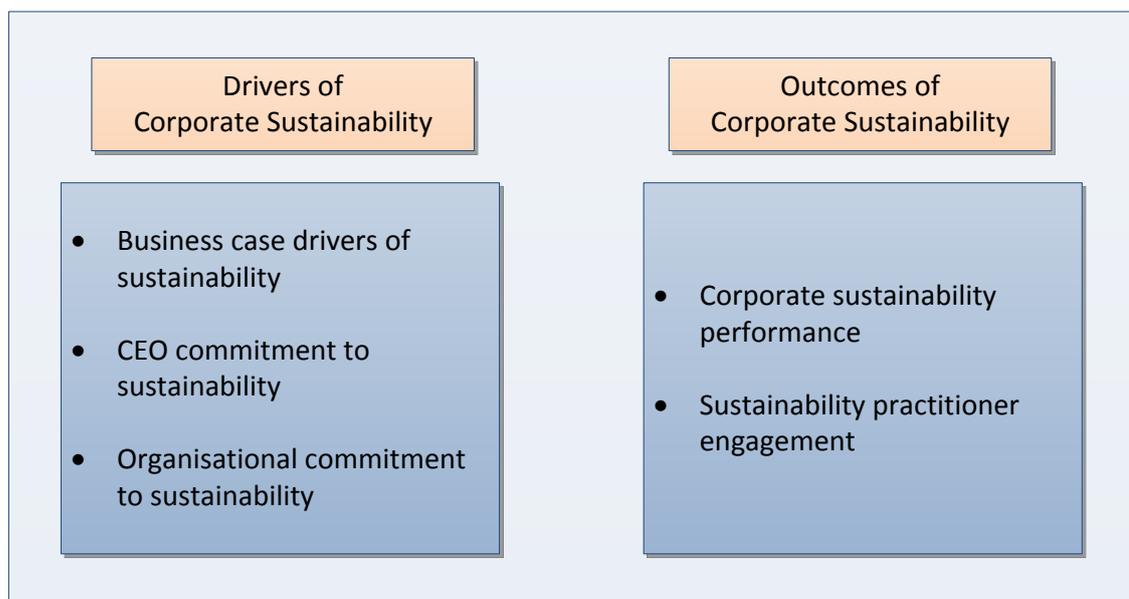
There are several reasons that make the study of the drivers and outcomes of corporate sustainability, particularly in the context of large corporate organisations, an important topic of research at the current time. First, and as discussed in detail in chapter two, global economic output has increased in the last century to levels where many researchers are asking questions about the inherent sustainability of the current system (for example: Arrow et al., 2004; Brander, 2007). Furthermore, large corporate organisations make up a significant proportion of the global economic system: the current combined annual revenue of the Fortune 500 is around \$12.5 trillion (Fortune, 2015), equivalent to approximately 75 percent of the annual GDP of the United States of America (World Bank, 2015). Furthermore, large corporations account for a very significant proportion of global environmental impacts such as carbon emissions: Heede (2014) argues that the top 20 organisational emitters produce nearly one third of the world's CO₂ and CH₄ emissions.

Second, the corporate sustainability agenda is becoming an increasingly important topic for multiple stakeholder groups with the potential to significantly impact organisations' bottom-line profitability (Russo and Gouts, 1997). For example: Employees are frequently selecting their employer based upon the employer's sustainability performance, even sometimes electing to take lower salaries to work for more sustainable companies (Heal, 2005); Individual consumers will boycott big-name brands based on ethical or environmental grounds (Argenti, 2004); and companies are increasingly implementing sustainable procurement programmes to screen their suppliers (Pepsico, 2015, Unilever, 2015). Furthermore, investors are increasingly screening the

sustainability performance of the companies whose stock they hold (Brewster, 2009). Consequently, driving sustainability performance is no longer an optional extra for companies, it is a critical part of their profitability, corporate reputation and licence to operate (Azapagic, 2004, Lourenço et al., 2014).

This research study addresses a gap in the existing literature by exploring the drivers and outcomes of corporate sustainability within the context of large corporate organisations, focusing specifically on the interlinking concepts of the drivers of corporate sustainability (including *Business Drivers of Sustainability*, *CEO Commitment to Sustainability*, and *Organisational Commitment to Sustainability*) and the outcomes of *Corporate Sustainability Performance* and *Sustainability Practitioner Engagement* (as shown in figure 1.3).

Figure 1.3: The Drivers and Outcomes of Corporate Sustainability



While some of these concepts have been previously studied, this thesis extends the existing analysis in terms of the *Business Drivers of Sustainability* and *Corporate Sustainability Performance*, as well as addressing the under-researched concepts of *CEO Commitment to Sustainability* and *Organisational Commitment to Sustainability*. The thesis also extends the well-researched topic of employee engagement, examining it in a new context, that of sustainability practitioners.

The study also offers an important contribution to theory through the development and testing of a unique model of corporate sustainability, enabling the examination of both the drivers and outcomes of corporate sustainability within an organisational context. Furthermore, the effects of organisational culture and practitioner belief systems on the model are examined and a number of insights relating to corporate sustainability performance and practitioner engagement are highlighted.

1.7 Conclusion

This chapter has provided a brief overview of the purpose of this thesis. It has set out the context for the study and introduced the key research questions together with the research process undertaken. It has also presented the structure of the thesis and set out the importance of the enquiry.

Chapter two commences the review of academic literature by examining the definition and conception of corporate sustainability before exploring the business case drivers experienced by commercial organisations considering making investments to increase their sustainability performance.

Chapter 2 The Concept of Corporate Sustainability and its Business Drivers

This chapter examines the literature related to corporate sustainability in order to, first, elaborate the working definition of corporate sustainability employed in this research study, and second, to identify the business case drivers for corporate organisations choosing to focus on becoming more sustainable. Section 2.1 reviews the emergence of the sustainability concept, providing the context and establishing the relevance of the research presented in this dissertation.

Section 2.2 analyses the definitions of sustainability presented in the literature reviewed and considers which topics are included within the concept of sustainability. It also reviews the various stakeholder groups involved with the sustainability concept and assesses the temporal emphasis considered in the literature. Finally, the above analysis is synthesized to create the working definition of corporate sustainability employed throughout the research.

Section 2.3 provides an analysis of the business drivers which lead to organisations deciding to invest resources in becoming more sustainable. These include: operational efficiencies, access to markets and resources, and compliance. Section 2.4 concludes the chapter.

2.1 Introduction

One of the earliest discussions of sustainability, although the author did not employ the term itself, was by Rev. Thomas Malthus in the late 18th Century. In his 1798 *Essay on the Principle of Population*, Malthus considered whether agricultural production could keep pace with the expanding population of the United Kingdom or whether over-population would lead to a population “condemned to a perpetual oscillation between happiness and misery” (Malthus, 1798: 1).

While Malthus’ analysis failed to foresee the dramatic rate of technological advancement achieved through first the agrarian and then the industrial revolutions, more recent researchers such as Brander (2007) argue that we should not be too quick to dismiss Malthus. While noting that the modern sustainability debate is considerably more complex, including contemporary phenomena such as climate change, Brander (2007), like Malthus, argues that population remains the most crucial factor for sustainability. Indeed, when Malthus was writing, the global population would have been less than one billion and rising relatively slowly (McFall, 1991),

which compares with today's population of 7.3 billion (United Nations, 2015) which is predicted to grow to over 9 billion¹ by 2050 (ibid). Brander concludes his analysis arguing that "technological progress is unlikely to stay ahead of exponentially growing population at current rates for much longer" (Brander, 2007: 34).

Widening the debate, many authors have extended their analyses beyond simply considering the connection between population growth and food supply, questioning the Earth's ability to continue supplying the multifaceted demands of humanity's rapidly growing global economic production systems (Arrow et al., 2004; Victor, 2008; Senge et al., 2008; Porritt, 2007; Stern, 2009). Arrow et al., in a paper authored by no fewer than ten leading economists and including two Nobel laureates, point out that while the world's population grew by a factor of four in the twentieth century:

"industrial output increased by a factor of 40. Per capita consumption in industrialized nations today is far higher than it was 100 years ago, and some would argue that this is irresponsible in the light of its implications for resource demands. In the last 100 years, energy use has increased by a factor of 16, annual fish harvesting by a multiple of 35 and carbon and sulfur dioxide emissions by a factor of 10" (Arrow et al., 2004: 147-148).

Hawken et al. (2001: 3) also reflect on the boundaries imposed on our global production system by the planet's ability to supply the inputs for humanity's ever-growing demands, arguing that future growth may well be "restricted not by the number of fishing boats but by the decreasing number of fish; not by the power of pumps but by the depletion of aquifers; not by the number of chainsaws but by the disappearance of primary forests."

So what exactly is *sustainability* and how can it be defined? There are many definitions of sustainability available in the literature: the Oxford English Dictionary (1993: 3163) defines sustainability as "the quality of being sustainable," that is the ability "to continue in a given state ... [to] keep going continuously." When considered from an ecological perspective, this

¹ Based upon the UN World Population Prospects: Medium variant project, 2015-2050.

definition starts to highlight the inter-temporal requirement to create a balance between current resource consumption and that in the future.

This inter-temporal quality is highlighted in the most widely quoted definition of sustainability in the management literature (Searcy and Buslovich, 2014): the Bruntland definition, published in the 1987 World Commission on Environment and Development's report *Our Common Future*. Named after the commission's chair, former Swedish Prime-Minister Gro Harlem Bruntland, the Bruntland definition of sustainable development is "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (World Commission on Environment and Development, 1987: 43).

Another widely debated construct in the management literature is that of the Triple Bottom Line (Elkington, 1999). In his book, *Cannibals with Forks: The Triple Bottom Line of 21st Century Business*, Elkington (1999) argues that in moving towards sustainability, companies will need to focus on the social and environmental impacts of their operations in addition to focusing on their financial (or economic) bottom-line. These three dimensions (social, environmental and economic) combine to form Elkington's 'Triple Bottom Line.'

A final theme widely presented throughout management literature on sustainability is that of the concept of stakeholders. *Stakeholder Theory*, originally founded by R. Edward Freeman in the early 1980s (Laplume et al., 2008), has been employed by many authors in constructing their concept of sustainability (Dyllick and Hockerts, 2002; Mefford, 2011; Chakrabarty and Wang, 2012; Kurapatskie and Darnall, 2013; de Lange et al., 2015). For example, Glavas and Mish (2015: 625) specifically acknowledge that their definition of sustainability, "caring for the well-being of others and the environment in such a way that value is created for the business ... stems from a combination of stakeholder theory, ethics, and corporate citizenship."

This chapter examines the concept of corporate sustainability by exploring the management literature to create a more comprehensive definition of the concept and its business drivers. Specifically, by reviewing relevant articles in nine academic journals, the nature of the corporate sustainability concept is synthesized in relation to the three themes identified above by considering the following questions:

1. Which topics are included within the discussion of the sustainability concept?
2. Which stakeholder groups are included within the discussion of the sustainability concept?
3. What timeframe is the sustainability concept considered over?

Having established a working definition of corporate sustainability, this chapter then presents an analysis of the various business drivers that contribute to corporate organisations choosing to invest their resources in the pursuit of sustainability.

2.2 Defining Corporate Sustainability

A closer examination of the concept of sustainability in the academic management literature identifies a number of key insights into the three questions presented above. A keyword search conducted using the EbscoHost *Business Source Complete* database using 'sustainability' as the search term results in the identification of 15,548 scholarly (peer reviewed) articles.² The earliest, by Willford King and published in the 1916 *Quarterly Journal of Economics*, considered the cost involved with the conservation of natural resources (King, 1916). While articles date back nearly one hundred years, the currency of the sustainability research agenda is highlighted by the fact that just under 60% (9,152) of the articles have been published between 2010 and 2015.

The search was further refined to include only articles from three respected general management journals (*Academy of Management Journal*; *Academy of Management Review*; and *Strategic Management Journal*) plus six journals which include sustainability within their core focus (*Business & Society*; *Business & Society Review*; *Business Strategy & the Environment*; *Journal of Business Ethics*; *Journal of Corporate Citizenship*; and *Corporate Social Responsibility and Environmental Management*).

² Search conducted on 19th April 2015.

Only articles that included a specific definition of the sustainability concept and that answered at least two of the three questions posed above relating to the scope, stakeholder focus and timeframe were included in the final content based analysis.

The breakdown of the articles by journal and year of publication are shown in tables 2.1 and 2.2 respectively:

Table 2.1: Source of articles included in Content Analysis

Search term = 'sustainability' between 2010 and 2015	Total no. of articles	No. of articles included
General Management Journals		
Academy of Management Journal	3	0
Academy of Management Review	8	1
Strategic Management Journal	12	0
	23	1
Journals including sustainability focus		
Business & Society	22	7
Business & Society Review	17	4
Business Strategy & the Environment	45	12
Corporate Social Responsibility & Environmental Management	26	5
Journal of Business Ethics	115	42
Journal of Corporate Citizenship	32	16
	257	86
Total number of articles	280	87

Table 2.1 indicates that only one third of the articles identified through the search term 'sustainability' were suitable for inclusion in the content analysis. The excluded articles included: book reviews, articles relating to other senses of the word sustainability (for example: sustainability of financial returns), and also articles that used the term in the correct context but failed to adequately define their use of the term. As can be seen from table 2.1, only one of the 23 articles identified in the general management literature (Hahn et al., 2014) was suitable for inclusion in the content analysis.

Table 2.2: Publication dates of articles included in Content Analysis

Search term = 'sustainability' between 2010 and 2015	
Year of publication	No. of articles
2010	9
2011	13
2012	13
2013	24
2014	17
2015	11
Total number of articles	87

Table 2.2 highlights the year in which the 87 selected articles were published. A full list of these 87 articles together with a summary of the key findings from each article is presented in Appendix A.

2.2.1 The Lexicon of Sustainability Terms

Before presenting the analysis of the above three questions (which is set out in sections 2.2.2 and 2.2.3), this section considers the lexicon of terminology employed in the literature to discuss the concept of sustainability.

Of the 87 articles analysed, 79 directly employ the term *sustainability* (or *corporate sustainability*) with the remainder of the articles employing the related terms: *sustainable development*, *sustainable business*, *sustaining corporation*, *environmental sustainability*, *corporate ecological sustainability*, and *human sustainability*. Of these other terms, which often also appear in the 79 articles, the most common were *sustainable development* (employed in 20 articles in total) and *environmental / ecological sustainability* (employed in 12 articles).

After sustainability, the next most popular language was that of responsibility with 48 of the 87 articles (representing 55%) employing one or more of the terms: *corporate social responsibility (CSR)*, *corporate responsibility*, *social responsibility*, and *environmental responsibility*. *Corporate*

social responsibility and *corporate responsibility* were the most commonly employed, referenced in 44 and 9 articles respectively.

The other term employed by more than 10% of the articles was *citizenship* which was utilised in 11 articles. A full breakdown of the 20 terms employed in the articles reviewed is presented in table 2.3:

Table 2.3: Terminology employed in discussing the Sustainability Concept

Terminology Employed	No. of articles	% of total
All derivations of Sustainability	87	100%
Corporate sustainability / sustainability	79	
Sustainable development	20	
Environmental / ecological sustainability	12	
Sustainable business	4	
Social sustainability	2	
Sustaining corporation	1	
Human sustainability	1	
All derivations of Responsibility	48	55%
Corporate social responsibility (CSR)	44	
Corporate responsibility (CR)	9	
Social responsibility	7	
Environmental Responsibility	3	
Citizenship	11	13%
Corporate / organisational citizenship	11	
Stewardship	4	5%
Stewardship	4	
Other	10	11%
Corporate greening	3	
Corporate social performance	3	
Environmental management / leadership	3	
Corporate social commitment	1	
Corporate environmental commitment	1	
Corporate philanthropy	1	
Environment, health and safety (EHS)	1	
Total number of articles included	87	

There is some discussion in the management literature on the interchangeability of terminology within the lexicon of sustainability. While noting that the terms *sustainable development* and *corporate social responsibility* are used by some “vaguely and even interchangeably” (Moon, 2007: 297), Moon highlights that others argue of the mutual exclusiveness of the two terms. Other authors suggest the non-interchangeability of the terms: *corporate sustainability* and *corporate social responsibility* (Aras and Crowther, 2009); *environmental sustainability* and *corporate sustainability* (ibid); and *sustainable* and *environmental* (Schaltegger, 2010).

Patel and Rayner (2015) suggest that whilst in the past the terms corporate sustainability and corporate social responsibility had been used interchangeably in the literature, more recently scholars are attempting to distinguish the two terms. In reality terms such as sustainable development and corporate social responsibility are contested terms as their precise meaning is linked to the debate about their application in practice (Moon, 2007).

Despite this, in the sample of 87 articles analysed, only 20 exclusively employed derivations from within the language of sustainability. The majority, 67 articles representing over 77%, also employed either one or both of the concepts of responsibility and citizenship whilst discussing sustainability. A number of authors actually articulate the overlapping of the use of terminology. For example, Isaksson et al. (2010: 426) interpret CSR as the “organizational promotion of global sustainability,” while Klettner et al. (2014) openly acknowledge their interchangeable use of the terms *corporate sustainability*, *CSR* and *corporate responsibility*, and Mefford (2011) treats *sustainability* and *CSR* as identical.

2.2.2 Overview: Defining Corporate Sustainability

This section provides an analysis of the definitions of sustainability presented in the 87 articles selected from the management literature together with an examination of the topics relating to sustainability which are discussed in the articles.

In the articles analysed, 72 specific definitions of terminology were provided by authors in 67 of the articles.³ Of these definitions, 63 related to *sustainability* or *corporate sustainability* directly

³ A small number of articles gave definitions employing multiple terms (Mefford, 2011; Isaksson et al., 2010; Klettner, 2014) or included multiple definitions (Macagno, 2013).

or to derivations such as *sustainable*, *sustainable development*, and *environmental* or *ecological sustainability*. The remaining nine definitions covered the related terms of *corporate social responsibility*, *corporate responsibility*, *environmental leadership*, and *citizenship*.

Consistent with the findings of Searcy and Buslovich (2014), the Bruntland definition of sustainability (sustainable development) was the most commonly employed single definition: 48% of the articles either directly quoted the World Commission on Environment and Development (1987) definition verbatim or alternatively made reference to it.

Linking sustainability to the natural environment and the eco-systems on which humanity relies was a universal thread through all the articles. A number of authors make reference to the Earth's finite capacity to support human life and flag that sustainability requires the maintenance of the life-supporting eco-systems on which humanity relies (for example: Milne and Gray, 2013; Choi and Ng, 2011). Choi and Ng (2011), along with Chakrabarty and Wang (2012) and de Lange et al. (2015), stress the need for balance between the environmental implications of sustainability and wider social and economic considerations.

The environment as a source of natural resources is another key theme with authors such as Scott and Bryson (2012), Maltz and Schein (2012), and Hahn and Figge (2011) arguing that resource scarcity is a key sustainability issue. Indeed, this concept of the natural environment as a critical source of meeting the 'needs' of humanity links back directly to the Bruntland definition.

Macagno (2013) takes the issues of resource scarcity further to one of survival, questioning how over seven billion people's need for nourishing food and water can be met. Food and water security are issues also raised by Hind et al. (2013) and Wolfgramm et al. (2015), while Marcus (2012) and Florea et al. (2013) discuss environmental degradation as a key sustainability issue. Many other authors raise climate change as a key concern (for example: Tideman et al., 2013; Glavas and Mish, 2015; and Slawinski et al., 2015), while pollution also appears as an issue in several discussions (for example: Lion et al., 2013; Maas et al., 2014; and Swaim et al., 2014).

After the environment, the next most common theme emerging from the literature is the social dimension of sustainability. Over three-quarters of the articles included society or social concerns as a key component of sustainability (for example: Lozano, 2011; Scott and Bryson,

2012; Ameer and Othman, 2012; Metcalf and Benn, 2012; Macagno, 2013; and Wolfgramm et al., 2015). Hahn and Figge (2011: 326) go further and define sustainable development as a “societal concept ... grounded ... in environmental integrity, economic prosperity, and social equity.”

The ethical dimension of sustainability emerges in approximately one-fifth of the articles reviewed (for example: Isaksson et al., 2010; Jenkin et al., 2011; and Ameer and Othman, 2012). For Zadek (2013: 6), sustainability is “no more or less than acting responsibly, ethically, and with common purpose with those who have less, have been treated badly by history,” while other authors discuss the related topics of justice (Angus-Leppan et al., 2010; Intezari and Pauleen, 2014; and Hahn et al., 2015a) and inequality (Florea et al., 2013; and Tideman et al., 2013) as key components of sustainability. Bañon Gomis et al. (2011: 176) also include a discussion of ethics, defining sustainability as “a moral way of acting.”

Two other topics linked to the sustainability concept that arose in the literature, albeit much less frequently, were those of flourishing and interdependence. Authors such as Heuer, (2010), Taylor and Theyel (2010), Bañon Gomis et al. (2011) and Clifton and Amran (2011) argue that sustainability should be about more than simply perpetual existence by introducing the concept of flourishing to signify this higher level of aspiration.

Porter and Derry (2012) highlight the ‘interdependence’ of species and ecosystems, while the importance of the ‘inter-play’ of the social and environmental dimensions is argued by Intezari and Pauleen (2014). Strand (2014) makes a similar argument about this dimension of sustainability, but uses the term ‘integration.’

Focusing more specifically on sustainability in the corporate sense, the economic dimension of sustainability comes to the forefront. The economic dimension is included in over 60% of all the sustainability articles reviewed and in 100% of the articles which provided a specific definition of ‘corporate sustainability’ (for example: Wai Kong Cheung, 2011; Caprar and Neville, 2012; Kurapatskie and Darnall, 2013; Schaltegger et al., 2013; and Strand, 2014).

Bringing together the three environmental, social and economic dimensions of sustainability from the corporate perspective, many authors make reference to Elkington’s (1999) concept of

the Triple Bottom Line (for example: Angus-Leppan et al., 2010; Gallo and Christensen, 2011; Fifka and Drabble, 2012; Schaltegger et al., 2013; and Swaim et al., 2014).

In the corporate context, the topics of labour standards and governance were also raised in approximately one-quarter and one-sixth of the articles respectively. Corporate labour standards and the related topic of human rights are highlighted by several authors (for example: Wolf, 2011; Clifton and Amran, 2011; Hahn and Lülfs, 2014; Williams, 2014; Strand and Freeman, 2015; and Patel and Rayner, 2015), while Angus-Leppan et al. (2010) and Scott and Bryson (2012) raise employee well-being as a component of corporate sustainability. Lourenço et al. (2014), along with Scott and Bryson (2012), also raise health and safety at work as significant, while Arevalo (2010), Metcalf and Benn (2012), Klettner et al. (2014), and Glavas and Mish (2015) all refer to the principles of the United Nations Global Compact (UNGC) as being components of corporate sustainability.

Finally, governance topics highlighted in the literature included: corporate governance issues (Mio, 2010; and Vives, 2012), stakeholder engagement (Strand, 2014), transparency (Arevalo, 2010; and Asif et al., 2013), and anti-corruption responsibilities (for example: Arevalo, 2010; Wolf, 2011; Lourenço et al., 2014; and Glavas and Mish, 2015).

A summary of all the dimensions of sustainability identified from the reviewed literature is presented in table 2.4 together with the key terms associated under each dimension. The number of articles in which each dimension is included is shown. A more detailed table of the analysis findings is available in Appendix A.

Table 2.4: Topics included within the Management Literature considering the Concept of Sustainability

Topics included in the sustainability concept	No. of articles	% of total
Key terms		
Environmental dimension Environment; planet; climate change / carbon emissions; food, water and energy issues; bio-diversity; population pressure; resource scarcity; pollution; eco-efficiency	87	100%
Social dimension Society; people; community; socio-efficiency	67	77%
Economic dimension Economic, profit	55	63%
Labour standards dimension Workforce diversity; human rights; labour standards; health & safety; employee well-being	20	23%
Ethical dimension Ethics; justice; legal; equity; poverty / economic inequity	19	22%
Governance dimension Governance; stakeholder engagement; transparency; anti-corruption	13	15%
Supply chain dimension Supply chain; value networks	10	11%
Other less frequently mentioned concepts Culture; flourishing; personal values; meaningfulness; reputation; leadership; global financial crisis; product responsibility; obesity; life cycle assessment ; SRI investment		
Number of articles	87	

This section has addressed the first question raised above: which topics are included within discussion of the sustainability concept? It has shown that while the precise concept of sustainability can be multi-layered and ambiguous (Angus-Leppan et al., 2010), there are some very clear conclusions that can be drawn regarding the components of sustainability in the corporate context.

First, the concept of sustainability always has an environmental dimension as demonstrated by its universal inclusion in the 87 articles reviewed. Second, in the significant majority of articles (over 75%), the social dimension of sustainability occurs alongside the environmental

dimension. Third, the economic dimension is also a significant dimension of sustainability, referred to in over 60% of the articles reviewed, and universally presented when sustainability is discussed in the corporate context. Finally, the three dimensions of labour standards, ethics and governance, while regularly discussed, cannot be considered a universally central part of the concept of corporate sustainability.

2.2.3 Stakeholders and Temporal Focus

This section addresses the other two questions raised above: which stakeholder groups are discussed in relation to the sustainability concept; and what timeframe is the sustainability concept considered over?

Reviewing the literature, it becomes evident that a large range of different groups are included when considering the sustainability concept. Within the 87 sustainability articles reviewed, over 30 different groups are highlighted almost universally employing the term 'stakeholder' to describe them. Indeed, a number of authors specifically describe sustainability as a multi-stakeholder concept (for example: Angus-Leppan et al., 2010; and Arevalo, 2010).

The most frequent stakeholder groups described included employees (35 articles), customers / clients (30 articles), local communities (28 articles), suppliers (20 articles), and non-governmental organisations (19 articles). Less frequently cited groups included stakeholders such as: the media (6 articles), academia (5 articles), the unions (3 articles), and insurers (cited only once in Gauthier and Genet, 2014). Nine articles went beyond the boundaries of people groups and included 'the environment' as a stakeholder (for example: Wagner, 2010; Mefford, 2011; Klettner et al., 2014; and Williams, 2014). Finally, Lozano (2011) went beyond contemporary society to explicitly include 'future generations' as a stakeholder group.

A number of authors (for example: Florea et al., 2013; Glavas and Godwin, 2013; and Hind et al., 2013) distinguished between internal stakeholders, generally meaning employees but occasionally also including management (for example: Isaksson et al., 2010; Hofmann et al., 2014; and Strand et al., 2015), and external stakeholders (i.e. all others stakeholder groups).

Another often cited distinction was between direct and indirect stakeholders (for example: Hahn et al., 2010; Carcano, 2013; and Morali and Searcy, 2013), in every case these authors referring back to a definition of corporate sustainability elaborated by Dyllick and Hockerts

(2002). In this definition, which itself draws openly on the Bruntland definition, Dyllick and Hockerts argue that:

“When transposing this idea to the business level, corporate sustainability can accordingly be defined as meeting the needs of a firm’s direct and indirect stakeholders (such as shareholders, employees, clients, pressure groups, communities etc.), without compromising its ability to meet the needs of future stakeholders as well” (Dyllick and Hockerts, 2002: 131).

Ironically, and despite being quoted in more than ten of the other articles reviewed, nowhere in their article do Dyllick and Hockerts actually define their intended conceptualisation of the difference between direct and indirect stakeholders.

The content analysis of stakeholders groups included within the 87 articles is summarised in table 2.5 with similar groups of stakeholders having been clustered.

Table 2.5: Stakeholder Groups included within the Management Literature on Sustainability

Stakeholder groups Key terms	No. of articles	% of total
Society / Communities Society / general public; community partners; local communities; community groups	37	43%
Employees Employees	35	40%
Owners / investors Owners; shareholders; investors; financiers; donors	31	36%
Customers / clients Customers; consumers; clients	30	34%
Non-Governmental Organisations (NGOs) NGOs; activists (pressure groups)	24	28%
Government Government; regulators	23	26%
Supply chain Suppliers; supply chain; business partners	19	22%
The Environment The environment	9	10%
Other Competitors; management; academia; media; industrial practitioners / trade associations; insurers; unions; scientists/experts; future generations		
Multiple stakeholders named or referenced	75	86%
Number of articles	87	

The analysis clearly supports the assertion by Angus-Leppan et al. (2010) and Arevalo (2010), that sustainability is a multi-stakeholder concept with over 85% of the articles either explicitly naming multiple groups of stakeholders (three authors described more than ten specific groups: Isaksson et al., 2010; Lozano, 2011; and Hofmann et al., 2014) or by referencing stakeholder groups in the plural sense.

In addition to considering the groups included in the discussion of sustainability, the content analysis also looked for evidence of the temporal orientation of the sustainability concept. While less than fifth of the articles were silent on the time horizon of the concept, the vast majority of articles (83%) highlighted the longer-term nature of sustainability. Most commonly this was achieved directly by discussing the long-term nature of sustainability (for example: Mio, 2010; Jenkin et al., 2011; Caprar and Neville, 2012; and Lackmann et al., 2012) or referring to the future (for example: Kashmartian et al., 2011; Wai Kong Cheung, 2011; and Ameer and Othman, 2012), or indirectly by restating sustainability definitions such as the Bruntland definition (for example: Maltz and Schein, 2012; Elliot, 2013; Hind et al., 2013; and Cory and Buslovich, 2014) or the Dyllick and Hockerts' definition (for example: Borland and Lindgreen, 2013; Lozano, 2013; and Lourenço et al., 2014).

This section has addressed the final two questions raised above: which groups are discussed in relation to the sustainability concept; and over what timeframe is sustainability considered? It has been clearly demonstrated that sustainability is a concept that involves multiple stakeholders, and that sustainability involves a longer-term focus.

The next section brings together the findings from the three questions raised above to consider the implications of sustainability from a corporate perspective. It then introduces the working definition of sustainability employed throughout this research project.

2.2.4 Working Definition of Corporate Sustainability

As has been demonstrated from this review of the management literature, while sustainability within the business context (most often labelled as corporate sustainability) has been employed to describe a wide range of interrelated concepts, at its core it is a concept that has a series of common factors.

The first factor relates to the concept's scope or its 'core values' (as described by Patel and Rayner, 2015), and comprises of ensuring a balanced focus between economic growth, environmental responsibility (or stewardship) and societal well-being. These three strands, often described as the organisation's Triple Bottom Line (after Elkington, 1999), are consistently present across the articles focusing on corporate sustainability.

Given the seriousness of the environmental predicament that humanity finds itself within (Brander, 2007; Senge et al., 2008; Porritt, 2007; and Stern, 2009), the centrality of the environmental / eco-system focus within the overall corporate sustainability aspiration is paramount. Ehrenfeld (2005) clearly articulates that this seriousness should not be underplayed and that sustainability is a survival issue for humanity, while Rockström et al. (2009: 474) assert that under the current system "up to 30% of all mammal, bird and amphibian species will be threatened with extinction this century."

The second common factor is that sustainability requires engagement with a wide range of stakeholders (Angus-Leppan et al., 2010). While the precise list of stakeholder groups relevant to different organisations will vary, it is clear that achieving corporate sustainability requires the careful identification and consideration of the expectations of multiple stakeholder groups - aspirations which may not always be aligned and consistent (Lourenço et al., 2012).

The third and final factor identified is that corporate sustainability requires organisations to take a longer-term perspective (for example: Caprar and Neville, 2012; and Lackmann et al., 2012). Linking to the environment limits faced by humanity, authors such as Pezzey (2004) discuss the concept of sustainability in terms of intergenerational equity. This concept of fairness between generations links directly back to Bruntland's criteria that future generations should be provided with the ability to meet their own needs (World Commission on Environment and Development, 1987).

In summary, from the review of the management literature, the key components of corporate sustainability include:

- A focus on environmental constraints and societal needs alongside the need for the businesses to generate economic profit;
- A considered multi-stakeholder view taking into account the needs of the organisation's key stakeholder groups; and
- An intertemporal concern focusing on both the short and long term.

Synthesizing the findings set out in this analysis, corporate sustainability is defined in this research as: ***a future focused, multi-stakeholder concept whereby businesses undertake voluntarily initiatives to reduce their environmental impacts and contribute to the communities and wider society in which they operate, all within the context of striving to maximise their economic profitability in the long-term.***

*

Having defined the concept of corporate sustainability, the remainder of this chapter examines the business case drivers of corporate sustainability. Having considered the drivers, the next chapter introduces the outcomes of an organisational focus of corporate sustainability in term of both the organisation's corporate sustainability performance (as described by: Artiach et al., 2010; Wagner, 2010a; Lackmann et al., 2012) and also the sustainability practitioner's level of engagement with their organisation.

2.3 The Business Drivers of Corporate Sustainability

This section considers the business drivers which motivate organisations to invest in corporate sustainability, a rationale which is often framed as the business case for sustainability.

As shown in the previous section, both an environmental and social focus is critical to corporate sustainability. Indeed, many organisations have now recognised their own dependence upon the natural environment and their societal context and have started looking for more sustainable and less destructive ways of operating. Moore (2009: 276) argues that "modern business plans should include both 'the limits and opportunities' presented by changes in global social and environmental circumstances, as limitations of future growth may occur if the global and environmental perspectives for sustainable societies are ignored."

The challenge, however, faced by managers in corporate organisations, who are expected to be profit-maximising (Pagell et al., 2013), is how to justify the investment of the owners' capital in initiatives aimed at improving the organisation's sustainability performance when investment in such initiatives may not always have an obvious payback in traditional economic terms. The section explores the various drivers that are motivating organisations to invest in sustainability initiatives and thus have the potential to increase overall organisational profitability. Combined these drivers can be viewed as contributing to the overall organisational business case for corporate sustainability.

The analysis which primarily draws upon a review of relevant literature is also augmented by the author's personal experiences as a sustainability practitioner working in a large corporate organisation for the last nine years. Based on the literature, the analysis identifies a range of business drivers of sustainability which are clustered in four dimensions: (1) efficiency gains, (2) access to markets, (3) access to capital (natural, financial, and human), and (4) compliance with broader stakeholder expectations.

The first dimension, justifying sustainability investment based upon waste reduction and efficiency gains, and often described as eco-efficiency (Young and Tilley, 2006), provides the approach which is most closely aligned with the traditional economic business case where the returns on a potential investment can be quantified in terms of cost savings to the organisation (Carroll and Shabana, 2010).

The second dimension, driven largely by corporate reputation, involves ensuring that the organisation and its products or services are acceptable to its customers and in some cases suppliers (Argenti, 2004; Wright and Rwabizambuga, 2006). It also encompasses the new opportunities and rapidly expanding markets for sustainability related products and services (Borland, 2009; and Hart, 1997 and 2005). Business justifications built upon drivers in this dimension will most likely be sales or revenue based and focus upon the opportunity for new revenue streams from new markets and / or the threat of lost revenue streams in existing markets.

The third dimension revolves around the organisation's access to the inputs it requires to operate. These inputs can include natural capital (both natural resources and eco-system services) (Dyllick and Hockerts, 2002; Azapagic, 2004), financial capital (both debt and equity)

(Steger et al., 2007; Heal, 2005), and human capital (employees) (Amalric and Hauser, 2005). In some cases, this dimension can overlap with the reputation issues identified in the previous dimension as organisations are often dependent upon intermediary suppliers to supply their capital inputs. Business cases based upon drivers in this dimension will most likely be focused upon the risks associated with the organisation's ability to operate if their supply of capitals is interrupted.

Finally, the fourth dimension relates to how an organisation complies with the requirements and expectations of its broader business context. This context can include complying with government legislation, industry norms and standards, or the potential pressure brought by lobbying non-governmental organisations (NGOs) (Braungart et al., 2007; Nidumolu et al., 2009). In this dimension, the business case will most likely be focused upon mitigating the risks associated with non-compliance.

The following four sub-sections analyse each of the four dimensions, complementing a review of the literature with a number of practical organisational examples of the sustainability drivers identified. The overall findings from the four sections are summarised in table 2.6.

2.3.1 Sustainability Driver 1 – Improving Operational Efficiency

The first dimension identified, business drivers based on operational efficiency, relates to the internal operations of the organisation itself. This dimension, at its simplest, can be summed up in the maxim 'waste equals cost.' By eliminating both intra-organisational and inter-organisational waste from production and operational processes and procedures, cost savings can be achieved.

This idea, often described in the literature as 'eco-efficiency,' emerged in the early 1990s and was popularised by World Business Council for Sustainable Development (WBCSD) (Thorpe and Prakash-Mani, 2003; Young and Tilley, 2006). Building the business case for sustainability on eco-efficiency drivers is often popular as it provides the most direct link to profitability and often relies on the fewest assumptions. Thorpe and Prakash-Mani (2003) note that such eco-efficiency cost savings can be derived from a range of opportunities including: reduced

consumption of input materials, lower waste handling and disposal costs, as well as reduced energy costs.

Hawken et al. (2001) provide many examples of eco-efficiency initiatives across various sectors which have driven down input requirements for both raw materials and energy. They argue that with careful process reengineering, 'factor four' and even 'factor ten' productivity improvement (representing 75 percent and 90 percent reductions in energy and materials intensity respectively) can be achieved, noting that "such leading corporations as Dow Europe and Mitsubishi Electric see it as a powerful strategy to gain a competitive advantage" (ibid: 12).

While eco-efficiency, as described above, has the ability to reduce inputs and deliver cost savings, in the longer term it is not without its limitations (Braungart et al., 2007; Young and Tilley, 2006). Young and Tilley (2006: 403) argue that the problem with eco-efficiency is that a focus on short-term payback can hide "the environmental problems that present more significant challenges ... [potentially] present[ing] the false scenario that all business resource efficiencies are by definition ecologically or socially sound." Ayres and Warr (2004: 10) argue that "the link between economic activity and materials consumption is still extremely tight. Dematerialization is NOT happening today, at least in the way that matters at the aggregate scale, despite some misleading indicators."

Braungart et al. (2007: 1339) lay out their criticism of eco-efficiency more bluntly, "less bad is no good – to destroy less is not positive." They argue that to truly create long-term sustainable value, businesses should strive for 'eco-effectiveness' achieved through principles such as cradle to cradle design (ibid). From their standpoint, eco-effectiveness is a competing paradigm to eco-efficiency.

"Eco-effectiveness does not call for minimization of material use or prolonged product lifespan. In fact, it celebrates the creative and extravagant application of materials and allows for short product lifespans under the condition that all materials retain their status as productive resources. Even the application of toxic materials is acceptable as long as it takes place in the context of a closed system of material flows and the quality of the material is maintained" (Braungart et al., 2007: 1338).

As an example of emerging eco-effective behaviour, Braungart et al. (2007: 1346) cite the case of the EU End-of-Life Vehicles (ELV) Directive which has forced automobile manufacturers “to ensure the safe handling of their product’s materials after the customer use phase.” Braungart et al. argue that while such legislation has “generally not spurred the development of true cradle-to-cradle metabolisms, they have resulted in the beginnings of collaborative mechanisms for handling the flow of materials throughout the product life cycle” (ibid). Essentially manufacturers are now thinking about how used automobile components can be disassembled in such a manner as to be useful inputs for future products.

In the WBCSD’s defence, their full definition of eco-efficiency is more closely aligned to Braungart et al.’s eco-effectiveness and covers more than just eliminating unnecessary waste flows to generate cost savings. It also involves: *Closing production loops* requiring every output, whether the actual product or any by-products, to ultimately become inputs to other products or nutrients for the natural environment, rather than becoming waste; *Service extension* involving the replacement of the provision of products with the underlying services required; and *Functional extension* aiming at creating a smaller number of smarter products which have wider or enhanced applications (WBCSD, 2002).

This tension between short and longer term sustainability requirements is a recurring theme and while the full scope of eco-effectiveness as defined by Braungart et al. (2007) will be critical in the longer term, the majority of organisations are still in the foothills of exploring the potential of unlocking simple eco-efficiency savings by eliminating waste and improving energy efficiency.

The importance of eco-efficiency savings as a driver of sustainability should not however be underestimated as for many organisations these sustainability-related savings provide an easy first step on the journey to becoming more sustainable – a first step that can often be undertaken in the context of a traditional business case with a relatively easily quantifiable payback period.

2.3.2 Sustainability Driver 2 – Access to the Market

The second dimension of the business case for sustainability concerns drivers related to an organisation’s ability to trade. This dimension has two aspects: first, being an organisation that

customers (or indeed suppliers) are prepared to trade with, and second, having products or services that customers are prepared to buy.

This first aspect is intrinsically connected with organisational behaviours and reputation, and the expectations that customers have of their suppliers. Indeed, within certain sectors of the B2B (business to business) arena, customers are becoming much more explicit about what behaviours they find acceptable, often through sustainable procurement initiatives. In the UK public sector, the Government Sustainable Procurement Action Plan (HM Government, 2007) was its response to the Sustainable Procurement Task Force convened by the UK Government to set out a roadmap ('flexible framework') for sustainable procurement. This roadmap included a series of explicitly stated, increasingly more rigorous standards for procurement departments to apply to suppliers wanting to retain their licence to operate in the public sector (see Sustainable Procurement Task Force, 2006).

Equally, many private sector organisations are also setting out explicitly the social and environmental standards, and the behaviours they expect from their suppliers through their own sustainable procurement guidelines. Many organisations make these guidelines publicly available through their internet sites (see for example: Capgemini, 2015; Pepsico, 2015; yell.co.uk, 2009).

In some cases, maintaining an organisation's reputation can also involve being selective about who the organisation is prepared to supply to. In order to enhance their reputations as responsible lenders in the developing world, ABN AMRO, Barclays, Citigroup and WestLB jointly launched the Equator Principles in 2003 (Wright and Rwabizambuga, 2006). The ten principles, now signed up to by over 80 financial organisations, aim to ensure that large (greater than USD 50 million) project finance loans "are socially responsible and reflect sound environmental management practices" (Equator Principles, 2015).

Business-to-consumer organisations have a particular challenge in managing their reputations as their customer bases tend to be fragmented and often heterogeneous in their expectations of their suppliers. They also come under the scrutiny of a wide range of NGOs who can exert significant influence on customers. When the pressure group Global Exchange targeted Nike by publicising the low wages being paid to workers in Nike's supply chain in the developing world, sales reduced as customers switched to other brands (Heal, 2005; Argenti, 2004). Shell

experienced a similar issue with a reduction in European retail sales during the controversy over its disposal of the Brent Spar oil buoy (Heal, 2005).

In both these situations, customers' perceptions were critical – Shell actually believed that it was doing the right thing from an environmental perspective in scuttling the Brent Spar, while Nike was following the same industry practices as its competitors when it was challenged by Global Exchange (Heal 2005).

As well as maintaining overall organisational reputation, specific product acceptability can also be a significant issue. Manufacturers of 4x4 motor-vehicles have experienced reduced sales due to customers' concerns over environmental impacts and higher running costs (Economist, 2009). The effect on the largest of the automotive manufacturers, General Motors, was dramatic. The Economist's analysis of the collapse of General Motors into bankruptcy noted that "with a gallon costing \$4, demand for the big pickups and SUVs that provided most of Detroit's profits evaporated" (ibid).

However, this increased environmental consciousness of consumers also brings opportunities as well as threats, and while General Motors has been struggling to find a market for their vehicles, other manufacturers such as Tesla have found a rapidly growing market for vehicles perceived as more environmentally friendly such as the Tesla S. This difference is starkly illustrated by their respective market capitalisations: in June 2015 the market capitalisation of Tesla was near 60% of General Motors' despite General Motors making 180 times as many cars (247wallst.com, 2015). Measured in terms of market capitalisation by car produced, Tesla's market capitalisation was over 100 times that of General Motors.

Braungart et al. (2007) argue that innovative companies have the even more fundamental opportunity to reinvent the relationship between their products and the customer, thereby creating new business value. They present the example of the washing machine, arguing that by redefining the customer's requirement in terms of the service the washing machine provides, rather than that of the ownership of the physical machine, the manufacturer can provide a win-win value proposition. Most importantly from a sustainability perspective, they argue the interests of both the manufacturer and the customer for a durable machine are aligned whereas "under a traditional situation of ownership transfer, it is at least partially in the interest of the company to provide a product that fails as quickly as possible because this enables them an

opportunity to sell yet another washing machine to their customer” (Braungart et al., 2007: 1345).

Of all the dimensions of the business case drivers of sustainability, access to markets can potentially be the most powerful. An organisation at risk of being boycotted by its customers (or suppliers) due to its practices or behaviours, or which is providing unacceptable products and services, is an organisation at serious economic risk. Investing to protect an organisation against these potential risks can deliver a clear cut business case.

2.3.3 Sustainability Driver 3 – Access to Capitals

The third dimension of the business case drivers of sustainability revolves around ensuring the organisation has sufficient access to the resources it requires to operate. These resources, often described in the literature as capitals (for example: Hawken et al., 2001), include natural capital, financial capital and human capital.

Natural Capital

Depending on their outputs, organisations must ensure their access to two forms of natural capital: natural resources and eco-system services (Dyllick and Hockerts, 2002). Natural resources are essential for every business on the planet whether in terms of the raw material inputs needed for their own production processes or in terms of the embedded resources in the manufactured products they require to deliver their own services (Azapagic, 2004). All organisations also require energy inputs (considered here as another form of natural capital) whether to run physical production processes or to deliver products or services to the market. Many organisations are also reliant the second form of natural capital, eco-system services, for example: the crop pollination services provided by bees and other insects (Chivian, 2002).

Both of the two forms of natural capital can be accessed either directly (for example: by an oil extractor or a bee keeper), or indirectly through one or many layers of an organisation’s supply chain (for example: the delivery driver’s access to petrol through the oil refiner and retailer, or the honey-nut cornflake manufacturer’s access to honey through the bee keeper). In the latter

case, the organisation also has the additional requirement, as discussed in the previous section, of ensuring its acceptability to the intermediate supplier or suppliers.

One particular form of natural resource critical for all organisations is access to energy. Victor (2008) notes that energy flows have increased with global economic growth to the extent that “now the flows are so large that there are concerns over future supplies of resources such as oil, concerns over the impacts that waste energy and material are having on the environment, and concerns that life-support and amenity services provided by the environment are being damaged beyond repair” (2008: 47). Consequently, security of energy supply is becoming an increasing concern for many organisations.

Hughes (2009) also considers the case of oil and argues because it is easy to transport, store and refine into fuels and petrochemical-based products, it has become indispensable to the global economy. Oil is currently the largest single source of energy consumed on the planet accounting for 34 percent of primary energy consumption. Hughes reports that by the end of 2007, globally we had consumed around 1.1 trillion barrels of oil at an ever increasing rate (90% of this consumption has occurred since 1959, and 50% since 1986). Hughes argues this represents probably “somewhere between a half and a third of all the conventional oil humankind will ever consume” (Hughes, 2009: 74).

While oil as an energy source and a manufacturing input is not without substitutes, organisations heavily dependent upon oil will, in the future, have to look for alternative inputs to protect themselves from shortages, and from escalating and potentially increasingly volatile prices. The significant oil price surge in July 2008 saw prices reach a peak of \$147.27 per barrel for US light sweet crude on the 11th July 2008 (BBC, 2008) before falling back following reduced demand due to a global economic recession. While since 2008 prices have fluctuated significantly between \$40 and \$115 (NASDAQ, 2015), the underlying trends showing demand for “global liquids ... expected to increase by 1.3 - 1.4% in average per annum up to 2030” (Kjärstad and Johnsson, 2009, 443-444) whilst simultaneously the “global average decline rate in existing fields [is] ... between 5% and 8%” (ibid, 458). Consequently, continued price pressure is expected in the long run.

While oil is the most ubiquitous global commodity, it is not the only natural resource whose reserves are being rapidly depleted. In an audit of the Earth's natural wealth, Cohen (2007)

identified that at 2007 global consumption rates there were approximately 13 years of indium, 29 years of silver, and 30 years of antimony remaining. Whilst most of these precious and semi-precious metals are relatively unknown as elements, the products dependent upon them, which include LCD TVs, printed circuits, LEDs, transistors, microchips and flame retardants, are relied upon by the majority of the world's population. Consequently, manufacturers with long product research and design cycles will need to start investing in substitute inputs relatively soon if they are to be able to continue to deliver their products and services to the market.

One company which came to this realisation early was carpet manufacturer Interface whose Chairman and Founder, Ray Anderson, describes his own 'epiphany' moment as having come in 1994 while read Paul Hawken's (1994) book *The Ecology of Commerce* (Interface, 2009). Since then Interface has set itself the goal of becoming the world's first "restorative enterprise" with the "company's Mission Zero commitment — our promise to eliminate any negative impact Interface has on the environment by 2020" (ibid). Through implementing 'cradle to cradle' style innovation (see McDonough and Braungart, 2002; and Braungart et al., 2007) such as leasing floor-coverage as a service rather than selling carpet tile products, Interface has been able to significantly reduce its dependency on oil based raw material inputs. Recycled worn-out carpet tiles are returned to the factory and then become a valuable input into the production of new carpet tiles (Hawken et al., 2001).

The need for change is particularly clear for those businesses directly involved in the extraction of primary commodities. For example, these organisations are increasingly finding themselves needing to operate in more difficult and often more environmentally sensitive areas. Heal (2005) argues that gaining access to these areas may well require companies to have a strong sustainability reputation, finding that this is already the case for oil companies trying to gain access to the forests of Central and South America and the Caspian Sea.

The second form of natural capital that organisations must consider is the availability of eco-system services. Whilst extractive industries have clear finite limitations, some potentially renewable businesses such as agriculture, forestry and fishing must also remain cognisant of their natural limits. In a number of cases these three industries have been responsible for pushing the eco-system services on which they depend to the edge of, and in some cases beyond, sustainable limits. Anderson (1998) discusses the terminal impact on parts of the

Canadian fishing industry following the near total destruction of the North Atlantic cod stocks following years of over-fishing.

In the agricultural sector, many farmers are dependent upon insects, such as bees, to pollinate a large range of fruit and vegetable crops (Gallai, 2009). While this service is often provided for free by insects, the insects themselves are vulnerable to pesticides and other insect diseases. In a paper reviewing the importance of bio-diversity for the Harvard Medical School, Chivian (2002: 14) argues that if “populations of bees and other pollinators crashed, there could be major crop failures.” The paper notes that the alternative, hand-pollination, which is now occurring in parts of China due to the collapse of insect populations, is highly labour intensive taking “20 - 25 people to pollinate 100 trees, a task that can be performed by two bee colonies” (ibid: 13).

In Gallai et al.'s (2009: 819) analysis of the eco-system service contribution made by insect pollinators, they argue that the value “of pollinators to the production of crops used directly for human food ... [is] €153billion, which is about 9.5% of the total value of the production of human food worldwide.”

In response to the issue of ensuring that eco-services do not become overwhelmed, a number of industries have promoted initiatives designed to manage the pressure on the natural resources they depend upon. Two such initiatives are the Forest Stewardship Council (FSC) and Marine Stewardship Council (MSC), the latter a pioneering collaboration between Unilever and WWF (Waddell, 2007). In the case of the FSC, Heal (2005) argues that in addition to securing future wood supplies, retailers hope that by targeting discriminating customers who are prepared to pay a premium for FSC certified wood products, they will cover the additional costs of certification.

Financial Capital

Organisations are also reliant on financial capital. For the majority of corporate organisations, capital comes either through debt or equity shareholders. While there is not, at present, universal use of sustainability criteria being applied by banks and investors to their investment decisions, some examples are emerging. One such example of banks actively screening clients, also discussed in the previous section, is that of banks using the Equator Principles to consider their investment decisions in large development projects (Equator Principles, 2009). While this

screening is motivated by the protection of the banks' own corporate reputations, it does mean that organisations looking for financial capital for large development projects must ensure they have appropriate sustainability practices and processes in place.

For publicly listed corporations, the attitude of investors towards their operations is also crucial. While finding some limited evidence of investors taking an interest in businesses' sustainability performance, Steger et al. (2007: 169) argue that based on an empirical cross industry study of corporate sustainability, businesses "almost unanimously complained about the capital markets' ignorance or even opposition to corporate sustainability management and their focus on short-term results rather than a strategic, long-term perspective."

Steger et al. (2007), however, also argue that the introduction of initiatives such as the Carbon Disclosure Project, which scrutinises corporate carbon emissions on behalf of a group of institutional investors, demonstrate some potential signs of a change in investors' attitudes. Other examples of market led initiatives to promote the recognition of corporate investment in sustainability include indices such as FTSE4Good and the Dow Jones Sustainability Index (see FTSE, 2015 and DJSI, 2015).

Heal (2005) argues that investor attitudes are changing as evidenced by the growing value of Socially Responsible Investment (SRI) funds which in 2005 accounted for 12% of funds invested in the US. In Europe, the investor analyst Vigeo (2014), reported that the number of retail SRI funds grew from 375 in 2005 to 957 in 2014, with an asset value of approximately €127 billion (up from €24 billion in 2005).

Brewster (2009: 3) also argues that "pension funds, endowments and foundations are increasingly under pressure from board members to consider SRI implications of their investing." Engagement by the pensions industry is also evidenced by the creation, in 2007, of the P8 Group jointly with The University of Cambridge Programme for Sustainability Leadership (CPSL) and The Prince of Wales's Business and Environment Programme (BEP). The group, which was collectively stewarding over \$3 trillion dollars, brought "together senior officials from leading public pension funds to develop actions relating to global issues and particularly climate change" (CPSL, 2009). More recently, the P8 group was superseded by the P80 Group Foundation with a wider membership (P80 Group, 2015).

While for most organisations, access to financial capital is unlikely to be the primary driver for the sustainability business case currently, it seems likely that this will become increasingly more important in the future. Indeed Heal (2005) goes so far as to argue that becoming more sustainable could potentially drive down the actual cost of capital for an organisation as well as being necessary to ensure the capital's availability.

Human Capital

An organisation's access to human resources can also be influenced by its sustainability performance. Amalric and Hauser (2005) found that strong sustainability credentials can help with attraction and retention as well as with morale and productivity. Turban and Greening (1996: 666) also argue that firms with what they define as higher corporate social performance (CSP) "have more positive reputations and are more attractive than firms lower in CSP."

Heal (2005: 396) argues that people like to work for companies they can feel proud of rather than "having to justify or excuse their companies to their friends and family" and that an organisation's sustainability record is one aspect of developing such organisational pride. Heal also cites a study by Montgomery and Ramus (2003) who found that MBA graduates were "willing to take lower pay in order to work for companies that have a more positive social image" (Heal, 2005: 396).

As well as discussing the attraction of new employees, Heal also notes the linkage with improved morale, arguing that through 'efficiency wage theory' organisations will be willing to pay more than the minimum to fill positions as "employees work harder if they are paid more, so productivity can be raised" (Heal 2005: 397). Famous examples of this phenomenon from history include: Henry Ford paying his workers \$5 per hour, twice the then current market rate; and Proctor and Gamble who innovated in the early twentieth century with disability and retirement benefits, the eight-hour day, and guarantees of 48 weeks work per year (The Economist, 2002).

2.3.4 Sustainability Driver 4 – Compliance

The final dimension of the business case drivers of sustainability is the compliance of organisations with the expectations of the broader business environment. In its most obvious form, organisations must adhere to government legislation to retain their licence to operate. However, increasingly organisations also need to consider their response to other sustainability initiatives being driven within their industry or sector, and to the potential opportunities and threats arising from the NGO activity in their sector.

Legal Compliance

Legal compliance is nothing new for organisations; legislation relating to health and safety stretches back decades and many countries already have minimum wage standards, as well as pollution and other environmental standards. For example, the 1986 US Superfund Amendments and Reauthorization Act (SARA) requires “that companies publicly disclose their emission levels of some 300 toxic or hazardous chemicals” (Hart, 1995: 992) while the EU Waste Electrical and Electronic Equipment regulations (WEEE) require “hardware manufacturers to pay for the cost of recycling products in proportion to their sales” (Nidumolu et al., 2009: 59).

The scope of legislation has also been gradually increasing and in April 2010 the UK government introduced regulations for a broad range of heavy carbon emitters. All public and private sector organisations using more than 6,000 Megawatt hours of energy per year, and who are not already included in the European Union Emissions Trading Scheme (EU ETS), have been obliged under the CRC Energy Efficiency Scheme (CRC) to pay a form of carbon levy (see Environment Agency, 2014). The CRC has also forced organisations to invest in carbon reporting as well as encouraging them to invest in energy efficiency initiatives.

Most often government legislation is non-negotiable and therefore adherence is simply part of an organisation’s overall licence to operate. However, while many organisations view government legislation as simply an extra complexity and cost of doing business, others look at how they can use legislation to their advantage in creating business value. Amalric and Hauser (2005: 30) argue that in some situations “a company may be able to gain an advantage over its competitors by promoting the passing of new regulations that would impose on all companies

the standard of corporate conduct over which it holds a cost advantage.” Nidumolu et al. (2009) discuss the example of HP’s pre-emptive response to the EU WEEE regulations.

“Calculating that the government-sponsored recycling arrangements were going to be expensive, HP teamed up with three electronics makers – Sony, Braun, and Electrolux – to create the private European Recycling Platform. In 2007 the platform, which works with more than 1,000 companies in 30 countries, recycled about 20% of the equipment covered by the WEEE Directive. Partly because of the scale of its operations, the platform’s charges are about 55% lower than those of its rivals. Not only did HP save more than \$100 million from 2003 to 2007, but it enhanced its reputation with consumers, policy makers, and the electronics industry by coming up with the idea” (Nidumolu et al., 2009: 59).

Whilst lobbying for new legislation can in some ways be viewed as a cynical attempt to achieve individual advantage, a number of industries have also collectively lobbied for government to implement legislation to promote greater certainty. This certainty is particularly important for industries which make high levels of capital investment which must then be recovered over the long term. One example was British Airways joining with Virgin Atlantic, Air France, Cathay Pacific and Qatar Airways to “call for aviation emissions to be included in a global deal on climate change due to be agreed at the United Nations conference in Copenhagen in December” (The Times, 2009).

Finally, government legislation can also enable industries to cooperate in initiatives which otherwise would not gain sufficient economies of scale for individual organisations to pursue. Braungart et al. (2007) argue that this has been the case with the EU End of Life Vehicles (ELV) Directive discussed previously. The directive requires carmakers to take back their vehicles at the end of life for safe environmental disposal. Braungart et al. assert the legislation has resulted “in the beginnings of collaborative mechanisms for handling the flows of materials through the product life cycle” (2007: 1346).

Industry Initiatives and Collaboration

One step short of government legislation is industry compliance which is generated when organisations come together to set their own standards to drive enhanced sustainable

approaches across their industry or sector. The Equator Principles, discussed previously, or the ClimateWise initiative in the insurance industry are examples of where industries have implemented voluntary standards and practices with the view to responding to environmental issues. The latter, ClimateWise (2015), aims at the industry level to “respond to the myriad risks and opportunities of climate change, aiming to reduce the overall risks faced by economies and societies.”

Amalric and Hauser (2005: 30), however, are sceptical of industry initiatives arguing that often industries are simply seeking to implement self-regulation in an attempt to assuage governments and prevent formal legislation which they perceive as potentially being more costly. They suggest that when industries consider entering into self-regulatory frameworks, they should look to ensure that they are not simply trying to sidestep more effective government regulation. Indeed, Amalric and Hauser argue that “in general if not in all circumstances ... state regulation is more effective than self-regulation in enhancing social welfare” (2005: 31).

NGOs and Compliance

The final form of compliance involves managing the relationship corporate organisations have with non-governmental organisations (NGOs). Argenti (2004) notes that often NGOs are simply perceived as a threat because of their often effective lobbying activities. For example, Argenti cites the impact of Global Exchange’s campaign against Nike’s use of “sweatshop labor conditions” (ibid: 95) and Greenpeace’s campaign against Shell both discussed earlier in this chapter (ibid; see also Heal, 2005).

Argenti (2004) argues that the power of NGOs lies in their ability to focus on one issue at a time and also that they often have considerably more sophisticated communications and media engagement skills than the organisations they are targeting. Consequently, organisations, particularly those with strong public brands, may need to invest in sustainability initiatives to protect their reputations from NGO campaigns.

Argenti (2004) also argues that one alternative approach is for organisations to actively collaborate with NGOs highlighting the success of the collaboration between Starbucks and Oxfam America). Other successful collaborations have included the work between Unilever and

WWF in jointly creating the Marine Stewardship Council (discussed previously) and Chiquitta's work with the Rainforest Alliance (Steger et al., 2007).

*

Conclusions

This section has examined the business case drivers of corporate sustainability which organisations often employ to justify their investment in sustainability. Through a review of management literature, augmented with insights from the author's practical experience as a sustainability practitioner, this section has identified a series of sustainability drivers which have the potential to be included in the business case for sustainability.

The findings of this section are summarised in table 2.6 (overleaf).

Table 2.6: Business Drivers of Corporate Sustainability – Summary of Findings

Dimension	Definition of the component	References	Examples
Efficiency			
Eco-efficiency	Increasing the efficiency of production by reducing waste, energy and other inputs, and consequently reducing costs.	<ul style="list-style-type: none"> Hawkens et al. (2001); Thorpe and Prakash-Mani (2003); Young and Tilley (2006) 	<ul style="list-style-type: none"> Hawkens et al. (2001) cite examples of factor four and factor ten productivity gains in Dow Europe and Mitsubishi.
Eco-effectiveness	Responding to the concern that eco-efficiency is not delivering the necessary dematerialisation of production, eco-effectiveness takes a broader view of production where systems are closed and all outputs are reusable as inputs to future production.	<ul style="list-style-type: none"> Limitations of eco-efficiency: Ayres and Warr (2004); Braungart et al. (2007); Young and Tilley (2006) Eco-effective production: Braungart et al. (2007); Young and Tilley (2006) 	<ul style="list-style-type: none"> Braungart et al. (2007) argue that the EU End-of-Life Vehicles (ELV) Directive is forcing automobile manufacturers to ensure that components can be disassembled at end of life.
Access to Markets			
Customers	Maintaining the right to sell to customers requires: <ul style="list-style-type: none"> the maintenance of organisational reputation, ensuring that products and services are aligned to customer demands, and that specific customer sustainability procurement requirements are adhered to. 	<ul style="list-style-type: none"> Organisational reputation: Argenti (2004); Heal (2005) Alignment of products and services to customer requirements: Amalric and Hauser (2005); Braungart et al. (2007) 	<ul style="list-style-type: none"> Procurement guidelines: Sustainable Procurement Task force (2006); Capgemini (2015); Pepsico (2015); yell.co.uk (2009). Heal (2005) and Argenti (2004) discuss the implication of reputational damage at Nike due to child labour in the supply chain and at Shell due to the Brent Spar Oil Buoy. The Economist (2009) discusses General Motors difficulties in selling 4x4s in a high oil price market.
Suppliers	In some cases an organisation's behaviours will also be screened by suppliers.	<ul style="list-style-type: none"> Wright and Rwabizambuga (2006) 	<ul style="list-style-type: none"> Wright and Rwabizambuga (2006) discuss the case of banks signing up to the Equator Principles to protect their own reputations as responsible lenders.

Table 2.6 (continued): Business Drivers of Corporate Sustainability – Summary of Findings

Access to Resources			
Access to Natural Capital	Organisations need to ensure that they have sufficient access to the natural resources (such as raw materials and energy) they need to operate as well as access to necessary eco-system services (such as fish stocks or pollinators).	<ul style="list-style-type: none"> • Forms of natural capital: Azapagic (2004); Chivian (2002); Dyllick and Hockerts (2002) • Energy scarcity: Hughes (2009); Kjärstad and Johnsson (2009); Victor (2008) • Mineral scarcity: Cohen (2007) • Eco-system services: Anderson (1998); Chivian (2002); Gallai (2009) 	<ul style="list-style-type: none"> • Cohen (2007) identifies that at 2007 global consumption rates there were approximately: 10 years of proven hafnium reserves, 13 years of indium, 29 years of silver, and 30 years of antimony. • Anderson (1998) discusses the terminal impact on parts of the Canadian fishing industry following the near total destruction of the North Atlantic cod stocks following years of over-fishing.
Access to Financial Capital	There is increasing scrutiny of organisations by suppliers of capital such as banks and shareholders.	<ul style="list-style-type: none"> • Heal (2005); Brewster (2009) 	<ul style="list-style-type: none"> • Banks introduce Equator Principles on project finance loans (Equator Principles, 2009). • Cambridge Programme for Sustainability Leadership jointly launch P8 initiative with major pension funds (CPSL, 2009).
Access to Human Capital	Having a strong sustainability performance can assist with employee recruitment and retention.	<ul style="list-style-type: none"> • Amalric and Hauser (2005); Heal (2005); Turban and Greening (1996) 	<ul style="list-style-type: none"> • MBA graduates taking lower pay to work for companies with a "more positive social image" (Heal, 2005).
Compliance			
Legal compliance	All organisations need to ensure that they comply with legislation to their maintain licence to operate, however forward thinking organisations may be able to benefit from early preparation.	<ul style="list-style-type: none"> • Benefiting from legislation (Amalric and Hauser, 2005) 	<ul style="list-style-type: none"> • Examples of legislation: SARA (Hart 1995), WEEE (Nidumolu et al. 2009), CRC (Environment Agency, 2014). • Nidumolu et al. (2009) discuss how HP's pre-emptive response to the EU WEEE regulations delivered business benefit.
Industry initiatives	Some organisations have collaborated with other members of their industry to respond to sustainability challenges to create business value or to try to avoid formal legislation.	<ul style="list-style-type: none"> • Trying to avoid legislation (Amalric and Hauser, 2005) 	<ul style="list-style-type: none"> • The ClimateWise initiative in the insurance industry (ClimateWise, 2015).
NGOs	NGOs can be viewed as either a threat or an opportunity for partnership	<ul style="list-style-type: none"> • Threat (Heal 2005; Argenti, 2004) • Opportunity (Argenti 2004; Steger et al., 2007) 	<ul style="list-style-type: none"> • Global Exchange targeting Nike and Shell (Heal, 2005; Argenti, 2004) • Successful collaborations include Starbucks and Oxfam America (Argenti 2004); Unilever and WWF - MSC, and Chiquita's and Rainforest Alliance (Steger et al., 2007).

2.4 Conclusion

This chapter has investigated both the concept of corporate sustainability and the drivers of corporate sustainability. In reviewing the management literature focused on corporate sustainability, 280 peer reviewed articles were examined with a detailed content analysis performed on the 87 most relevant. The nature of sustainability was examined in terms of the definitions employed by scholars, together with the scope, stakeholders and temporal outlook included in the various authors' definitions of the concept of sustainability.

While the term sustainability has been employed to cover a wide range of topics, and has even been described as a normative concept (Hahn et al., 2015a), it has been shown that at its core there are some strong consistent dimensions of the concept in terms of both its scope, stakeholders and timeframe. When viewed through the lens of business, these themes remain constant enabling the following definition of corporate sustainability to be elaborated for use in this research study:

Corporate sustainability is defined as a future focused, multi-stakeholder concept whereby businesses undertake voluntarily initiatives to reduce their environmental impacts and contribute to the communities and wider society in which they operate, all within the context of striving to maximise their economic profitability in the long-term.

The second half of the chapter considered the drivers of corporate sustainability, identifying four key dimensions of the business case for sustainability of commercial organisations: efficiency, access to markets, access to resources and compliance.

The next chapter considers the outcomes of corporate sustainability including corporate sustainability performance and the level of sustainability practitioners' engagement with their organisations. It concludes by presenting the driver-outcome model which underpins the research in this thesis.

Chapter 3 The Outcomes of Corporate Sustainability: Corporate Sustainability Performance and Practitioner Engagement

This chapter explores the outcomes of corporate sustainability in terms of both the organisation's corporate sustainability performance and level of the sustainability practitioner's engagement.

Section 3.1 introduces the chapter. Section 3.2 examines the outcome of corporate sustainability performance and then investigates some of the difficulties associated with its measurement including the problem of asymmetric information. Sections 3.2.1, 3.2.2 and 3.2.3 address this measurement challenge by considering three approaches identified in the management literature: direct measurement of performance (whether by rating agencies or by observing specific performance indicators); measurement approaches developed by academic researchers; and finally proxy measurements (for example: voluntary disclosure or sustainability awards received).

Section 3.3 analyses the concepts of employee engagement as a second outcome of corporate sustainability. The concepts of commitment, trust, intention and identification are considered together with the linkages both between the concepts and with corporate sustainability. The section finishes by considering the relevance of this literature in the specific case of corporate sustainability practitioners. Section 3.4 concludes the chapter.

3.1 Introduction

Building on the definition of corporate sustainability and its associated drivers identified in the previous chapter, the aim of this chapter is to investigate the outcomes of corporate sustainability for both the organisation and sustainability practitioner. Specifically, this chapter:

1. explores the organisational outcome of corporate sustainability performance and investigates various potential methods which can be employed to measure this outcome.
2. examines the concepts of employee engagement, commitment, trust, intention and identification, and explores their relevance as an outcome of corporate sustainability for sustainability practitioners employed by organisations.

The identified drivers and outcomes of corporate sustainability are then combined together in the next chapter to create the overall theoretical driver-outcome research model which is investigated in this study. A series of research proposition and hypotheses are also presented before a number of potential organisational and practitioner moderating variables are introduced.

3.2 Outcome 1 – Corporate Sustainability Performance

Having explored the concept of corporate sustainability in the previous chapter, the next challenge is to consider how the outcome of corporate sustainability performance (CSP) can be measured. One basic definition of sustainability performance, presented by Brem and Ivens (2013: 42), is simply the “extent to which an organization manages to achieve its sustainability objectives.” While conceptually straight-forward, the definition is problematic because it contains no objective measure of whether the organisation has set appropriate and material objectives.

Pavláková Dočekalová et al. (2015) suggest a broader approach based upon John Elkington’s (1998) Triple Bottom Line concept and also building on research by Artiach et al. (2010), arguing that corporate sustainability performance “measures the extent to which a corporation implements economic, environmental, social and corporate governance factors into its activities and to what extent it considers the impact of its activities on its surroundings” (Pavláková Dočekalová et al., 2015: 16). Pavláková Dočekalová et al. and Artiach et al.’s approach, whilst more compelling because the organisation’s context is considered, is also consistent with Brem and Ivens’s (2013) approach as they build upon the idea of progress towards an underlying construct of corporate sustainability.

This idea of progress towards the underlying construct is also meaningful when considering the definition of corporate sustainability employed in this thesis:

Corporate sustainability is a future focused, multi-stakeholder concept whereby businesses undertake voluntarily initiatives to reduce their environmental impacts and contribute to the communities and wider society in which they operate, all within the context of striving to maximise their economic profitability in the long-term.

Thus corporate sustainability performance, in this thesis, can be conceptualised as the successful implementation of *initiatives* as described in the definition above which deliver reductions in environmental impacts or make a positive contribution to the wider society.

Whilst providing a pragmatic working approach to corporate sustainability performance, the problem of measurement still remains. Indeed, authors such as Hockerts (2015) and Lee and Farzipoor Saen (2012) argue that measuring corporate sustainability performance is not an unproblematic exercise. As Ameer and Othman (2012: 65) highlight “there are no universally accepted sustainability standards, or methodologies for measuring, assessing and/or monitoring a company’s progress towards sustainability.” Schneider and Meins (2012) make a similar critique of Elkington’s Triple Bottom Line arguing that there is no general consensus on how the concept should be operationalised – particularly in the social and environmental dimensions.

Another issue is the problem of information asymmetry (Hahn and Lülfs, 2014) whereby often the organisation is in control of the information needed to assess their sustainability performance. Hahn and Lülfs argue that this asymmetry can be reduced by pro-active reporting citing the benefits for publicly traded companies who may gain better access to the capital markets in exchange for greater transparency.

Several authors, however (Delmas and Blass, 2010; Schneider et al., 2011; Schneider and Meins, 2012), make the point that effective reporting does not always reflect high levels of sustainability performance. In the context of some of the ratings agencies (discussed further below), Hockerts (2015) goes so far as to suggest that in a “sense it might be fairer to conclude that what we term ‘top performers’ here are those companies that have the best ability to present themselves as sustainable to external rating firms.” Elijido-Ten (2011: 59) also discusses this concern suggesting that while a number of studies published before 2002 showed a “weak or even negative relationship between environmental performance and disclosures ... more

recent studies provide evidence of positive association between environmental disclosure and environmental performance.”

A review of the management literature based upon the term ‘sustainability performance’ and supplemented by the search term ‘environmental performance’ highlighted three primary approaches to assessing corporate sustainability performance:

- indicator based measures of performance (often performed by ratings agencies);
- academic studies to assess performance; and finally
- the use of broader proxy measures (such as awards won or the adherence to voluntary standards).

Each of the three approaches are discussed in turn.

3.2.1 Indicator Based Measures of Corporate Sustainability Performance

The first approach for measuring sustainability performance identified from the literature is the use of indicator based metrics. These measures can either be considered individually (for example: the comparison of year-on-year carbon dioxide emissions) or amalgamated into compound indices of sustainability performance (for example: the Dow Jones Sustainability Index (DJSI)).

Much of the impetus for this type of measurement, usually performed by ratings agencies, comes from the financial markets and is driven by an underlying assumption that organisations with higher levels of corporate sustainability performance will also have higher levels of financial performance in the long term (Scholtens, 2008). Whilst not the focus of this thesis, there is a growing collection of academic literature dedicated to testing this hypothesis (for example: Artiach et al., 2010; McPeak and Dai, 2011; Wagner and Blom, 2011; Dixon-Fowler et al., 2013; MacDonald and Maher, 2013). Whilst the overall results of these papers are mixed and inconclusive (MacDonald and Maher, 2013), they are also often quite nuanced in their findings. For example, Artiach et al. (2010) found that while “leading CSP firms are significantly larger,

have higher levels of growth and a higher return on equity than conventional firms ... [they] do not have greater free cash flows or lower leverage than other firms.”

This interest from the financial markets has led to the emergence of a number of rating agencies with a specialisation in the measurement of sustainability performance (for example: EIRIS, Oekom, RobecoSAM and Sustainalytics) and associated indices (for example: the Dow Jones Sustainability Index, the MSCI KLD 400 Social Index and the FTSE4Good Index) (Schneider and Meins, 2012).

Table 3.1 (overleaf) provides an overview of a number of the most commonly referenced indices identified from the management literature pertaining to sustainability. As well as providing details of the index and the analysts employed to perform the analysis, the table also presents an overview of the universe of companies assessed by the analyst, a short description of the methodology employed, and finally observations about how freely the outputs of the agencies’ research is shared.

Table 3.1: Comparison of Key Sustainability Indices

Index (Analyst)	Universe for index	Methodology employed by analyst	Transparency of disclosure
<p>Dow Jones Sustainability Index (DJSI)</p> <p>(RobecoSAM)</p>	<p>The first step in the DJSI process is the definition of the companies to be invited to participate in the Corporate Sustainability Index (the 'Invited Universe').</p> <p>Each year, over 3,000 publicly traded companies are invited to participate in RobecoSAM's Corporate Sustainability Assessment. Of these, the largest 2,500 global companies by market capitalisation are eligible for inclusion in the flagship DJSI World index (known as DJSI).</p> <p>In addition, DJSI produce a number of geographical indices.</p>	<p>Companies in the DJSI universe are invited to respond to an extensive industry specific Corporate Sustainability Assessment (CSA) questionnaire. The DJSI use a 'best-in-class' approach to select sustainability leaders meaning that companies must continually improve their sustainability initiatives to be included (or to remain) in the DJS Indices.</p> <p>The key factor in selecting constituents for each of the DJSI-branded indices is a company's Total Sustainability Score (TSS), a figure between 0 and 100 calculated using RobecoSAM's annual Corporate Sustainability Assessment (CSA). The annual CSA process begins in March each year, with new scores released in September. Companies can elect to complete the assessment or alternatively RobecoSAM will complete the assessment with publicly available information.</p> <p>RobecoSAM also have a tool which scans the media for environmental, social and governance (ESG) risks through a Media and Stakeholder Analysis (MSA). The ESG score provides an important starting point for the selection of companies to be included in the DJSI-branded indices. To select the final list of constituents, DJSI employ publicly available rules-based methodology (DJSI, 2015a). Overall, in the main DJS Index, industry leaders are identified in 24 industry groups.</p>	<p>DJSI provides a detailed Industry Group Leader Report for each of the leaders in their 24 industry groups (DJSI, 2015b) including the leaders' absolute scores.</p> <p>DJSI also provides a complete list of index members (DJSI, 2015c), however absolute scores for other organisations in the DJSI universe are only available on a commercial basis.</p>
<p>RobecoSAM Yearbook</p> <p>RobecoSAM</p>	<p>Each year, over 3,000 of the world's largest publicly traded companies are invited to participate in RobecoSAM's Corporate Sustainability Assessment.</p>	<p>The RobecoSAM Yearbook employs the same methodology as the DJSI - i.e. using the Corporate Sustainability Assessment (CSA) and Media & Stakeholder Analysis (MSA) to calculate a score for each company.</p> <p>For each industry, the company with the highest score is named the RobecoSAM Industry Leader. Companies whose score is within:</p> <ul style="list-style-type: none"> 1% of the Industry Leader's score = Gold Class award. 1% to 5% of the Industry Leader's score = Silver Class Distinction. 5% to 10% of the Industry Leader's score = Bronze Class distinction. <p>Finally, companies within the top 15% of their industry are included as a Yearbook member providing they achieve a score within 30% of the industry leader's score in their industry (RobecoSAM, 2015).</p>	<p>The RobecoSAM Yearbook is made publicly available and displays the company names of the industry leader in each industry together with the Gold, Silver and Bronze companies in each sector. Absolute company scores are not published, however average scores for each industry, number of companies in that industry universe, breakdown of economic, environmental, social average scores for each industry is provided.</p> <p>In 2015 there were: 69 RobecoSAM Gold Class companies, 54 RobecoSAM Silver Class companies and 112 RobecoSAM Bronze Class companies (RobecoSAM, 2015). In total in 2015, 457 companies were included as members of the Yearbook.</p>

Index (Analyst)	Universe for index	Methodology employed by analyst	Transparency of disclosure
<p>FTSE4Good</p> <p>FTSE - Russell</p> <p>Historically, FTSE4Good used EURES however this relationship ended in 2013 (Corporate Register, 2013)</p>	<p>The FTSE4Good Index Series is designed to measure the performance of companies that are current constituents of the FTSE Developed Index demonstrating strong Environmental, Social and Governance (ESG) practices.</p> <p>The FTSE Developed Index is a market-capitalisation weighted index representing the performance of large and mid-cap companies in Developed markets. The index is derived from the FTSE Global Equity Index Series (GEIS), which covers 98% of the world's investable market capitalisation (FTSE, 2015a).</p>	<p>As of September 2014, FTSE implemented a new ESG assessment methodology and had taken ownership of the underlying research process which underpins the FTSE ESG Ratings and form the basis for determining inclusion in the FTSE4Good Index Series.</p> <p>The new model contains over 300 Indicators, 14 Themes and 3 Pillars. The criteria are based solely upon publicly available data, and in assessing ESG practice FTSE does not accept data or information privately provided by companies. This improves the credibility of data and enhances transparency across the market (FTSE, 2015b, 2015c).</p> <p>FTSE - Russell communicate with universe members providing an overview of data collecting and asking them to confirm if they would like other publicly available information included in the assessment.</p>	<p>Each company in the research universe is given a FTSE ESG Rating ranging from 0 to 5, with 5 being the highest rating. From June 2015 companies with a FTSE ESG Rating of 3.3 and above will be added to the Index (FTSE, 2015c).</p> <p>FTSE does not make FTSE4Good company scores or membership publicly available, providing the information only on a commercial basis.</p>
<p>Euronext Vigeo Indices</p> <p>Vigeo</p>	<p>A specific universe is defined for each index. For example: for the Euronext Vigeo World 120, the universe includes all companies included in the World Vigeo universe covering the 1,500 largest listed companies in North American, Asia-Pacific and Europe (Vigeo, 2015).</p>	<p>Vigeo's indices are composed of the highest-scoring companies as evaluated through Vigeo's Equitics® (a Vigeo trademarked CR&S assessment tool) methodology based on 38 criteria, divided into six key areas of: Environment, Human Rights, Human Resources, Community Involvement, Business Behaviour, and Corporate Governance.</p> <p>Vigeo may exclude companies if their level of corporate commitment is insufficient or if they are subject to serious, proved, or recurrent controversies; seriously implicated in recent allegations which remain unresolved; or, face recent condemnation to which the company fails to provide corrective measures, or adopts an attitude of denial (Vigeo, 2015: 6-7).</p> <p>Each company is assigned an overall score out of 100 which is a weighted and consolidated score of all sustainability factors in a given sector (Vigeo, 2015). The constituents of the indices are reviewed twice annually with changes to the companies included in the indices published on third Fridays of May and November (Vigeo, 2015a).</p>	<p>The list of constituents of the various Euronext Vigeo indices are publicly available and updated twice annually on the third Friday of May and November (Vigeo, 2015a).</p> <p>Individual company's scores are not made publicly available.</p>
<p>CDP (Carbon Disclosure Project)</p>	<p>The CDP targets the world largest listed companies sending out requests for disclosure to around 7,000 companies each year. In addition, 247 companies voluntarily responded to the CDP questionnaire without a direct invitation.</p>	<p>The CDP assesses companies based upon a fully transparent methodology available on its website (CDP, 2015a). Organisational performance is grouped into six bands: A, A-, B, C, D and E (A being the top band) and each company is also driven a transparency score (between 0 to 100) based upon the completeness of its disclosure.</p> <p>In addition, the CDP publishes The A List: The CDP Climate Performance Leadership Index annually revealing which companies around the world are doing the most to reduce their carbon emissions.</p>	<p>All scores (both performance and disclosure) are made publicly available and company responses are available to freely download from the CDP website (subject to a cap on the number of reports an individual can assess).</p>

Index (Analyst)	Universe for index	Methodology employed by analyst	Transparency of disclosure
<p>UN Global Compact Global 100</p> <p>Sustainalytics</p>	<p>Companies who have been signatories of the United Nations Global Compact for at least one year, are publicly listed and are included within the research universe of Sustainalytics (see below) are eligible for the Global Compact 100 providing that they have on average made positive pre-tax earnings for the previous three years.</p>	<p>Sustainalytics selected the Global Compact 100, using a proprietary methodology which considered a range of indicators based on the Global Compact’s ten principles in the areas of human rights, labour standards, environmental stewardship, and anti-corruption. In creating the index, Sustainalytics only evaluated those Global Compact signatories that are currently covered in its research universe – approximately 722 companies in total. Note: the Global Compact includes almost 8,000 corporate signatories, of which approximately 1,000 are publicly traded companies (Sustainalytics, 2015a).</p> <p>“It is important to stress that we are not saying that these 100 companies are the best performers in the Global Compact,” said Mr Kell (Executive Director of the UN Global Compact). “The Global Compact has many thousands of companies that are doing excellent sustainability work. We merely wanted to experiment with the link between sustainability polices and stock-market performance. And the initial results are very encouraging.” (Sustainalytics, 2015a).</p>	<p>The constituents of the UN Global 100 are available at (Sustainalytics, 2015b).</p>
<p>MSCI KLD 400 Social Index</p> <p>MSCI</p>	<p>The eligible universe for the MSCI KLD 400 Social Index is the 3,000 largest U.S. companies (by float-adjusted market capitalisation) in the U.S. equity market. KLD selects the eligible universe index on 15th April annually (or closest business day).</p> <p>Launched in May 1990 as the Domini 400 Social Index, it has now changed names to the MSCI KLD 400 and is one of the first SRI indices. Constituent selection is based on data from MSCI ESG Research.</p>	<p>The MSCI KLD 400 Social Index calculated in two stages. First, companies involved in the following sectors are excluded: Nuclear Power, Tobacco, Alcohol, Gambling, Military Weapons, Civilian Firearms, GMOs and Adult Entertainment. Secondly companies are assessed based upon criteria relating to their ESG performance, sector alignment and size representation.</p> <p>MSCI applies its ESG assessment by selecting the ESG rating criteria most relevant to each company. To evaluate a company, analysts review more than 500 publicly available data points and score more than 100 indicators. MSCI expresses a company’s ESG performance as a numerical score and on a letter-based rating scale. The ratings fall on a nine-point scale from AAA to C. Scores and ratings are not normalised across individual industries or the overall company universe.</p> <p>The MSCI KLD 400 Social Index is composed of 400 Companies with high ESG performance along with the considerations of sector and size-segment representation. (MSCI, 2015; 2015a).</p>	<p>The composition of the MSCI KLD 400 Social Index is reviewed on a quarterly basis. While the Top 10 constituents by market capitalisation are included in the MSCI KLD 400 Factsheet (MSCI, 2015a), detailed scores and information about the future of the indices are publicly available.</p>

Index (Analyst)	Universe for index	Methodology employed by analyst	Transparency of disclosure
<p>Natural Capital Decoupling Leaders Index / Natural Capital Efficiency Leaders Index</p> <p>(Trucost)</p>	<p>1. Natural Capital Decoupling Leaders The universe includes the largest 4,600 publicly listed companies (by market capitalisation) which are included in Trucost's Environmental. In addition, companies must have disclosed their Greenhouse Gas emissions from their direct operations for the last five years, disclosed impacts must have decreased over the last 5 years, and revenues must have increased over the last 5 years.</p> <p>2. Natural Capital Efficiency Leaders The universe includes the largest 4,600 publicly listed companies (by market capitalisation) which are included in Trucost's Environmental. In addition, companies must have disclosed their Greenhouse Gas emissions from their direct operations since 2012.</p>	<p>Trucost's methodology involves analysing the environmental and financial performance of the world's largest 4,600 publicly traded companies across 19 sectors. Trucost calculates the environmental costs of these companies by putting a monetary value on their pollution and use of natural resources. The results reveal a small band of companies that increased revenue while decreasing natural capital impacts over the past five years – so-called 'decoupling'.</p> <p>Trucost's analysis provides standardized information reported by companies in their annual sustainability or corporate responsibility reports. Trucost engages with these companies each year to provide them with the opportunity to verify or improve these data (see Trucost, 2014).</p> <p>The indices were launched in 2014 but not repeated in 2015.</p>	<p>The 2014 Leaders for the two indices are available on the Trucost website (Trucost, 2014a) but detailed scores and information about the future of the indices are not.</p>
<p>Ethibel Sustainability Indices (Europe and Global)</p> <p>(Forum Ethibel / Vigeo)</p>	<p>Selection based listed companies included in the Russell Global Index providing that the companies' market capitalisation is not less than 0.05% of the index market capitalisation.</p>	<p>For the Ethibel Sustainability Indices, Forum Ethibel have partnered with Vigeo who independently performs the assessment based upon Ethibel's specified methodology. The methodology is based on internationally accepted norms and conventions, consisting of six study domains which cover all aspects of corporate social responsibility (CSR), namely: human rights, human capital, the environment, social impact, market ethics and good governance.</p> <p>Ethibel also apply exclusion criteria removing companies based on the extent of their involvement with the following industries: arms, tobacco, gambling, nuclear energy, hazardous chemicals, the sex industry, GMOs, alcohol, animal maltreatment, land-grabbing, shale gas, tar sands, fossil fuels, non-certified timber and palm oil, and food speculation. Further exclusion is performed based upon the involvement of the company in major issues or controversies (Ethibel, 2015a).</p> <p>Companies are then scored on an A, B, C basis with inclusion in the ESI Europe index limited to the top performing organisations.</p>	<p>The constituents of the Ethibel Sustainability Indices (both Europe and Global) are updated twice per year and are made available publicly on the Vigeo website (Vigeo, 2015b).</p> <p>Individual company scores are not made available publicly.</p>

Index (Analyst)	Universe for index	Methodology employed by analyst	Transparency of disclosure
<p>Sustainalytics Company Profiles and Ratings</p> <p>Sustainalytics</p>	<p>In 2014, Sustainalytics launched their Company ESG Reports (formerly known as Company Profiles). Currently, Sustainalytics have analysed approximately 4,500 companies.</p>	<p>Sustainalytics ESG reports analyse companies based upon environmental, social and governance performance. Assessment includes analysis of:</p> <ul style="list-style-type: none"> • Preparedness – assessment of the company's ESG management systems and risk management policies • Disclosure – assessment of whether the company's ESG reporting meets expected standards and transparent with respect to most material ESG issues • Quantitative Performance – assessment of company's ESG performance based on quantitative metrics such as carbon intensity • Qualitative Performance – assessment of company's ESG performance based on the analysis of controversial incidents that the company may have been involved in <p>At the indicator level, a comprehensive set of core and sector-specific metrics are analysed, scored and weighted to determine a company's overall ESG performance (Sustainalytics, 2015).</p>	<p>The reports and scores are not disclosed publicly and are made available commercially to Sustainalytics clients.</p>
<p>Global Challenges Index</p> <p>OEKEM research / Börse Hannover</p>	<p>The selection process starts with OEKOM research's universe of approximately 3,000 listed companies from all major sectors of industry (Börse Hannover, 2015).</p>	<p>Inclusion in the Global Challenges Index is based upon how a company is responding to seven identified global challenges: Climate Change, Access to Water, Deforestation, Biodiversity, Population development, Combatting poverty, and Responsible governance.</p> <p>In addition, companies working in the following specific sectors are excluded: nuclear power, biocides, chlororganic mass production, genetic engineering in agriculture, and military. Businesses identified with environmental, human rights, labour standards, and corruption or accounting fraud violations are also excluded.</p> <p>From the above selection, approximate 450 companies are included in the Global Challenges Index sustainability universe. Of these, the top scoring 50 companies (with a market capitalisation of at least €100m) are included in the Global Challenges Index (Börse Hannover, 2015).</p>	<p>The Global Challenge Index constituents are released through the Global Challenge Index website (Börsen Hamburg-Hannover, 2015). http://gcindex.boersenag.de/en/index/indexstruktur/unternehmens_uebersicht.php</p> <p>Individual company scores are not disclosed however strengths, weaknesses and information about the reasons for inclusion on the GCI are provided (Börsen Hamburg-Hannover, 2015).</p>

Index (Analyst)	Universe for index	Methodology employed by analyst	Transparency of disclosure
The Global 100 Corporate Knights	All publicly traded companies with a market capitalisation of at least US\$ 2 billion are automatically considered in the Global 100 starting universe. Market capitalisation data is taken each year on 1st October (Corporate Knights, 2015).	<p>The Global 100 screening process is as follows:</p> <p>The initial screen eliminates companies that fail to disclose at least 75% of the 'priority indicators' for their respective GICS Industry Group. (GICS is a four-tiered, hierarchical industry classification system which consists of 10 sectors, 24 industry groups, 67 industries and 156 sub-industries). Second, a series of nine individual ESG criteria are scored for each company. Third, companies producing certain product categories are eliminated, and fourth with sustainability-related sanctions are removed (Corporate Knights, 2015).</p> <p>The remaining companies are all scored on a percent rank basis against their global industry peers using the priority KPIs for their respective GICS Industry Group. The Global 100 consists of the companies with the top overall score in each GICS Sector (Corporate Knights, 2015).</p>	Companies in the Global 100 are listed on the corporate knights website together with their overall score (Corporate Knights, 2015a)
Pacific Sustainability Index Roberts Environmental Center	The Roberts Environmental Center no longer conducts the Pacific Sustainability Index since mid-2013 (Roberts Environmental Center, 2015).		

From the perspective of the academic researcher, one of the key implications of the analysis set out in the previous table is the lack of transparency in the disclosure of the majority of the indices. Even the Dow Jones Sustainability Index (DJSI), commonly referenced by researchers and which has a dedicated webpage for academic requests, specifically states that “we do not share any scores or sustainability data with third parties” (DJSI, 2015d).

Of all the indices considered, the most transparent is the CDP (formerly the Carbon Disclosure Project). In addition to publishing their complete methodology (CDP, 2015a), they also make freely available on their website the complete submission transcripts and the ‘transparency’ and ‘performance’ scores for the companies they assess (CDP, 2015). However, while the CDP is the most transparent of the indices above, it only considers environmental sustainability and asks no questions relating to the other dimensions of sustainability.

Researchers have attempted to circumvent this general lack of transparency by using inclusion in an index as a binary proxy measure for corporate sustainability performance. The most commonly used example being the inclusion in the DJSI employed as a proxy for a high level of corporate sustainability performance (for example: Artiach et al., 2010; Lourenço et al., 2012; Lee and Faff, 2009; Lo, 2010; Pätäri et al., 2012; and Hockerts, 2015). Similarly, Lourenço and Branco (2013) employ inclusion in the Brazilian Bovespa Corporate Sustainability Index; Lee et al. (2011) and Lee and Pati (2012) use the Pacific Sustainability index; and Hockerts (2015) the Ethibel Sustainability Index.

Other authors have employed sustainability indices to pre-select organisations with perceived high levels of sustainability performance for more detailed analysis. For example: Ameer and Othman (2012) used the Global 100, a measure of the top 100 sustainable global companies by Corporate Knights (at that time the Global Sustainability Research Alliance), as the sample universe for their content analysis of sustainability reports.

There are, however, a number of limitations associated with employing the sustainability indices as an objective measure of corporate sustainability performance. The first limitation is that the indices are not universal in their coverage. As Kurapatskie and Darnall (2013: 54) acknowledge “firms that do not qualify for inclusion in the DJSI index are small companies, privately held businesses and large enterprises that may adopt sustainability activities but fail to report them in their external publications.” Furthermore, given the focus of the ratings agencies on

providing information for the financial markets, privately owned businesses, which include a significant number of the world's largest companies, tend to be excluded from the agencies' research universes.

Secondly, a number of the indices (for example: DJSI) identify a sector leader for each of their chosen industry groups and then define sustainability performance in that industry relative to the sector leader. Consequently, the entry point for inclusion in an index may vary by industry sector leading to the potential that a company included in the index in one sector may have an absolute sustainability score lower than another company in a different sector excluded from the index by a higher threshold.

Finally, the problem of asymmetric information highlighted previously may lead to companies being included in an index based upon an incomplete information set. A current example of this is the case of Volkswagen AG which was named as the DJSI sector leader for Automobiles and Components on the 21st September 2015 (DJSI, 2015e), and then subsequently removed two weeks later on the 6th October due to the "recent revelations of manipulated emissions tests" (DJSI, 2015f).

As an alternative to using the above indices, another indicator-based approach of assessing sustainability performance employed in the management literature is the examination of specific sustainability indicators. Particularly prevalent when considering the environmental dimension of sustainability, authors have employed a wide range of directly measureable and proxy variables.

For example, in their sector based analysis of transport infrastructure in the Netherlands, Bloemhof et al. (2011) measure environmental performance in terms of specific measures such as NO_x, CO₂, SO₂ and CO emissions, and noise and water pollution. A number of authors cited the Toxic Release Inventory (TRI), the US Environmental Protection Agency's measure of toxic chemical releases and waste management activities, as a proxy for measuring negative environmental performance (Ziegler and Schröder, 2010; Dixon-Fowler et al., 2013), while Hampl and Look (2013) cite examples where a significant accident or fine can impact on an organisation's sustainability record.

3.2.2 Research Based Measures of Corporate Sustainability Performance

The review of the management literature identified three research-based approaches to measuring corporate sustainability performance: interviews, surveys / questionnaires, and content based analysis. Of the three approaches, survey / questionnaire research is the most common method with the survey usually sent to the company for an informed respondent to complete. The underlying assumption for most was that the respondent was informed and would complete the questionnaire in an objective manner.

In their paper focusing on the existing 2009 International Manufacturing Strategy Survey database, Longoni et al. (2014) took the two concepts of environmental sustainability performance and social sustainability performance as their two dependent variables. They employed a single item scale from Gimenez et al. (2012) to assess environmental performance, and two items covering the external community dimension and the internal employee satisfaction components of social sustainability performance (as suggested by McKenzie, 2004). Whilst not including the actual questions featured in their survey, Longoni et al. (2014) explained that the variables, measured using a five-point Likert-type scale, questioned the improvement of sustainability performance over the previous three years.

Similarly, in his analysis of German and Dutch manufacturing companies, Wagner (2015) used a five-point Likert-type scale to assess the companies' environmental performance. Wagner (ibid: 1310) asked respondents to assess "the environmental impact the firms have in a number of detailed areas (such as energy or water use or harmful emissions), each measured by a separate item variable. The survey asked the respondents to rate their firm's environmental impact relative to the industry average." The industry average criteria, Wagner argues, makes comparability across industries more straight forward with the structural equation modelling approach he employs.

In one of the most extensive questionnaire employed, Weber et al. (2010) investigate the linkages between sustainability performance (economic, environmental and social performance) and credit risk rating. Weber et al.'s questionnaire consisted of 91 items of which 33 related to measuring credit risk. Post reliability testing, 52 items were included in the three sustainability scales (31 for economic sustainability, 15 for environmental sustainability and six

for social sustainability). The topics included in the environmental and social scales are presented in table 3.2 below.

Table 3.2: Environmental and Social Sustainability criteria employed by Weber et al. (2010)

Environmental sustainability criteria (Cronbach Alpha = 0.76)	Social sustainability criteria (Cronbach Alpha = 0.75)
Costs of environmental measures	Wage policy
Emissions	Health policy
Environmental friendliness of construction	Social security of the employees
Consideration of nature and landscape	Workers' participation
Soil erosion	Conservation of workplaces
Sealing of soil	Flexibility of working conditions and working hours
Sewage emission	
Sewage quality	
Air emission	
Noise emission	
Resource protection	
Material use	
Ratio of renewable and non-renewable resources	
Use of renewable energy	
Use of water (amount)	

Source: Adapted from Weber et al. (2010: 43)

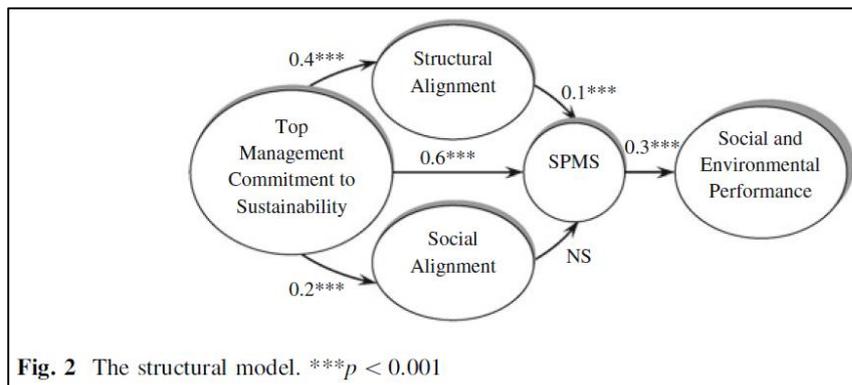
Having established Cronbach Alphas of greater than 0.75, Weber et al. then took the mean of items in each scales to create four overall scales for credit risk, and economic, environmental and social sustainability before testing the linkages in their model. The questionnaires were completed by credit risk officers in 40 German banks. Interestingly, while commenting on the experience of the respondents to address the credit risk questions, “we assert that the participants were very experienced in the credit rating” (Weber et al., 2010: 45), the authors noted that they employed the “participants’ experience with sustainability risks (experienced versus inexperienced)” as a control variable. No comment was made how this latter assessment was made.

The advantages of triangulating questionnaire data were highlighted by a number of authors (Yusuf et al., 2013; Parisi, 2013). Yusuf et al. (2013) employed interviews, questionnaires and

other documentary evidence in their analysis of the adoption of sustainability measures and performance outcomes in the UK oil and gas industry. Their questionnaire, presented in full in the appendix to their paper, included both open-ended and closed questions as well as a series of questions on sustainability measures undertaken assessed on a five-point Likert-type scale.

In a similar approach to Wagner (2015), Parisi (2013) also employs structural equation modelling to test sustainability performance linkages. Parisi sent a web-based questionnaire by email to middle managers in 405 large European companies to test the impact of organisational alignment on sustainability strategic performance measurement systems and sustainability performance. Of those contacted, 120 responded, leading to the following structural equation model shown in figure 3.1 below.

Figure 3.1: Structural Equation Model employed by Parisi (2013)



Source: Parisi (2013: 85)

Of most relevance to this enquiry, the variable employed to measure the level of the organisation’s social and environmental performance is constructed from four input items – two questions included in the questionnaire together with two external observations measured by the author. The questions, based on a five-point Likert-type scale assessed: “to what degree are companies’ stakeholders involved in the strategy formulation process? [and] to what extent has the feedback from company’s stakeholders been positive?” (Parisi: 91). These questions were supplemented by the author’s assessment of the number of activities undertaken to embed sustainability and to what extent the production of goods or services are sustainable. No further description of the method is provided.

The second approach employed by authors in the management literature to assess corporate sustainability is content analysis. Content analysis has been employed in a number of different ways to interrogate publicly available documents and information about companies. Delmas and Blass (2010), in their comparison of different sustainability rating assessments of 15 US companies in the chemical industry, assigned either a one or zero to each of the following seven indicators to create a zero to seven-point scale:

1. Does the firm publish an environmental or sustainability report?
2. If yes, is it according to the Global Reporting Initiative guidelines?
3. Has the CEO/president signed the environmental policy?
4. Transparency and ease of obtaining information measured using the number of clicks from home page needed in order to read the environmental information or policy.
5. Does the firm have specific and clear goals and improvement targets?
6. Does the firm report actual performance numbers or just relative numbers?
7. Are the firm's reported numbers verified by a third party?

One of Delmas and Blass' key findings is that that the same organisation can perform both well in some indicators and poorly in others. Whilst not specifically discussed in the paper, based on their table of results (see figure 3.2 below), this seems a particular issue for the reporting scale when compared to the other measures.

Figure 3.2: Key findings of Delmas and Blass' (2010) analysis

Firm	Rank based on TRI total release/sales (lb/\$)	Rank based on RSEI risk score/sales	ECHO (average non-compliance quarters/facility)	Reporting (7 criteria)	REC ER ²	KLD total strengths	KLD total concerns
Avon Products, Inc.	1	1	6	12	N/A	8	1
Clorox Company	3	7	2	14	12	8	1
Colgate-Palmolive Company	2	6	5	7	5	8	1
Dial Corporation	N/A	N/A	1	7	14	N/A	N/A
Dow Chemical Company	13	12	15	2	3	1	14
DuPont Company	14	14	14	1	1	2	13
Eastman Chemical Company	11	13	12	12	9	8	7
Ecolab Inc.	4	5	7	3	11	2	1
International Flavors & Fragrances Inc.	9	4	3	14	13	8	1
Johnson & Johnson Company	5	2	9	3	8	2	6
Lilly (Eli) and Company	7	8	11	3	4	8	7
Merck & Co., Inc.	8	3	13	3	7	8	12
Pfizer, Inc.	12	9	10	7	6	2	11
Procter & Gamble Company	6	10	4	7	2	7	7
Rohm and Haas Company	10	11	8	7	10	6	7

Table 2. Rankings – comparison
¹ Rank = 1 represents the best performer; rank = 15 represents the worst performer.
² Roberts Environmental Center (REC) environmental reporting scores (ER).

Source: Delmas and Blass (2010: 251)

Consequently, based on the above single study, it would seem questionable whether Delmas and Blass' (2010) reporting and transparency scale could be used as a measure of corporate sustainability performance.

Ameer and Othman (2012) also employ content analysis in their paper testing their hypothesis that companies with superior sustainable practices have higher financial performance. They measure superior sustainable practices in four sustainability dimensions of community, environment, diversity, and ethical standards. Adapted from Fadul et al. (2004), Ameer and Othman (2012) employ 68 items across the four dimensions to measure performance – each scored between +4 and zero based on the company's sustainability report. Each of Ameer and Othman's four scales was tested as reliable with Cronbach Alpha scores greater than 0.85, and overall their statistical results confirmed "that that companies which place emphasis on sustainability practices have higher financial performance" (Ameer and Othman, 2012: 73).

Another form of content analysis was employed by Barkemeyer et al. (2014) to investigate whether corporate sustainability reports can serve as an accurate representation of corporate sustainability performance. Barkemeyer et al. present a sentiment analysis of 548 CEO statements included in the corporate sustainability reports and corporate financial reports from 34 companies between 2001 and 2010, focusing on semantic features, together with expressions of certainty and optimism in the text. The authors find that CEO rhetoric about corporate sustainability performance should be treated with care, concluding that "there still appears to be a missing link between corporate sustainability reporting and corporate sustainability performance" (Barkemeyer et al., 2014: 254).

The final research based approach to sustainability performance identified from the literature was the interview, although this was not employed as a single data collection technique. Epstein and Widener (2010) employed 24 in-depth interviews with key stakeholders (including companies, government entities, and environmental groups) in their investigation of the trade-offs between the development of energy projects and wildlife conservation in the USA State of Wyoming. The interviews were designed to provide qualitative insights into the issues and impacts associated with the gas projects prior to "quantitative archival [data being] used to either substantiate or refute the interview data" (Epstein and Widener, 2010: 53). The sustainability impacts identified, whilst divided into environmental, social and economic performance, were not measured at the level of the company (for example: decrease in wildlife

population, increase in criminal activities due to seasonal employment and unsightly drilling negatively impacting tourism). Consequently, beyond the methodological approach, the study provides no insights into measuring corporate sustainability performance.

3.2.3 Proxy measures of Corporate Sustainability Performance

A third approach taken by some authors is to employ broader variables as a proxy measure for sustainability performance. These proxies include organisations signing up to voluntary standards, choosing to make voluntary disclosures or even by winning sustainability awards.

In their extensive analysis of corporate sustainability assessment, Schneider and Meins (2013: 216) consider the linkages between sustainability performance and sustainability governance, arguing that “performance-related features can be seen as concerning the present sustainability of a firm and therefore as constituting the actual sustainability. In contrast, governance features are the precursors of future sustainability, but are far from being a sufficient condition for this and by no means indicators for the actual sustainability performance of a firm.” While stressing that organisations’ commitment to voluntary standards such as the United Nations Global Compact or the Organisation for Economic Cooperation and Development (OECD) Guidelines for Multinational Enterprises cannot guarantee future sustainability performance, Schneider and Meins suggest they can be potential proxies of future performance. Furthermore, their paper infers that adherence to ISO standards such as ISO14001 for Environmental Management Systems, as well as reporting using Global Reporting Initiative (GRI) or Social Accountability SA8000 principles, can be seen as a proxy condition for future corporate sustainability performance.

Wagner and Blom (2011) also employ the implementation of an Environmental Management System (EMS) as a proxy measure for a firm’s sustainability performance in order to test the hypothesis that sustainability performance is positively linked with an organisation’s financial performance. By elaborating ten features of an EMS, and then scoring each company’s EMS in their sample between zero and ten depending on the number of features present, Wagner and Blom identified that their hypothesis does hold but only for firms that are performing well financially.

The use of Global Reporting Initiative (GRI) reporting standards as a measure of sustainability is also considered by Hahn and Lülfs (2014) in their paper investigating the conflicting pressures on organisations when faced with the need to present *negative aspects* of their sustainability performance. Through a review of the corporate sustainability reports of 40 companies listed on either the Dow Jones Industrial Average Index or the German DAX Index, Hahn and Lülfs identify six legitimisation strategies that organisations employ when discussing *negative aspects*. In doing so, they propose “a way to improve the overall ‘balance’ of sustainability reporting contributing to a true and fair view in sustainability disclosure” (ibid: 401) which would, in turn, increase the validity of using a company’s sustainability report as a mechanism for assessing performance.

A final proxy measure of sustainability performance referenced in the literature was organisations receiving sustainability related awards. Schneider and Meins (2013) cite examples such as the ‘Initiative Freiheit und Verantwortung’ in Germany and the ‘Swiss Award of Business Ethics’ in Switzerland as awards which, similar to quality-related awards, can be seen as a measure of the organisations achievements. This is echoed by Hampl and Look (2013) who cite the conclusion of Klassen and McLaughlin (1996) that environmental performance awards recognise strong environmental management efforts.

*

In conclusion, this section has examined a number of mechanisms that have been employed to measure corporate sustainability performance. It has demonstrated that the concept of corporate sustainability performance itself is not unproblematic and consequently its measurement is also not without difficulties. A wide range of approaches including assessments by ratings agencies, academic enquires and simple proxies such as awards won have all been utilised by researchers who face the challenge of asymmetric information and incomplete disclosure by organisations.

This thesis returns to the concept of corporate sustainability performance and its measurement in chapters five and six when the author introduces the measurement mechanisms employed in this research study.

3.3 Outcome 2 – Sustainability Practitioner Engagement

This section considers sustainability practitioner engagement with their organisation as a second outcome of corporate sustainability. It commences by investigating the various related concepts of employee engagement, commitment, trust, intention and identification which are widely discussed in both the management and psychology literatures. By focusing on papers investigating the relationships between these concepts, this section lays the foundation for the measurement of sustainability practitioner engagement which is discussed further in chapter five.

While the direction of antecedence between the concepts of employee engagement, commitment, trust, intention and identification is not always agreed (for example: Aguinis and Glavas (2012) find that involvement in CSR activities increases employee's identification with the firm whilst Bergami and Bagozzi (2000) argue that organisational identification, mediated by commitment and self-esteem, affects citizenship behaviours), the five concepts are universally seen as worth pursuing from the organisational perspective. Rees et al. (2013) and Harter et al. (2002) both assert a link between higher employee engagement and enhanced business outcomes such as profit, while Benn et al. (2015) argue that engaged employees are less likely to quit.

These relationships are particularly relevant within this study of corporate sustainability given the strong positive impact that social responsibility appears to have on employee engagement, commitment, retention and identification (Aguinis and Glavas, 2012). The remainder of this section provides a concise overview of the relevant literature related to the above concepts, focusing particularly on the literature investigating the concepts in the context of sustainability and corporate social responsibility.

Employee Engagement

Kahn's (1990) paper on the 'Psychological conditions of personal engagement and disengagement at work' provides the foundation for much of the discussion on employee engagement (Soane et al., 2012). Drawing on the premise that employees who are more

“psychologically present” (Kahn, 1990: 692) in their roles will be “more stirring in their performances” (ibid), Kahn identifies three key components of employee engagement:

- Meaningfulness: developed through worthwhile work and appropriate recognition;
- Safety: fostered through trust, openness, flexibility and supportive management; and
- Availability: the removal of individual distractions (physical, emotional, and psychological) necessary for the employee to fully invest in their role.

Several authors explore the factors driving employee engagement and identify antecedents such as: the employee’s perception of organisational support (Ahmed and Nawaz, 2015; Ahmed et al., 2015), the provision of authentic leadership (Stander et al., 2015), and affective commitment – the emotional connectively employees have to their work (Shuck et al., 2011).

From the perspective of this thesis, it is also relevant that an organisation’s commitment to sustainability is identified as a driver of employee engagement. Both Epstein et al. (2010) and Galpin et al. (2015) found links between sustainability and employee engagement, Rees et al. (2013) found links between trust in senior management and engagement, whilst Aguinis and Glavas (2012) and Glavas and Piderit (2009) both argue that corporate social responsibility and corporate citizenship, respectively, are drivers of engagement.

Authors have also researched the consequences of engaged employees and have identified benefits such as higher levels of discretionary effort / contribution (Shuck et al., 2011; Perkins, 2012; Rees et al., 2013), higher levels of job satisfaction and reduced intention to quit (Benn et al., 2015), and higher levels of organisation performance (Harter et al., 2002; Rees et al., 2013; Benn et al., 2015).

Organisational Commitment

In their paper examining corporate social responsibility and employee commitment, Collier and Estebann (2007) identify three forms of commitment in the organisational context:

- Affective commitment: driven by feelings of attachment to the organisation,
- Normative commitment: grounded by feelings of obligation to remain within the organisation; and
- Continuance commitment: driven by a perceived cost associated with leaving.

Collier and Estebann argue that while these three forms of commitment stem from different bases (identification, socialisation and a lack of alternatives respectively), they will all impact employee motivation and therefore workplace behaviours.

Organisationally desirable behaviours from higher levels of commitment include both increased discretionary effort and a reduced intention to quit (Shuck et al., 2011; Perkins, 2012). Perkins cites one report published in Bloomberg Business Week in 2010 that claimed “that employees who are most committed to their organisations put forth 57% more effort and are 87% less likely to leave their company than employees who consider themselves disengaged” (Perkins, 2012: 177).

Authors find a range of antecedents for the concept of organisational commitment. Papers by both Ahmed et al. (2015) and Ahmed and Nawaz (2015) highlight perceived organisational support as key driver. In Ahmed and Nawaz (2015: 874), they argue that it can be “concluded that an organization where employee (sic) feel supported makes them reciprocate it favorably by offering attitudinal and behavioral outcomes, as they show satisfaction with job, psychological congruence with organization and its goals (commitment).”

Organisational trust is also seen as a significant driver of commitment – both in the context of employee commitment (Farooq et al., 2014) and in the broader sense (Morgan and Hunt, 1994). Morgan and Hunt’s seminal paper, ‘The Commitment-Trust Theory of Relationship Marketing,’ has underpinned much of the subsequent study of trust and commitment both inside and outside the relationship marketing field.

Other authors have considered organisational identification as a precursor to commitment. In their creation of an early instrument to measure organisational commitment, Mowday et al. (1979: 226) simply defined organisational commitment as “the relative strength of an individual’s identification with and involvement in a particular organization.” Bergami and

Bagozzi (2000) and Farooq et al. (2014) also test the linkage empirically with both finding that organisational trust is a driver of affective commitment with the latter paper treating organisational trust as mediating the relationship between organisational corporate social responsibility and commitment.

Farooq et al. (2014) is not unique in hypothesising the linkage between corporate social responsibility topics and commitment. Aguinis and Glavas (2012) empirically tested and found a positive link between CSR and organisational commitment while Galpin et al. (2015) found a similar link for organisational commitment to sustainability. In addition, Peterson (2004: 313) identified a positive link between favourable perceptions of corporate citizenship and organisational commitment.

Organisational Identification

In their study of the components of social identity within organisations, Bergami and Bagozzi (2000: 557) argue that organisational identification should be seen “as a form of social identification whereby a person comes to view himself or herself as a member of a particular social entity, the organization.” This, they argue, happens through a process of categorisation with employees creating self-categories of organisational membership based on similarities within their organisation and dissimilarities with other organisations which ultimately lead to a sense of belongingness or identification with the organisation.

The use of social identity theory as a basis for measuring organisational identification can be traced back several decades. Building on social identity theory, Mael and Ashforth (1992) details the construction and testing of their six-item organisational identification scale. Mael and Ashforth’s scale is also employed in Bergami and Bagozzi (2000) together with a new two item scale designed to measure self-categorisation by asking respondents to rate their perceived overlap between their own identity and their employer’s identity.

Evans and Davis (2014) also employ social identity theory in their conceptualisation of organisational identification to specifically consider how and why an organisation’s approach to corporate citizenship impacts their employees. This is one of several papers that argue that the antecedence of organisational identification can be linked back, at least in part, to corporate social responsibility (Bhattacharya and Sen, 2004; Aguinis and Glavas, 2012; Glavas and Godwin,

2013; Farooq et al., 2014; De Roecka et al., 2014; Lamm et al., 2015) or related concepts such as procedural justice (Hongwei et al., 2014).

Authors have also found positive links between higher levels of organisational identification and organisational commitment (Farooq et al., 2014; Bergami and Bagozzi, 2000), organisational engagement (Hongwei et al., 2014) and supportive intentions towards the organisation (Kim et al., 2010).

Organisational Trust

While less discussed in the corporate sustainability related literature, the concept of trust also emerges as a relevant concept. Following on from Morgan and Hunt's (1994) seminal work on the relationship between trust and commitment, both Farooq et al. (2014) and Stander et al. (2015) have employed trust as an important mediating variable in their research models.

In Farooq et al.'s (2014) paper, trust is shown to mediate the relationship between CSR and organisational commitment, while Stander et al. (2015) found that trust had a similar mediating effect between authentic leadership and employee engagement. In addition, Rees et al. (2013) also found a positive relationship between trust in senior leadership and engagement.

Intention

Finally, the concept of intention is not precisely defined in the sustainability-related literature on engagement reviewed. Instead a number of different aspects of intentional behaviour were identified including: commitment to remain with the organisation (for example: Shuck et al., 2011; Aguinis and Glavas, 2012; Benn et al., 2015), a willingness to support their university (Kim et al., 2010), and a willingness to exert discretionary effort (Perkins, 2012; Rees et al., 2013).

The antecedents of these identified intentional behaviours are summarised in Table 3.3 overleaf.

Table 3.3: Key Antecedents of Intentional Behaviour

Intentional Behaviour	Identified antecedent	Source
Intention to quit	Satisfaction and engagement	Harter et al., 2002
Intention to turnover	Employee engagement	Shuck et al., 2011
Retention	Corporate social responsibility	Aguinis and Glavas, 2012
Intention to turnover	Perceived organisational support	Ahmed et al., 2015
Intention to quit	Employee engagement mediated by job satisfaction	Benn et al., 2015
Intention to turnover	Perceived organisational support of the environment	Lamm et al., 2015
Supportive intentions	Organisational identification	Kim et al., 2010
Discretionary effort	Employee engagement	Shuck et al., 2011
Effort	Employee engagement	Perkins, 2012
Discretionary effort	Employee engagement	Rees et al., 2013

*

The section has examined the interrelated concepts of employee engagement, commitment, trust, intention and identification, and by reviewing the corporate sustainability related literature on employee engagement has demonstrated their relevance to this field of investigation.

Specifically, the role that corporate sustainability (and related concepts such as corporate social responsibility and corporate citizenship) has in driving employee engagement, commitment, trust, intention and identification has been established. On this basis, employee engagement is proposed as the second outcome of corporate sustainability in the thesis.

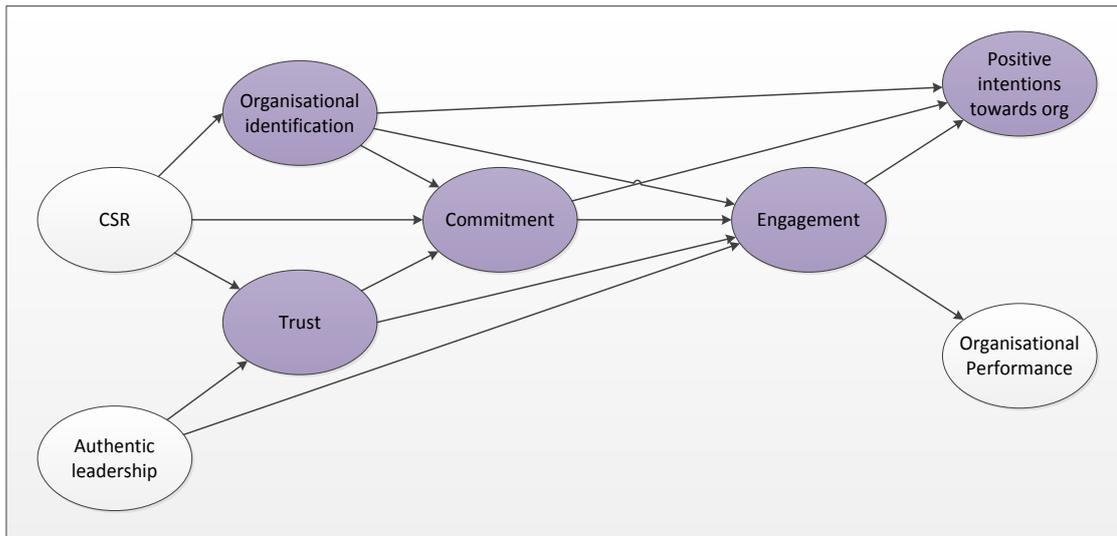
Table 3.4 (overleaf) summarises the key findings in terms of the antecedences of the relationships between the five concepts of employee engagement, commitment, trust, intention and identification.

Table 3.4: Relationships between employee engagement, commitment, trust, intention and identification

Concept	Key antecedents of concept	References	Concept antecedent to	References
Employee engagement	Perceived organisational support	Shuck et al., 2011 Ahmed and Nawaz, 2015 Ahmed et al., 2015	Discretionary effort / contribution	Perkins, 2012
	Authentic leadership	Stander et al., 2015	Job satisfaction / intention to quit	Benn et al., 2015
	Affective commitment	Shuck et al., 2011	Organisation performance	Harter et al., 2002 Rees et al., 2013 Benn et al., 2015
	CSR / sustainability (perceived commitment to)	Glavas and Piderit, 2009 Epstein et al., 2010 Aguinis and Glavas, 2012 Galpin et al., 2015		
Organisational commitment	Organisational identification	Bergami and Bagozzi, 2000 Collier and Esteban, 2014 Farooq et al., 2014	Discretionary effort	Shuck et al., 2011 Perkins, 2012
	Trust	Morgan and Hunt, 1994 Farooq et al., 2014	Intention to quit	Shuck et al., 2011 Perkins, 2012
	Perceived organisational support	Ahmed and Nawaz, 2015 Ahmed et al., 2015		
	CSR / sustainability	Aguinis and Glavas, 2012 Evans and Davis, 2014 Galpin et al., 2015		
Organisational identification	CSR / sustainability	Bhattacharya and Sen, 2004 Aguinis and Glavas, 2012 Glavas and Godwin, 2013 De Roecka et al., 2014 Evans and Davis, 2014 Farooq et al., 2014 Lamm et al., 2015	Organisational engagement	Hongwei et al., 2014
	Justice	Hongwei et al., 2014	Organisational commitment	Bergami and Bagozzi, 2000 Farooq et al., 2014
			Supportive intentions	Kim et al., 2010
Trust	Authentic leadership	Stander et al., 2015	Organisational engagement	Rees et al., 2013 Stander et al., 2015
	CSR / sustainability	Farooq et al., 2014	Organisational commitment	Morgan and Hunt, 1994 Farooq et al., 2014
Intentional behaviours (retention, supportive behaviour, discretionary effort)	Employee engagement	Harter et al., 2002 Shuck et al., 2011 Perkins, 2012 Rees et al., 2013 Benn et al., 2015		
	Organisational identification	Kim et al., 2010		
	Perceived organisational support	Ahmed et al., 2015 Lamm et al., 2010		
	CSR	Aguinis and Glavas, 2012		

The key antecedence relationships between employee engagement, commitment, trust, intention and identification (presented in table 3.4) can be interpreted more clearly when presented visually. The key relationships between the various concepts explored are set out in figure 3.3 (below).

Figure 3.3: Relationships between employee engagement, commitment, trust, intention and identification



In summary, this section has examined the concepts of employee engagement, commitment, trust, intention and identification in the management and psychology literatures, and specifically has analysed the various relationships between the different concepts. Corporate sustainability (and its related concepts such as corporate social responsibility and corporate citizenship) has been shown to be a significant driver of employee engagement (although notably none of the existing research focused specifically on sustainability practitioners).

The concept of employee engagement is explored further in chapter four when sustainability practitioner engagement is included as a core part of the overall research model, and then again later in the thesis when it is measured and tested in the quantitative phase of the research study.

3.4 Conclusion

This chapter has explored two key outcomes of corporate sustainability, namely organisational corporate sustainability performance and sustainability practitioner engagement. Based upon an extensive review of relevant literature, the challenges associated with measuring corporate sustainability performance has been considered, and various techniques previously employed by researchers to measure sustainability performance have been presented.

Secondly, the related the concepts of employee engagement, commitment, trust, intention and identification have been examined, and the linkage between corporate sustainability the concepts established justifying the inclusion of sustainability practitioner engagement as the second outcome of corporate sustainability included in the core research model.

The next chapter combines the analysis of the business drivers of sustainability set out in chapter two with the outcomes of corporate sustainability identified in this chapter in order to elaborate the core driver-outcome research model proposed in this thesis.

Chapter 4 A Driver-Outcome Model of Corporate Sustainability

This chapter integrates the findings from chapters two and three to develop the core driver-outcome research model of corporate sustainability proposed in this thesis. Section 4.1 introduces this chapter before section 4.2 sets out the core driver-outcome model of corporate sustainability, the key research propositions and associated hypotheses. Sections 4.3 and 4.4 then consider a number of organisational and practitioner factors which have the potential to act as moderating variables within the core research model.

Section 4.3 considers sustainability practitioner related moderator variables which could influence the proposed research model. Specifically, practitioners' belief systems are considered through the concepts of social axioms, connectedness to nature and temporal orientation. Research propositions and related hypothesis are introduced for each of these three concepts. Section 4.4 considers how organisation culture may influence the proposed research model, and sets out an associated research proposition and hypotheses.

For clarity, section 4.5 presents the overall research model together with all the research propositions and associated hypotheses. Section 4.6 concludes the chapter.

4.1 Introduction

Developing the analysis of the drivers and outcomes of corporate sustainability set out in the previous two chapters, this chapter has two key aims:

1. To propose a theoretical model linking together the drivers of corporate sustainability and the outcomes of corporate sustainability, specifically corporate sustainability performance and sustainability practitioner engagement.
2. To identify and examine potential organisational and practitioner related factors which could act of moderating variables within the core driver-outcome model of corporate sustainability.

The proposed driver-outcome model, set out in section 4.2, is built upon theoretical underpinning from a number of fields of academic research including: general management / stakeholder theory (Freeman, 1984), sustainability / business and society (Dyllick and Hockerts,

2002; Argenti, 2004; Heal, 2005), and organisational psychology (Kahn, 1990; Mael and Ashforth, 1992; Morgan and Hunt, 1994). The rationale for each of the connections in the proposed model is discussed in order to justify the model, and then an initial set of four research propositions with associated hypotheses are elaborated.

Moderating variables are variables which have a strong contingent effect on the relationship between an independent variable and a dependent variable (Sekaran and Bougie, 2013). The assessment of the impact of moderating variables can provide additional insights into the specific relationships within research models. Consequently, sections 4.3 and 4.4 identify a series of potential moderating factors relating to the belief systems of sustainability practitioners and organisational culture which could potentially impact the core driver-outcome model.

The consideration of moderators begins in Section 4.3, by considering sustainability practitioners' individual belief systems in terms of social axioms (Leung et al., 2002), connectedness to nature (Schultz, 2002; Mayer and Frantz, 2004), and temporal orientation (Hofstede, 1991; Sharma, 2009). Based upon the analysis, a series of research propositions and specific hypotheses are elaborated.

Section 4.4 then considers the relevance of organisational culture for corporate sustainability before introducing Hofstede et al.'s (1990) six dimensional model of organisational culture. Specific research hypotheses relating to the six dimensions are proposed.

Section 4.5 provides a summary of the overall research model together with all eight research propositions and 20 hypotheses proposed in this chapter. Finally, section 4.5 provides a short conclusion to the complete literature section of this thesis set out in chapters two, three and four.

4.2 A Driver-Outcome Model of Corporate Sustainability

Chapter two explored the concept of corporate sustainability and the drivers that are motivating businesses to invest in corporate sustainability initiatives. Chapter three then investigated the outcomes of corporate sustainability, specifically the concept of corporate sustainability

performance (and how it can be measured in large organisations), and how corporate sustainability can lead to higher levels of employee engagement and related factors such as identification and commitment. This section brings together all of the above findings and creates a driver-outcome model of corporate sustainability in an organisational context.

For the purpose of the research study, as set out in chapter two, the following definition of corporate sustainability has been established:

Corporate sustainability is a future focused, multi-stakeholder concept whereby businesses undertake voluntarily initiatives to reduce their environmental impacts and contribute to the communities and wider society in which they operate, all within the context of striving to maximise their economic profitability in the long-term.

Based upon this definition and the subsequent analysis in chapters two and three, a visual conceptualisation of the overall driver-outcome framework of corporate sustainability is presented in figure 4.1 below.

Figure 4.1: Drivers, Commitment and Outcomes of Corporate Sustainability



A number of observations about the theoretical assumptions underpinning the proposed framework depicted in figure 4.1 are set out below.

1. As introduced in chapter two, and in line with the majority of business research (Pagell et al., 2013), this research is underpinned by the assumption that businesses are seeking to maximise their profitability. Drawing on the resource-based view of the firm (Barney, 1991), researchers such as Russo and Fouts (1997) argue that sustainability performance and economic performance are linked and consequently, the proposed framework is based upon the assumption that organisational decisions to invest in sustainability initiatives are made on the basis that such investments are consistent with improved business performance.
2. As also identified in chapter two, there are a wide range of business performance related factors that influence an organisation's commitment to invest in corporate sustainability. These factors, which can be considered as the business case for sustainability, include drivers such as: client or customer demand (Argenti, 2004; Heal, 2005), opportunities for efficiency gains (Hawkins et al., 2001; Young and Tilley, 2006), meeting the expectations of the organisation's owners (Heal, 2005; Brewster, 2009), or ensuring access to production inputs (Dyllick and Hockerts, 2002; Amalric and Hauser, 2005).

Whilst the above factors are widely discussed in the academic literature, specific measurement scales do not currently exist for measuring the relative importance of these different factors. Consequently, specific scales, described in chapter five, have been developed through this research to measure the above drivers of sustainability.

3. Another component of the organisational decision to pursue sustainability initiatives is the commitment of the organisation's CEO (Alexander, 2003). Authors such as Geva (2000) and Reynolds (2006) have conceptualised sustainability-related business decisions as involving a moral or ethical dimension and often requiring CEO direction. As such, the orientation of the organisation's CEO towards sustainability is expected to be a material component of the organisation's level of commitment towards sustainability (for example: Anderson and White, 2009). Despite this, in the context of the above profit-maximisation assumption, it would be unlikely that a CEO would pursue a sustainability agenda to the detriment of their organisation's economic performance (Kolstad, 2007).

While several scales exist measuring individuals' commitment towards an organisation (for example: Mowday et al., 1979; Collier and Estebann, 2007; and Farooq et al., 2014), no scales currently exist measuring CEO commitment to sustainability. Consequently, a specific scale, described in chapter five, has been developed through this research to measure CEOs' commitment to sustainability.

4. Having established the theoretical linkage between the organisation's commitment to sustainability and both the business drivers of sustainability and the level of CEO's commitment to sustainability, the conceptual framework then assumes that this organisational commitment will be translated into the organisation undertaking initiatives designed to improve their overall corporate sustainability. Whilst there is a broad literature discussing organisational commitment in terms of an individual's commitment to an organisation (for example: Mowday et al., 1979; Meyer & Allen, 1991), there is however negligible literature discussing an organisation's commitment towards a topic such as sustainability.

The one paper identified which did employ the concept of organisational commitment towards sustainability was by Hancock and Nuttman (2014). This paper referenced organisational commitment to reducing greenhouse gas emissions in the theoretical sense, however, made no attempt to measure this commitment empirically. Consequently, in order to measure organisational commitment to sustainability a new scale, described in chapter five, had to be developed through this research to measure organisational commitment to sustainability.

5. Finally, the outcomes of organisational commitment to sustainability are conceptualised to be twofold: first, increased levels of corporate sustainability performance (Brem and Ivens, 2013; PavlÁková Dočekalová et al., 2015), and second, increased levels of sustainability practitioner engagement towards the organisation (Glavas and Piderit, 2009; Epstein, et al., 2010; Aguinis and Glavas, 2012).

As discussed in the previous chapter, corporate sustainability performance has been measured using a range of approaches including assessments by ratings agencies, academic surveys as well as by simple proxy measures such as the number of awards won. As describe in chapter five, this research employs a combination of questionnaire

items triangulated with a scale computed using the publicly available outcomes from a number of the ratings agencies.

Employee engagement is a well-researched field with various existing scales available to measure engagement related constructs such as trust, identification and commitment (for example: Morgan and Hunt, 1994; Mael and Ashforth, 1992; Cho, 2006). Consequently, following other researchers in this field, employee engagement was measured using a range of items from pre-existing and well-tested measurement scales.

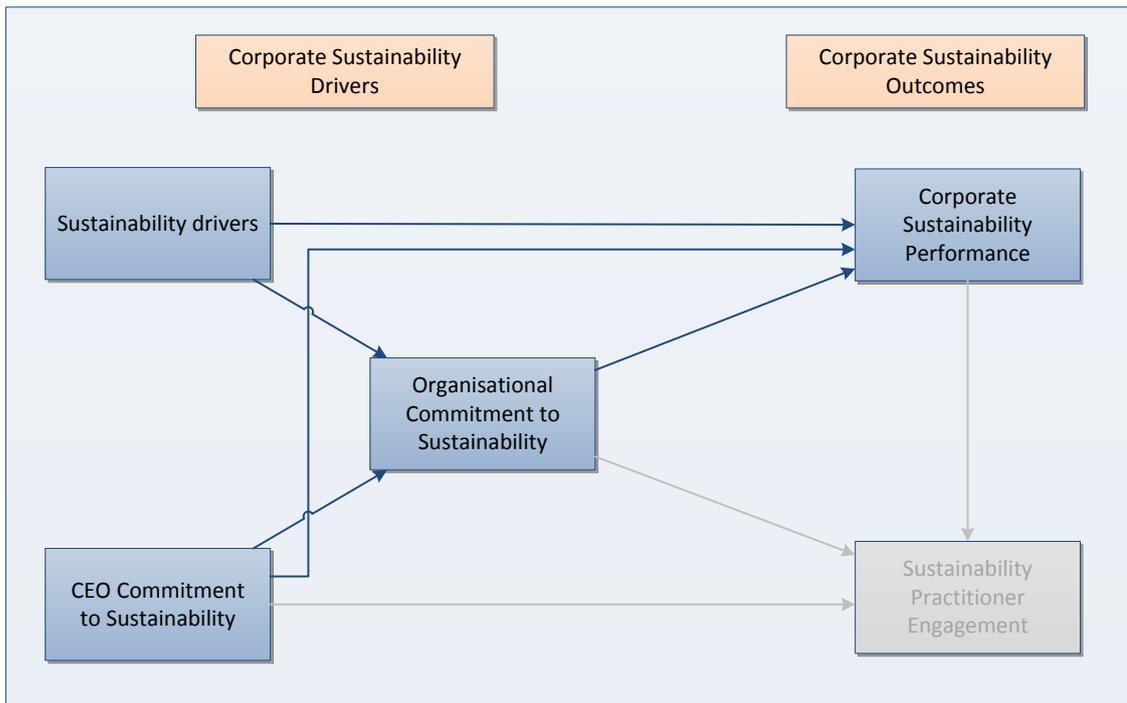
The framework presented in figure 4.1 will now be extended to incorporate all the path relationships and specific constructs related to the drivers and outcomes of corporate sustainability from both the organisational and practitioner perspective.

The path relationships relating to the organisational components and the practitioner components are introduced and discussed sequentially in the following two sections (4.2.1 and 4.2.2) before the overall driver-outcome model is presented in section 4.2.3.

4.2.1 Driver-Outcome Model – the Organisational Components

Figure 4.2 (overleaf) shows the proposed driver-outcome model of corporate sustainability with, at this point, the components of the model not relating to the organisational component of the model greyed out. The organisation related components of the model include: the *Business Drivers of Sustainability*, *CEO Commitment to Sustainability*, *Organisational Commitment to Sustainability* and *Corporate Sustainability Performance*.

Figure 4.2: Research framework relating to Corporate Sustainability Performance



Working across the highlighted section of the driver-outcome model from left to right, figure 4.2 asserts that the *Business Drivers of Sustainability* (as identified in chapter two), together with the level of *CEO Commitment to Sustainability* and the level of *Organisational Commitment to Sustainability*, all influence the organisation’s level of *Corporate Sustainability Performance*. It is also asserted that, in addition to these three factors driving *Corporate Sustainability Performance* directly, *Organisational Commitment to Sustainability* may be acting as mediator variable in the relationship between the *Business Drivers* and *Corporate Sustainability Performance*, and between *CEO Commitment to Sustainability* and *Corporate Sustainability Performance*.

Each of the proposed relationships set out in the framework above will now be discussed and three research propositions introduced together with a series of related research hypotheses.

Proposition 1: A relationship exists between the level of an Organisation’s Commitment to Sustainability and its level of Corporate Sustainability Performance.

Whilst overall, *Organisational Commitment to Sustainability* is an under-researched concept, there are a small number of papers which provide relevant insights. Parisi’s (2013) analysis of

the impacts of organisational alignment, identifies direct linkages in turn between top management commitment to sustainability and strategic performance measurement systems (SPMS), and then SPMS to social and environmental performance. In this context, the organisation's investment in a sustainability SPMS can be viewed as a component of its organisational commitment to sustainability, supporting the proposition that organisational commitment to sustainability would be an antecedent of corporate sustainability performance.

Secondly, building on the premise that higher levels of *Corporate Sustainability Performance* lead to higher levels of corporate financial performance, Gao and Bansal (2013) investigate the linkage between both corporate social commitment and corporate environmental commitment, with corporate financial performance, and find weak support for their hypothesis. While Gao and Bansal provide no exploration of the role of corporate sustainability performance in mediating the relationship between organisational commitment to sustainability and corporate financial performance, the relationship may be inferred.

Finally, Beheiry et al. (2006) explore sustainability linkages in the construction sector, hypothesising that increasing levels of commitment to sustainability (measured through a survey) lead to increasing levels of sustainable project planning and better cost and schedule performances outcome in large construction projects. Once again this paper provides support in principle for the proposed relationship between *Organisational Commitment to Sustainability* and *Corporate Sustainability Performance*.

Based upon the above discussion, this lead to the first research hypothesis which is linked to Proposition 1:

H.1.: Increases in the level of an *Organisation's Commitment to Sustainability* lead to increases in the organisation's levels of *Corporate Sustainability Performance*.

*

Proposition 2: A relationship exists between the *Sustainability Drivers* experienced by an organisation and both its *Organisational Commitment to Sustainability* and its *Corporate Sustainability Performance*.

As presented in chapter two, four dimensions of the business case for investing in initiatives designed to improve an organisation's corporate sustainability performance were identified from the management literature (Brem and Ivens, 2013; Pavláková Dočekalová et al., 2015). Each dimension provides a separate component of the overall rationale for corporate organisations striving to raise their corporate sustainability performance.

The first dimension of the business case for sustainability, as identified in chapter two, is based upon efficiency gains (often described as eco-efficiency) which reduce operational costs while also reducing negative environmental impacts or enhancing social benefits (Hawkins et al., 2001; Young and Tilley, 2006). In this case the proposed linkage between the *Business Drivers of Sustainability* and *Corporate Sustainability Performance* is direct and apparent (Thorpe and Prakash-Mani, 2003).

The second dimension, relating to customer expectations, involves ensuring that the organisation and its products or services remain acceptable to its customers or clients. Failing to ensure an organisation achieves an appropriate level of corporate sustainability performance in the minds of their customers has been shown by researchers such as Heal (2005) and Argenti (2004) to lead to the loss of customers.

Third, failing to meet corporate sustainability performance expectations has been shown to jeopardise access to the inputs an organisation requires to operate. These inputs can include natural resources (Azapagic, 2004; Chivian, 2002), financial capital (Heal, 2005; Brewster, 2009) and employees (Amalric and Hauser, 2005; Heal, 2005; Turban and Greening, 1996).

Finally, the fourth dimension encompasses meeting the sustainability performance expectations of broader stakeholders such as government (Amalric and Hauser, 2005) and NGOs (Heal, 2005; Argenti, 2004).

These four dimensions of the business case for sustainability provide the rationale for the linkage between the identified *Business Drivers of Sustainability* and delivery of *Corporate Sustainability Performance*.

Whilst no literature has been identified which specifically links the *Business Drivers of Sustainability* to the concept of *Organisational Commitment to Sustainability*, given the relationship elaborated in the first research proposition between *Organisational Commitment to Sustainability* and *Corporate Sustainability Performance* (Parisi, 2013; Beheiry et al., 2006), there is reason to expect that *Organisational Commitment to Sustainability* would be a material component in this relationship.

This leads to the following two research hypotheses which are linked to Proposition 2:

H.2.a.: Increases in the strength of the *Business Drivers of Sustainability* an organisation experiences lead to increases in the level of *Organisational Commitment to Sustainability*.

H.2.b.: Increases in the strength of the *Business Drivers of Sustainability* an organisation experiences lead to increases in its level of *Corporate Sustainability Performance*.

*

Proposition 3: A relationship exists between an organisation's *CEO's Commitment to Sustainability* and both the *Organisation's Commitment to Sustainability* and its *Corporate Sustainability Performance*.

As with the case of *Organisational Commitment to Sustainability*, *CEO Commitment to Sustainability* is also an under-researched area. However, a small number of papers looking at CEO commitment in other contexts provides some relevant insights to this research proposition.

Soltani (2005) considers the role of CEO commitment in the field of total quality management (TQM). Citing analysis by McKinsey and Company (1989) and Lascelles & Dale (1990), Soltani argues that the commitment of top management is a key requirement if TQM is to succeed within a company and also that the failure of TQM is often attributed to lack of CEO commitment. The organisational similarities between TQM and corporate sustainability identified by researchers such as Zwetsloot and van Marrewijk (2004), Isaksson (2005) and Muhammad et al. (2011) provides support to the proposition that a relationship exists between

an organisation's *CEO's Commitment to Sustainability* and an organisation's *Corporate Sustainability Performance*.

Furthermore, CEO commitment has also been shown to be an important factor in contributing to the success of a wide range of other organisational initiatives, including: IT projects (Garrido-Moreno et al., 2014; Newman and Sabherwal, 1996; Youlong and Lederer, 2004), diversity programmes (Gilbert and Stead 1999; Ng and Wyrick, 2011), and global leadership development initiatives (Canals, 2014).

The proposed link between *CEO Commitment to Sustainability* and *Organisational Commitment to Sustainability* follows on from the first research proposition. Furthermore, the question is raised whether *Organisational Commitment to Sustainability* acts as a mediating variable in the relationship between *CEO Commitment to Sustainability* and *Corporate Sustainability Performance*, in a similar way to the mediating effect of strategic performance measurement systems identified by Parisi (2013).

This leads to the following research hypotheses which are linked to Proposition 3:

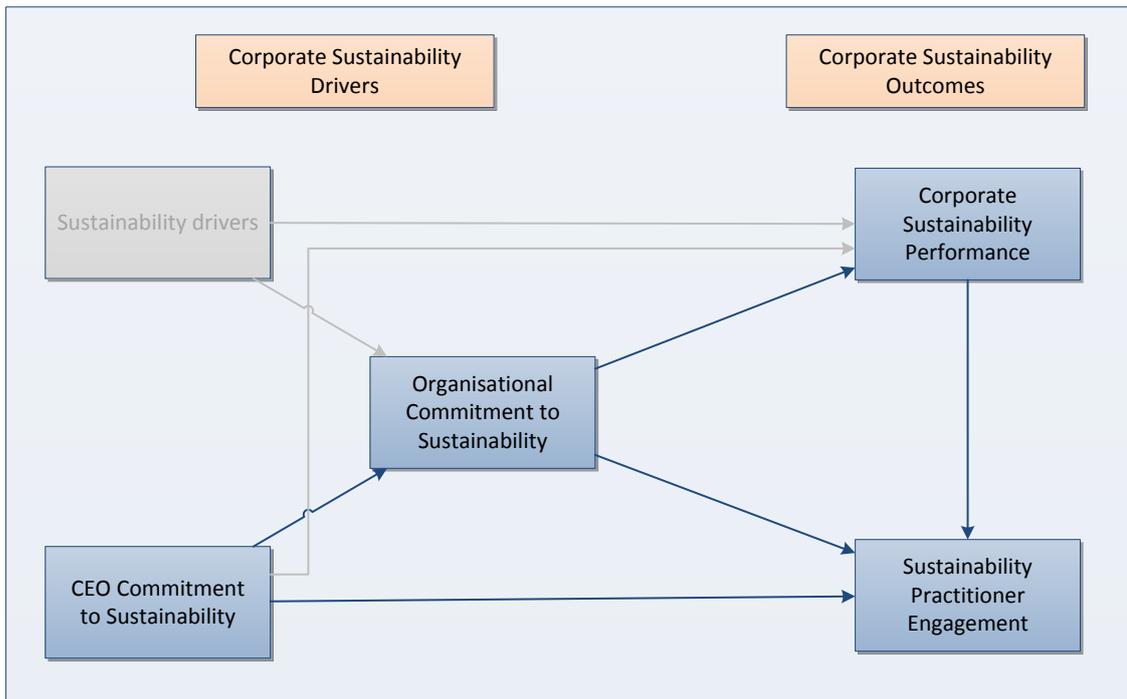
H.3.a.: Increases in the level of *CEO Commitment to Sustainability* lead to increases in the level of *Organisational Commitment to Sustainability*.

H.3.b.: Increases in the level of *CEO Commitment to Sustainability* lead to increases in the level of *Corporate Sustainability Performance*.

4.2.2 Driver-Outcome Model – the Practitioner Components

Figure 4.3 (overleaf) shows the proposed driver-outcome model of corporate sustainability with, this time, the components of the model not relating to the practitioner greyed out. The practitioner related components of the model include: *CEO Commitment to Sustainability*, *Organisational Commitment to Sustainability*, *Corporate Sustainability Performance*, and *Sustainability Practitioner Engagement*.

Figure 4.3: Research framework relating to Sustainability Practitioner Engagement



Working across the framework from left to right, figure 4.3 proposes that the engagement of the sustainability practitioner towards the organisation is influenced by the three factors: their *CEO's Commitment to Sustainability*, their *Organisation's Commitment to Sustainability*, and the *Corporate Sustainability Performance* of their organisation. In addition, it is asserted that the effect of *CEO Commitment to Sustainability* may be mediated through the construct of *Organisational Commitment to Sustainability*.

Each of the proposed relationships above will now be discussed and from the framework, a further research proposition is developed together with three associated research hypotheses.

Proposition 4: **A relationship exists between *Sustainability Practitioner Engagement* with their organisation and their *CEO's Commitment to Sustainability*, their *Organisation's Commitment to Sustainability*, and their organisation's *Corporate Sustainability Performance*.**

Unlike the component concepts discussed in relation to the first three research propositions, the concept of employee engagement sits within a long established field of research (Kahn,

1990; Morgan and Hunt, 1994). While no existing research has been identified focusing specifically on the employee engagement of sustainability practitioners, existing research studies have identified linkages between authentic leadership and employee engagement more generally (Stander et al., 2015). Citing Bass & Steidlmeier (1999), Stander et al. (2015: 2) argue that acting “as a ‘moral agent’ who introduces transformational leadership to the organisation,” the organisation’s leader is an important component of authentic leadership. Given the moral / ethical dimension of corporate sustainability asserted by researchers such as Geva (2000) and Reynolds (2006), and CEOs such as the late Ray Anderson, founder and former CEO of Interface (Anderson and White, 2009), it is reasonable to assert that for a sustainability practitioner, the commitment of their CEO to sustainability will be an important component of their engagement with their organisation.

The relationship between corporate sustainability performance and employee engagement is also established in the literature, but again not in the context of sustainability practitioners. Both Epstein et al. (2010) and Galpin et al. (2015) identified the link between organisational sustainability and employee engagement, while Aguinis and Glavas (2012) and Glavas and Piderit (2009) both argue that corporate social responsibility and corporate citizenship, respectively, are drivers of employee engagement. Although these papers focus on employee engagement more generally rather than on the engagement of sustainability practitioners, it is reasonable to expect the practitioners would also experience higher levels of engagement in organisations with strong corporate sustainability performance.

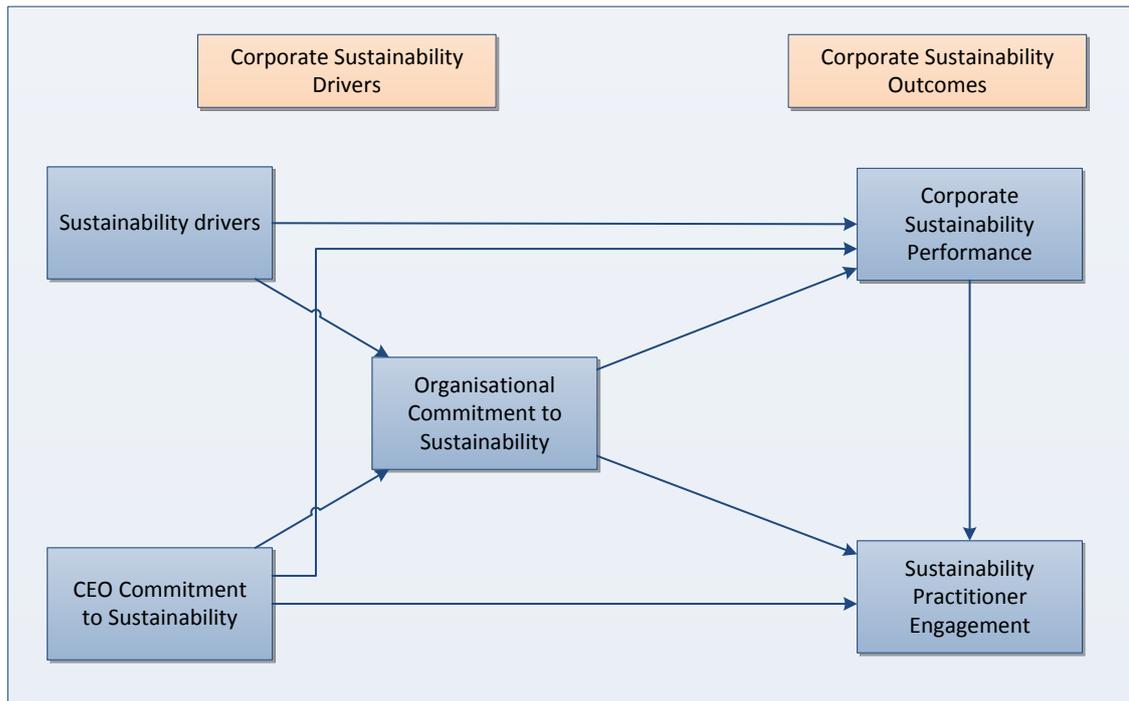
This leads to the following research hypotheses which are linked to Proposition 4:

- H.4.a.: Increases in the level of *CEO Commitment to Sustainability* lead to increases in the level of *Sustainability Practitioner Engagement* towards their organisation.**
- H.4.b.: Increases in the level of *Organisation Commitment to Sustainability* lead to increases in the level of *Sustainability Practitioner Engagement* towards their organisation.**
- H.4.c.: Increases in the level of an organisation’s *Corporate Sustainability Performance* lead to increases in the level of *Sustainability Practitioner Engagement* towards their organisation.**

4.2.3 Overall Driver-Outcome Model of Corporate Sustainability

Combining the organisational and practitioner component of the driver-outcome model discussed in the previous two sub-sections, figure 4.4 (below) presents the overall core research model which will be tested in this research thesis.

Figure 4.4: Overall Driver-Outcome Model of Corporate Sustainability



*

Having established the core driver-outcome model, the next two sections of this chapter consider a number of practitioner related and organisational culture related factors which are identified as having the potential to affect the above model. These are discussed and then a number of additional research propositions and associated hypotheses are elaborated.

4.3 Practitioner related Moderating Factors

It has been asserted that beliefs link objects to attributes (Fishbein and Ajzen, 1975). Whilst they have been defined in many different ways (Leung et al., 2002), they are relevant as they have been shown to influence individual's actions (Fishbein and Ajzen, 1975). They are considered in this thesis as a mechanism for exploring the sustainability practitioner's relationship with the core research model.

This section sets out three separate approaches to understanding belief systems. The first, social axioms, was introduced in 2002 by Leung et al. as a set of five pan-cultural groups of beliefs to explore individuals' outlooks on the world. Second, given the centrality of the natural world to sustainability, a specific belief conceptualisation relating to an individual's connectedness to nature (Schultz, 2002; Mayer and Frantz, 2004) is explored. Finally, individuals' orientation between the long versus the short term is considered (Hofstede, 1991; Sharma, 2009).

4.3.1 Social Axioms

One relatively new approach to measuring individuals' general beliefs is through the study of social axioms. Introduced in 2002 by Leung et al., social axioms are defined as "generalized beliefs about oneself, the social and physical environment, or the spiritual world, and are in the form of an assertion about the relationship between two entities or concepts" (Leung et al., 2002: 269). Social axioms are based on relationships between two entities (either causal or correlational) and are different from attitudes and values because they do not make a judgement about one of the entities either being more desirable (an attitude) or important (an evaluative belief or value). Considered another way, "social axioms are about social truths and values are concerned with goals. Values define what people strive for, and axioms shed light on how to achieve important goals" (Leung et al., 2007: 107).

Employing cross-cultural studies in 40 countries, Leung and Bond (2004) subsequently identified five pan-cultural groupings of social axiomatic beliefs: social cynicism (sometimes simply called cynicism), fate control, reward for application, social complexity, religiosity (originally named spirituality). Each of the social axioms is introduced briefly below:

Social Cynicism

Social cynicism refers to a tendency towards having a negative view of human nature and a mistrust of social institutions and other people – particularly those in powerful positions (Leung et al., 2002; Chen et al., 2006). Social cynicism has been shown to lead to individuals avoiding careers which require high levels of social interaction (Bond et al., 2004). Along with low levels of concern for others, social cynicism has also been found to negatively correlate with agreeableness, extraversion, helpfulness (Rosenblatt, 2010) and willingness to collaborate (Bond et al., 2004), while other authors suggest social cynicism leads to a disregard for ethics (Burgess, 2009, Aqueveque and Encina, 2010). Overall, Hui and Hui (2009: 19) argue that for individuals high in social cynicism, life outcomes such as personal happiness and psychological well-being, thinking and judgment abilities, coping, interpersonal communication, and relationship building are “gloomy.” Stress and poor mental health outcomes are also reported by authors such as Chen et al. (2006).

Fate Control

Fate control is the belief that impersonal, external forces (sometimes given labels such as fate, destiny, or luck) exist which determine life events, whilst simultaneously believing that it is possible for individuals to influence outcomes by engaging in various culture-specific rituals or practices (Hui and Hui, 2009; Leung & Bond, 2004; Singelis et al., 2003). While the covariation of believing in fate while also perceiving the possibility of altering the degree of fate might seem puzzling (Zhou et al., 2009), Hui and Hui (2009: 24) note that the “belief in fate control is different from a personal belief that the holder of that belief is controlled more by external than internal forces.” Fate control has been shown to be negatively correlated with job satisfaction, work ethic, self-direction, striving and conscientiousness, extraversion, endorsement of team-oriented leadership, and helpfulness (Leung & Bond, 2004; Leung et al., 2007; Zhou et al., 2009; Chen et al., 2006; Rossenblatt, 2010), and positively associated with vertical individualism (Chen et al., 2006) and even academic achievements (Zhou et al., 2009).

Reward for Application

Reward for Application exemplifies a general optimistic belief that knowledge, careful planning and human effort will lead to positive outcomes and help avoid failure (Leung et al. 2002; Leung

& Bond, 2004; Kuo, 2006). While reminiscent of the Protestant work ethic, which espouses the benefits of hard work, the reward for application concept is broader including the theme of justice: i.e. the effort will pay-off for the person making the effort (Leung et al. 2002). Furthermore, reward for application tends to relate to a conservative world view (Bond et al., 2004; Rosenblatt, 2010), egalitarian political attitudes (Leung & Bond, 2002) and interest in vocational professions (Bond et al., 2004). Overall, the traits point towards the underlying theme - the belief in the equity principle. Consequently, those high in reward for application will tend to respect and acknowledge the interests of others and fairly divide resources between them (Hui and Hui, 2009). Finally, there is some evidence of a positive link between reward for application and the intention to try harder if unsuccessful and to strive to maintain good interpersonal relationships (Singelis et al., 2003; Zhou et al., 2009).

Social Complexity

Social Complexity encompasses the worldview that there can be many solutions to individual problems, and that individual behaviours vary over both contexts and time (Leung & Bond, 2004; Hui & Hui, 2009; Rosenblatt, 2010). Sometimes referred to as social flexibility (Singelis et al., 2003), the traits of uncertainty and the inconsistency of human behaviour are stressed (Chen, 2006a; Kuo, 2006). Belief in social complexity can act as a facilitator to problem solving (Bond et al., 2004; Hui and Hui, 2009), and is positively correlated with cognitive flexibility and direct speaking - even to the point of hurting others' feelings (Singelis et al., 2003). Social Complexity has also been found to increase with living standards (Burgess, 2011), be positively related to openness to new experiences (Chen et al., 2006), and is potentially related to career choices (Leung et al., 2002).

Religiosity

Religiosity (initially named spirituality) refers to the belief in the existence of supernatural factors (sometimes referred to as spiritual forces, supreme being or higher powers) and also that the impact of religious beliefs and institutional practices on people's lives can be beneficial to society (Leung et al., 2002; Kwantes et al. 2008; Joshanloo et al., 2010). Singelis et al. (2003: 280) suggest that religiosity, being positively correlated to taking advice from a spiritual advisor, praying, reading scriptures, and attending church, seems to represent a "rather conventional Christian religious orientation." In contrast, Hui and Hui (2009) argue that religiosity is related

to some traditional religious beliefs, but not with concerns such as superstition, reincarnation, and precognition. Belief in religiosity is reported to correlate positively with agreeableness, conscientiousness, extraversion, openness to change, endorsement of humane leadership, benevolence and lower levels of anxiety (Leung & Bond, 2004; Leung et al., 2007; Saroglou, 2002; Rosenblatt, 2010; Hui and Hui, 2009) and negatively with self-enhancement, hedonism, achievement and self-direction values (Bond et al., 2004; Leung et al., 2007; Rosenblatt, 2010).

*

From the above discussion of social axioms, the following research proposition is elaborated:

Proposition 5: The sustainability practitioner's socio-axiomatic beliefs moderate the path relationships described in the core research model.

The implication of this proposition is now considered for each of the five axioms and subsequently axiom specific hypotheses are then proposed.

Social Cynicism

A number of observations relating to social cynicism in the context of this research study are offered.

First, given the characteristics of individuals with high levels of social cynicism, it seems less likely that an individual with these traits would be inclined to pursue a career as a sustainability practitioner. Specifically, the importance of collaboration was identified in the literature relating to sustainability initiatives (for example: Argenti, 2004; Braungart et al., 2007) while Bond et al. (2004) argue that those with high levels of social cynicism have a lower willingness to collaborate. Furthermore, corporate sustainability was identified as having a strong ethical dimension (for example: Bañon Gomis et al., 2011; Jenkin et al., 2011; Ameer and Othman, 2012) whereas other authors such as Burgess (2009) and Aqueveque and Encina (2010) suggest high levels of social cynicism lead to a disregard for ethics.

Second, the literature suggests that individuals with higher levels of social cynicism tend to have a negative view of human nature and a mistrust of people in powerful positions (Leung et al., 2002; Chen et al., 2006). Consequently, individuals with higher levels of social cynicism might be expected to be more sceptical about their CEO and specifically their CEO's commitment to sustainability.

The above observations lead to the supposition that the path relationships within the core model may vary based on an individual's level of social cynicism. Consequently, the following research hypothesis related to social cynicism is proposed:

H.5.a.: *Social cynicism moderates one or more of the path relationships described in the core research model.*

*

Fate Control

A number of observations relating to fate control in the context of this research study are offered.

First, individuals with a high level of fate control believe that external forces (sometimes labelled fate, destiny, or luck) determine life events though it may be possible for them to influence outcomes by engaging in various culture-specific rituals or practices (Leung & Bond, 2004). In contrast, individuals with a low level of fate control tend to reject the idea of a predetermined path instead believing in their ability to shape outcomes (West, 2011). Given these observations, combined with the magnitude of the sustainability challenge facing humanity (for example: Arrow et al., 2004; Young and Tilley, 2006; Brander, 2007; Porritt, 2007; Stern, 2009), it might be expected that individuals seeking to address the sustainability agenda in the business arena would score relatively low in the fate control axiom.

Furthermore, individuals with high levels of fate control have been shown to have low levels of work ethic, self-direction, striving and conscientiousness (Leung & Bond, 2004; Leung et al.,

2007; Zhou et al., 2009; Chen et al., 2006; Rossenblatt, 2010), making their success as change agents in a corporate environment less probable.

Finally, Rossenblatt (2010) found evidence that a high level of fate control leads to low levels of job satisfaction. Consequently, it seems likely that individuals' level of fate control may impact the employee engagement component of the core research model.

The above observations lead to the supposition that the path relationships within the core model may vary based on an individual's level of fate control. Consequently, the following research hypothesis related to fate control is proposed:

H.5.b.: *Fate control moderates one or more of the path relationships described in the core research model.*

*

Reward for Application

A number of observations relating to reward for application in the context of this research study are offered.

First, individuals with a high reward for application believe that knowledge, careful planning and human effort will lead to positive outcomes and can help avoid failure (Leung et al. 2002; Leung & Bond, 2004; Kuo, 2006). Furthermore, high reward for application has been linked to the themes of justice (Leung et al. 2002) and principles of equity including the fair division of resources (Hui and Hui, 2009). These concepts closely align to the themes of intergenerational equity (Pezzey, 2004) and fairness as found in the Bruntland definition of sustainable development (World Commission on Environment and Development, 1987).

Given the above, combined with a tendency for individuals with a high reward for application belief to seek vocational professions (Bond et al., 2004), it might be expected that sustainability practitioners would tend to have a high tendency towards reward for application. Furthermore,

this is also consistent with Kwantes et al.'s (2008) finding that high levels of reward for application positively predicted organisational citizenship behaviours by employees.

Second, Kwantes and Karam (2009) cite research by Remo and Kwantes (2007) which suggests that higher levels of organisational commitment are found in individuals expressing higher levels of reward for application. Consequently, it seems possible that individuals' level of reward for application may impact the employee engagement component of the core research model.

The above observations lead to the following research hypothesis which linked to social complexity:

H.5.c.: *Reward for Application* moderates one or more of the path relationships described in the core research model.

*

Social Complexity

A number of observations relating to social complexity in the context of this research study are offered.

First, individuals with a strong belief in social complexity see the world's problems as complicated and without a singular solution (Leung & Bond, 2004). This comprehension of complexity is consistent with the complex challenges involved with corporate sustainability such as managing interconnected systems (Metcalf and Benn, 2012), multiple stakeholders (Angus-Leppan et al., 2010; Arevalo, 2010), and inter-generational resource allocation (Hahn et al., 2014).

Furthermore, Bond et al. (2004) and Hui and Hui (2009) suggest that belief in social complexity is linked to problem solving behaviour, while Singelis et al. (2003) suggests a link between social complexity and cognitive flexibility. Combining all these factors would suggest that individuals engaged in driving corporate sustainability might be expected to have high level of belief in social complexity.

The above observations lead to the following research hypotheses linked to social complexity:

H.5.d.: *Social Complexity* moderates one or more of the path relationships described in the core research model.

*

Religiosity

For the reasons set in the next chapter, the religiosity social axiom was dropped from the questionnaire at the pilot stage. Consequently, no hypothesis relating to religiosity is included in the research study.

4.3.2 Connectedness to Nature

Within the social and behavioural sciences literature, many authors have examined the relationship between humans and nature (for example: Restall and Conrad, 2015; Schultz, 2001 and 2002; Mayer and Frantz, 2004). Significantly, it has been found that feeling connected to the natural environment is both an important foundational requirement for human health and wellbeing (Byrmer and Cuddihy, 2009; Maller et al., 2008) and life satisfaction (Mayer and Frantz, 2004), as well as being a predictor of the likelihood that individuals will want to protect the natural environment, sometimes described as pro-environmental behaviour (Schultz, 2002, Barbaro and Pickett, 2015).

To assess this commitment to the natural world, Schultz (2002: 67) introduced the concept of connectedness to nature defining it as “the extent to which an individual includes nature within his/her cognitive representation of self.” Subsequently, the connectedness to nature concept was developed further by Mayer and Frantz who introduced an affective, multi-item scale to measure the concept (Mayer and Frantz, 2004). More recent research has highlighted positive linkages between connectedness to nature and cognitive style in terms of innovation, and in terms of analytic thinking (Leong et al., 2014).

Given the centrality of environmental protection to the topic of sustainability, and based upon the above discussion about the concept of connectedness to nature, the concept is considered in this study as a potential moderator variable for the core research model. Consequently, the following research proposition and associated hypothesis is elaborated:

Proposition 6: The sustainability practitioner’s connectedness to nature moderates the path relationships described in the core research model.

H.6.: The sustainability practitioner’s *Connectedness to Nature* moderates one or more of the path relationships described in the core research model.

4.3.3 Temporal Orientation

Temporal orientation, argues Bearden et al. (2005: 59), exists “as a ubiquitous influence that permeates many aspects of life for every individual, whether in a personal or business-related context.” An individual’s orientation between the short term and the long term was originally identified by Michael Bond in the late 1980s (Hofstede and Minkov, 2010) and subsequently became one of Hofstede’s (1991) five dimensions of national culture.

Given, as established in chapter two, the importance of organisations taking a longer-term perspective for the successful achievement of their corporate sustainability goals (for example: Mio, 2010; Jenkin et al., 2011; Caprar and Neville, 2012; Lackmann et al., 2012), a linkage within the model to the temporal orientation of sustainability practitioners seems conceptually logical. Indeed, Sharma (2009) argues that individuals with an orientation towards the long-term tend to be dynamic thinkers open to radical change and who have the Confucian ethic of hard work and thrift.

Based upon the above, the following research proposition and associated research hypothesis are offered:

Proposition 7: The sustainability practitioner’s temporal orientation moderates the path relationships described in the core research model.

H.7.: The sustainability practitioner's *temporal orientation* moderates the path relationships described in the core research model.

*

This section has considered the potential impacts of the belief systems of sustainability practitioners on the core research model. Specifically, it has proposed that the path relationships in the core research model could be moderated by the practitioner's socio-axiomatic beliefs, their connectedness to nature, and their temporal orientation. Based upon the analysis presented, a series of research propositions and associated hypotheses related to sustainability practitioners' beliefs have been proposed.

4.4 Organisation Culture as a Moderating Factor

Culture is a highly complex and significantly researched topic. A keyword search conducted using the EbscoHost *Business Source Complete* database using 'culture' as the search term returns over 66,000 scholarly (peer reviewed) articles stretching back to beginning of the last century.⁴ In analysing the meaning of the concept of culture, Minkov (2013) argues that ultimately culture is a construct that can be defined in many ways. Minkov concludes that culture can be "viewed as an amalgamation of potentially related and relatively durable societal characteristics that describe an identifiable human population, such as a nation or ethnic group" (Minkov, 2013: 17).

More recently, researchers have extended the examination of the concept of culture to consider culture within organisations alongside that within nations and ethnic groups. Indeed, refining the search term in the EbscoHost *Business Source Complete* database to 'organisational culture'⁵ identifies over 4,000 scholarly articles published since the early 1970s. Organisational culture is important because it "represents 'how things are around here.' ... [and] provides unwritten and often unspoken guidelines for how to get along in the organization" (Cameron and Quinn, 2011: 19). It is also a critical factor in the success of organisational change (Schein, 1996).

⁴ Search conducted on 15th November 2015.

⁵ Search includes both "organisational culture" and "organizational culture."

While it is not the aim of this research study to contribute to academic exploration of the concept of culture, because of the important role of culture in the success of organisational change (Schein, 1996), it is introduced as a potential moderating factor within the core research model. Consequently, the following research proposition is offered:

Proposition 8: Organizational culture moderates the path relationships described in the core research model.

Many researchers have proposed methods to measure organisational culture. For example: Wallach's Organisational Culture Index (Wallach, 1986); Goffee and Jones' Solidarity and Sociability framework (Goffee and Jones, 2003); Cameron and Quinn's Organisational Culture Assessment Instrument (Cameron and Quinn, 2011).

In this study, Hofstede et al.'s (1990) six dimensions of organisational culture scale was employed. This scale was selected because of the broad range of cultural characteristics covered in the six dimensions that are measured using a relatively short 18 item scale. The scale is discussed further in the next section.

4.4.1 Hofstede et al.'s (1990) measure of Organisational Culture

Based upon a study involving 20 units from five organisations in Denmark and five in the Netherlands, the development of Hofstede et al.'s (1990) organisational culture scale employed both qualitative and quantitative research methods in the construction of their 18 item scale. Measured using semantic difference questions developed to assess their six dimensions of organisational culture, the scale was first published in *Administrative Science Quarterly* in 1990 and has subsequently been cited over 3,000 times.⁶

The six dimensions of Hofstede et al.'s scale are as follows:

⁶ As measured by number of citations in Google Scholar, 15th November 2015.

Dimension 1 – Process orientation versus results orientation

Based on the contrast identified in organisational sociology between mechanistic and organic management systems (Bums and Stalker, 1961), the first dimension distinguishes between organisations with a single-minded focus on process from those where there is a bias towards results. Hofstede (2013) cites the example of a risk-avoiding, routine-based drug manufacturing division as highly process-oriented culture – noting the cultures desirability in this context. In contrast, Hofstede et al. (1990) suggest that a result oriented culture corresponds with the first of Tom Peters and Robert Waterman’s maxims in their book *In Search of Excellence* that of ‘a bias for action’ (Peters and Waterman, 1982). Furthermore, Hofstede et al. (1990: 302) found evidence to support “Peters and Waterman’s claim that ‘strong’ cultures are more results-oriented.”

Based upon the above, the following research hypothesis is proposed:

H.8.a.: An increase in an organisation’s *orientation towards process rather than results* moderates the path relationships described in the core research model.

*

Dimension 2 – Employee oriented versus job oriented

Hofstede et al.’s (1990) second dimension distinguishes between organisations with a concern for people (so called, employee oriented) from those with a concern for getting the job done (job oriented). In the employee oriented culture, the organisation is perceived to take an interest in employees’ personal issues and important decisions would be taken collectively, whereas in the job oriented culture employees felt a pressure to get the job done regardless of their personal situation and that key decisions were made by individuals (Hofstede, 2013). The dimension parallels to the two axes of the Managerial Grid proposed by Blake and Mouton (1964). While Blake and Mouton’s originally positioned the two dimensions as independent constructs on a nine-by-nine grid, Hofstede et al.’s (1990) conception essentially measures the organisation’s positioning along the linear diagonal line from (9,1) to (1,9) in the original Managerial Grid.

Based upon the above, the following research hypothesis is proposed:

H.8.b.: An increase in an organisation's *orientation towards employee rather than job* moderates the path relationships described in the core research model.

*

Dimension 3 – Parochial versus professional

The third dimension of Hofstede et al.'s (1990) scale differentiates between organisations where employees derive their identity from their organisation rather than the type of job they perform. Based upon the distinction in sociology between 'local' and 'cosmopolitan' (Merton, 1968), the scale distinguishes between organisations where employees tend to derive their identity from their employer (defined as a parochial culture) and organisation where employees tend to identify with the type of job they perform (defined as a professional culture). In the parochial culture, employees tend not to plan for the future, feel that their organisation's norm tend to also apply outside the work environment, and believe that social / family background influence job prospects. In contrast, in the professional culture, employees would tend to think ahead, consider their private lives their own business and believe that the organisation would hire based on competence for the role (Hofstede, 2013).

Based upon the above, the following research hypothesis is proposed:

H.8.c.: An increase in an organisation's *orientation towards the parochial rather than the professional* moderates the path relationships described in the core research model.

*

Dimension 4 – Open versus closed

Hofstede et al.'s (1990) fourth dimension relates to the communication climate within the organisation. The communication climate (Poole, 1985) is seen as comprising both internal communications as driven by human resources and external communications as driven by public relations (Hofstede, 1990). Open cultures are characterised as being welcoming and easy for new employees to assimilate into, whilst in contrast in closed cultures individuals are seen as secretive, non-inclusive and very hard for new employees to integrate into (Hofstede, 2013).

Based upon the above, the following research hypothesis is proposed:

H.8.d.: An increase in an organisation's *orientation towards being open rather than closed* moderates the path relationships described in the core research model.

*

Dimension 5 – Loose versus tight

The fifth dimension relates to the amount of internal structure within the organisation (Hofstede et al., 1990) and was derived from the distinction between loose and tight set out in the literature on management control (for example: Hofstede, 1967). According to Hofstede (2013), organisations with tight cultures would tend to be cost conscious, meetings would be attended punctually and jokes about the organisation would be rare, whereas in loose cultures individuals would rarely think about cost, meeting times kept approximately and jokes about the organisation would be common.

Based upon the above, the following research hypothesis is proposed:

H.8.e.: An increase in an organisation's *orientation towards being loose rather than tight* moderates the path relationships described in the core research model.

*

Dimension 6 – Normative versus pragmatic

Hofstede et al.'s (1990) final dimension distinguishes between organisations based upon their level of customer orientation: specifically, the amount that the organisation's external contacts are carefully structured (Hofstede, 2013). Pragmatic organisations can be seen as those that are driven by the market, with the pragmatic dimension corresponding to Peter and Waterman's (1982) second maxim of 'staying close to the customer' (Hofstede, 1990). In contrast, for organisations with normative cultures, the focus would be on following organisational processes and procedures whatever the eventual customer outcome (Hofstede, 2013).

Based upon the above, the following research hypothesis is proposed:

H.8.f.: An increase in an organisation’s *orientation towards being normative rather than pragmatic* moderates the path relationships described in the core research model.

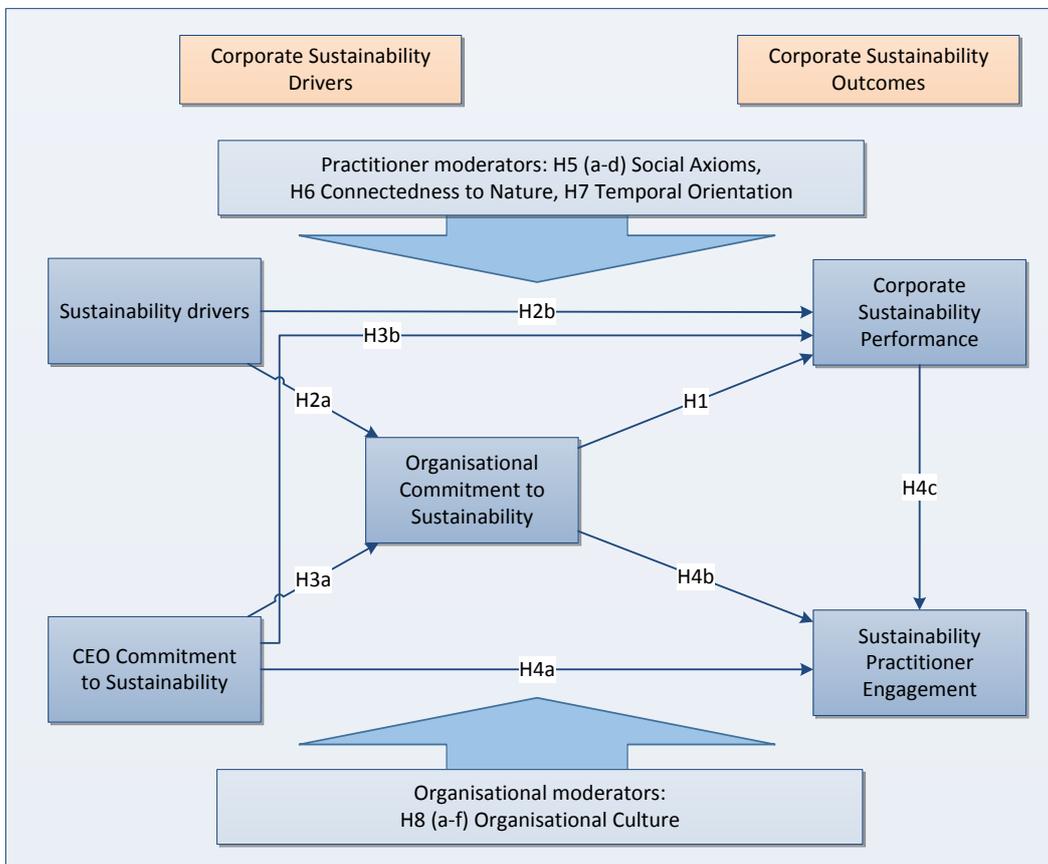
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This section has considered the potential impacts of organisational culture on the core research model. Consequently, it has elaborated a research proposition that organisational culture might act as a moderating factor on the research model. Based upon Hofstede et al.’s (1990) six-dimension culture model, a series of hypotheses related to organisational culture have been proposed.

4.5 Summary of Research Hypotheses

For clarity, the final research model together with all the research propositions and associated hypotheses are presented below:

Figure 4.5: Final Research Model and Hypotheses



Proposition 1: A relationship exists between the level of an *Organisation's Commitment to Sustainability* and its level of *Corporate Sustainability Performance*.

H.1.: Increases in the level of an *Organisation's Commitment to Sustainability* lead to increases in the organisation's levels of *Corporate Sustainability Performance*.

Proposition 2: A relationship exists between the *Sustainability Drivers* experienced by an organisation and both its *Organisational Commitment to Sustainability* and its *Corporate Sustainability Performance*.

H.2.a.: Increases in the strength of the *Business Drivers of Sustainability* an organisation experiences lead to increases in the level of *Organisational Commitment to Sustainability*.

H.2.b.: Increases in the strength of the *Business Drivers of Sustainability* an organisation experiences lead to increases in its level of *Corporate Sustainability Performance*.

Proposition 3: A relationship exists between an organisation's *CEO's Commitment to Sustainability* and both the *Organisation's Commitment to Sustainability* and its *Corporate Sustainability Performance*.

H.3.a.: Increases in the level of *CEO Commitment to Sustainability* lead to increases in the level of *Organisational Commitment to Sustainability*.

H.3.b.: Increases in the level of *CEO Commitment to Sustainability* lead to increases in the level of *Corporate Sustainability Performance*.

Proposition 4: A relationship exists between *Sustainability Practitioner Engagement* with their organisation and their *CEO's Commitment to Sustainability*, their *Organisation's Commitment to Sustainability*, and their organisation's *Corporate Sustainability Performance*.

H.4.a.: Increases in the level of *CEO Commitment to Sustainability* lead to increases in the level of *Sustainability Practitioner Engagement* towards their organisation.

H.4.b.: Increases in the level of *Organisation Commitment to Sustainability* lead to increases in the level of *Sustainability Practitioner Engagement* towards their organisation.

H.4.c.: Increases in the level of an organisation's *Corporate Sustainability Performance* lead to increases in the level of *Sustainability Practitioner Engagement* towards their organisation.

Proposition 5: The sustainability practitioner's socio-axiomatic beliefs moderate the path relationships described in the core research model.

H.5.a.: *Cynicism* moderates one or more of the path relationships described in the core research model.

H.5.b.: *Fate control* moderates one or more of the path relationships described in the core research model.

H.5.c.: *Reward for application* moderates one or more of the path relationships described in the core research model.

H.5.d.: *Social Complexity* moderates one or more of the path relationships described in the core research model.

Proposition 6: The sustainability practitioner's connectedness to nature moderates the path relationships described in the core research model.

H.6.: The sustainability practitioner's *Connectedness to Nature* moderates one or more of the path relationships described in the core research model.

Proposition 7: The sustainability practitioner's temporal orientation moderates the path relationships described in the core research model.

H.7.: The sustainability practitioner's *temporal orientation* moderates the path relationships described in the core research model.

Proposition 8: Organisational culture moderates the path relationships described in the core research model.

H.8.a.: An increase in an organisation's *orientation towards process rather than results* moderates the path relationships described in the core research model.

H.8.b.: An increase in an organisation's *orientation towards employee rather than job* moderates the path relationships described in the core research model.

H.8.c.: An increase in an organisation's *orientation towards the parochial rather than the professional* moderates the path relationships described in the core research model.

H.8.d.: An increase in an organisation's *orientation towards being open rather than closed* moderates the path relationships described in the core research model.

H.8.e.: An increase in an organisation's *orientation towards being loose rather than tight* moderates the path relationships described in the core research model.

H.8.f.: An increase in an organisation's *orientation towards being normative rather than pragmatic* moderates the path relationships described in the core research model.

4.6 Conclusion

This chapter concludes the three chapters of literature review set out in this thesis. Chapter two provided a review of the academic literature relating to sustainability conceptualising a working definition of the term corporate sustainability. The definition highlights the importance of an organisational focus on aspects such as environmental and social responsibility, stakeholder engagement and a long term outlook. The chapter also review of the business drivers of corporate sustainability identifying a series of business case drivers for organisations looking to invest in corporate sustainability.

Chapter three considered the outcomes of corporate sustainability, namely *Corporate Sustainability Performance* and *Sustainability Practitioner Engagement*. The chapter specifically examined how the concept of corporate sustainability performance has been measured, both by academics and also rating agencies. Finally, the chapter explored employee engagement theory with a specific focus on corporate sustainability and its implications for sustainability practitioners.

Chapter four brought together the above analysis of the drivers and outcomes of corporate sustainability in order to create a driver-outcome based research model of corporate sustainability together with an initial set of research propositions and associated research hypotheses. Finally, a series of factors were identified as having the potential to moderate the path relationships within the core research model. These included: practitioner factors such as socio-axiomatic beliefs, connectedness to nature and temporal orientation, and organisational factors such as corporate culture. Additional research propositions and associated research hypotheses related to the proposed moderators were then developed and presented.

The next chapter sets of the research design and methodology employed to operationalise the core research model, research propositions and associated hypotheses.

Chapter 5 Research Design and Methodology

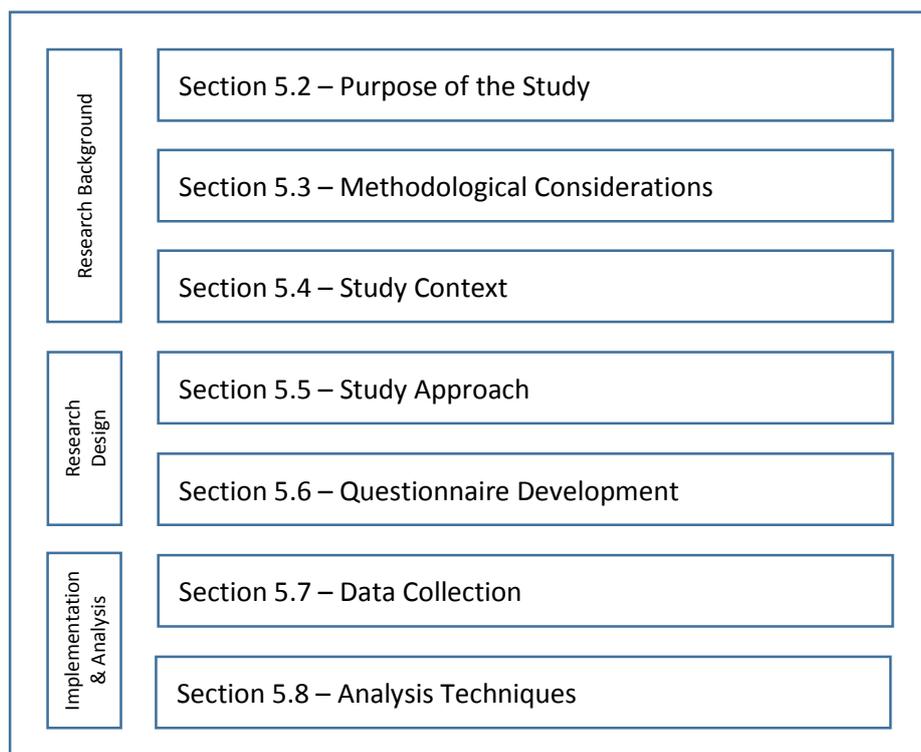
The previous three chapters provide the literature-based context for this research study including the proposed research model, propositions and hypotheses. This chapter explains how the research model and questions were operationalised. It begins in sections 5.2 and 5.3 by introducing the research process and presenting a number of methodological considerations.

Section 5.4 then provides the context for study before sections 5.5 - 5.7 explain the data collection methodology including questionnaire and scale development, sampling strategy and the data collection approach. Section 5.8 then presents the analysis procedures employed to test the research model and associated research hypotheses.

5.1 Introduction

This chapter sets out the research methodology employed to address the research questions and hypotheses raised in this study. The issues covered in the chapter are presented in figure 5.1 below, together with the section number in which the topic is discussed.

Figure 5.1: Research Design Process



5.2 Purpose of the Study

As described in chapter one, the purpose of this doctoral research study is to develop and then test empirically a model examining the drivers of corporate sustainability and associated outcomes in terms of organisations' corporate sustainability performance and also sustainability practitioners' level of engagement.

The research seeks to provide useful insights for both academic researchers and sustainability practitioners by adding to the available theoretical frameworks modelling corporate sustainability and by empirically testing the proposed framework with insights from practitioners working on corporate sustainability within the corporate sector. The framework also aims to provide insights into the business case for sustainability as well as answer calls for more academic research in this area (Salzmann et al., 2005).

This research study involves elements of both theory (or model) building and theory (or model) testing – the terms model and theory here being used interchangeably as suggested by authors such as Whetten (1989) and Maxim (1999). In terms of theory building, and in line with Cresswell's (2009: 51) formal definition of a theory as "an interrelated set of constructs (or variables) formed into propositions, or hypotheses, that specify the relationship among variables (typically in terms of magnitude or direction)," the underlying research theory in this study is developed in chapter four where the research model is elaborated based upon existing literature – both from management research and other appropriate academic fields.

For the purpose of testing, quantitative techniques are employed to test both the hypothesised driver-outcome relationships conjectured in chapter four and the moderating effects of variables such as organisational culture and sustainability practitioners' beliefs.

The remainder of this chapter provides an overview of the research strategy and methodology employed in pursuit of the above research aims with a particular focus given to the techniques and procedures used to test the research model and hypotheses set out in chapter four. It begins with a number of methodological considerations.

5.3 Methodological Considerations

Sekaran and Bougie (2013) argue that two key hallmarks of scientific research are that it is both purposive and academically rigorous. The purposiveness, or relevance, of this study is discussed in both chapters one and two, and also the previous section. Academic rigour refers to whether the research has been conducted in a thorough manner and using appropriate and generally accepted research methodologies (Remenyi et al., 2005).

To ensure the academic rigour of this study, the research is constructed wherever possible on existing published theory and research models employing previously tested measurement scales and questionnaire items. A two-phase research approach was employed consisting of an initial qualitative literature based sense-making phase (presented in chapters two, three and four) followed by a quantitative statistical testing phase based upon data collected via online questionnaires from expert respondents selected for their appropriateness to the research topic.

This two-phase approach brings together the advantages of both the qualitative and quantitative traditions. Qualitative research methods tend to be favoured in terms of theory building but have limitations in terms of generalisability and potential researcher bias (Remenyi et al., 2005). Quantitative research methods, in contrast, provide mechanisms for testing the robustness and generalisability of proposed theory by employing statistical techniques to test theories with data collected from a sample of respondents wider than feasible with purely qualitative techniques (Hair et al., 2010).

Other procedures employed to ensure academic rigour in this study included the review of the overall research process by experienced academic researchers and the pre-testing of all questionnaire items with a pilot group of respondents before the final questionnaire was rolled out. This included both those items from previously published scales as well as a number of newly created items.

Finally, the methodology employed is aligned with the researcher's personal ontological and epistemological position. This position can be summarised as critical realism within a post-positivist epistemology (Easterby-Smith et al., 2006; Bisman, 2010). Critical realism, whilst

acknowledging the existence of an independent reality with causal relationships that can be studied (Næss, 2015), takes a pragmatic approach embracing a variety of methodological techniques from different philosophical positions. This makes it particularly appropriate for research domains such as sustainability which encompass aspects of both natural science and social science (Zachariadis et al., 2013).

5.4 Study Context

There are several reasons that make an investigation of the drivers and outcomes of sustainability, particularly in the context of large commercial organisations, an interesting and important topic of research at the present time.

Firstly, and as discussed in chapter one, global economic output has increased in the last century to levels where many are asking questions about the inherent sustainability of the current system (for example: Arrow et al., 2004; Brander, 2007). Furthermore, if authors such as Hawken et al. (2001) and Porritt (2007) are correct, the window for the re-conception of economic production systems is finite and closing.

Secondly, as the global economic system grapples with the implications of sustainability, it will be businesses that will have a leading role in effecting the transition (Elkington, 1999). The sheer scale of business should not be underestimated – the combined revenues of the world's ten largest public companies ranked by turnover (Wal-Mart, Sinopec, Royal Dutch Shell, Exxon Mobil, BP, PetroChina, Volkswagen, Toyota, Glencore International, and Total) is approximately USD 3,349 billion (Forbes, 2015) which is only slightly below the International Monetary Fund's (IMF) 2015 estimate of Germany's GDP (IMF, 2015). Considered another way, the average turnover of the above ten companies is slightly larger than the GDP of Malaysia, the world's 33rd largest economy (IMF, 2015).

Furthermore, the corporate sustainability agenda is increasingly being driven more formally with the majority of large corporate organisations having established sustainability programmes. Over the past few years, and paralleling the evolution of sustainability programmes, there has been the creation of specific corporate sustainability roles which are increasingly being undertaken in large organisations by professional sustainability practitioners.

The firm establishment of the role of sustainability professionals is also evidenced by the arrival of formal professional bodies such as the ICRS (Institute of Corporate Responsibility and Sustainability) and the ASP (Association of Sustainability Practitioners), as well as specialist sustainability recruitment agencies such as Acre Resources.

In the light of the above factors, the researcher decided to undertake this research project by collecting quantitative research data directly from practitioners working on the sustainability agenda within large commercial organisations. While the factors discussed above provide the rationale for the research study undertaken, the researcher also acknowledges that there are potential limitations to the research approach and the generalisability of the findings. These limitations with the research are discussed further in chapter seven.

5.5 Study Approach

One of the first questions the researcher must address is the time horizon over which to focus their research. In deciding whether to employ a cross-sectional or longitudinal research design, there are a number of factors which must be considered.

Longitudinal research, that extends over a long period, involves analysing changes over time (Remenyi et al., 2005). In contrast, cross-sectional research focuses on understanding a situation or phenomena at a specific moment looking for differences between various groups in the research population. While frequently employed in the life sciences, where studies over five, ten or even twenty years are not uncommon, longitudinal research is not extensively used in management and business research, especially doctoral research, for reasons of both time and cost (Remenyi et al., 2005; Sekaran and Bougie, 2013).

Partly in line with these considerations of time and cost, but primarily based on the objectives of research aims, this research project is designed as a cross-sectional study. By capturing a snap-shot of data from a wide sample of sustainability practitioners working for different organisations, the study is able to investigate the linkages between the variables in the proposed research model presented in the previous chapter.

As described further in the sampling strategy below, the data collection period occurred during the period from July 2014 and May 2015. Whilst this period of data collection lasted around ten months, the research is still considered to be cross-sectional as it focuses on the differences between the organisations and the practitioners rather than attempting to analyse change over time (Remenyi et al., 2005). Given the ten-month collection window, an additional test comparing the means of early and late responders was conducted to assess whether there had been any significant changes in the key research variables over the data collection period.

5.5.1 Population and Sampling Strategy

The process of defining a sampling plan for a research project involves five well-defined procedures (Hair et al., 2011a): defining the target population; selecting the sampling frame; choosing the sampling method; selecting the appropriate sample size; and finally implementing the sampling plan. Each of these steps are discussed in turn.

The **target population** is defined by Hair et al. (2011a) as the entire group of potential respondents relevant to the research project. This project has two units of analysis (sometimes called the sampling units) – first the organisation and second the sustainability practitioner. Consequently, it is necessary to define the target population in terms of both of these groups. In order to increase the comparability between organisations, it was decided to focus on companies (both public and private) rather than non-commercial organisations, and to exclude small and medium sized enterprises (SMEs) from the study. The European Union (2015) definition of SMEs was employed which comprised of organisations with turnover of less than €50 million or less than 250 employees.

As well as keeping the sample of companies more homogeneous, SMEs were also excluded because, with smaller total headcounts, they are less likely to be able to employ practitioners dedicated to the sustainability agenda within their organisation. Consequently, and in ensuring the fulfilment of Babbie and Mouton's (2008) criterion that questionnaire respondents be informed and competent, it was felt that focusing on larger organisations would provide a more accessible source of potential and informed respondents.

A **sampling frame** is employed to provide as comprehensive a list as possible of all members of the target population and as a basis for drawing the sample using an appropriate sampling method. In an ideal situation, the sampling frame would list every member of the target population and then the sample to be surveyed would be identified using a random probability technique where each member has an equal probability of selection (Sekaran and Bougie, 2013). However, as commonly found in social science research, it is not always feasible to define a comprehensive sampling frame. In these situations, the researcher must choose from a range of non-probability based **sampling methods** such as convenience, judgement or snow-ball samplings (Hair et al., 2011a).

Many factors influence the selection of an appropriate **sample size** for a quantitative research project (Remenyi et al., 2005); one of the key factors being the statistical technique employed by the researcher. Having elected to employ Structural Equation Modelling analysis techniques, Hair et al. (2010) suggest a minimum sample size of 150 responses. Hair et al. (2014) provide a more detailed discussion of sample size in relation to the Partial Least Squares (PLS) branch of Structural Equation Modelling confirming the appropriateness of a sample of at least 150 responses providing acceptable levels of 0.70 or above are achieved on the outer loadings of the model. A more detailed discussion of the PLS Structural Equation Modelling approach is presented in section 5.8 of this chapter.

Based upon the above, and recognising that no comprehensive list of corporate sustainability practitioners is currently available, a **sampling plan** was created employing a combination of convenience and snow-ball sampling techniques with the objective of reaching the largest number of corporate sustainability practitioners feasible. This plan included, first, direct engagement with practitioners already known to the researcher and with those met at conferences and other sustainability focused networking events. Second, organisations such as Business in the Community and the Institute for Corporate Responsibility approached their members by email, on behalf of the researcher, to request participation. Third, the social networking platform LinkedIn was employed to identify suitable sustainability practitioners. Finally, snow-ball sampling was also employed with every respondent to the survey asked whether they could recommend other corporate sustainability practitioners. Whilst a strictly random sampling method was not feasible, the researcher attempted to get the widest sample possible in an effort to produce representative results.

5.5.2 Data collection methods

There are a variety of data collection methods which are commonly employed in business research. Those most frequently used to collect primary data include: interviews (both structured and unstructured conducted face to face, by telephone, or by computer), direct observational studies, and questionnaires (administered personally, by telephone or as an online survey) (Sekaran and Bougie, 2013). The following methods were employed during this research study.

Questionnaires

Whilst each collection method has advantages and disadvantages depending upon the information being sought, questionnaires are recognised as the most effective and efficient approach when collecting attitudinal data from samples too large to observe directly (Babbie and Mouton, 2008) and when the study is descriptive or explanatory in nature (Sekaran and Bougie, 2013).

Sekaran and Bougie (2013: 147) define a questionnaire as “a preformulated written set of questions to which respondents record their answers, usually within rather closely defined alternatives.” They work based on the philosophical underpinning “that there exists a generalizable public opinion that is available to be tested” (Remenyi et al., 2005: 150).

Using a questionnaire also offers the researcher the ability to reach a wide sample of respondents at a relatively low cost both financially and in terms of time (Sekaran and Bougie, 2013). Finally, by employing an online questionnaire platform, such as Survey Monkey, the risk of questionnaire miscoding by the respondent can be minimised – for example: the questionnaire platform can perform validity checks for missing data as the respondent completes the survey.

For the reasons described above, the questionnaire was selected as the principal data collection method for this research study.

Interviews

As discussed in section 5.6 (below), pre-existing measurement scales were not available for all of the constructs presents in the core research model. Consequently, it was necessary to develop scales to measure constructs such as the *Sustainability Drivers* prior to the deployment of the questionnaires. Following the scale develop process recommended by Bagozzi et al. (1991), informal exploratory interviews were conducted with seven sustainability practitioners and CEOs to explore the themes identified in the literature and to validate the appropriateness of items to be included in the questionnaire.

Using a semi-structured interview approach (Kvale and Brinkmann, 2009), the following topics were addressed: the meaning of the term corporate sustainability; the process by which decisions about sustainability were taken; the benefits the organisation expected to obtain through their sustainability investments; and the drivers or business case components employed to justify the organisations investment in sustainability.

The interviews were recorded and then subsequently partially or fully transcribed. Nvivo software by QSR International was employed to collate the main themes from the interviews. The findings from the interviews provided support for the definition of corporate sustainability elaborated from the literature review (as set out in chapter two) and also validated the key components of the new measurement scale required to measure the *Sustainability Drivers* (as also identified in chapter two).

Secondary Data Collection

In addition to capturing the perception of the sustainability practitioner, it was decided to triangulate the measurement of the one of the key constructs within the research model – that of *Corporate Sustainability Performance*. The process of triangulation uses multiple measurement methods in an attempt to improve reliability and validity, and to minimise issues such as common method bias (Remenyi et al., 2005). Common method bias can occur when attempting to measure the relationship between two constructs where the measurement of those constructs shares a common method (Podsakoff et al., 2003).

Whilst statistical methods for assessing for common method biases are available, such as testing for collinearity between constructs, the process of triangulation involves measuring constructs through multiple divergent methods to minimise the risk of bias and to enhance the accuracy of the construct's measurement. In this study, the *Corporate Sustainability Performance* construct was considered to be the construct most susceptible to common method bias and also one which could potentially be measured through external indicators.

As set out in table 3.1 (in section 3.2.1), there are a significant number of external sustainability indices. However, as discussed previously, the majority will only provide their full rating outputs on a commercial basis making their usability for academic research limited. Some provide limited disclosure (for example: the Dow Jones Sustainability Index provides a list industry leaders and members of their index while withholding individual company scores) while others such as the FTSE4Good index do not even publicly disclose their full list of constituents.

Based upon a review of the information which is made publicly available, the following indicators were included as external measures of corporate sustainability performance in this research study:

- Inclusion in the Dow Jones Sustainability index (as at April 2015) and corresponding RobecoSAM banding from the 2015 RobecoSAM Sustainability Yearbook;
- Performance score for the 2014 CDP submission (Carbon Disclosure Project);
- Inclusion in the EuroNext Vigeo indices (as at May 2015); and
- Inclusion in the Ethibel Sustainability Excellence indices (as at March 2015).

In addition to the transparency of absolute rating score, there is also an acknowledged limitation with the above external indicators because, with the exception of the CDP which privately owned businesses can elect to complete, the other three measures exclusively focus on publicly traded companies.

These limitations and their implications are discussed further in chapter seven of this thesis.

5.5.3 Ethical procedures

In line with the University of Reading's ethical procedures, both the questionnaire and sampling approach was reviewed and approved by the researcher's supervisors prior to the commencement of data collection.

5.6 Questionnaire Development

The process of questionnaire development, as articulated by many authors such as Churchill (1979), Rossiter (2002) or Hair et al. (2011a), involves a reasonably consistent series of steps comprising of:

1. **Specifying the research domain based on literature** (i.e. defining the information to be captured). In this study, the definition of corporate sustainability is elaborated in chapter two with the research model and key research constructs being developed from the literature in chapters two, three and four.
2. **Selection of the appropriate type of questionnaire together with method of administration.** Following the rationale described in the previous sections of this chapter, this study employs an online questionnaire with the web-link delivered by email to potential respondents identified as having the appropriate role and expertise to provide informed answers.
3. **Selection and / or creation of appropriate measurement scales and questionnaire items.** The majority of the scales employed in this study are based upon pre-existing and proven scales. However, for a number of the constructs in the research study, pre-existing scales were not available and therefore scales had to be created by the researcher. This was undertaken following a series of steps as recommended by Bagozzi et al. (1991) and Churchill (1979):
 - a. An **initial literature review** was conducted to identify the key elements of the required scale. For example, section 2.6 provides an in-depth review of literature relating to the business drivers for organisations investing in sustainability enabling the development of preliminary scale items associated with the key business driver themes.

- b. **Qualitative interviews** with a number of experienced sustainability practitioners to discuss the salience of the initial components identified in the literature review.
 - c. The use of **expert focus group** including experienced researchers to develop and refine the specific questionnaire items to confirm the appropriateness of the individual scale items and to assist in refining the measures.
 - d. The construction of the **provisional questionnaire** with the refined measures. (At this stage the pre-existing scale items were also added to the questionnaire so that it could be reviewed once again by the experienced researchers prior to its release to a small pilot group).
 - e. The **pre-testing of the pilot questionnaire** by a small sub-sample of the target population who are willing to provide feedback on the questionnaire. The changes made as a result of face to face feedback discussions with eight questionnaire pre-testers are discussed in sections 5.5.1 and 5.5.2 (below) which outline the full list of questionnaire scales and items.
 - f. The deployment of the **full questionnaire** according to the sampling plan (as described previously).
4. **Selection of appropriate measurement scales.** With the exception of Hofstede, Neuijen, Daval and Sanders' organisation culture scale (Hofstede et al., 1990; Hofstede, 2013) and Bergami and Bagozzi's (2000) organisation identification scale, all the questionnaire items employed a Likert scale. Commonly used to measure attitudes or opinions (Hair et al., 2011), a seven-point Likert-type scale was used from 1 (strongly disagree) through to 7 (strongly agree). A number of the pre-existing scales originally employed a five-point Likert-type scale; however, these were modified to a seven-point scale to ensure consistency and to promote ease of response for the respondents. Hofstede et al.'s organisation culture measure employed a five-point semantic differential scale (Hofstede, 2013). This scale was also modified to a seven-point scale to facilitate consistency. Finally, Bergami and Bagozzi's (2000) organisation identification scale involves eight pairs of circles in various states of overlap (labelled between A and H) with the respondent asked to indicate which pair best describes the level of overlap between their and their organisation's identity.
5. **Expert review and pre-test of the proposed questionnaire.** This was conducted as described above, first with academic researchers at Henley Business School and then with a small pilot group of respondents who provided face to face feedback to the

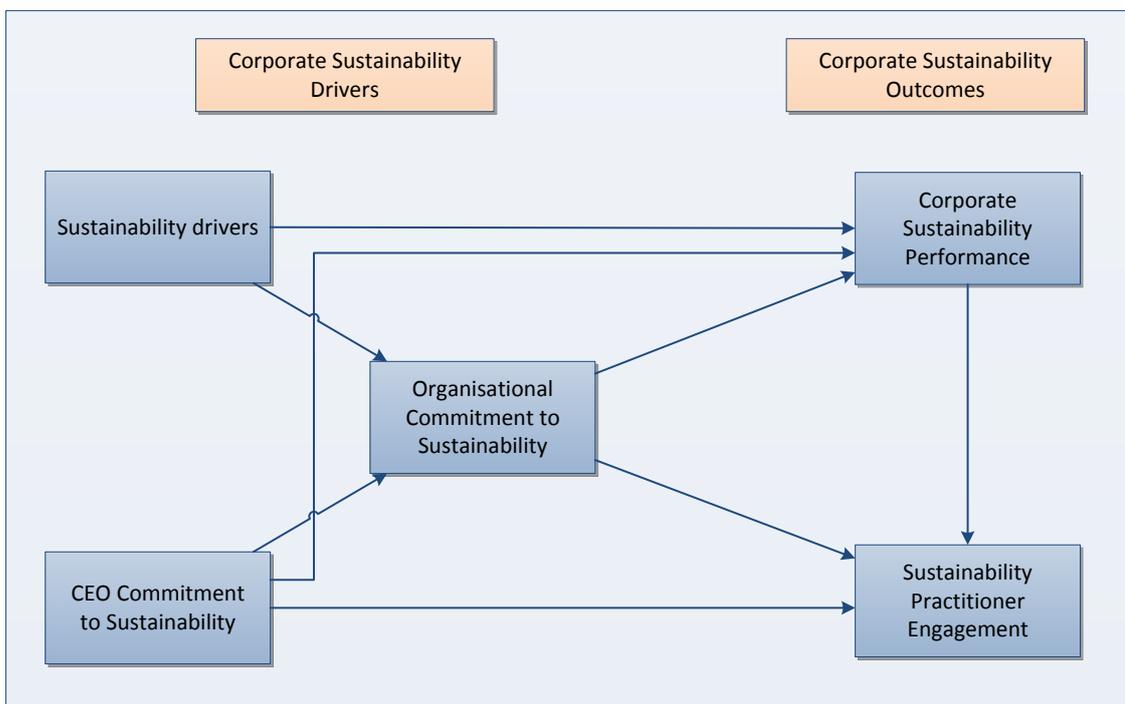
researcher enabling appropriate modifications for relevance, clarity and ease of completion to be incorporated.

The following two sub-sections describe the scales employed to measure the core research model (section 5.5.1) and the moderator variables (section 5.5.2).

5.6.1 Scales measuring Core Constructs

Based upon the literature review, the core research model was originally presented in figure 4.4 in chapter four. The model involving the five constructs: *Business Drivers of Sustainability* for the organisation; *CEO Commitment to Sustainability*; *Organisational Commitment to Sustainability*; *Corporate Sustainability Performance*; and *Sustainability Practitioner Engagement* is re-presented below in figure 5.2.

Figure 5.2: Core Driver-Outcome Model (re-presented)



This section examines the questionnaire items employed to measure each of the five constructs in the core research model:

Sustainability Drivers

As identified in chapter two, there are a wide range of factors which appear to drive organisations to invest in corporate sustainability initiatives. The literature review grouped these factors in the following clusters:

1. Access to the market (i.e. client demand)
2. Access to resources
 - a. Access to natural resources (physical inputs for production)
 - b. Access to human resources (recruitment and retention of employees)
 - c. Access to financial resources (shareholders'/owners' capital and debt)
3. Efficiency
4. Compliance (meeting legislative and NGO expectations)

Measuring these variables required the development of six new sets of scale items which were created by employing the procedure highlighted in section 5.5. This included interviews with practitioners, an expert focus group with researchers and finally pre-testing of the items. Each of the scales, measured on a seven-point Likert-type scale from strongly disagree to strongly agree, are presented below:

Access to the market (client demand)

1. Our customers / clients put pressure on us to act sustainably
2. Our customers / clients choose us based on our sustainability track-record
3. Sustainability has enabled us to create new revenue streams for our business
4. Our customers / clients are disinterested in our sustainability initiatives (reverse coded item)
5. Sustainability provides us with an opportunity for creating new products and services

Access to natural resources (physical inputs for production)

1. Our sustainability approach helps us to access the natural resources we need to do business
2. Without our focus on sustainability, we would struggle to secure the natural resources we need

Access to human resources (recruitment and retention of employees)

1. Our sustainability approach helps us to attract the best talent
2. Our employees are motivated by our approach to sustainability
3. Our sustainability approach helps us to retain our employees

Access to financial resources (shareholders'/owners' capital and debt)

1. Our shareholders / owners put pressure on us to act sustainably
2. Our shareholders / owners are disinterested in our approach to sustainability (reverse coded item)
3. Our sustainability approach is important in securing the financial capital we need

Efficiency

1. Saving money through efficiency initiatives is an important driver of our approach to sustainability
2. Our sustainability approach has significantly reduced our energy consumption
3. Our sustainability approach has significantly reduced the amount of waste we generate

Compliance (meeting legislative and NGO expectations)

1. Our sustainability initiatives protect us from NGO (pressure group) campaigns
2. Our sustainability approach is critical in complying with legislation (environmental, social)
3. Pressure from NGOs (pressure groups) is a key driver of our sustainability approach

CEO Commitment to Sustainability

Measuring CEO commitment to sustainability required the development of a new scale with the procedure highlighted in section 5.5 being followed. The proposed scale is comprised of the following three items:

1. My CEO is personally very interested in the subject of sustainability
2. My CEO is very supportive of sustainability campaigns that are developed
3. In my organisation, sustainability reports directly into the CEO

Organisational Commitment to Sustainability

Measuring organisational commitment to sustainability required the development of a new scale with the procedure highlighted in section 5.5 being completed. The proposed scale is comprised of the following nine items:

1. In my organisation, sustainability is seen as a core business function
2. In my organisation, sustainability is a key factor in strategic planning
3. In my organisation, sustainability issues are driving our business strategy
4. In my organisation, the sustainability function is seen as an add-on (reverse coded item)
5. My organisation walks the talk when it comes to sustainability
6. In my organisation, the sustainability function is seen as an innovator rather than a cost
7. In my organisation, there is a disconnect between how sustainability is talked about and the behaviours of executives (reverse coded item)
8. In my organisation, sustainability is planned on a long term horizon (at least 5 to 10 years)
9. Our sustainability initiatives are driven by a desire to be the most sustainable organisation in our sector

Corporate Sustainability Performance

In addition to the secondary data based measures of corporate sustainability performance proposed in section 5.5.2, a new scale was developed to measure the sustainability practitioners' perception of corporate sustainability performance.

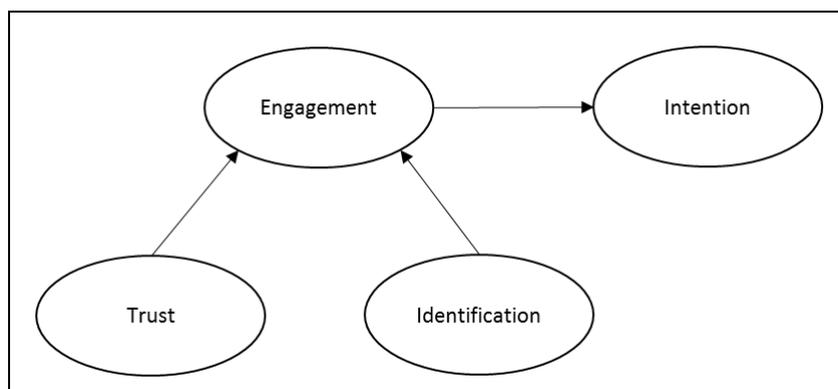
The procedure highlighted in section 5.5 was completed and the proposed scale is comprised of the following six items:

1. My organisation's sustainability approach is lagging behind those of our competitors (reverse coded item)
2. My organisation does well in sustainability rankings
3. My organisation makes a real difference to society as a result of our focus on sustainability
4. My organisation wins sustainability awards
5. My organisation is reducing its environmental footprint
6. My organisation is helping our clients / customers to be more sustainable

Sustainability Practitioner Engagement

As discussed in chapter three, there is a significant literature dedicated to the topic of employee engagement including associated concepts such as trust, identification and intention. In the hypothesised structural equation model employed in the research, the concept of employee engagement has been operationalised as shown in figure 5.3 below:

Figure 5.3: Operationalisation of the Employee Engagement Construct



Within the structural equation model, this approach to operationalising the concept of employee engagement requires the use of three separate scales for trust, identification and intention. These scales were all developed based upon existing, previously employed scales:

Trust

The concept of trust, as discussed in chapter three, has been measured by a number of established scales. The three items employed in this study are rooted in Morgan and Hunt's (1994) seminal paper and have been adapted more recently by MacMillan et al. (2004) and Hillenbrand (2007).

1. My organisation is an organisation that I trust
2. Though times may change and the future is uncertain, I know that my organisation will always be willing to offer me support
3. If my organisation made me a promise, I am sure that it would be kept

Identification

The concept of identification with an employee's organisation, as discussed in chapter three, has been measured by a number of established scales. In this study, items from two separate scales developed by Mael and Ashforth (1992), and Bergami and Bagozzi (2000) have been employed. The four items employed from Mael and Ashforth's (1992) scale are:

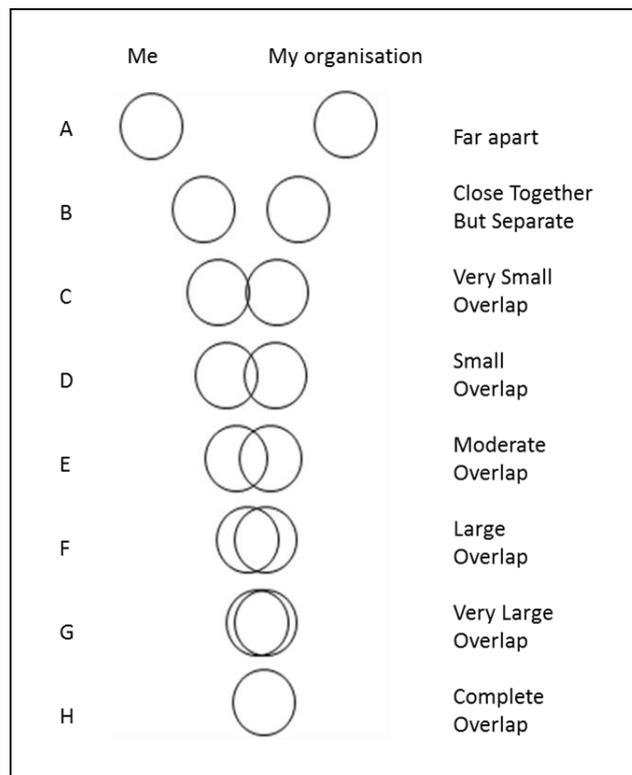
1. When someone praises my organisation, it feels like a personal compliment
2. When someone criticises my organisation, it feels like a personal insult
3. I am very interested in what others think about my organisation
4. When I talk about my organisation, I usually say 'we' rather than 'they'

The two-item scale developed by Bergami and Bagozzi (2000) was less conventional as in addition to one traditional question rated on a one-seven Likert-type scale (question 1 below), the scales also employed a visual representation question requiring the respondent to describe

their level of identification in terms of two overlapping circles (question 2 below). Both questions were included in the proposed scale for this research project.

1. My self-image overlaps strongly with my organisation's image
2. Please indicate which case best describes the level of overlap between you and your organisation's identity (in figure 5.4 below)

Figure 5.4: Bergami and Bagozzi's Visual Identification Scale



Source: Bergami and Bagozzi (2000)

Intention

Finally, the concept of intention towards an employee's organisation, as discussed in chapter three, has been measured by a number of established scales. In this study a five item scale is employed with items adapted from scales employed by Morgan and Hunt (1994), Cho (2006), Hillenbrand (2007) and West (2011):

1. The relationship I have with my organisation is something I intend to maintain for the foreseeable future
2. The relationship I have with my organisation is something I am prepared to put a lot of effort into maintaining
3. If I left my organisation as an employee, I would continue to support the organisation as much as I could
4. I would recommend my organisation as an employer
5. I am willing to go the 'extra' mile to make sure my work has an impact

5.6.2 Scales measuring Practitioner Moderator Variables

Operationalising the sustainability practitioner moderator variables elaborated in chapter four involved adapting existing sets of scales to measure three different aspects of the sustainability practitioners' belief systems: socio-axiomatic beliefs, connectedness to nature and temporal orientation. Each set are discussed below:

Social Axioms

As discussed in chapter four, social axioms provide an assessment of deeply held beliefs which are stable across different cultures and contexts. Conceptualised by Leung et al. (2002), the five individual belief constructs are: Social Complexity, Fate Control, Cynicism, Reward for Application and Religiosity. Developed originally as a 60 item scale across the five axioms, more recently a number of researchers have adopted a shortened 25 item scale based on the five highest loading items for each axiom (for example: Kwantes et al., 2008; West, 2011). Likewise, it is this more parsimonious scale which has been adopted in this study employing the following items:

Social Complexity

1. People may behave in completely different ways, depending on the occasion / circumstances
2. Human behaviour changes with the social context
3. People don't always behave in a way that reflects how they truly feel
4. There is usually only one way to solve a problem (reverse coded item)
5. One has to deal with matters according to the specific circumstances

Fate Control

1. All things in the universe have been predetermined
2. Fate determines people's successes and failures
3. Individual characteristics such as our birthday and appearance affect our fate
4. Good luck follows if we survive a disaster
5. There are ways to help us improve our luck and avoid unlucky things

Cynicism

1. Success requires showing no concern for the means needed to achieve success
2. Generous people are often taken advantage of
3. Kind-hearted people are easily bullied
4. Power and status make people arrogant
5. Powerful people tend to exploit others

Reward for Application

1. Hard-working people will achieve more in the end
2. People will succeed if they really try
3. Adversity can be overcome by effort
4. Every problem has a solution
5. Good deeds will be rewarded, and bad deeds will be punished

Religiosity

The fifth social axiom, religiosity, was removed from the study as a result of the pilot testing phase. In the feedback discussion, multiple respondents indicated that they felt that the questions were problematic. Two respondents, both who openly expressed a religious faith, individually provided highly divergent responses to the five questions. In discussion they explained the logic behind their specific responses to the individual questionnaire items, leading the researcher to question whether the items really captured the essence of Leung et al.'s (2002) definition of the religiosity dimension.

Another pilot respondent also explained that the questions about religion had made them consider abandoning the questionnaire altogether as they felt religion was a private matter and they did not feel it relevant to the sustainability agenda. Whilst not necessarily concurring with the viewpoint that religiosity is irrelevant to the study of sustainability, based upon the above points the researcher elected to remove the religiosity questions from the final questionnaire.

Connectedness to Nature

As discussed in chapter four, given the environmental nature at the root of many sustainability related challenges, the Connectedness to Nature scale developed by Mayer and Frantz (2004) was employed to assess whether sustainability practitioners' levels of emotional connectedness to the natural world could influence their perceptions of the drivers and outcomes of corporate sustainability. Following the scale development process set out in this chapter, Mayer and Frantz's 14 item scale was reduced to include the following seven items:

1. I often feel a sense of oneness with the natural world around me
2. I think of the natural world as a community to which I belong
3. I often feel disconnected from nature (reverse coded item)
4. When I think of my life, I imagine myself to be part of a larger cyclical process of living
5. I have a deep understanding of how my actions affect the natural world
6. Like a tree can be part of a forest, I feel embedded within the broader natural world
7. My personal welfare is independent of the welfare of the natural world (reverse coded item)

Personal term orientation

As discussed in chapter four, given the long term nature of many sustainability related challenges, a six item scale developed by Sharma (2010) was employed to assess sustainability practitioners' personal term orientation (long term versus short term). The six items, scored across a seven-point Likert-type scale, are:

1. I believe in planning for the long term
2. I work hard for success in the future
3. I am willing to give up today's fun for success in the future
4. I do not give up easily even if I do not succeed on my first attempt
5. I plan everything carefully
6. I consider many alternatives before making any decision

5.6.3 Scales measuring Organisational Moderator Variables

Operationalising the organisational moderator variables elaborated in chapter four involved employing an existing set of scales to measure organisational culture. Following the discussion set out in chapter four, the short version of the organisation culture scale proposed by Hofstede et al. (1990) was adopted for this study. The six semantic differential scales, each consisting of three items, measure the following dimensions of organisational culture:

Dimension 1 – Process oriented versus results oriented

The three items in this scale distinguish between organisations focused on means rather than outcomes (Hofstede, 2013). While noting a tendency towards outcomes being seen as good in this scale, Hofstede notes that there are some circumstances where a process focus is strongly desirable. The three items, scored at either end of a seven-point semantic differential scale are:

1. People are uncomfortable in unfamiliar situations; they try to avoid taking risks
versus
People are comfortable in unfamiliar situations; they do not mind taking risks

2. People spend the least effort possible
versus
Everybody always puts in a maximum effort

3. Each day brings new challenges (reverse coded item)
versus
Each day is pretty much the same

Dimension 2 – Employee oriented versus job oriented

The three items in this scale distinguish between organisations focused on a concern for its people rather than a concern for getting the job done (Hofstede, 2013). The dimension was developed based upon the two axes of Blake and Mouton's (1964) Management Grid. The three items, scored at either end of a seven-point semantic differential scale are:

1. There is a strong pressure for getting the job done; there is little concern for personal problems of employees (reverse coded item)
versus
Personal problems of employees are always taken into account; getting the job done comes second

2. Our company/organisation takes a major responsibility for the welfare of its employees and their families
versus
Our company / organisation is only interested in the work our employees do

3. All important decisions are taken by individuals (reverse coded item)
versus
All important decisions are taken by committees

Dimension 3 – Parochial versus professional

The three items in this scale distinguish between organisations where employees derive their identity from their organisation rather than their type of job (Hofstede, 2013). In a parochial culture, employees felt that the organisation's culture extended to cover their behaviours

outside of their workplace. The three items, scored at either end of a seven-point semantic differential scale are:

1. People's private lives are considered their own business (reverse coded item)
versus
The norms of our organisation cover people's behaviour both on the job and at home
2. Job competence is the only criterion used for hiring people; their background does not influence the decision (reverse coded item)
versus
People from the right family, social class, or school background have a better chance of being hired
3. We do not think more than a day ahead
versus
We think three years ahead or more

Dimension 4 – Open versus closed

The three items in this scale distinguish between organisations based upon whether their communication climate is open or closed (Hofstede, 2013). Based on research by Poole (1985), open organisations were seen as open to newcomers while in closed organisations employees were closed and secretive. The three items, scored at either end of a seven-point semantic differential scale are:

1. Our organisation and people are open and transparent to newcomers and outsiders
versus
Our organisation and people are closed and secretive, even amongst insiders
2. Almost anyone would fit into our organisation
versus
Only very special people fit into our organisation
3. New employees usually need more than a year before they feel at home (reverse coded item)
versus
New employees usually need only a few days to feel at home

Dimension 5 – Loose versus tight

The items in this scale differentiate organisations based upon their level of internal structure (Hofstede, 2013). The three items, scored at either end of a seven-point semantic differential scale are:

1. Everybody is highly conscious of the cost of time and/or materials (reverse coded item)
versus
Nobody ever thinks of the cost of time and / or materials
2. Meeting times are kept very punctually (reverse coded item)
versus
Meeting times are only kept approximately
3. We make a lot of jokes about the company / organisations and our job
versus
We also speak seriously of the company / organisations and our job

Dimension 6 – Normative versus pragmatic

The three items in this scale distinguish between organisations based their level of customer focus (Hofstede, 2013). Essentially, a pragmatic culture is customer oriented while a normative culture is more focused on organisational procedures. The three items, scored at either end of a seven-point semantic differential scale are:

1. The major emphasis is on meeting the needs of the customer (reverse coded item)
versus
The major emphasis is on correctly following organisational procedures
2. Correct procedures are more important than results
versus
Results are more important than correct procedures

3. We have high standards of business ethics and honesty, even at the expense of short-term results
versus
In matters of business ethics, we are pragmatic, not dogmatic

5.7 Questionnaire Data Collection

The sustainability practitioner data was collected between July 2014 and May 2015 using the subscription version of the Survey Monkey online questionnaire platform. Whilst using the subscription version was necessary given the number of questions in the final survey, it also provided the ability to customise the look and feel of the questionnaire and include Henley Business School branding to reinforce the researcher's affiliation.

As discussed in the sampling plan, a combination of convenience and snow-ball sampling techniques were employed with the objective of reaching the largest number of corporate sustainability practitioners feasible. The web-link to the survey was distributed in the following ways: directly to practitioners already known to the researcher; to contacts made at conferences and other sustainability related networking events; indirectly on behalf of the researcher by organisations such as Business in the Community and the Institute for Corporate Responsibility; to approximately 800 sustainability practitioners contacted through the social networking platform LinkedIn; and finally by asking all respondents to recommend other corporate sustainability practitioners who would be appropriate potential respondents.

In total 433 people opened the online questionnaire, with complete (or near complete) responses received from 297 respondents. These responses were reduced to the final sample of 177 questionnaires which were included in the data analysis once multiple responses from single companies and responses from practitioners working in small and medium sized enterprises and non-commercial organisations had been removed.

Another advantage of the Survey Monkey online questionnaire platform is the ability to track the method by which respondents were contacted by providing different web-links to the same research questionnaire. Table 5.1 (overleaf) shows the source of the responses, both for

respondents who commenced the questionnaire and those included in the final sample analysed.

Table 5.1: Sources of Questionnaire Respondents

Source of response	Commenced questionnaire	Included in final sample
Respondent contact made through LinkedIn	187	70
Contact made at conference / networking event	89	41
Respondent was an existing contact of the researcher	76	33
Respondent was introduced by survey respondent	61	20
Respondent was introduced by third party (e.g. BITC)	20	13
	433	177

The overall process of selecting the final 177 questionnaires which were included in the data analysis is discussed in detail in the Data Preparation section of chapter six together with the activities required to code the data ready for statistical analysis (for example: the recoding of items measured using reverse coded questions).

5.8 Analysis

Once the final data sets (both the questionnaire data and the secondary corporate sustainability performance data) had been collected, they were both coded in preparation for statistical analysis using the two software packages: IBM SPSS Statistics 21 and SmartPLS 3.

Initially, standard measures of central tendency and spread were assessed using SPSS to calculate mean, standard deviation, skewness and kurtosis. The next step was to establish the robustness of the scales (both the existing pre-existing scales selected and newly developed scales) using both factor analysis techniques and scale reliability techniques such as assessment using Cronbach Alpha coefficient (Cronbach, 1951) calculated within SPSS.

Once these pre-tests had been completed, the final data upload file for SmartPLS was prepared to enable the structural equation modelling to be completed. This preparation included the

creation of the necessary summated scales, the inclusion of the secondary data items measuring corporate sustainability performance, and finally the application of specific coding to missing data items (assigning the value -1) as required by SmartPLS package.

SmartPLS was then employed to conduct Partial Least Squares (PLS) structural equation modelling to first examine the core research model together with the associated hypotheses (H.1 to H.4) proposed in chapter four.

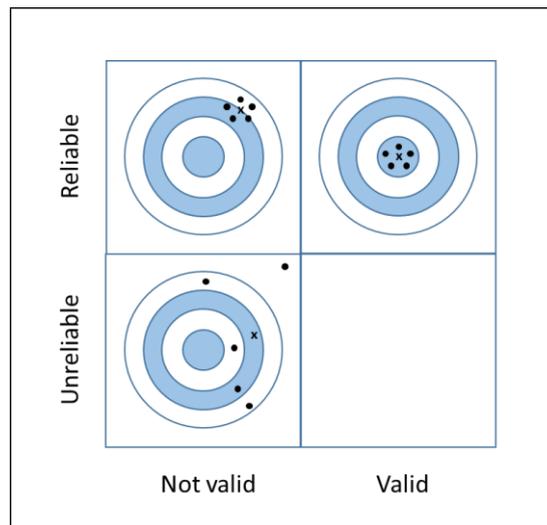
Following the recommendation of Hair et al. (2014), a two-stage assessment process was employed for examining the proposed driver-outcome model of corporate sustainability. This involved initially testing the measurement model and then examining the underlying structural model. This process is described in the following two sub-sections 5.8.1 and 5.8.2.

Finally, the effects of the moderator variables introduced in chapter four were analysed using a categorical moderator modelling technique as recommended by Henseler et al. (1990). This process is described in sub-section 5.8.3.

5.8.1 Evaluation of the Measurement Model

The evaluation of the measurement model, sometimes described as the outer model, is concerned with measuring both the reliability and validity of the measurement constructs employed (Hair et al., 2010). The distinction between reliability and validity is illustrated in the figure 5.5 (overleaf) adapted from Mooi and Sarstedt (2011).

Figure 5.5: Conceptualisation of Reliability and Validity



Adapted from Mooi and Sarstedt, 2011

In each of the three targets within the diagram the centre of the target represents the actual value of a construct (for example: a customer's level of satisfaction). As the construct (i.e. customer satisfaction) cannot be measured directly, the researcher has employed five separate measures to assess satisfaction (for example: a short questionnaire with a scale comprising of five separate items) the results of which are shown as five black circles. The black cross represents the average value of the five black circles (for example: a summated scale).

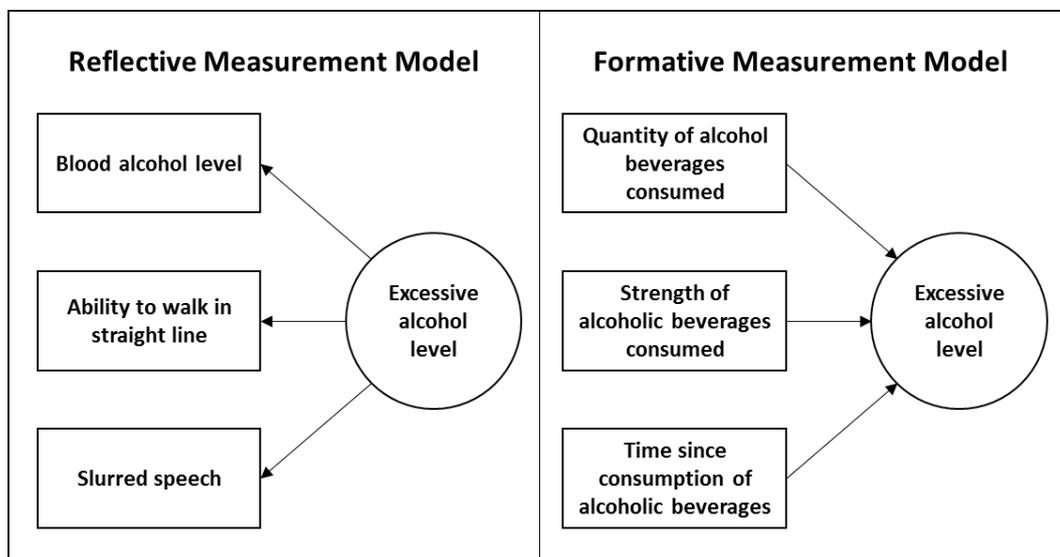
The validity of the measure can be considered by the closeness of the black cross (the measured value of customer satisfaction) to the centre of the target (the actual value of customer satisfaction). Reliability, meanwhile, can be considered as the closeness of the black circles to the black cross: if they are close together, the construct can be seen as reliable. This is sometimes known as internal consistency reliability (Hair et al., 2011a).

Accordingly, the measure shown in the top right quadrant can be considered reliable and valid. In contrast, the scenario shown in the top left quadrant illustrates a situation where the measure is reliable (each of the items provide a consistent measure) but not valid (as they do not provide a good measure of the underlying construct). The bottom left quadrant shows a situation where the measure is unreliable, as the individual items are dispersed, and invalid. The final box is left empty as an unreliable measure can never be considered as valid (Mooi and Sarstedt, 2011).

Assessing the robustness of the constructs (in terms of reliability and validity) is achieved by following a series of prescribed statistical tests. This first requires the researcher to distinguish whether the measures have been constructed using reflective or formative indicators (Henseler et al., 2009).

Reflective indicators “are believed to reflect the unobserved, underlying construct, with the construct giving rise to (or ‘causing’) the observed measures ... [while] formative indicators define (or ‘cause’) the construct” (Hulland, 1999: 199). Consider the following example presented in figure 5.6 below.

Figure 5.6: Illustration of Reflective and Formative Measures



Adapted from Hillenbrand (2007)

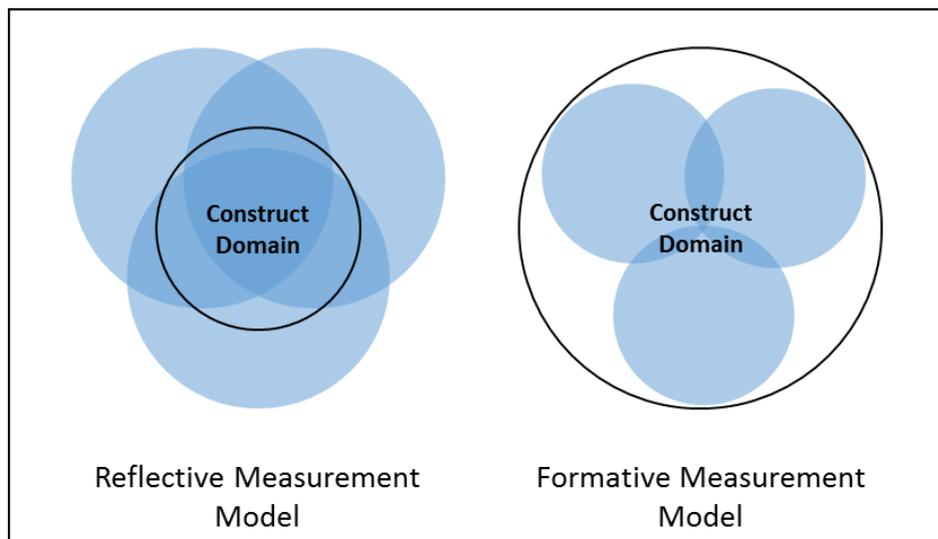
Measures of the individual’s blood alcohol level, ability to walk in a straight line or speak coherently are reflective measures of excessive levels of alcohol consumption (they measure the effect of excessive alcohol levels). In contrast, formative measures such as the quantity and strength of alcohol consumed and the time since consumption are measures of the cause of excessive alcohol levels.

As Hair et al. (2014) observe, the decision whether to employ formative or reflective indicators is not clear cut and despite debate has still not been fully resolved. Consequently, the researcher must carefully consider whether to employ reflective and formative indicators based

upon the relationship between the individual items measured and the construct (Hulland, 1999).

One way of conceptualising the difference between the mechanisms by which formative and reflective indicators measure a construct can be illustrated in figure 5.7, adapted from Hair et al. (2014) and presented below.

Figure 5.7: The difference between Reflective and Formative Measures



Source: adapted from Hair et al. (2014)

As shown in the diagram, reflective measurement items all attempt to explain the overall construct under consideration. Consequently, a high degree of overlap (i.e. correlation) is expected between the items. In contrast, it is the combination of different formative measures which attempt to explain the construct by measuring different, and not necessarily overlapping, elements of the construct.

As a result of this difference in measurement approach, separate groups of statistical tests are employed in assessing both the reflective and formative constructs employed in the measurement model:

Reflective Indicators

Hair et al. (2011) advise that the reflective components within the measurement model should be assessed for both their reliability and validity using a four step assessment process:

Reliability

1. Internal consistency reliability (composite reliability)

As previously discussed, reliability concerns the degree to which the observations or measures of a construct are consistent and stable (Remenyi et al., 2005; Mooi and Sarstedt, 2011). The reliability of constructs is traditionally assessed using the Cronbach Alpha coefficient which employs indicator inter-correlations as a basis for assessing internal consistency (Cronbach, 1951). However, Hair et al. (2011: 145) advise that in PLS-SEM composite reliability scores should be employed rather than the Cronbach Alpha coefficient as composite reliability “prioritizes indicators according to their reliability during model estimation.” Composite reliability scores are considered acceptable if between 0.70 and 0.90, with lower scores between 0.60 and 0.70 being acceptable for exploratory research (Nunnally and Bernstein, 1994).

2. Indicator reliability

In addition to the overall composite reliability for each construct, Hair et al. (2011: 145) advise that each indicator item within the construct should have an indicator loading of greater than 0.70, with any items with an indicator loading between 0.40 and 0.70 “considered for removal from the scale if deleting this indicator leads to an increase in composite reliability above the suggested threshold value.”

Validity

Having established reliability, the reflective indicators within the measurement model then need to be assessed for validity. Validity represents the degree to which the measured item is the same as the construct of which it is intended to measure (Remenyi et al., 2005). In PLS-SEM this requires testing both convergent validity and discriminant validity.

3. Convergent validity

Convergent validity assesses the extent to which the individual items in a specific construct converge by considering the proportion of variance they have in common (Hair et al., 2010). Within PLS-SEM, convergent validity is assessed using the Average Variance Extracted (AVE) output variable. Hair et al. (2011) advise that the AVE should be greater than 0.50, meaning that the latent variable is explaining at least half of its indicator's variance.

4. Discriminant validity

Discussion of convergent validity assesses the extent to which the individual construct is truly distinct from the other constructs in the model (Hair et al., 2010). Discriminant validity is assessed within PLS-SEM by examining both the cross-loadings between the indicators and also the Fornell-Larcker criterion. The former requires the examination of each indicator's loadings to ensure that they are higher than all of its cross loadings (Hair et al., 2011). The more conservative Fornell-Larcker criterion (Fornell and Larcker, 1981) states that the AVE of each latent construct should be "higher than the construct's highest squared correlation with any other latent construct" (Hair et al., 2011: 145).

Formative indicators

The nature of formative indicators means that the traditional statistical evaluations employed for reflective measures cannot be employed. With constructs measured using formative indicators, the individual indicators are not expected to be highly correlated, and furthermore formative indicators are assumed to be error free (Edwards and Bagozzi, 2000). Consequently, whilst internal consistency reliability and convergent validity are not meaningful concepts when discussing formative indicators, a strong theoretical rationale and expert opinion play a more important part in establishing formative indices (Hair et al., 2011). In addition, PLS-SEM also provides a number of statistical criteria for assessing formative indicators:

1. Indicator weights and loading

As PLS-SEM does not make the assumption that the individual data items are normally distributed, a non-parametric boot-strapping procedure must be employed in order to test individual coefficients for significance (Hair et al., 2014). By employing a large number of boot-strapping iterations (Hair et al. (2011) recommend at least 5,000), the significance of the formative indicators' outer weights can be tested. Hair et al. (2011) argue that when an indicator's weight is found to be significant, there is empirical justification to retain the indicator. Furthermore, they argue that if an indicator's weight is not significant, but the item's corresponding loading is relatively high (> 0.50), the indicator should be retained. However, if the weight is not significant and the loading is low (< 0.50), then there is no empirical support for the indicator's inclusion and it should be removed (Cenfetelli and Bassellier, 2009).

2. Multi-collinearity

Finally, the formative measures should be assessed for the presence of high levels of collinearity which could imply that the indicator's information is redundant (Henseler et al., 2009). Hair et al. (2011) recommend that indicators are assessed by calculating the variance inflation factor (VIF) for formative measures, with VIF values below five indicating that multi-collinearity is not an issue of concern.

5.8.2 Evaluation of the Structural Model

Having established the validity and reliability of the measurement model, the next step in PLS-SEM is to assess the structural (or inner) model. Hair et al. (2014) recommend the assessment of the structural model in the following five step process:

1. Assessment for collinearity

To assess for multi-collinearity in the inner model, the same measures are applied as in the evaluation of the formative elements of the measurement model (i.e. the assessment of the variance inflation factor (VIF)). As in the previous application, VIF scores of above five are taken

as indicative of problematic collinearity (Hair et al., 2104), in which case the elimination or merging of problematic constructs is recommended.

2. Structural model path coefficients

Next the sign, magnitude and the significance of the structural model's path coefficient are considered. The path coefficients have standardised values of between -1 and +1, such that estimated path coefficients of close to +1 indicate strong positive relationships that are almost always statistically significant (Hair et al., 2014). Likewise, path coefficients close to -1 would usually indicate a strong negative relationship. These standardised individual path coefficient values within the PLS structural model can be interpreted as analogous to the standardised beta coefficients in ordinary least squares regression (Henseler et al., 2009; Hair et al., 2011).

The sign of the path coefficients (positive or negative) should be assessed against the a priori postulated sign of the path coefficients indicated by hypotheses elaborated from the theoretical model. Where the sign contradicts the theoretical model, the PLS structural model should be considered as not supporting the a priori formed hypotheses (Henseler et al., 2009).

Finally, the level of significance of each path coefficient is assessed by once again employing the bootstrapping process (Hair et al., 2011) with paths that are found to be non-significant not supporting the a priori hypotheses. Paths which are both significant and that align to the hypothesised sign can be considered as empirically supporting the proposed causal relationship (ibid).

3. R² values

The R² value for each latent variable in the model provides a measure of the effectiveness of the exogenous variables' ability to explain the latent (or endogenous) variables in the model. The R² value may range between 0 and 1, with a higher value indicating the model providing stronger explanatory power (Hair et al., 2011). The expected level of R² values are acknowledged to vary by discipline. Chin (1998) cites R² values of 0.67, 0.33 and 0.19 for endogenous latent variables as substantial, moderate and weak, whilst Hair et al. (2011) argue for corresponding values of 0.75, 0.50 and 0.25.

4. Effect size (f^2)

In addition to evaluating the R^2 values for all endogenous variables, Hair et al. (2014) recommend the assessment of the f^2 effect size. The f^2 effect size measures the change in the R^2 value of the endogenous variable when a specified exogenous construct is removed from the model. Values of 0.02, 0.15 and 0.35 can be considered as small, medium and large effect sizes of the exogenous latent variable (Cohen, 1998).

5. Predictive relevance of the model (Q^2)

Finally, the predictive relevance of the model should be assessed using Stone-Geisser's Q^2 value (Geisser, 1974; Stone, 1974). The Q^2 value is obtained in PLS-SEM using the blind-folding process that omits every n^{th} data point in the endogenous construct's indicators and then estimates the parameters with the remaining data points (Hair et al., 2014). The value of n is commonly chosen to be 7 providing it is not a factor of the number of observations. Hair et al. (2014) advise that Q^2 values which are greater than zero indicate that the exogenous constructs have predictive relevance for the endogenous construct being considered.

5.8.3 Evaluation of the Moderating Factors

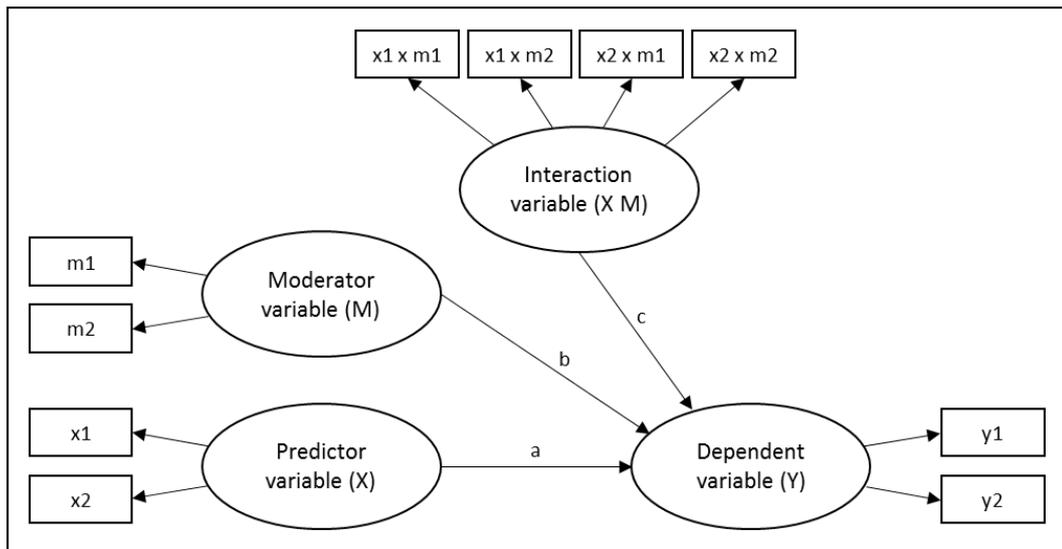
As introduced in chapter four, in addition to the core research model and associated hypotheses, this research study was also designed to investigate the impact of a number of organisational and practitioner related moderating factors on the core driver-outcome model. This additional level of analysis is relevant for two key reasons: first, examining potential moderating factors provides the opportunity for additional research contributions; and secondly, as Hair et al. (2011) argue ignoring potential heterogeneity between sub-groups of the sample population can actually provide a threat to the validity of the PLS structural model.

There are two main approaches available for examining moderating factors in PLS structural models:

1. Introducing an exogenous interacting variable

The first approach is to introduce an exogenous interacting variable within the structural equation model (Hair et al., 2014) as shown in figure 5.8 (overleaf).

Figure 5.8: Example of introducing an Exogenous Interacting Variable



Source: Adapted from Hair et al., 2014

In the example above, the original model involves a predicted relationship path (a) between the predictor variable (X) and the dependent variable (Y). In order to test the impact of a moderator variable (M), the moderator variable (M) and an interaction variable (the predictor multiplied by the moderator) are added to the model with paths (b) and (c). In this construction, the hypothesised moderator is supported if the interaction (c) is significant (Baron and Kenny, 1986).

2. Employing a categorical moderating variable

While the above approach enables the assessment of the moderation effect on a single predictor variable – dependent variable relationship path, a second approach to assessing moderator variables enables the moderator effects across the overall PLS structural model to be evaluated (Hair et al., 2014). In this approach, the population sample is divided into two sub-samples divided between those responses above and those below the mean (or median) value of the moderator variable in the sample.

The PLS structural model is then run twice: once for the subset with lower moderator values and once for subset with higher moderator values. The various path coefficients for the two models are then compared based upon a modified version of a two-independent-samples *t*-test proposed by Keil et al. (2000). If under Keil et al.'s test, the path coefficients are significantly different at the $p < 0.10$ or lower level then the moderator is considered to have a statistical significant effect on that specific predictor variable – dependent variable relationship path.

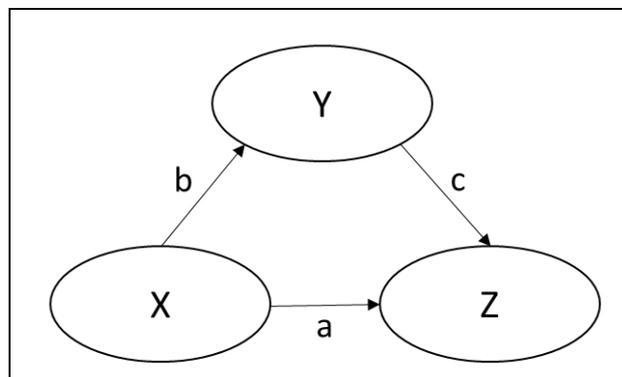
*

For the purpose of this research study the latter categorical approach to assessing the impact of the hypothesised moderator variables has been employed as it provides the advantage of being able to assess the overall PLS structural model rather than only single relationship paths.

5.8.4 Evaluation of the Mediator Effects

Mediator effects occur when a direct relationship between an interdependent variable and dependent variable is impacted by a third mediator variable. Graphically, mediation is illustrated by figure 5.9 (below) where the additional variable, Y, provides extra information about the direct relationship effect between variables X and Z via its indirect effect from X to Z via Y (Hair et al., 2014). Depending on the strength of this indirect effect, the mediator variable is can be defined as providing partial or full mediation.

Figure 5.9 Illustration of Mediator Model



Adapted from Hair et al., 2014

When assessing for mediation in PLS structural equation models, Hair et al. (2014) recommend employing a boot-strapping based process based upon Preacher and Hayes (2004 and 2008) to assess the significance of indirect effects within the model.

The first step is to test the significance of the unmediated direct relationship between the two variables being examined by running the PLS model with the proposed mediator variable removed (i.e. the removal of variable Y in figure 5.9). Assuming a significant relationship exists between the two variables (i.e. the path represented by 'a' in figure 5.9 is shown to be significant through the boot-strapping process), then the second step involves testing the significance of the indirect relationship.

Returning to the complete model, the two components of indirect relationship (represented by paths 'b' and 'c' above) must both themselves be shown to be significant under boot-strapping. Assuming this is true, the significance of the indirect relationship can be tested by dividing the product of the path coefficients of 'b' and 'c' by the standard deviation of the product of the coefficients in the 5,000 sample generated in the boot-strapping process (i.e. the standard deviation of $b_1 \times c_1, b_2 \times c_2, b_3 \times c_3, \dots b_{5000} \times c_{5000}$). This process calculates a t-test of significance and hence values greater than 1.96 and 2.57 indicate significance at the $p < 0.05$ and $p < 0.01$ levels respectively.

Having established the indirect relationship is significant, the final stage of the assessment process involves the calculation of the variance accounted for (VAF). The size of the VAF, calculated as the indirect effect divided by the total effect (the direct effect + indirect effect), determines the level of mediation. A VAF greater than 80% indicates full mediation, while a VAF between 20% and 80% indicates partial mediation. A VAF of less than 20% indicates no mediation.

5.9 Conclusion

This chapter has provided an overview of the methodology employed in this research study. It has included: discussion of the purpose of the study; the approach undertaken (including questionnaire preparation and data collection); and the PLS-SEM based analysis techniques

employed. It is intended to provide the reader a basis for understanding the quantitative analysis and results presented in the next chapter.

Chapter 6 Results and Hypothesis Testing

The previous chapter outlined the research design and methods employed to test the proposed research model and hypotheses elaborated in chapter four. This chapter details the implementation of the approach described in chapter five and sets out the results of the statistical analysis. A discussion of the results is then presented in chapter seven.

Section 6.1 provides an introduction to the chapter before section 6.2 describes the data preparation process including the treatment of missing values, outliers and normality. Section 6.3 provides an overview of the demographics of the final sample before section 6.4 employs factor analysis techniques to examine the various summated scales employed in the research.

In sections 6.5 and 6.6 the core Partial Least Squares (PLS) Structural Equation Model (SEM) is assessed before the effects of the various proposed moderators are examined in sections 6.7 and 6.8. Mediation effects within the model are considered in section 6.9 before section 6.10 assesses an alternative version of the research model employing external measures of corporate sustainability performance. Section 6.11 concludes the chapter.

6.1 Introduction

The purpose of this research is to examine the drivers and outcomes of corporate sustainability for both organisations and sustainability practitioners. In addition, the research examines the effects of various organisational and practitioner related moderating factors (such as organisational culture, social axiomatic beliefs, term orientation and connectedness to nature). The above analysis is completed in the context of large commercial organisations.

The analysis commences with a detailed examination of the data collected from both an online questionnaire completed by a group of sustainability practitioners between July 2014 and May 2015, and secondary data sources relating to corporate sustainability performance. The examination of data is followed by an analysis of the various measurement scales (both existing and newly proposed) employed in the research model.

The proposed research model is then tested employing Partial Least Squares (PLS) Structural Equation Model (SEM) techniques using the Smart PLS software package. As recommended by Hair et al. (2014), this comprises of a two-stage process examining first the measurement (or

outer) model to assess the reliability and validity of the measurement indicators employed, and secondly testing the structural (or inner) model. Finally, the effects of the proposed moderating variables are tested using a categorical moderating variable technique recommended by Henseler et al. (1990).

6.2 Data Preparation

As described in chapter five, the primary source of data collection for this research study was through the administration of a 102 item questionnaire hosted on the web-based Survey Monkey platform. In total, the online questionnaire was opened 433 times with complete (or near complete) responses received from 297 respondents. This number was reduced to the final sample of 177 questionnaires through the processes described in this section.

The full questionnaire is presented in Appendix 3. The questionnaire was divided into the following sections:

Preliminary section

This section included background information about the research project together with the necessary ethics approval statements from the University of Reading. It also requested the name of the respondent's organisation. This was considered to be a critical piece of information for the collection of additional secondary data, and accordingly the questionnaire was configured such that the respondent could not proceed until they had provided this information.

A small number of respondents typed in 'Anonymous' or a string of random letters to enter the first section of the survey. However, ultimately none of the anonymous responses completed the entire survey (most completed only the first section and then stopped) and so for all the responses taken forward, the organisation was known.

A total of 433 respondents completed the preliminary section and entered section 1 of the questionnaire.

Section 1 – Questions related to the business drivers of sustainability

The first section of the questionnaire contained the 19 questions relating to the business drivers of sustainability for focusing on sustainability within the respondent's organisation. The newly developed items relating to the dimensions of the business case for sustainability identified in chapter two were measured on a seven-point Likert-type scale (from strongly disagree to strongly agree). The items are presented in full in section 5.6.1. During the pilot testing phase it was discussed whether a 'Not Applicable' option should also be offered in this section. The feedback from the pilot respondents (none who used the 'Not Applicable' option that was offered in the pilot questionnaire) was that it was not required. Consequently, no 'Not Applicable' option was included in any section of the final questionnaire.

A total of 335 respondents completed section 1 and entered section 2 of the questionnaire.

Section 2 – Questions related to sustainability within the respondent's organisation.

The second section of the questionnaire contained 18 questions relating to the position of sustainability and sustainability performance within the respondent's organisation. These items, developed specifically for this research study, comprised of the questions set out in section 5.6.1 relating to the respondent's perception of *CEO Commitment to Sustainability* and *Organisational Commitment to Sustainability* as well as their perception of their organisation's *Corporate Sustainability Performance*. The items were measured on a seven-point Likert-type scale (from strongly disagree to strongly agree).

A total of 309 respondents completed section 2 and entered section 3 of the questionnaire.

Section 3 – Questions related to respondent's relationship with their organisation.

The third section of the questionnaire contained 14 questions relating to the sustainability practitioner's relationship with their organisation. The questions were all items from pre-existing scales measuring trust, identification and intention and all except one were measured on a seven-point Likert-type scale (from strongly disagree to strongly agree). The final item, a visual identification question developed by Bergami and Bagozzi (2000), employed an eight-

point scale based on overlapping circles. The individual questions are set out in full in section 5.6.1.

A total of 303 respondents completed section 3 and entered section 4 of the questionnaire.

Section 4 – Questions related to respondent’s personal beliefs.

The fourth section of the questionnaire contained 33 questions relating to the sustainability practitioner’s individual beliefs. The first 20 items measured four of Leung et al.’s (2002) dimensions of social axiomatic beliefs (social complexity, fate control, cynicism, reward for application and religiosity). The remaining questions measured the practitioner’s personal temporal orientation (long versus short term) and their connectedness to nature (Mayer and Frantz, 2004). These items, taken from pre-existing scales, are set out in full in section 5.6.2 and all employ a seven-point Likert-type scale (from strongly disagree to strongly agree).

A total of 299 respondents completed section 4 and entered section 5 of the questionnaire.

Section 5 – Questions related to the culture of the respondent’s organisation.

The fifth section of the questionnaire contained 18 questions measuring the culture of the respondent’s organisation based upon six specific dimensions. The six individual scales, developed by Hofstede et al. (1990), each comprised of three items measured on a semantic differential scale. In Hofstede et al.’s original deployment five-point semantic differential scales were employed. In this research study, following discussion with the pilot group respondents, this was amended to a seven-point semantic differential scale to align with the remainder of the questionnaire which employed seven-point scales. These items are set out in full in section 5.6.3.

A total of 292 respondents completed section 5 of the questionnaire.

Demographic Questions

A final section of the questionnaire asked a series of demographic questions relating to the respondent's gender, age, nationality, role, length of time with organisation, and geographic area of responsibility. Respondent were also asked if they would be willing to be contacted for a short follow-up telephone interview and whether they would like a short summary of the research findings.

Secondary Data

The collection of the secondary data was completed using the internet to access publicly available data from the web-sites of a selected number of research organisations providing indicator based measures of Corporate Sustainability Performance (as described in chapter three). The primary constraint in collecting the appropriate secondary data was the amount of the research data freely available to the public.

6.2.1 Missing and Miscoded Values

One advantage of the Survey Monkey platform is the ability to control the respondent's flow through the questionnaire completion process. For example, the survey can be configured in a series of separate sections such that the respondent cannot progress to the next section until all the questions in the current section are completed. This enables the elimination of many of the issues often associated with questionnaire completion (for example: missing and miscoded data).

Normally with questionnaire datasets two separate issues relating to missing data must be addressed: firstly, how widespread are missing data, and secondly, how randomly distributed are the missing data (Hair et al., 2010). However, with the online questionnaire appropriately configured the only way that missing data could occur was if a respondent failed to submit the complete questionnaire.

As noted above, 292 questionnaires were fully completed with an additional 11 questionnaires completed with the exception of practitioner beliefs and organisational culture related sections.

Given that the evaluation of the core model could be completed without the moderating variables, these 11 cases were left in the sample at this stage for further consideration.

Ultimately, once all the selection criteria described in this section had been applied, only three cases with missing data were left in the final sample set. These three cases were complete with the exception of the organisational culture items. As they represented less than two percent of the overall sample, they were included throughout all the analysis except in the categorical moderating variable analysis for organisational culture where they were excluded. Given this approach, excluding the three cases from the final moderator analysis, the question of whether the missing data was randomly distributed was judged to be not material.

Missing data was a greater issue with the secondary data where, as previously discussed, the most widely available assessments of corporate sustainability performance are primarily targeted on assessing publicly listed companies. These issues are discussed further in section 6.2.6.

A second common problem with questionnaire datasets is miscoding. Miscoding can commonly occur with paper based questionnaires at two points: first, when the respondent marks the paper if their marking is unclear making the response indeterminable; and second, when the researcher transfer the respondent's answers into a spreadsheet or statistical software package for analysis. Another significant advantage of the Survey Monkey online platform is that having configured the scales (mostly seven-point Likert-type scales in this research), it is impossible for the respondent to make an unclear response. Furthermore, the final dataset can be exported from the online platform directly into an Excel spreadsheet eliminating the possibility of miscoding at the transfer stage.

6.2.2 Removal of cases from outside of the Target Population

Having reduced the number of potential cases to 303 by removing incomplete responses, the next stage of data preparation involved the removal of organisations outside of the target sample. As described in the previous chapter, in order to increase the comparability between organisations it was decided to focus on large companies (both publicly listed and private) rather than non-commercial organisations and to exclude small and medium sized enterprises (SMEs)

from the study. SMEs in this research were defined as organisations with turnover of less than €50 million or less than 250 employees (European Union, 2015).

The online database OneSource Global Business Browser was interrogated to review financial and employee data about the respondents’ organisations. All responses for non-commercial organisations and SMEs were removed together with any responses where the name of the organisation was either unclear or missing. Consequently, 71 cases were removed.

6.2.3 Multiple responses from Single Organisations

Having reduced the number of potential cases to 232 by removing responses from outside the target population, it was then necessary to examine the dataset for multiple responses from respondents within the same organisation. As the primary unit of analysis in this research study is the organisation, it was necessary to remove cases of multiple responses from sustainability practitioners from the same organisation.

As shown in table 6.1 below, multiple responses ranged from one organisation where nine practitioners responded to 31 organisations where two practitioners responded. In total, multiple responses were received from sustainability practitioners working at 38 different organisations.

Table 6.1: Number of respondents per organisation

Number of respondents (n)	Number of Organisations with n respondents	Total respondents
1	139	139
2	31	62
3	3	9
4	2	8
5	1	5
9	1	9
Total	177	232

The process of selecting the most appropriate response to include in the final sample was undertaken based upon the demographic data provided in the final section of the questionnaire. While acknowledging the potential risks of this process, the aim in each situation was to attempt to identify which respondent was most likely to be the most informed respondent.

In 31 of the 38 organisations it was possible to prioritise the response from the most senior respondent. For example: where one sustainability director and one sustainability manager had completed the questionnaire, the sustainability director's response was retained.

In three situations the choice was between a respondent who was still employed at the organisation and one who had left in the period between completing the questionnaire and the data collection phase ending. In these situations, the response from the respondent still employed was prioritised as it was felt that there could be a risk that the departed respondent's assessment of the company may have been influenced by their imminent departure. For example: one respondent completed the survey and then immediately emailed the researcher to explain that they had just been issued with notice of redundancy. As their responses relating to the trust and engagement related questions may have been biased by their situation the response of the alternative respondent for that organisation was selected.

The decision between the respondents from two further companies was made based upon the respondent's length of service with the organisation – the respondents with longer length of service were assumed to be more informed and retained. In one situation, the decision was between a sustainability manager and a respondent who had not completed any of the demographic questions – the former was retained. Finally, one respondent completed the questionnaire twice – their more recent response was retained.

This process led to the removal of 55 cases leaving a final sample of 177 cases to be taken forward into the statistical analysis phase of the analysis. At this stage a working data spreadsheet was created and 16 reverse coded questions were recoded ready for statistical analysis.

6.2.4 Assessment of Normality

Tests of normality examine the shape of the distribution of a variable, and in particular compare that shape to Gauss' normal distribution. Assessment is important because the assumption of normal distribution underpins a wide range of multivariate statistical techniques (Hair et al., 2010). The shape of distributions can be assessed visually and also through the measurement of the skewness and kurtosis of the distribution.

The results of the skewness and kurtosis analysis are presented in Appendix 4. Testing at the $p = 0.05$ level using the Z test on the measures of skewness and kurtosis (Hair et al., 2010) identifies that 79 of the 102 items show significant signs of skewness while 56 items show significant signs of kurtosis. 42 items exhibited significant signs of both skewness and kurtosis.

Despite not meeting the expectations of normal distribution, it was decided not to apply any form of data transformation because of the following factors:

1. As Hair et al. (2010) argue, the detrimental effects of non-normality are most significant in cases of small sample size (less than 50 cases) whilst having negligible impacts on results as sample sizes increase towards 200 or above;
2. Non-transformed variables are typically easier to compare and interpret; and
3. The key statistical method employed in the analysis of the research model, Partial Least Squares (PLS) Structural Equation Modelling, has the advantage of making no assumptions about the distribution of data meaning that normality is not an essential requirement (Hair et al., 2014).

6.2.5 Outliers and Common Method Bias

Outliers are observations that are substantially different from the other observations in the data sample (Sekaran and Bougie, 2013). They must be examined carefully and individually because whilst they have the potential to distort the researcher's findings (Hair et al., 2011a), they do not necessarily represent an error although data entry errors are often a source of outliers (Sekaran and Bouge, 2013). Various methods (univariate, bivariate and multivariate) are available for testing for outliers (Hair et al., 2010).

In this research, a univariate detection method was employed based upon an assessment of the standardised values for each individual response to the 102 questionnaire items. In line with Hair et al.'s (2010) recommendation, outliers were defined as cases with a standardised score of $+ / - 3.5$ or greater. Based upon this criteria, 26 of the 102 questionnaire items included at least one case with a standardised value of greater than $+ / - 3.5$. Further investigation of these potential outliers highlighted that only two cases exceeded the threshold on more than two variables (one with six instances and one with seven instances).

On further examination of these two cases, there was a high level of consistency about where the outliers occurred. For example: in one of the two cases, the respondent had scored all of the three individual trust related questions as a '1' indicating a low level of trust in their organisation. The consistency across all of the three questions suggests an intentional response, indicating low trust in their organisation rather than the responses being outliers. In addition, an analysis of means showed no material impact by removing either of the two cases. Consequently, all 177 responses were retained in the sample.

*

Common method bias can occur when attempting to measure the relationship between constructs where the measurement of those constructs shares a common method (Podsakoff et al., 2003). In this research study, the greatest risk of common method bias was identified with the practitioner measurement of *Corporate Sustainability Performance*.

To reduce this risk, two actions were taken, first the inclusion of secondary data (as described in the next section) and second the testing of the survey data using Harman's one-factor test for common method bias (Podsakoff and Organ, 1986; Andersson and Bateman, 1997). All variables were tested using an un-rotated principal component factor analysis with the number of factors restricted to one. This single factor was shown to explain only 32% of the variance, comfortably satisfying Harman's criteria no one variable should explain more than 50% of the variance.

6.2.6 Preparation of Secondary Data

As mentioned above, missing data proved a more significant issue with the secondary data sources. As explained in chapter three, the main providers of sustainability performance data produce their insights for the financial investment sector and consequently tend to focus upon public traded companies.

In the sample of 177 companies whose sustainability practitioners completed the survey, 138 are publicly listed (or subsidiaries of) companies with the remaining 39 being private companies. Based upon the level of publicly available data the following four indicators were included as potential external measures of *Corporate Sustainability Performance*:

1. Inclusion in the 2014 Dow Jones Sustainability index (DJSI) and the corresponding RobecoSAM banding published in the RobecoSAM 2015 Sustainability Yearbook (RobecoSAM, 2015);
2. Performance score for the 2014 CDP (Carbon Disclosure Project) submission accessed via the CDP.net website (CDP, 2015);
3. Inclusion in one or more of the EuroNext Vigeo indices on the 1st December 2014 (EuroNext, 2015); and
4. Inclusion in one or more of the Ethibel Sustainability Excellence indices on 23rd March 2015 (Ethibel, 2015).

The cases were coded such that a higher score indicated a greater level of measured *Corporate Sustainability Performance*. As required by the SmartPLS software, no data item can be coded as a zero and consequently missing data was coded as minus one. The final coding was completed as set out in table 6.2 overleaf with performance level scored between one and seven.

Table 6.2: Coding of external measures of Corporate Sustainability Performance

External Measure of Corporate Sustainability Performance	Score coded	Number of cases
1. Dow Jones Sustainability index (DJSI)		
Organisations not eligible for inclusion in the index	-1	57
Organisations eligible but not included in the index	1	54
Organisations eligible and included as member of DJSI index	2.5	29
Organisations included in the DJSI at RobecoSAM Bronze level	4	16
Organisations included in the DJSI at RobecoSAM Silver level	5.5	9
Organisations included in the DJSI at RobecoSAM Gold level	7	12
2. CDP (Carbon Disclosure Project) Performance Score		
Organisations not invited to participate in CDP	-1	58
Organisations rated in CDP Performance band D	1	7
Organisations rated in CDP Performance band C	2.5	20
Organisations rated in CDP Performance band B	4	52
Organisations rated in CDP Performance band A-	5.5	14
Organisations rated in CDP Performance band A	7	26
3. Inclusion in the EuroNext Vigeo indices		
Organisations not eligible for inclusion in the indices	-1	56
Organisations eligible but not included in the indices	1	77
Organisations included in one or more EuroNext Vigeo indices	7	44
4. Inclusion in the Ethibel Sustainability Excellence indices		
Organisations not eligible for inclusion in the indices	-1	56
Organisations eligible but not included in the indices	1	78
Organisations included in one or more Ethibel Sustainability Excellence indices	7	43

6.3 Demographics of the Final Sample

An analysis of the demographic composition of the final sample identifies a diverse range of respondents by gender, age, nationality. The composition of the sample is set out in table 6.3a overleaf.

Table 6.3a: Sample composition by Gender, Age and Nationality of Respondents

N = 177	Number of Respondents	% of total
Gender		
Female	75	42.4%
Male	98	55.4%
Declined to answer	4	2.3%
Age		
Under 25	1	0.6%
25 to 34	30	16.9%
35 to 44	67	37.9%
45 to 54	51	28.8%
55 to 64	22	12.4%
65 and over	2	1.1%
Declined to answer	4	2.3%
Nationality		
Australian	3	1.7%
Austrian	1	0.6%
Belgian	3	1.7%
Brazilian	6	3.4%
British	99	55.9%
Canadian	2	1.1%
Danish	1	0.6%
Dutch	8	4.5%
French	2	1.1%
German	5	2.8%
Greek	2	1.1%
Indian	4	2.3%
Irish	1	0.6%
Italian	2	1.1%
Japanese	1	0.6%
Mexican	1	0.6%
South African	2	1.1%
Spanish	3	1.7%
USA	11	6.2%
Zimbabwe	1	0.6%
Dual nationality	4	2.3%
Declined to answer	15	8.5%

The sample had a slightly higher proportion of male respondents (55.4%) to female respondents (42.4%) with four respondents declining to disclose any demographic information. The most common age range for respondents was between 35 and 44 years (37.9%) with over 83% of respondents in the range 25 to 54 years. All except 15 respondents indicated their nationalities, with the 162 respondents who reported representing 22 nationalities. Four respondents indicated dual nationality (British/Nigerian, British/USA, Canadian/Ukrainian, and Irish/USA). Of those who indicated, over 80% indicated European nationality.

In addition to the demographic above, respondents were also requested to identify their length of service with their organisation, seniority (i.e. sustainability director or sustainability manager level) and their geographic scope of responsibility (national, multi-country, or global). The responses to these three dimensions of the sample is set out in table 6.3b below.

Table 6.3b: Sample composition by Seniority and Scope of Responsibility

N = 177	Number of Respondents	% of total
Length of time with organisation		
under 2 years	28	15.8%
2 to 5 years	52	29.4%
6 to 10 years	29	16.4%
over 10 years	64	36.2%
Declined to answer	4	2.3%
Level of Responsibility		
Sustainability Director	86	48.6%
Sustainability Manager	87	49.2%
Declined to answer	4	2.3%
Scope of Responsibility		
Global	84	47.5%
Regional (multiple countries)	31	17.5%
National	58	32.8%
Declined to answer	4	2.3%

The sample was evenly spread between sustainability directors (48.6%) and sustainability managers (49.2%) with over 65% of respondents having international or global responsibility. In terms of length of service, the most common period of time in the organisation was over 10 years (36.2%) with 2 to 5 years being the next most common response (29.4%).

An analysis of the demographic composition of organisations represented in the final sample is presented in tables 6.4a, 6.4b, 6.4c (following):

Table 6.4a: Sample composition of Represented Organisations

N = 177	Number of Organisations	% of total
Ownership		
Public	134	75.7%
Private	43	24.3%
Headquarter location		
Australia	4	2.3%
Belgium	2	1.1%
Brazil	4	2.3%
Canada	3	1.7%
Denmark	1	0.6%
France	13	7.3%
Germany	8	4.5%
India	3	1.7%
Italy	1	0.6%
Japan	1	0.6%
Korea	1	0.6%
Liechtenstein	1	0.6%
Netherlands	8	4.5%
Norway	1	0.6%
Singapore	1	0.6%
South Africa	2	1.1%
Spain	1	0.6%
Sweden	2	1.1%
Switzerland	5	2.8%
United Arab Emirates	1	0.6%
United Kingdom	87	49.2%
United States of America	27	15.3%

Source: collated from OneSource (2015)

The majority of the organisations represented in the sample were publicly traded companies (75.7%) with the remaining 24.3% being privately owned. The organisations were predominately headquartered in Europe (73.4%), with 16.9% being headquartered in North America. The remaining 9.6% (17 organisations) came from 8 countries across Africa, the Middle East and Asia Pacific.

Table 6.4b: Sample composition of Represented Organisations (continued)

N = 177	Number of Organisations	% of total
Annual Sales (GBP)		
> 50 billion	12	6.8%
25 - 50 billion	18	10.2%
10 - 25 billion	37	20.9%
5 - 10 billion	27	15.3%
1 - 5 billion	53	29.9%
< 1 billion	25	14.1%
Not publicly disclosed	5	2.8%
Number of Employees		
> 100,000	33	18.6%
50,000 - 100,000	32	18.1%
25,000 - 50,000	24	13.6%
10,000 - 25,000	28	15.8%
1,000 - 10,000	42	23.7%
< 1,000	13	7.3%
Not publicly disclosed	5	2.8%

Source: collated from OneSource (2015)

The organisations' combined annual sales slightly exceeded GBP 2.7 trillion with individual organisations having annual sales ranging from GBP 55 million to GBP 510 billion. The total number of employees represented by the organisations in the sample was 10.5 million, with individual headcounts ranging from 300 (for one relatively capital intensive manufacturer) to 500,000 for one large international retailer.

Table 6.4c: Sample composition of Represented Organisations (continued)

N = 177	Number of Organisations	% of total
Sector based on ISIC 4 categorisation		
Mining and Quarrying	3	1.7%
Manufacturing	60	33.9%
Electricity, gas, steam and air conditioning supply	6	3.4%
Water supply; sewerage, waste management and remediation activities	2	1.1%
Construction	11	6.2%
Wholesale and retail trade; repair of motor vehicles and motorcycles	9	5.1%
Transportation and storage	11	6.2%
Accommodation and food service activities	5	2.8%
Information and communication	15	8.5%
Financial and insurance activities	22	12.4%
Real estate activities	5	2.8%
Professional, scientific and technical activities	16	9.0%
Administrative and support service activities	10	5.6%
Arts, entertainment and recreation	1	0.6%
Other service activities	1	0.6%

Source: collated from OneSource (2015)

The organisations represented a wide range of sectors as measured by ISIC 4 codes. The most common sector was manufacturing accounting for 33.9% of the sample, followed by financial and insurance services (12.4%), professional services (9.0%) and then information and communication services (8.5%).

6.4 Pre-testing of Scales

Prior to testing the overall research model using Partial Least Squares (PLS) structural equation modelling, the scales described in the previous chapter were tested using factor analysis and scale reliability techniques.

Exploratory factor analysis is employed to explore the relationships between sets of variables and to identify potential underlying patterns. It is a multivariate statistical technique which enables large numbers of variables to be grouped into smaller numbers of variables or factors (Hair et al., 2011a). Given the untested nature of the items developed to examine the business drivers of corporate sustainability, exploratory factor analysis was applied to assess the proposed scales.

In addition, all the measurement scales were tested using internal consistency reliability techniques such as the Cronbach Alpha test scores. By considering corrected inter-item total correlations and the effect on Cronbach Alpha scores of removing items, a number of scales were refined with a small number of questionnaire items removed from the finally employed scales.

6.4.1 Exploratory factor analysis

The 19 variables measuring the business drivers of corporate sustainability were subjected to exploratory factor analysis using SPSS statistical software. As recommended by Hair et al. (2010), Principal Component Analysis was employed with Varimax rotation and an eigenvalue threshold of one. This resulted in six factors being identified with a combined explanatory power of 65.1% of the total variance. The rotated component matrix is presented in table 6.5 below including both the question ID number (the full question set with ID reference numbers can be found in Appendix 3) and the grouping expected when the questionnaire was prepared.

Table 6.5: Rotated Component Matrix for Sustainability Business Driver items

Question ID	Expected driver grouping	Component					
		1	2	3	4	5	6
19	Efficiency	.749					
4	Efficiency	.725					
9	Efficiency	.617					
12	Compliance	.581					
11	Employee		.850				
17	Employee		.845				
2	Employee		.694				
1	Client			.800			
10	Client			.791			
5	Client			.545		.457	
15	Owner			.422	.729		
18	Owner				.710		
3	Owner				.683		
13	Client					.766	
7	Client					.720	
16	Compliance						.817
6	Compliance						.677
8	National resources	.401				.430	.449
14	National resources						.399

Extraction Method: Principal Component Analysis.
 Rotation Method: Varimax with Kaiser Normalisation.
 Rotation converged in 7 iterations.

The overall results of the factor analysis were assessed using the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett's test of sphericity. The measure of sampling adequacy assesses the degree of inter-correlations between the variables and hence the appropriateness of the factor analysis. A score greater than 0.5 is considered acceptable (Hair et al., 2010). In this case the KMO score was 0.788.

The second assessment of the factor analysis, Bartlett's test of sphericity, examines the overall significance of all of the correlations within the correlation matrix and should be significant. In this case the factor analysis was significant at the $p < 0.001$ level.

Overall the above factor analysis results broadly supported the hypothesised scales for the business drivers of corporate sustainability with three modifications being applied prior to the scale reliability tests being performed:

1. The three compliance related questions were examined as they split between two separate factors in the Principal Component Extraction. Questions 6 and 16 had clear focus on pressure from NGOs, whilst question 12 related to compliance with government legislation.

As question 12 was the sole question relating to legislation and as it did not conceptually relate to three efficiency focus questions (4, 9, 19), it was identified as a candidate for removal from the efficiency scale. As will be discussed in the following section, this is exactly what occurred when Cronbach Alpha scale reliability tests were applied.

2. The splitting into two separate factors of five client related questions (1, 7, 8, 10, and 13) was examined. It transpired that questions 7 and 13 specifically related to the creation of new services and revenues, while questions 1, 8, and 10 were more general questions about the clients' interest in the organisation's sustainability.

Whilst there was an explainable nuance between the client related factors identified by the Principal Component Extraction, it was decided to first test the scale as originally conceived before determining whether it should be divided into two separate scales.

3. The extraction of the two NGO compliance questions (6 and 16), together with two questions relating to an organisation's ability to access natural resources (questions 8 and 14), provided an interesting insight reinforcing the insights from qualitative discussions. Conceptually it makes sense that organisations with a greater reliance on natural resources would also be more sensitive to NGO scrutiny (see Heal, 2005; Argenti, 2004). An examination of the data set also supported this with organisations in the mining, water and waste, and manufacturing sectors scoring highest, and organisations in the financial services and professional services sectors scoring lowest on these items. Consequently, it was decided to keep the four questionnaire items (6, 8, 14 and 16) together in the scale reliability tests.

6.4.2 Scale reliability analysis

In the final stage of the scale pre-testing, all 23 scales proposed for the analysis in the Partial Least Square modelling approach were examined for reliability using Cronbach Alpha assessment. This involved considering the overall Cronbach Alpha for the proposed scale, the individual item correlations, and finally whether the Cronbach Alpha improved for a scale by removing any of the individual items. The generally agreed lower thresholds for the Cronbach

Alphas for scales is 0.70 in confirmatory analysis and 0.60 in exploratory analysis (Nunnally and Bernstein, 1994; Hair et al., 2010).

Table 6.6 below provides a summary of the final scales following the analysis process. Details of the individual scales and items can be found in Appendix 5.

Table 6.6: Summary of Scale Reliability Analysis

Scales	No. of items in scale	Items removed in scale reliability analysis	Cronbach Alpha of scale
Business Drivers of Corporate Sustainability scales			
Client scale	5 item scale	Nil - scale as expected	0.717
Efficiency scale	3 item scale	1 item removed	0.680
Employee scale	3 item scale	Nil - scale as expected	0.807
Owner scale	3 item scale	Nil - scale as expected	0.759
NGO / natural resources scale	3 item scale	1 item removed	0.650
Organisational Commitment and Corporate Sustainability Performance scales			
CEO commitment scale	3 item scale	Nil - scale as expected	0.732
Organisational commitment scale	9 item scale	Nil - scale as expected	0.919
Sustainability performance scale	4 item scale	2 items removed	0.809
Sustainability Practitioner Engagement scales			
Practitioner trust scale	3 item scale	Nil - scale as expected	0.877
Practitioner identification scale	6 item scale	Nil - scale as expected	0.844
Practitioner intention scale	4 item scale	1 item removed	0.861
Sustainability practitioner social axiom scales			
Social Complexity scale	3 item scale	2 items removed	0.579
Fate control scale	5 item scale	Nil - scale as expected	0.675
Cynicism scale	5 item scale	Nil - scale as expected	0.729
Reward for Application scale	4 item scale	1 item removed	0.657
Sustainability practitioner term orientation and connectedness to nature scales			
Personal term orientation scale	6 item scale	Nil - scale as expected	0.729
Connectedness to Nature scale	6 item scale	1 item removed	0.816
Organisational culture scales			
Process vs. Results orientation scale	2 item scale	1 item removed	0.498
Employee vs. Job orientation scale		No feasible scale	
Parochial vs. Professional scale		No feasible scale	
Open vs. Closed scale	2 item scale	1 item removed	0.474
Loose vs. Tight scale	2 item scale	1 item removed	0.448
Normative vs. Pragmatic scale		No feasible scale	

As shown above, the 11 scales required for the driver-outcome model of corporate sustainability met the reliability threshold criteria suggested by Hair et al. (2010). All five of the business driver scales exceeded the threshold for exploratory analysis while three also exceeded the threshold

for confirmatory analysis. Furthermore, the organisational scales for CEO commitment, organisational commitment, corporate sustainability performance, as well as the practitioner engagement scales for trust, identification, and intention all exceeded the threshold for confirmatory analysis. The practitioner engagement scales, which were all comprised of long-standing well-established items, achieved particularly meritorious scores in excess of 0.8.

The reliability of the remaining 12 moderator scales proved to be more variable. Despite all 12 scales being comprised of pre-existing items, only three of the practitioner scales achieved the generally expected level of 0.7 for confirmatory analysis, with three further practitioner scales meeting, or almost meeting, the expected level of 0.6 for confirmatory analysis (Nunnally and Bernstein, 1994).

The six three-item organisational culture scales developed by Hofstede et al. (Hofstede, 2012) proved the least reliable scales. Three of the scales achieved a Cronbach Alpha score of between 0.448 and 0.498 when one of the three items in each scale was removed. The other three provided no feasible scale even with item removal.

Consequently, all six of the practitioner-related moderator scales were taken forward to be employed in the categorical moderator analysis of the structural equation model. The outcomes of these are described in section 6.7. However, only three of the organisational culture moderators could be taken forward with the caveat that the limited strength of the scales would have to be considered when examining any moderator effects. The effects of the culture moderators are described in section 6.8.

6.5 Evaluation of the Measurement Model

Having constructed and pre-tested all the necessary scales, the next phase of analysis was to test the structural equation model employing the SmartPLS software package utilising Partial Least Squares (PLS) techniques. As recommended by Hair et al. (2014), a three-stage evaluation process was completed: first testing the measurement (or outer) model, before subsequently testing the structural (or inner) model, and finally testing the effects of the moderator variables. These stages are described in the following four sections: this section (6.5) examines the measurement model before section 6.6 assesses the structural model. Sections 6.7 and 6.8 then

test the moderating effects of the sustainability practitioner and organisational cultural factors respectively.

Figures 6.1 and 6.2 (below) show the two structural equation models tested in this study. The only difference between the two models is the way in which *Corporate Sustainability Performance* is measured. In the first model, perceived *Corporate Sustainability Performance* is measured using the reflective scale developed using items measuring the sustainability practitioner’s perception of sustainability performance from the practitioner questionnaire. In the second model, *Corporate Sustainability Performance* is measured using the four external measures of *Corporate Sustainability Performance* described (in section 6.2.6) together with a single item from the practitioner questionnaire (item number 33: My organisation does well in sustainability rankings).

Figure 6.1: Core PLS SEM Research Model (with Practitioner CSP measures)

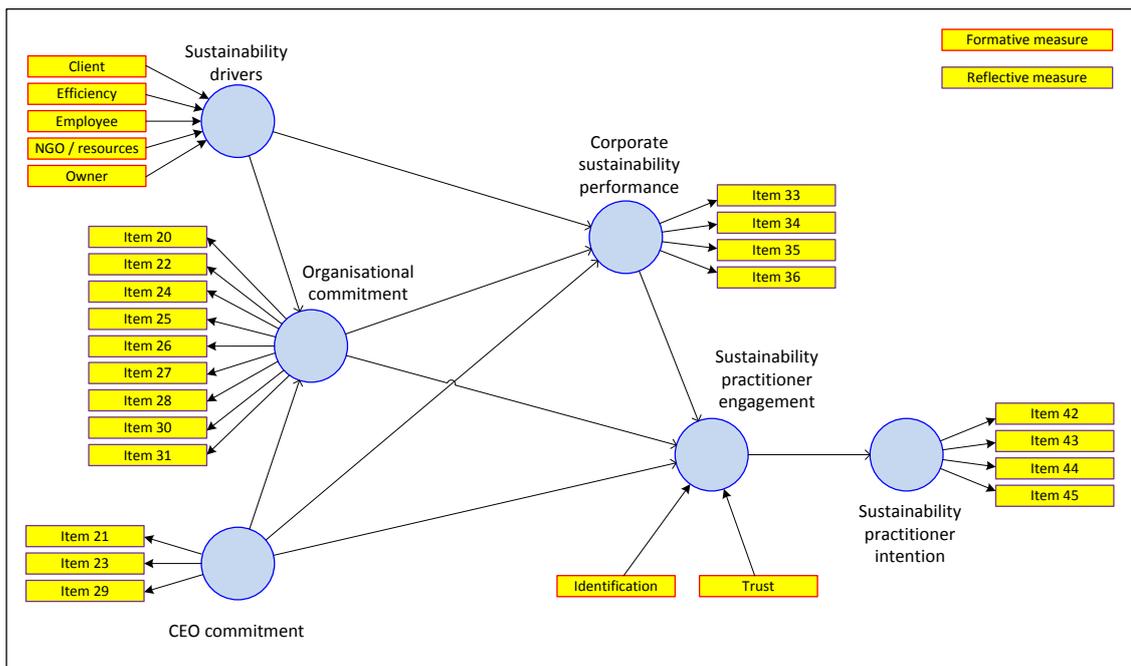
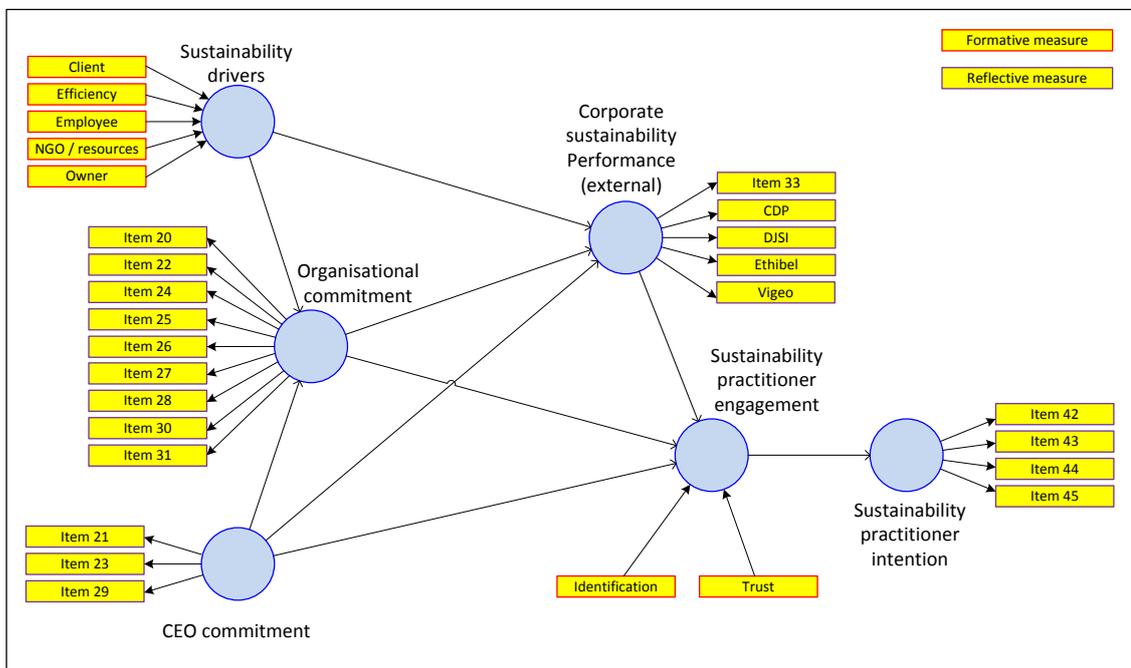


Figure 6.1 shows a screenshot of the core research model constructed in SmartPLS. The core constructs (or latent variables) are shown as blue circles while the measures of those constructs are shown as yellow rectangles. Reflective measures are indicated by arrows pointing away from the constructs, while formative measures are indicated by arrows pointing towards the constructs. In the above model, *Corporate Sustainability Performance* is measured reflectively

using the four items (ID numbers 33, 34, 35, 36) from the sustainability practitioner questionnaire.

Figure 6.2 (below) shows the same core research model but with corporate sustainability performance measured reflectively using the scales developed for four external measures of performance (CDP Performance score, DJSI inclusion / RobecoSAM banding, inclusion in Ethibel ESI indices, and inclusion in EuroNext Vigeo indices) together with item number 33 from the questionnaire.

Figure 6.2: Core PLS SEM Research Model (with external CSP measures)



To avoid unnecessary repetition, this chapter presents first a detailed evaluation of the results from the original research model (illustrated in figure 6.1) together with the moderator analysis (in section 6.7 and 6.8) and mediator analysis (in section 6.9), before presenting a summary of the extra insights delivered from the revised model (illustrated in figure 6.2) in section 6.10. This approach is employed because overall the first model was statistically slightly more robust, however the second model also provided some interesting additional findings. The full statistical outputs from both models are presented in Appendices 7 and 8 respectively.

6.5.1 Reflective Measures

The core research model contained four constructs which were represented by reflective indicators:

1. CEO Commitment to Sustainability
2. Organisational Commitment to Sustainability
3. Corporate Sustainability Performance (as perceived by the practitioner)
4. Sustainability Practitioner Intention towards the organisation

As shown in the previous section, all four variables had met the Cronbach Alpha criterion for scale reliability (Cronbach, 1951). However, in PLS analysis composite reliability scores are also employed to provide additional information about the reliability of the indicators. As in the case of the Cronbach Alpha criterion, a score of 0.7 or above is also considered acceptable for composite reliability (Nunnally and Bernstein, 1994). Table 6.7 (below) presents the composite reliability for the four reflectively measured constructs, all which meet the composite reliability requirement, together with their Cronbach Alpha scores.

Table 6.7: Composite Reliability score for Reflective Measures

	Cronbach Alpha	Composite Reliability
CEO Commitment	0.732	0.877
Organisational Commitment	0.919	0.934
Corporate Sustainability Performance	0.809	0.874
Sustainability Practitioner Intention	0.844	0.909

Hair et al.'s (2014) second recommended stage of assessing the reflective measures is to consider the reliability of each individual indicator by considering its loading. It is advised that a construct should explain at least 50 percent of the variance for each item associated with it implying that the standardised outer loadings should be greater than 0.7 (approximately the square root of 0.5). When examined, all except two of the items had outer loadings exceeding the threshold of 0.7. Items 29 and 31 had respective outer loadings 0.657 and 0.661. These items were on the CEO and Organisation Commitment scales respectively.

Hair et al. (2014) recommend that items with loading between 0.4 and 0.7 should not automatically be removed but should be considered in terms of their effects on the average variance extracted (AVE) for their respective constructs. Removal of an item is suggested when its absence improves the AVE for the associated construct such that it increases the AVE above the acceptable threshold of 0.5 (Hair et al., 2011). As will be shown in the next step, the AVEs for both the CEO and Organisation Commitment scales were already above the acceptable threshold and therefore both items (29 and 31) were retained in the final model. The outer loadings (and cross loadings) for all the items in the reflectively measured constructs are shown in table 6.8 below.

Table 6.8: Outer loadings and Cross-loadings of Reflective Measures

Item	CEO Commitment	Organisational Commitment	Corporate Sustainability Performance	Sustainability Practitioner Intention
21	0.925	0.685	0.440	0.484
23	0.915	0.722	0.536	0.460
29	0.657	0.488	0.263	0.281
20	0.700	0.821	0.569	0.413
22	0.667	0.862	0.514	0.380
24	0.667	0.804	0.672	0.478
25	0.539	0.734	0.516	0.254
26	0.585	0.816	0.600	0.362
27	0.551	0.747	0.581	0.269
28	0.592	0.845	0.543	0.328
30	0.580	0.743	0.467	0.408
31	0.444	0.661	0.371	0.297
33	0.412	0.496	0.777	0.199
34	0.462	0.669	0.864	0.470
35	0.402	0.571	0.823	0.214
36	0.334	0.434	0.719	0.300
42	0.472	0.463	0.337	0.843
43	0.405	0.389	0.302	0.891
44	0.378	0.282	0.277	0.800
45	0.430	0.409	0.405	0.846

Note: figures in bold represent the item loadings on the four hypothesised scales

Having completed the recommended reliability assessments, the next stage is to consider the validity of the reflectively measured constructs. This comprises assessments for both convergent and discriminant validity.

Convergent validity is assessed by consideration of the average variance extracted (AVE) for the construct with a threshold expectation that the AVE is greater than of 0.5, meaning that the construct (or latent variable) explains at least half of the variance of its related indicators (Hair et al., 2014). Table 6.9 below presents the AVE values for each of the reflectively measured constructs which all exceed the expected threshold value.

Table 6.9: Average Variance Extracted (AVE) for Reflective Measures

	Average Variance Extracted
CEO Commitment	0.708
Organisational Commitment	0.615
Corporate Sustainability Performance	0.636
Sustainability Practitioner Intention	0.715

The final assessment is for discriminant validity and comprises of two tests: an examination of indicator cross-loadings and a more conservative measure based on the Fornell-Larcker criterion (Hair et al., 2014). The former assessment requires that each indicator's outer-loading on its associated latent construct should be greater than its loadings on all of the other constructs (i.e. its cross loadings). Referring back to table 6.8, this criterion is shown as true for each of the indicators.

Finally, the Fornell-Larcker criterion compares the square root of the AVE values with the latent construct correlations. For the criterion to be met, all of the construct's correlation with other constructs must be less than the square root of the construct's AVE (Fornell and Larcker, 1981). Table 6.10 shows these relationships:

Table 6.10: Discriminant validity, construct cross-correlation matrix for Reflective Measures

	CEO Commitment	Organisational Commitment	Corporate Sustainability Performance	Sustainability Practitioner Intention
CEO Commitment	0.841			
Organisational Commitment	0.761	0.784		
Corporate Sustainability Performance	0.508	0.692	0.798	
Sustainability Practitioner Intention	0.498	0.457	0.391	0.846

Note: figures in bold represent the square-root of the AVE for the construct

As shown in table 6.10, the square root values for each constructs' AVE (indicated in bold) is larger than the highest correlation with the other constructs fulfilling the Fornell-Larcker criterion and providing support that there is discriminant validity in the measurement model.

6.5.2 Formative Measures

The core research model contained two constructs which were represented by formative indicators:

1. Sustainability drivers
2. Sustainability practitioner engagement

As discussed in the previous chapter, whilst formative measures cannot be assessed statistically for internal consistency reliability because they are not expected to be highly correlated, PLS techniques do provide different ways of assessing constructs measured using formative indicators. These techniques include the examination of the significance of the outer weights and loadings of the items comprising the formative measures as well as the items' variance inflation factors (VIF).

As recommended by Hair et al. (2014), the significance of the outer weights and loadings of each of the items comprising the formative measures should be analysed using a boot-strapping process with a large number of iterations. Table 6.11 and 6.12 (below) provide the outer weights and loadings for the two formatively measured scales.

Table 6.11: Outer weights for Formative Measures

Items	Original Sample (O)	Sample Mean (M)	Standard Error	t statistic	p value
Client driver scale -> Sustainability driver construct	0.359	0.351	0.108	3.337	0.001
Efficiency driver scale -> Sustainability driver construct	0.138	0.135	0.097	1.420	0.156
Employee drivers scale -> Sustainability driver construct	0.461	0.458	0.081	5.653	0.000
NGO / resources driver scale -> Sustainability driver construct	0.189	0.191	0.093	2.034	0.042
Owner driver scale -> Sustainability driver construct	0.213	0.210	0.103	2.063	0.039
Identification scale -> Practitioner engagement construct	0.421	0.424	0.080	5.273	0.000
Trust scale -> Practitioner engagement construct	0.682	0.678	0.071	9.542	0.000

As shown in table 6.11, only one item in the sustainability driver construct (the efficiency driver scale) was non-significant at the $p < 0.05$ level while all items in the sustainability practitioner engagement construct were significant at the $p < 0.01$ level. Following the recommendation of Hair et al. (2011), the efficiency driver scale was tested further by an examination of its outer loadings while all the other items were retained without the need for further examination.

Table 6.12: Outer loading for Efficiency Driver Scale item

	Original Sample (O)	Sample Mean (M)	Standard Error	t statistic	p value
Efficiency driver scale -> Sustainability driver scale	0.554	0.546	0.094	5.891	0.000

Table 6.12 presents the outer-loadings for the non-significant efficiency driver scale measure. According to Cenfetelli and Bassellier (2009), items with non-significant outer weights and outer

loadings should be removed as there is no empirical support for their inclusion. As shown below, the outer loading for the efficiency driver scale is significant and also meets Hair et al.'s (2011) threshold that the outer-loadings should exceed 0.5. Consequently, the item was retained in the final model.

*

The second recommended assessment for formative constructs in the measurement model is for the presence of high levels of collinearity which could imply that the indicator's information is redundant (Henseler et al., 2009). Hair et al. (2011) recommend that this is assessed by calculating the variance inflation factor (VIF) for formative measures. A score of less than five indicates that multi-collinearity is not an issue of concern. Table 6.13 provides the VIF scores for the items in the two constructs measured by formative indicators.

Table 6.13: VIF scores for Formative Measures

	VIF
Client driver scale -> Sustainability driver scale	1.743
Efficiency driver scale -> Sustainability driver scale	1.343
Employee drivers scale -> Sustainability driver scale	1.333
NGO / resources driver scale -> Sustainability driver scale	1.453
Owner driver scale -> Sustainability driver scale	1.517
Identification scale -> Practitioner engagement scale	1.637
Trust scale -> Practitioner engagement scale	1.637

The table above shows that the VIF scores for each item is less than five and therefore the assessment undertaken supports the relevance of both proposed formative measures.

*

Having assessed both the reflectively measured and formatively measured constructs and having established their characteristics conform with the recommended assessments, the next section evaluates the structural (or inner) research model.

6.6 Evaluation of the Structural Model

As recommended by Hair et al. (2014), assessing the structural (or inner) model involves the five separate steps set out in section 5.8.2 of the previous chapter. The assessments include tests for collinearity, the path coefficients of the structural model, power measures (R^2) for the endogenous latent variables as well as measures of the effect sizes and predictive relevance of the model. The first test for multi-collinearity in the structural model employs the assessment of the variance inflation factor (VIF) for each of the constructs. The VIFs are set out in table 6.14 below.

Table 6.14: VIF scores for the Structural Model

	VIF
Sustainability Drivers -> Organisational Commitment	1.441
Sustainability Drivers -> Corporate Sustainability Performance	2.044
CEO Commitment -> Organisational Commitment	1.441
CEO Commitment -> Corporate Sustainability Performance	2.380
CEO Commitment -> Sustainability Practitioner Engagement	2.383
Organisational Commitment -> Corporate Sustainability Performance	3.376
Organisational Commitment -> Sustainability Practitioner Engagement	3.392
Corporate Sustainability Performance -> Sustainability Practitioner Engagement	1.922
Sustainability Practitioner Engagement -> Sustainability Practitioner Intention	1.000

As shown in table 6.13, all the individual VIF scores are less than five, indicating that multi-collinearity is not an issue requiring further attention (Hair et al., 2014).

Next the sign, magnitude and the significance of the structural model's path coefficient are considered. The closer the absolute values of the coefficients are to one, the stronger the relationships between the constructs while the signs of the coefficients should be as a priori hypothesised. Finally, the significance of the path coefficients is assessed through the bootstrapping procedure. These results are presented in table 6.15.

Table 6.15: Structural path estimation results for the Structural Model

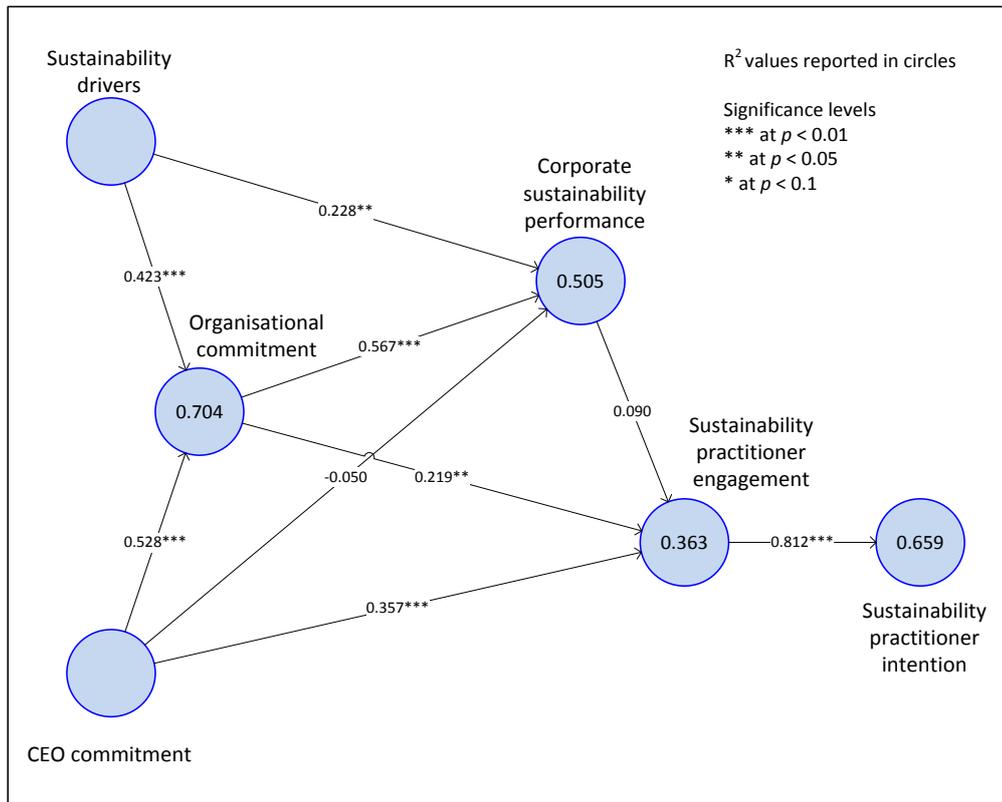
	Path coefficient (original sample)	Path coefficient (mean of sub-samples)	p Values	Support for hypotheses
Sustainability Drivers -> Organisational Commitment	0.423	0.431	0.000	yes (p<0.01)
Sustainability Drivers -> Corporate Sustainability Performance	0.228	0.240	0.050*	yes (p<0.05)
CEO Commitment -> Organisational Commitment	0.528	0.520	0.000	yes (p<0.01)
CEO Commitment -> Corporate Sustainability Performance	-0.050	-0.057	0.591	no
CEO Commitment -> Sustainability Practitioner Engagement	0.357	0.355	0.000	yes (p<0.01)
Organisational Commitment -> Corporate Sustainability Performance	0.567	0.563	0.000	yes (p<0.01)
Organisational Commitment -> Sustainability Practitioner Engagement	0.219	0.221	0.040	yes (p<0.05)
Corporate Sustainability Performance -> Sustainability Practitioner Engagement	0.090	0.089	0.390	no
Sustainability Practitioner Engagement -> Sustainability Practitioner Intention	0.812	0.813	0.000	yes (p<0.01)

Note: * actual value = 0.499968 (to 6 significant figures)

Overall, as presented in table 6.15, the PLS structural equation model supports all except two of the hypothesised relationships. Five of the hypothesised relationships are supported at the $p < 0.01$ level and two at the $p < 0.05$ level. The two relationships which are not supported by the model (*CEO Commitment to Sustainability* to perceived *Corporate Sustainability Performance*, and perceived *Corporate Sustainability Performance* to *Sustainability Practitioner Engagement*) are discussed further in chapter seven.

The third assessment for the structural model is the R^2 value for each latent variable in the model. This test measures how effective the exogenous variables are at explaining the latent (or endogenous) variables in the model. Figure 6.3 shows the overall structural model with the path coefficients between the constructs together with the R^2 value for each latent variable.

Figure 6.3: Final PLS Structural Equation Model



The resulting R^2 values for each of the latent variables indicate that the model provides a substantial level of explanatory power for the *Organisational Commitment to Sustainability* ($R^2 = 0.70$) and the *Sustainability Practitioner Intention* ($R^2 = 0.66$) constructs, and a moderate level of explanatory power for the perceived *Corporate Sustainability Performance* ($R^2 = 0.51$) and the *Sustainability Practitioner Engagement* ($R^2 = 0.37$) constructs. Henseler et al. (2009) argue that moderate R^2 values are acceptable for inner path endogenous latent variables explained by a small number of significant exogenous latent variables (i.e. one or two).

Table 6.16 (overleaf) presents the overall correlation matrix for the final structural model. The values in bold on the diagonal represent the square root of the AVE values for the endogenous latent variables. The table supports the discriminant validity of the structural model as the square root of the AVE values are higher than the other correlations in the corresponding row and column.

Table 6.16: Latent variables cross-correlation matrix for the Structural Model

	CEO Commitment	Organisational Commitment	Corporate Sustainability Performance	Sustainability Drivers	Sustainability Practitioner Engagement	Sustainability Practitioner Intention
CEO Commitment	0.841					
Organisational Commitment	0.761	0.784				
Corporate Sustainability Performance	0.508	0.692	0.797			
Sustainability Drivers	0.553	0.715	0.605	(formative)		
Practitioner Engagement	0.570	0.554	0.424	0.397	(formative)	
Sustainability Practitioner Intention	0.498	0.457	0.315	0.315	0.812	0.846

Note: figures in bold represent the square root of the AVE values for the endogenous latent variables.

In addition to evaluating the R^2 values for all endogenous variables, Hair et al. (2014) recommend the assessment of the f^2 effect size which measures the change in the R^2 value of the endogenous variable when a specified exogenous construct is removed from the model. The f^2 effect size provides information about the impact a particular exogenous (or independent) latent variable has on a corresponding endogenous (or dependent) variable. The f^2 effect size is calculated as:

$$f^2 = (R^2_{\text{included}} - R^2_{\text{excluded}}) / (1 - R^2_{\text{included}})$$

where R^2_{included} and R^2_{excluded} are the R^2 values of the endogenous variable when a selected exogenous latent variable is included or excluded from the structural model. Values of 0.02, 0.15 and 0.35 can be considered as small, medium and large effect sizes of the exogenous latent variable (Cohen, 1998).

Values of the f^2 effect cannot be calculated automatically within the SmartPLS software package and consequently the structural equation model must be run several times to extract the necessary R^2 values. Table 6.17 presents the calculated f^2 effect sizes of the model.

Table 6.17: Effect sizes (f^2) for the Structural Model

Exogenous Construct	Endogenous Construct	R^2_{included}	R^2_{excluded}	f^2	Effect size
Sustainability Drivers	Organisational Commitment	0.704	0.580	0.419	Large
CEO Commitment	Organisational Commitment	0.704	0.511	0.652	Large
Sustainability Drivers	Corporate Sustainability Performance	0.505	0.482	0.046	Small
Organisational Commitment	Sustainability Performance	0.505	0.421	0.170	Medium
CEO Commitment	Sustainability Performance	0.505	0.504	0.002	None
Sustainability Performance	Practitioner Engagement	0.363	0.358	0.008	None
Organisational Commitment	Practitioner Engagement	0.363	0.352	0.017	Small
CEO Commitment	Practitioner Engagement	0.363	0.309	0.085	Small / Medium
Practitioner Engagement	Practitioner Intention	0.659	N/A	N/A	N/A

As shown in table 6.17, the effect size that the independent variables have on their respective dependent variables ranges between large and small with the exception of the two relationships (*CEO Commitment to Sustainability to perceived Corporate Sustainability Performance*, and *perceived Corporate Sustainability Performance to Sustainability Practitioner Engagement*) which exhibit no effect. These are the two relationships previously identified in the model as non-significant and therefore the lack of effect size is a consistent finding.

The strongest effects sizes identified are the *Organisational Commitment to Sustainability to perceived Corporate Sustainability Performance* relationship path which exhibits a medium effect size, and the *Sustainability Drivers to Organisational Commitment to Sustainability*, and *CEO Commitment to Sustainability to Organisational Commitment to Sustainability* paths which exhibit large effect sizes.

Finally, the predictive relevance of the model is assessed using Stone-Geisser's Q^2 value (Geisser, 1974; Stone, 1974). The Q^2 value is obtained using the blind-folding process that omits every n^{th} data point in the endogenous construct's indicators and then estimates the parameters with the remaining data points (Hair et al., 2014). Following Hair et al.'s (2014) recommendation that the omission distance (n) should lie between five and ten and not be a factor of the overall sample size, an omission distance of eight was selected.

Once the Q^2 value is calculated for each endogenous variable in the structural model, it is recalculated with each of its exogenous variable removed in turn. The resulting series of Q^2_{included} and Q^2_{excluded} values enable the predictive relevance score (q^2) to be calculated as follows:

$$q^2 = (Q^2_{\text{included}} - Q^2_{\text{excluded}}) / (1 - Q^2_{\text{included}})$$

Table 6.18 shows the calculated Q^2 and q^2 values for the structural model. The effect size q^2 values are interpreted as measuring small, medium and large predictive relevance of the exogenous constructs on the endogenous constructs at values of 0.02, 0.15 and 0.35 respectively (Hair et al., 2014).

Table 6.18: Predictive relevance (q^2) for the Structural Model

Exogenous Construct	Endogenous Construct	$Q^2_{included}$	$Q^2_{excluded}$	q^2	Effect size
Sustainability Drivers	Organisational Commitment	0.423	0.347	0.132	Medium
CEO Commitment	Organisational Commitment	0.423	0.307	0.201	Medium
Sustainability Drivers	Corporate Sustainability Performance	0.303	0.292	0.016	Small
Organisational Commitment	Sustainability Performance	0.303	0.246	0.082	Small – Medium
CEO Commitment	Sustainability Performance	0.303	0.304	-0.001	None
Sustainability Performance	Practitioner Engagement	0.272	0.276	-0.005	None
Organisational Commitment	Practitioner Engagement	0.272	0.265	0.010	Small
CEO Commitment	Practitioner Engagement	0.272	0.235	0.051	Small
Practitioner Engagement	Practitioner Intention	0.462	N/A	N/A	

As shown in table 6.18, all the exogenous constructs have between medium and small effects on their respective endogenous constructs with the exception of the two relationships (*CEO Commitment to Sustainability* to perceived *Corporate Sustainability Performance*, and perceived *Corporate Sustainability Performance* to *Sustainability Practitioner Engagement*) which exhibit no predictive relevance. Again, these are the two relationships previously identified in the model as non-significant and therefore the lack of predictive power is a consistent finding. Overall, the analysis conducted on the structural model shows satisfactory exploratory power and predictive relevance.

In summary, the PLS statistical analysis described above provides satisfactory evidence to support the overall structural model being reasonable and consequently fit for the purpose of hypothesis testing. Based upon the above analysis, the following conclusions can be drawn about the first set of research hypotheses (H.1. to H.4.):

H.1.: Increases in the level of an *Organisation's Commitment to Sustainability* lead to increases in the organisation's levels of *Corporate Sustainability Performance*.

The research findings provide evidence to support this hypothesis.

H.2.a.: Increases in the strength of the *Business Drivers of Sustainability* an organisation experiences lead to increases in the level of *Organisational Commitment to Sustainability*.

The research findings provide evidence to support this hypothesis.

H.2.b.: Increases in the strength of the *Business Drivers of Sustainability* an organisation experiences lead to increases in its level of *Corporate Sustainability Performance*.

The research findings provide evidence to support this hypothesis.

H.3.a.: Increases in the level of *CEO Commitment to Sustainability* lead to increases in the level of *Organisational Commitment to Sustainability*.

The research findings provide evidence to support this hypothesis.

H.3.b.: Increases in the level of *CEO Commitment to Sustainability* lead to increases in the level of *Corporate Sustainability Performance*.

At this stage, the research findings do not provide evidence to support this hypothesis. However, this hypothesis is assessed further in section 6.9 when mediation effects are considered.

H.4.a.: Increases in the level of *CEO Commitment to Sustainability* lead to increases in the level of *Sustainability Practitioner Engagement* towards their organisation.

The research findings provide evidence to support this hypothesis.

H.4.b.: Increases in the level of *Organisation Commitment to Sustainability* lead to increases in the level of *Sustainability Practitioner Engagement* towards their organisation.

The research findings provide evidence to support this hypothesis.

H.4.c.: Increases in the (perceived) level of an organisation's *Corporate Sustainability Performance* lead to increases in the level of *Sustainability Practitioner Engagement* towards their organisation.

The research findings do not provide evidence to support this hypothesis.

*

Further discussion on the above findings is presented in chapter seven. The remaining sections of this chapter consider the effects of the moderating variables upon the PLS structural research model, and then presents a second PLS model employing the alternative measurement of *Corporate Sustainability Performance*.

6.7 Examination of the Practitioner Related Moderating Impacts

A moderating variable is a variable that has a material contingent effect on the relationship between a dependent variable and a related independent variable (Sekaran and Bougie, 2013). In chapter four, a series of factors were identified from the literature which were then theorised as having the potential to affect the relationships within the core research model. The moderators selected were hypothesised to impact multiple aspects of the research model rather than moderating a single dependent variable / independent variable relationship, and consequently a categorical moderating variable technique is now applied to assess the proposed moderators.

Six potential practitioner related moderating factors were identified in chapter four: four relating to the social axiomatic beliefs of practitioners (Cynicism, Fate Control, Social Complexity, and Reward for Application) along with one assessing the practitioners' connectedness to nature and one assessing their temporal orientation (short term versus long term). This section examines each of these six summated scales and then analyses their effects on the PLS structural research model.

6.7.1 Preparation of the Moderating Scales

Two steps are involved in preparing the moderator scales for the categorical PLS assessment: first ensuring the reliability and validity of the overall scale, and second dividing the sample into two groups in which cases can be considered as having high and low values within each scale. Preliminary scale reliability analysis of the moderator scales was presented in section 6.4.2. This process resulted in the removal of the four individual items which were reducing the exploratory power of the various scales.

The six scales and associated Cronbach Alpha scores are presented in table 6.19.

Table 6.19 Scale Reliability Analysis for Practitioner Moderators

Scales	No. of items in scale	Cronbach Alpha of scale
Sustainability practitioner social axiom scales		
Social Complexity scale	3 item scale	0.579
Fate Control scale	5 item scale	0.675
Cynicism scale	5 item scale	0.729
Reward for Application scale	4 item scale	0.657
Sustainability practitioner term orientation and connectedness to nature scales		
Personal term orientation scale	6 item scale	0.729
Connectedness to Nature scale	6 item scale	0.816

Social Axiom Scales

As shown in table 6.19, the scale reliability tests on the four social axiom scales identified that three of the scales (Fate Control, Cynicism, and Reward for Application) scored above the expected threshold for exploratory analysis of 0.6 (Hair et al., 2010) with the final scale (Social Complexity) close to the threshold. As an additional test of reliability, a principal component factor analysis was applied to the 17 items within the social axiom scales with Varimax rotation to check that the items factorised as expected. The results of the principal component factor analysis are presented in table 6.20 which demonstrates that the items factorised as expected with an acceptable overall level of KMO = 0.685.

Table 6.20: Rotated Component Matrix for Social Axiom Moderator items

Question ID	Expected grouping	Component			
		1	2	3	4
70	Cynicism	0.776			
58	Cynicism	0.738			
65	Cynicism	0.708			
63	Cynicism	0.691			
54	Cynicism	0.469			-0.468
66	Fate control		0.699		
53	Fate control		0.686		
64	Fate control		0.658		
69	Fate control		0.614		
61	Fate control		0.603		
56	Reward for Application			0.823	
62	Reward for Application			0.705	
55	Reward for Application			0.665	
59	Reward for Application			0.636	
57	Social Complexity				0.706
52	Social Complexity				0.690
60	Social Complexity				0.669

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalisation. Rotation converged in 5 iterations. KMO = 0.685; Total variance explained: 51.4%

Having established the validity of the four social axiom scales, the next stage was to calculate summated scales based upon the individual items. As Hair et al. (2010) argue, summated scales possess the ability to portray complex concepts into a single measure whilst at the same time reducing the measurement error. With all items measured on an individual 1 to 7 Likert-type scale (where 1 is a low tendency towards the axiom), the summated scales were calculated as the mean of the individual items. The summary statistics for the scales are presented in table 6.21.

Table 6.21: Summary statistics for Summated Social Axiom Scales

	Social Complexity	Fate Control	Cynicism	Reward for Application
Mean	5.723	2.783	3.501	5.287
Standard Deviation	0.683	1.024	0.920	0.881
Min	3.667	1.000	1.000	2.750
Max	7.000	5.400	5.800	7.000
Skewness	-0.620	0.163	-0.213	-0.469
Kurtosis	0.474	-0.498	-0.258	-0.201

Having calculated the summated scales, the final preparation stage involved dividing each of the four samples into two sub-samples representing high and low levels of tendency towards the respective axiom. There are a number of potential options for dividing the sample. For example, splitting the sample at: the mid-point of the Likert-type scale (i.e. at four), the median value, or the mean value. Another option would have been to take the highest scoring one-third and the lowest scoring one-third of the sample. Whilst this would have had the advantage of making a more-extreme comparison, one significant disadvantage that would arise from this approach would be a significantly reduced sample size of circa 60 cases in each sub-sample. Ultimately, in line with the approach taken by previous researchers (such as West, 2011), the decision was taken to divide the sample at the scale mean value.

Table 6.22 shows, for each social axiom, the mean of the complete sample (n=177) together with the mean of and number of items included in two sub-samples (low and high tendency).

Table 6.22: Mean and sample sizes for Social Axioms Sub-samples

	Social Complexity	Fate Control	Cynicism	Reward for Application
Mean - full sample	5.723	2.783	3.501	5.287
Total sample (N)	177	177	177	177
Mean - high tendency sample	6.275	3.538	4.220	6.018
Number of cases in high tendency sample	85	95	93	86
Mean - low tendency sample	5.214	1.885	2.705	4.596
Number of cases in low tendency sample	92	82	84	91

Connectedness to Nature and Temporal Orientation scales

The two other practitioner related moderator scales (Connectedness to Nature and Temporal Orientation) were divided into low and high tendency sub-samples using the same approach, splitting the sample at the mean value. In the case of temporal orientation, a high score indicated a tendency towards a longer term focus whilst a low score a shorter term focus. The mean scores and sample sizes for the two Connectedness to Nature and Temporal Orientation sub-samples are presented in table 6.23.

Table 6.23: Mean and sample sizes for Connectedness to Nature and Temporal Orientation Sub-samples

	Connectedness to Nature	Temporal Orientation
Mean - full sample	5.142	5.630
Standard Deviation - full sample	0.928	0.687
Total sample (N)	177	177
Mean - high tendency sample	5.849	6.125
Number of cases in high tendency sample	97	97
Mean - low tendency sample	4.285	5.033
Number of cases in low tendency sample	80	80

6.7.2 Examination of the Group Differences

Employing the categorical moderator analysis technique in PLS aims to identify heterogeneity in the overall sample. Heterogeneity exists when two (or more) cohorts of respondents within a sample exhibit significantly different relationship paths within the PLS structural model – typically different path relationships between the exogenous and endogenous latent variables are examined.

Establishing these differences requires the use of PLS structural equation modelling multi-group analysis (PLS-MGA). Hair et al. (2014) recommend a parametric approach to PLS-MGA which was originally proposed by Henseler et al. (1990) to compare two groups of data. The process involves running the boot-strap process on the two sub-samples of the data to identify the path coefficients and associated standard errors in each case. These four values, together with the two sub-sample sizes, are then tested with a modified version of a two-independent-samples *t* test recommended by Keil et al. (2000). SmartPLS does not provide the ability to perform the test automatically, and consequently the six values must be entered into an Excel spreadsheet provided by Hair et al. (2015) at <http://www.pls-sem.com> to complete the above test.

The results of this analysis for the practitioner related moderators are presented in table 6.24 and 6.25 below:

Table 6.24: Examination of Social Axiom Sub-samples using PLS-MGA

	Cynicism			Fate Control			Reward for Application			Social Complexity		
	b High	b Low	p	b High	b Low	p	b High	b Low	p	b High	b Low	p
Sustainability Drivers -> Organisational Commitment	0.534	0.344	*	0.471	0.401		0.502	0.371		0.497	0.342	
Sustainability Drivers -> Corporate Sustainability Performance	0.280	0.258		0.234	0.220		0.375	0.061		0.138	0.343	
CEO Commitment -> Organisational Commitment	0.398	0.643	**	0.484	0.558		0.476	0.558		0.474	0.587	
CEO Commitment -> Corporate Sustainability Performance	-0.090	0.012		-0.047	-0.004		-0.106	0.055	*	0.108	-0.213	*
CEO Commitment -> Sustainability Practitioner Engagement	0.368	0.365		0.341	0.339		0.338	0.341		0.270	0.432	
Organisational Commitment -> Corporate Sustainability Performance	0.578	0.473		0.503	0.588		0.449	0.671		0.558	0.579	
Organisational Commitment -> Sustainability Practitioner Engagement	0.260	0.094		0.454	0.046	*	0.334	0.074	*	0.220	0.213	
Corporate Sustainability Performance -> Sustainability Practitioner Engagement	0.198	-0.035		-0.198	0.318	**	-0.090	0.300	**	0.137	0.059	
Sustainability Practitioner Engagement -> Sustainability Practitioner Intention	0.834	0.778		0.793	0.830		0.752	0.833		0.791	0.843	

Note: significance levels *** $p < 0.01$ ** $p < 0.05$ * $p < 0.1$

Differences in the practitioners' beliefs in three of the four social axioms (cynicism, fate control, and social complexity) demonstrated significant path differences between the low and high tendency sub-groups, while the fourth social axiom (reward for application) did not impact any of the path relationships.

Table 6.25: Examination of Connectedness to Nature and Temporal Orientation Sub-samples using PLS-MGA

	Temporal Orientation			Connectedness to Nature		
	<i>b</i> High	<i>b</i> Low	<i>p</i>	<i>b</i> High	<i>b</i> Low	<i>p</i>
Sustainability Drivers -> Organisational Commitment	0.441	0.389		0.436	0.446	
Sustainability Drivers -> Corporate Sustainability Performance	0.181	0.282		0.289	0.161	
CEO Commitment -> Organisational Commitment	0.526	0.536		0.544	0.468	
CEO Commitment -> Corporate Sustainability Performance	-0.027	-0.099		-0.056	-0.067	
CEO Commitment -> Sustainability Practitioner Engagement	0.187	0.543	*	0.257	0.456	
Organisational Commitment -> Corporate Sustainability Performance	0.631	0.529		0.579	0.538	
Organisational Commitment -> Sustainability Practitioner Engagement	0.358	0.084		0.358	0.130	
Corporate Sustainability Performance -> Sustainability Practitioner Engagement	0.160	-0.040		0.071	0.052	
Sustainability Practitioner Engagement -> Sustainability Practitioner Intention	0.830	0.797		0.824	0.789	

Note: significance level * $p < 0.1$

Of the other two proposed practitioner moderators, temporal orientation did demonstrate significant path differences between the low and high tendency sub-groups, while connectedness to nature appeared to have no significant effects. The remainder of this subsection first discusses the practitioner related moderator variables and then addresses the associated research hypotheses originally elaborated in chapter four.

Modelling high and low tendency to Cynicism Sub-Groups

The PLS-MGA assessment identified two significant differences between sustainability practitioners identified with a higher tendency towards cynicism compared to those with a lower tendency.

First, the path representing the link from *CEO Commitment to Sustainability* to *Organisational Commitment to Sustainability* is significantly stronger for those sustainability practitioners identified with a lower tendency towards cynicism ($b_{\text{low}} = 0.643$, $b_{\text{high}} = 0.398$, $p < 0.05$). Conversely, the path representing the link from *Sustainability Drivers* to *Organisational Commitment to Sustainability* is significantly weaker for those sustainability practitioners identified with a lower tendency towards cynicism ($b_{\text{low}} = 0.344$, $b_{\text{high}} = 0.534$, $p < 0.10$).

The full results for the PLS-MGA assessment for sustainability practitioners with high and low tendency to cynicism are presented in figure 6.4 and 6.5 (overleaf) respectively, and provide the following insights into hypothesis H.5.a. The statistically significantly different paths are shown in bold and green.

H.5.a.: *Cynicism* moderates one or more of the path relationships described in the core research model.

The research findings provide evidence to support this hypothesis, specifically with respect to the following observations:

- The perceived positive relationship between *CEO's Commitment to Sustainability* and *Organisation's Commitment to Sustainability* is stronger amongst sustainability practitioners with a lower tendency to cynicism, compared to those with a higher tendency to cynicism.
- The perceived positive relationship between the *Drivers of Sustainability* and *Organisation's Commitment to Sustainability* is stronger amongst sustainability practitioners with a higher tendency to cynicism, compared to those with a lower tendency to cynicism.

These findings are discussed further in section 7.4.3.

Figure 6.4: PLS-MGA assessment for practitioners with High tendency to Cynicism

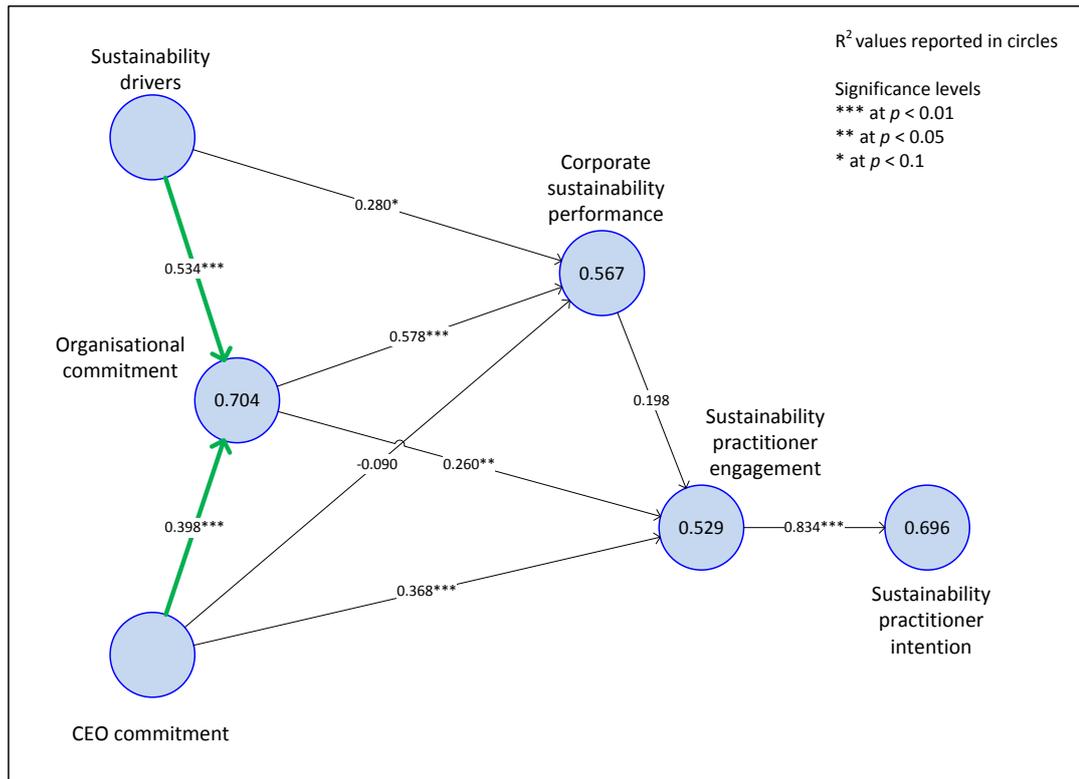
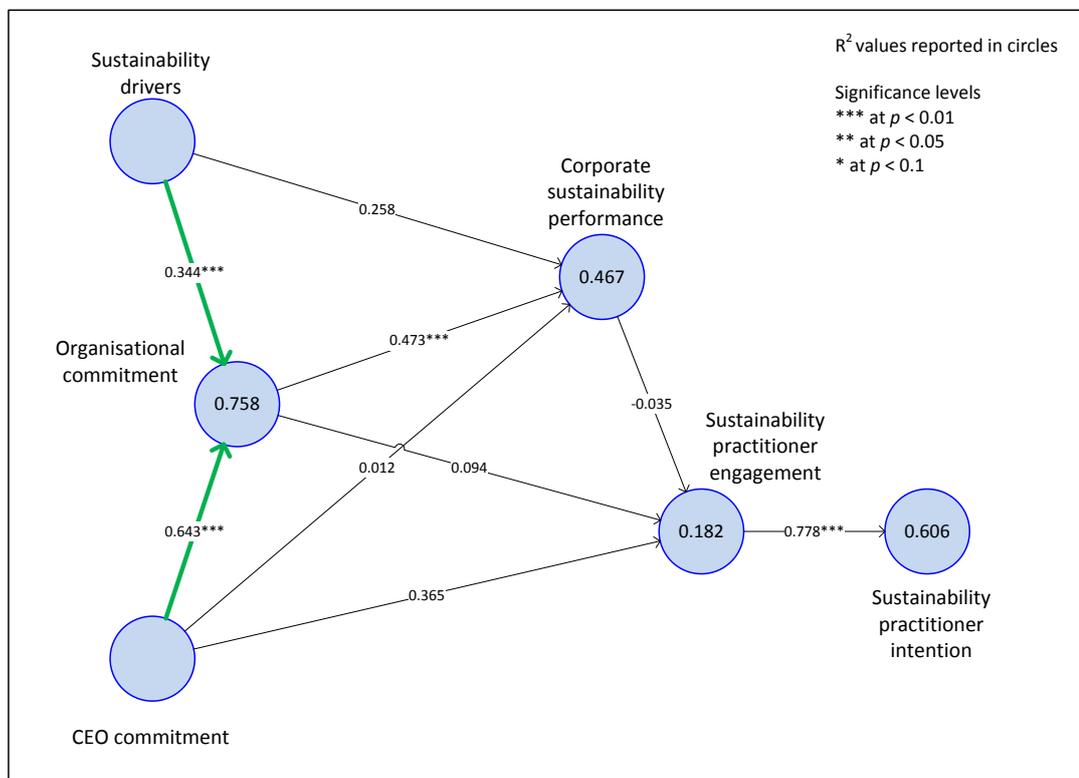


Figure 6.5: PLS-MGA assessment for practitioners with Low tendency to Cynicism



Modelling high and low tendency to Fate Control Sub-Groups

The PLS-MGA assessment identified two significant differences between sustainability practitioners identified with high and low tendencies towards fate control.

First, the path representing the link from *Organisational Commitment to Sustainability* to *Sustainability Practitioner Engagement* is significantly stronger for those sustainability practitioners identified with a high tendency towards fate control ($b_{low} = 0.049$, $b_{high} = 0.455$, $p < 0.10$). Conversely, the path representing the link from *Corporate Sustainability Performance* to *Sustainability Practitioner Engagement* is significantly weaker for those sustainability practitioners identified with a higher tendency towards fate control ($b_{low} = 0.315$, $b_{high} = -0.198$, $p < 0.01$).

The full results for the PLS-MGA assessment for sustainability practitioners with high and low tendency to fate control are presented in figure 6.6 and 6.7 (overleaf) respectively, and provide the following insights into hypothesis H.5.b.

H.5.b.: *Fate control moderates one or more of the path relationships described in the core research model.*

The research findings provide evidence to support this hypothesis, specifically with respect to the following observations:

- The positive relationship between *Organisation's Commitment to Sustainability* and *Sustainability Practitioner Engagement* is stronger amongst sustainability practitioners with a higher tendency to fate control, compared to those with a lower tendency to fate control.
- The relationship between perceived *Corporate Sustainability Performance* and *Sustainability Practitioner Engagement* is significantly stronger amongst sustainability practitioners with a lower tendency to fate control. For sustainability practitioners with a higher tendency to fate control, the relationship actually becomes negatively correlated but non-significant.

These findings are discussed further in section 7.4.3.

Figure 6.6: PLS-MGA assessment for practitioners with High tendency to Fate Control

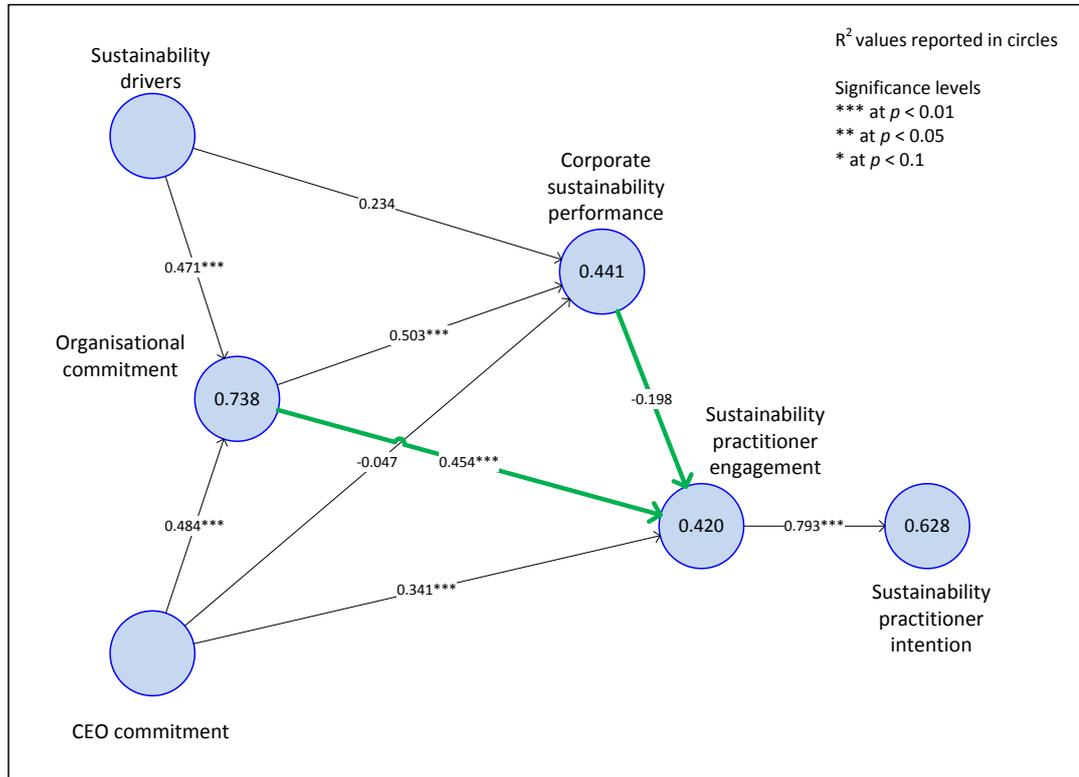
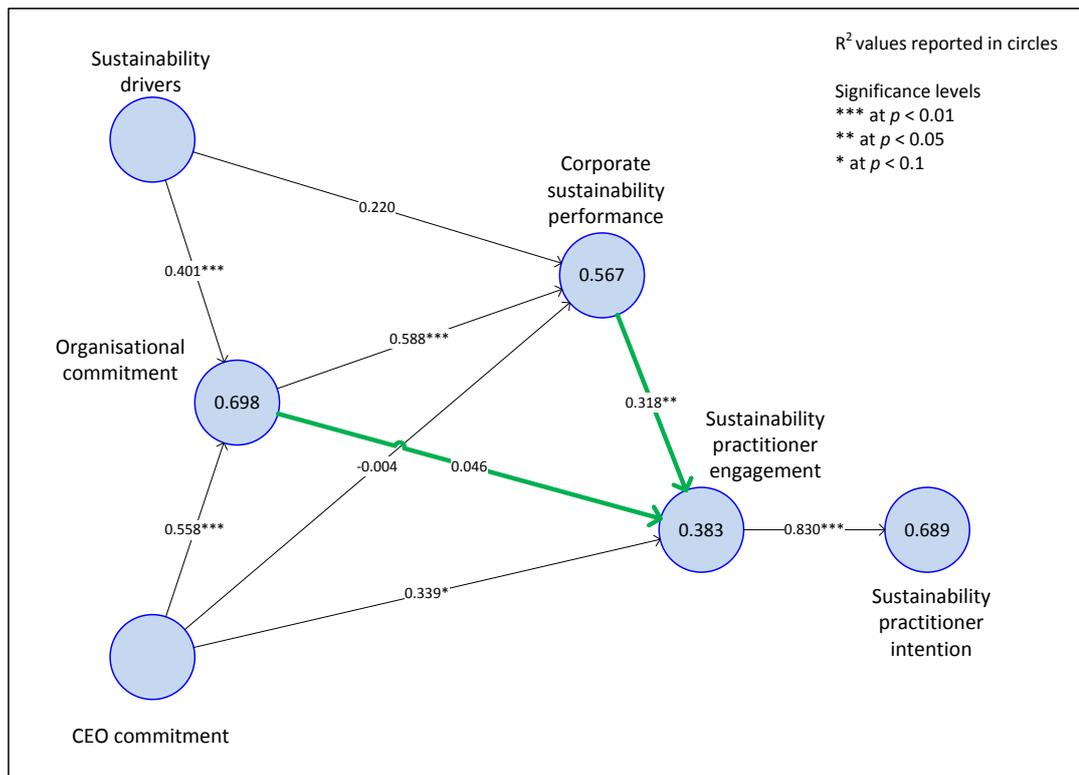


Figure 6.7: PLS-MGA assessment for practitioners with Low tendency to Fate Control



Modelling high and low tendency to Reward for Application Sub-Groups

The PLS-MGA assessment identified no significant differences in the path model between sustainability practitioners identified with a higher tendency towards reward for application compared to those with a lower tendency.

H.5.c.: *Reward for Application* moderates one or more of the path relationships described in the core research model.

The research findings do not provide evidence to support this hypothesis.

*

Modelling high and low tendency to Social Complexity Sub-Groups

The PLS-MGA assessment identified one significant difference between sustainability practitioners identified with a higher tendency towards social complexity compared to those with a lower tendency.

The path representing the link from *CEO Commitment to Sustainability* to perceived *Corporate Sustainability Performance* is significantly stronger for those sustainability practitioners identified with a high tendency towards social complexity ($b_{low} = -0.213$, $b_{high} = 0.108$, $p < 0.10$).

The full results for the PLS-MGA assessment for sustainability practitioners with high and low tendency to social complexity are presented in figure 6.8 and 6.9 (overleaf) respectively.

Figure 6.8: PLS-MGA assessment for practitioners with High tendency to Social Complexity

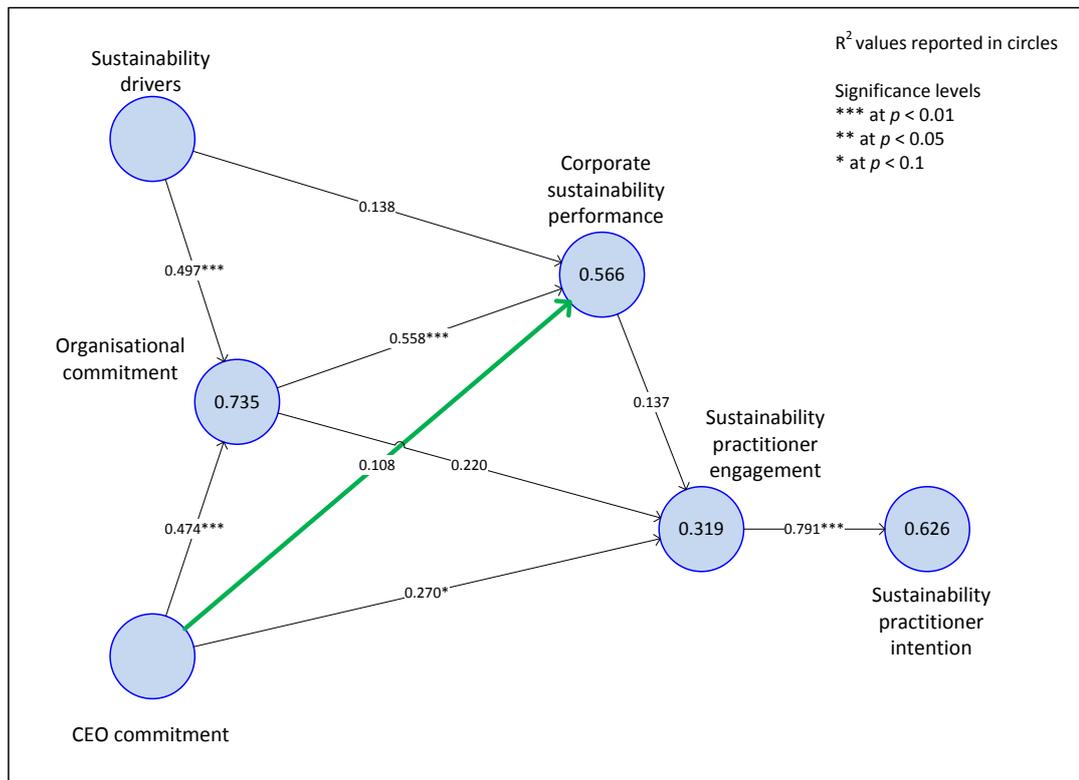
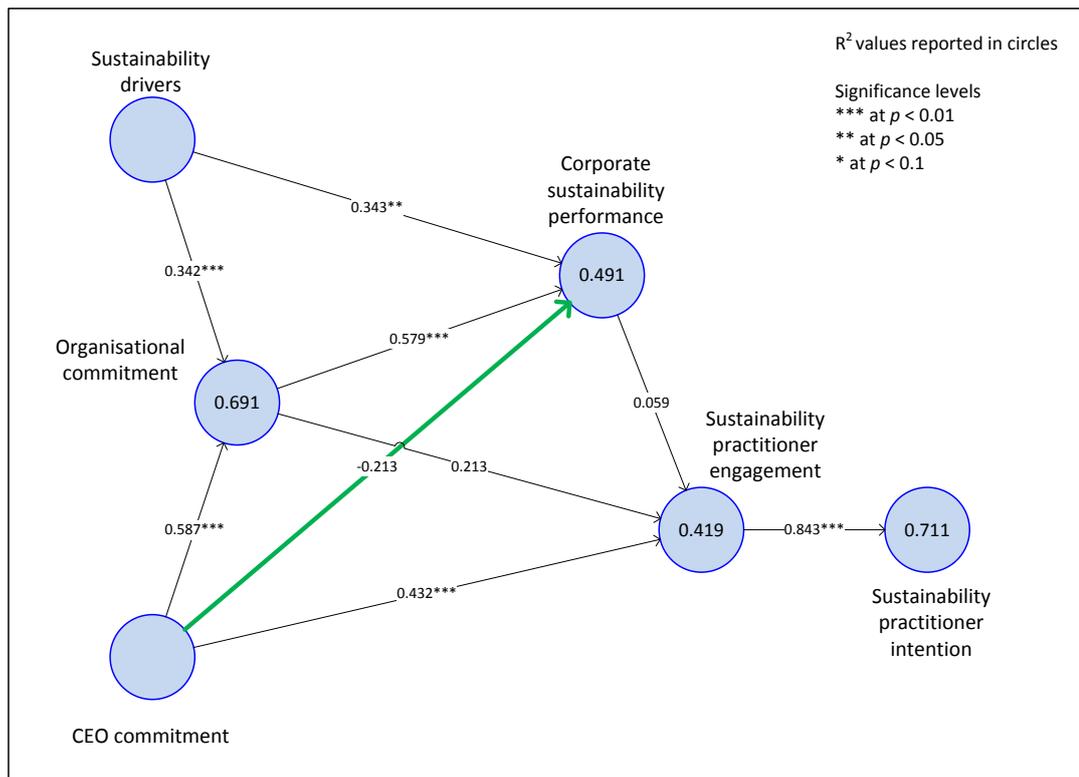


Figure 6.9: PLS-MGA assessment for practitioners with Low tendency to Social Complexity



The results presented in figures 6.8 and 6.9 provide the following insights into hypothesis H.5.d.

H.5.d.: *Social Complexity* moderates one or more of the path relationships described in the core research model.

The research findings do not provide evidence to support this hypothesis.

Despite a significant difference between the path relationship from *CEO Commitment to Sustainability* and perceived *Corporate Sustainability Performance* being highlighted by the PLS-MGA process, the research findings do not provide evidence to support this hypothesis because the paths in both the high and low social complexity samples are non-significant. This is consistent with the path model in the full sample model which is also non-significant.

*

Modelling high and low levels of Connectedness to Nature for Application Sub-Groups

The PLS-MGA assessment identified no significant differences in the path model between sustainability practitioners identified with low levels of connectedness to nature compared to those with high levels.

H.6.: The sustainability practitioner's connectedness to nature moderates one or more of the path relationships described in the core research model.

The research findings do not provide evidence to support this hypothesis.

Modelling high and low (long and short) Term Orientation Sub-Groups

The PLS-MGA assessment identified one significant difference between sustainability practitioners identified with a higher orientation towards the long term compared to those with an orientation towards the short term.

The path representing the link from perceived *CEO Commitment to Sustainability* to *Sustainability Practitioner Engagement* is significantly stronger for those sustainability practitioners identified with a high tendency towards the short term ($b_{\text{long}} = 0.188$, $b_{\text{short}} = 0.546$, $p < 0.10$).

The full results for the PLS-MGA assessment for sustainability practitioners with short and long term temporal orientations are presented in figures 6.10 and 6.11 (overleaf) respectively, and provide the following insights into hypothesis H.7.

H.7.: The sustainability practitioner's *temporal orientation* moderates the path relationships described in the core research model.

The research findings provide evidence to support this hypothesis, specifically with respect to the following observation:

- The positive relationship between perceived *CEO Commitment to Sustainability* and the *Sustainability Practitioner Engagement* is stronger amongst sustainability practitioners with short term orientation. The path relationship for practitioners with a longer term orientation is weaker than in the full sample but is non-significant.

These findings are discussed further in section 7.4.3.

Figure 6.10: PLS-MGA assessment for practitioners with a Long Term Orientation

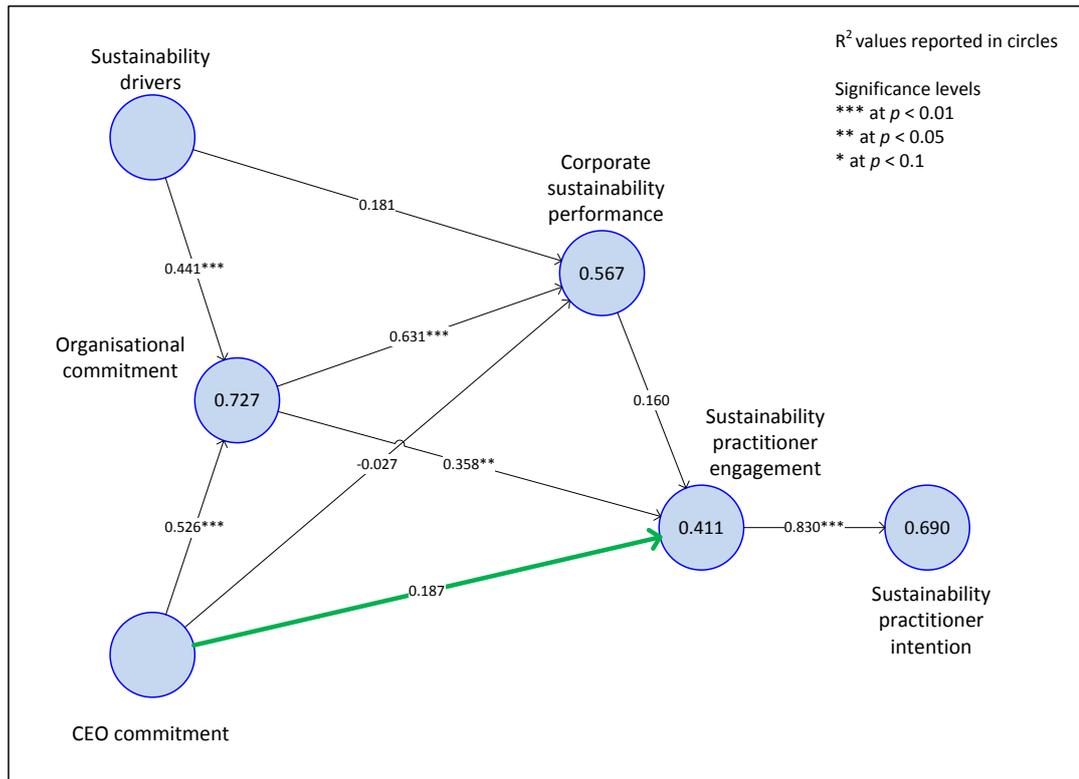
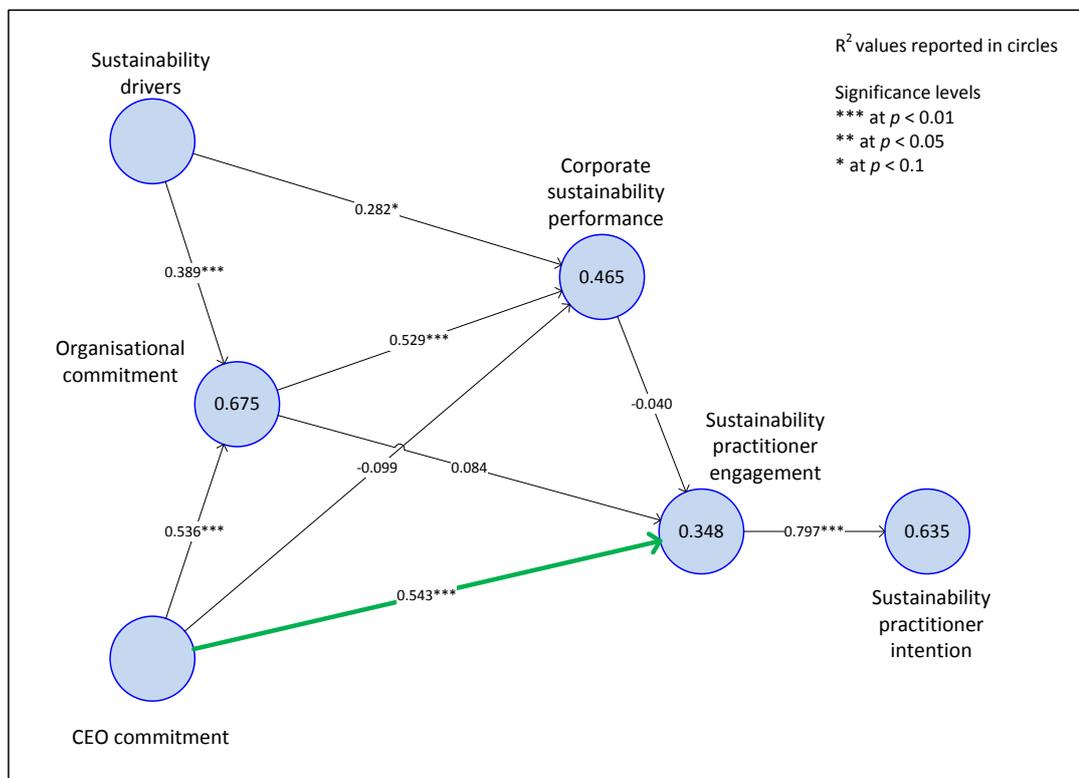


Figure 6.11: PLS-MGA assessment for practitioners with a Short Term Orientation



6.8 Examination of the Culture Related Moderating Impacts

A series of potential organisational culture related moderating factors were identified in chapter four based upon a six-dimension culture model proposed by Hofstede et al. (1990). The six dimensions, each measured by three questionnaire items, did not perform well in the initial scale reliability analysis set out in section 6.4.2 and consequently three of the dimensions (scales for employee versus job orientation, parochial versus professional, and normative versus pragmatic) had to be eliminated immediately.

The remaining three scales (process versus results orientation, open versus closed, and loose versus tight) showed limited merit in the reliability assessment, and consequently while they are taken forward as potential moderators, the results highlighted should be interpreted with significant care. Table 6.26 presents the scales and associated Cronbach Alpha scores for the feasible scales.

Table 6.26: Scale Reliability Analysis for Culture Moderators

Scales	No. of items in scale	Cronbach Alpha of scale
Organisational culture scales		
Process vs. Results orientation scale	2 item scale	0.498
Employee vs. Job orientation scale		No feasible scale
Parochial vs. Professional scale		No feasible scale
Open vs. Closed scale	2 item scale	0.474
Loose vs. Tight scale	2 item scale	0.448
Normative vs. Pragmatic scale		No feasible scale

6.8.1 Preparation of the Moderating Scales

As previously with the practitioner related moderator, the organisation culture moderators were transformed into summated scales using the mean of the remaining items after the Cronbach Alpha based scale reliability technique had been applied. The summary statistics for the three feasible culture scales are presented in table 6.27.

Table 6.27: Summary statistics for Summated Social Axiom Scales

	Process versus Results	Open versus Closed	Loose versus Tight
Mean	5.342	3.474	4.787
Standard Deviation	0.998	1.168	1.142
Min	1.000	1.000	1.500
Max	7.000	6.500	7.000
Skewness	-1.103	0.418	-0.336
Kurtosis	2.457	-0.238	-0.571

As with practitioner related moderator scales, the organisational culture moderators were divided into two sub-samples by splitting the sample at the mean value. In the three culture scales, a high score indicates an orientation towards results, closed, or tight cultures in respective scales whilst a low score indicates a corresponding orientation towards process, open or loose culture respectively.

The mean scores and sample sizes for the three organisational culture sub-samples are presented in table 6.28. As noted in section 6.2.1, three respondents failed to complete the organisation culture questionnaires. Consequently, this section of the analysis excludes these three cases.

Table 6.28: Mean and sample sizes for the Organisational Culture sub-samples

	Process versus Results	Open versus Closed	Loose versus Tight
Mean - full sample	5.342	3.474	4.787
Total sample (N)	174	174	174
Mean - high (i.e. results / closed / tight)	5.962	4.372	5.639
Number of cases in high tendency sample	106	91	97
Mean - low (i.e. process / open / loose)	4.375	2.494	3.714
Number of cases in low tendency sample	68	83	77

6.8.2 Examination of the Group Differences

Once again the categorical moderator analysis technique as originally proposed by Henseler et al. (1990) is employed to assess for different path relationships between the exogenous and endogenous latent variables. The results of this analysis are presented in table 6.29 (below).

Table 6.29: Examination of Organisational Culture Sub-samples using PLS-MGA

	Process versus Results			Open versus Closed			Loose versus Tight		
	<i>b</i> High	<i>b</i> Low	<i>p</i>	<i>b</i> High	<i>b</i> Low	<i>p</i>	<i>b</i> High	<i>b</i> Low	<i>p</i>
	Results	Process		Closed	Open		Tight	Loose	
Sustainability Drivers -> Organisational Commitment	0.484	0.335		0.401	0.479		0.417	0.426	
Sustainability Drivers -> Corporate Sustainability Performance	0.102	0.307	**	0.388	-0.041	**	0.217	0.235	
CEO Commitment -> Organisational Commitment	0.454	0.619		0.530	0.479		0.547	0.507	
CEO Commitment -> Corporate Sustainability Performance	-0.002	-0.057		-0.008	-0.150		-0.058	0.032	
CEO Commitment -> Sustainability Practitioner Engagement	0.158	0.636	**	0.450	0.057	*	0.084	0.472	*
Organisational Commitment -> Corporate Sustainability Performance	0.550	0.575		0.430	0.751		0.550	0.556	
Organisational Commitment -> Sustainability Practitioner Engagement	0.473	-0.132	***	0.048	0.419		0.378	0.221	
Corporate Sustainability Performance -> Sustainability Practitioner Engagement	-0.076	0.199		0.197	-0.120		0.063	0.054	
Sustainability Practitioner Engagement -> Sustainability Practitioner Intention	0.724	0.861	**	0.830	0.737		0.813	0.832	

Note: significance levels *** $p < 0.01$ ** $p < 0.05$ * $p < 0.1$

Modelling Process versus Results Orientation Sub-Groups

The PLS-MGA assessment identified three significant differences between organisations identified with an orientation towards results compared to those orientation towards process.

First, the path representing the link from *CEO Commitment to Sustainability* to *Sustainability Practitioner Engagement* is significantly stronger in organisations identified with an orientation towards process rather than results ($b_{\text{process}} = 0.636$, $b_{\text{results}} = 0.158$, $p < 0.05$).

Conversely, the path representing the link from *Organisation Commitment to Sustainability* to *Corporate Sustainability Performance* is significantly weaker for those organisations identified as having an orientation towards process rather than results ($b_{\text{process}} = -0.132$, $b_{\text{results}} = 0.473$, $p < 0.01$).

Finally, the path representing the link from *Sustainability Practitioner Engagement* to *Sustainability Practitioner Intention* is significantly stronger in organisations identified with an orientation towards process rather than results ($b_{\text{process}} = 0.861$, $b_{\text{results}} = 0.724$, $p < 0.05$).

The full results for the PLS-MGA assessment for organisational cultures oriented towards results and process are presented in figure 6.12 and 6.13 (overleaf) respectively.

Figure 6.12: PLS-MGA assessment for organisations with Results Oriented Cultures

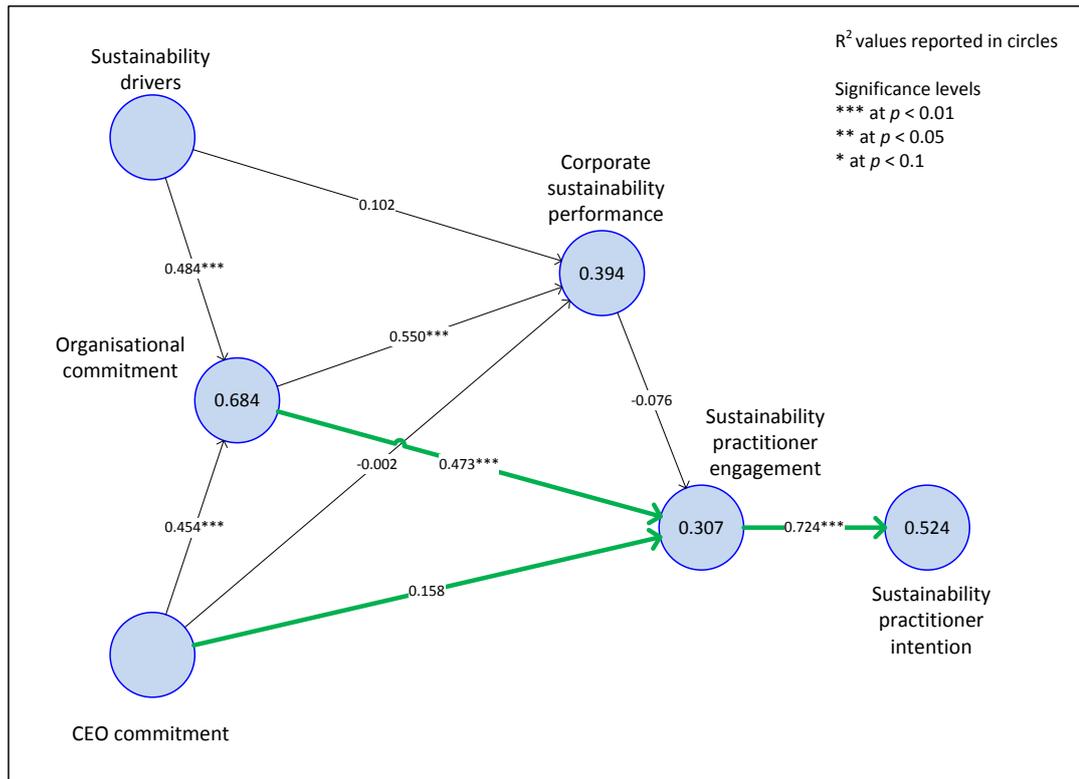
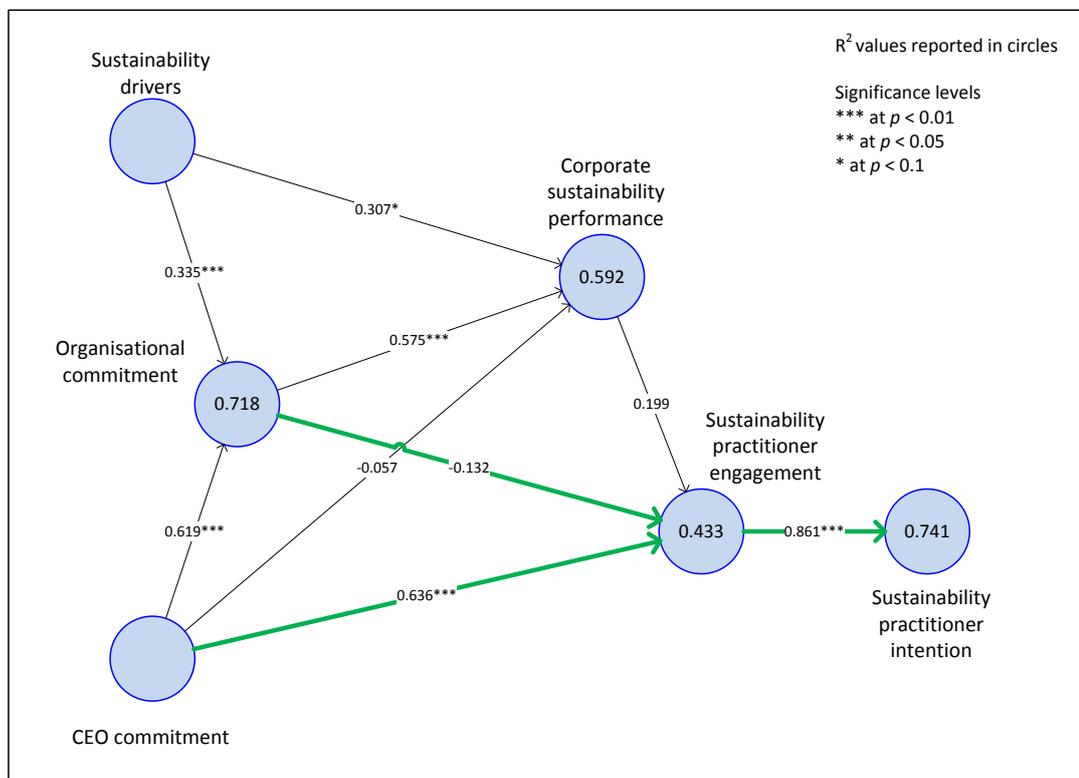


Figure 6.13: PLS-MGA assessment for organisations with Process Oriented Cultures



Figures 6.12 and 6.13 provide the following insights into hypothesis H.8.a.

H.8.a.: An increase in an organisation's orientation towards process rather than results moderates the path relationships described in the core research model.

The research findings provide evidence to support this hypothesis, specifically with respect to the following observations:

- The positive relationship between perceived *CEO Commitment to Sustainability* and *Sustainability Practitioner Engagement* is stronger in organisations with an orientation towards process rather than results although in the latter case the path relationship is non-significant.
- The relationship between perceived *Organisational Commitment to Sustainability* and *Sustainability Practitioner Engagement* is stronger in organisations with an orientation towards results rather than process. For organisations with an orientation towards process, the relationship actually becomes negatively correlated although in this case the path relationship is non-significant.
- The positive relationship between *Sustainability Practitioner Engagement* and *Sustainability Practitioner Intention* is stronger in organisations with an orientation towards process rather than results.

These findings are discussed further in section 7.4.4.

*

Modelling Employee versus Job Orientation Sub-Groups

Due to the infeasibility of the employee versus job measurement scale, the PLS-MGA assessment could not be employed to identify significant differences in the path models between organisations with employee and job oriented cultures.

H.8.b.: An increase in an organisation's *orientation towards employee rather than job* moderates the path relationships described in the core research model.

The research findings do not provide evidence to support this hypothesis.

*

Modelling Parochial versus Professional Sub-Groups

Due to the infeasibility of the parochial versus professional measurement scale, the PLS-MGA assessment could not be employed to identify significant differences in the path models between organisations with parochial and professional cultures.

H.8.c.: An increase in an organisation's *orientation towards the parochial rather than the professional* moderates the path relationships described in the core research model.

The research findings do not provide evidence to support this hypothesis.

*

Modelling Open versus Closed Culture Sub-Groups

The PLS-MGA assessment identified two significant differences between organisations identified with open and closed cultures.

First, the path representing the link from the *Sustainability Drivers* to perceived *Corporate Sustainability Performance* is significantly stronger in organisations identified as having a closed organisational culture ($b_{\text{closed}} = 0.388$, $b_{\text{open}} = -0.041$, $p < 0.05$).

Secondly, the path representing the link from *CEO Commitment to Sustainability* to *Sustainability Practitioner Engagement* is significantly stronger for those practitioners working in organisations identified as having a closed culture ($b_{\text{closed}} = 0.057$, $b_{\text{open}} = 0.450$, $p < 0.10$).

The full results for the PLS-MGA assessment for organisations with open and closed cultures are presented in figure 6.14 and 6.15 (overleaf) respectively, and provide the following insights into hypothesis H.8.d.

H.8.d.: An increase in an organisation's orientation towards being open rather than closed moderates the path relationships described in the core research model.

The research findings provide evidence to support this hypothesis, specifically with respect to the following observations:

- The relationship between the *Drivers of Sustainability* and perceived *Corporate Sustainability Performance* is stronger in organisations with a closed organisational culture. For organisations with an open culture, the relationship actually becomes negatively correlated although in the latter case the path relationship is non-significant.
- The positive relationship between *CEO Commitment to Sustainability* and *Sustainability Practitioner Engagement* is stronger in organisations with a closed culture rather than an open culture although in the latter case the path relationship is weak and non-significant.

These findings are discussed further in section 7.5.3.

Figure 6.14: PLS-MGA assessment for organisations with Closed Cultures

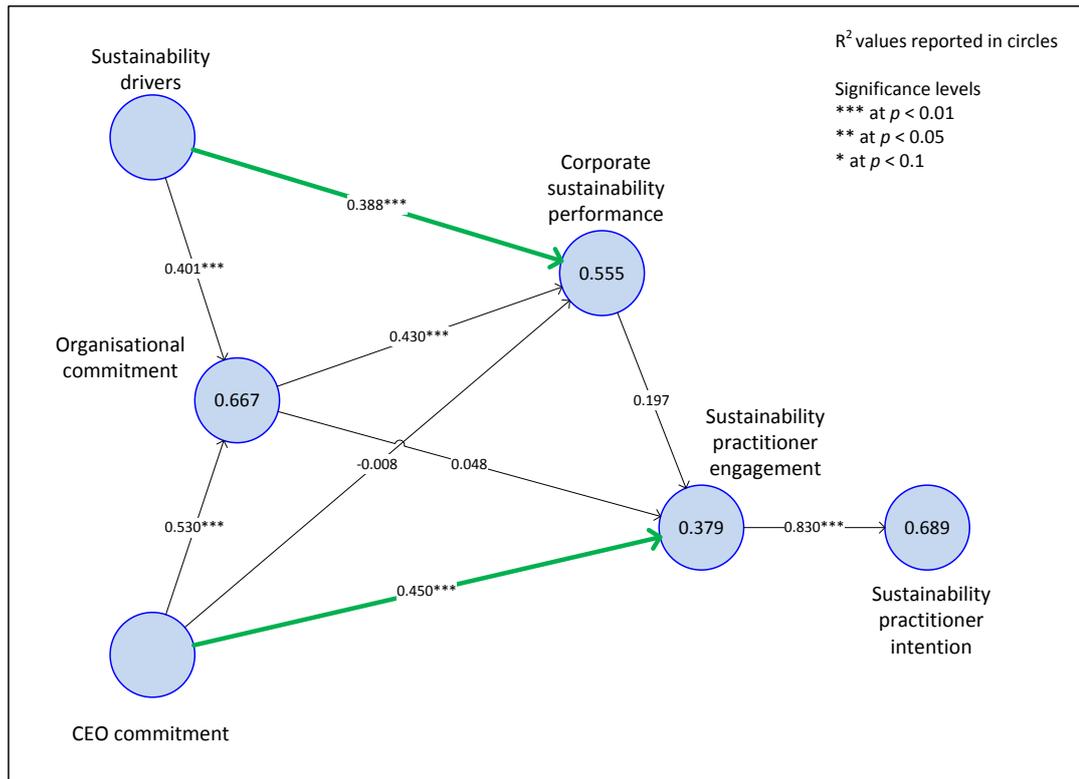
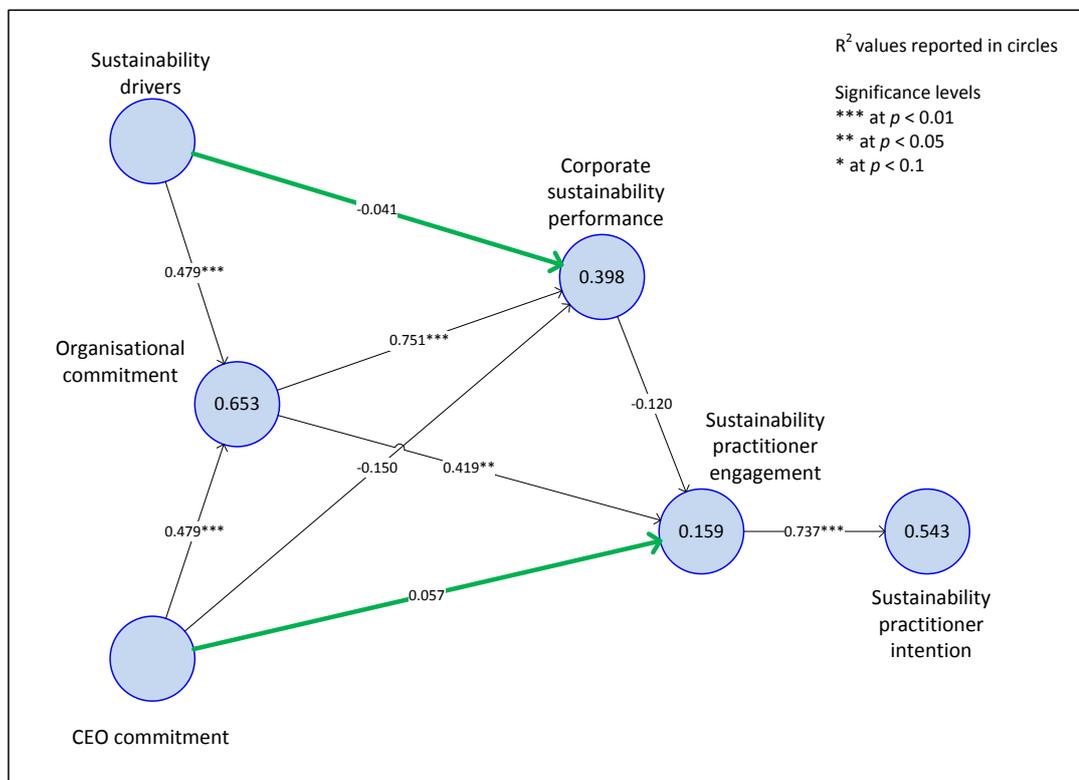


Figure 6.15: PLS-MGA assessment for organisations with Open Cultures



Modelling Loose versus Tight Culture Sub-Groups

The PLS-MGA assessment identified one significant differences between organisations identified with loose and tight organisational cultures.

The path representing the link from *CEO Commitment to Sustainability* to *Sustainability Practitioner Engagement* is significantly strongly for those practitioners working in organisations identified as having a loose culture ($b_{\text{tight}} = 0.084$, $b_{\text{loose}} = 0.472$, $p < 0.10$).

The full results for the PLS-MGA assessment for organisational loose and tight cultures are presented in figure 6.16 and 6.17 (overleaf) respectively, and provide the following insights into hypothesis H.5.e.

H.8.e.: An increase in an organisation's orientation towards being loose rather than tight moderates the path relationships described in the core research model.

The research findings provide evidence to support this hypothesis, specifically with respect to the following observation:

The positive relationship between *CEO Commitment to Sustainability* and *Sustainability Practitioner Engagement* is stronger in organisations with loose rather than tight cultures, although in the latter case the path relationship is non-significant.

This finding is discussed further in section 7.5.3.

Figure 6.16: PLS-MGA assessment for organisations with Tight Cultures

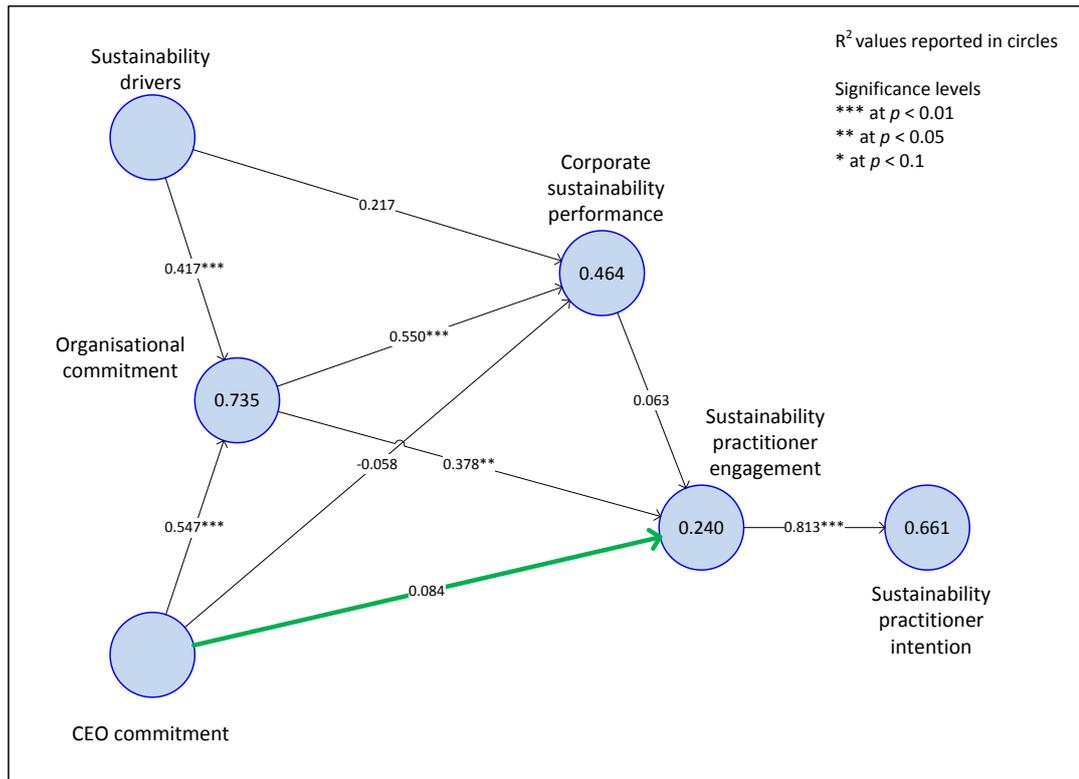
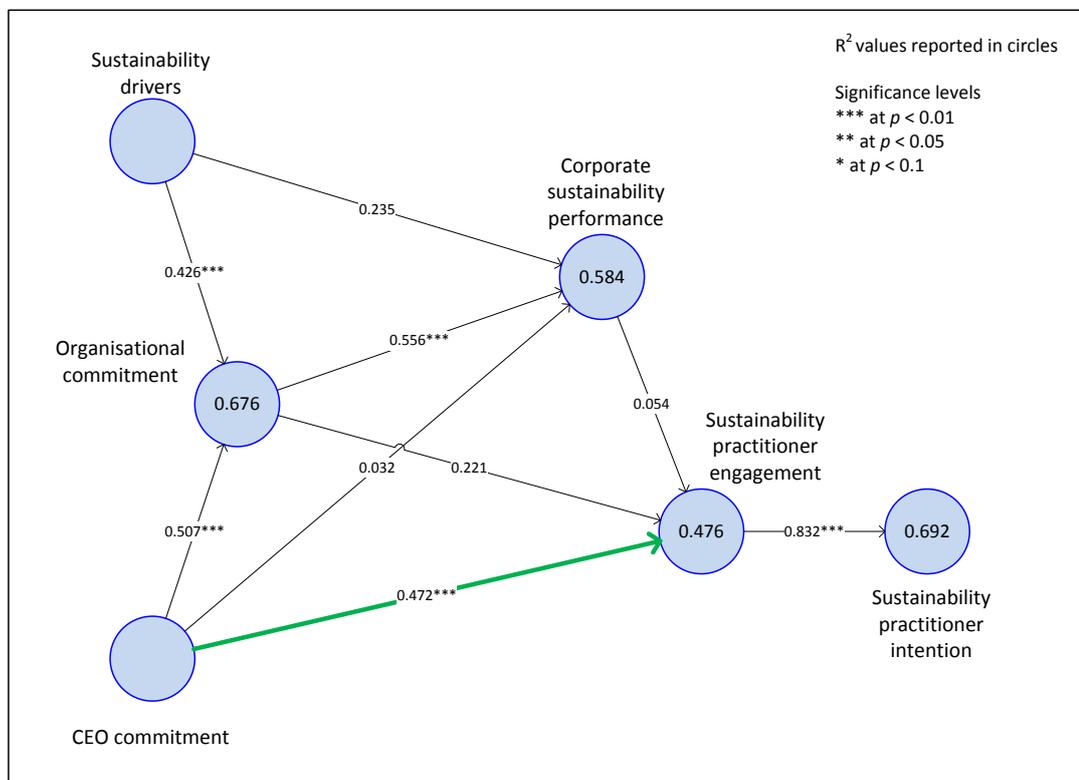


Figure 6.17: PLS-MGA assessment for organisations with Loose Cultures



Modelling Normative versus Pragmatic Culture Sub-Groups

Due to the infeasibility of the normative versus pragmatic measurement scale, the PLS-MGA assessment could not be employed to identify significant differences in the path models between organisations with normative and pragmatic cultures.

H.8.f.: An increase in an organisation's orientation towards being normative rather than pragmatic moderates the path relationships described in the core research model.

The research findings do not provide evidence to support this hypothesis.

6.9 Testing for Mediation Effects

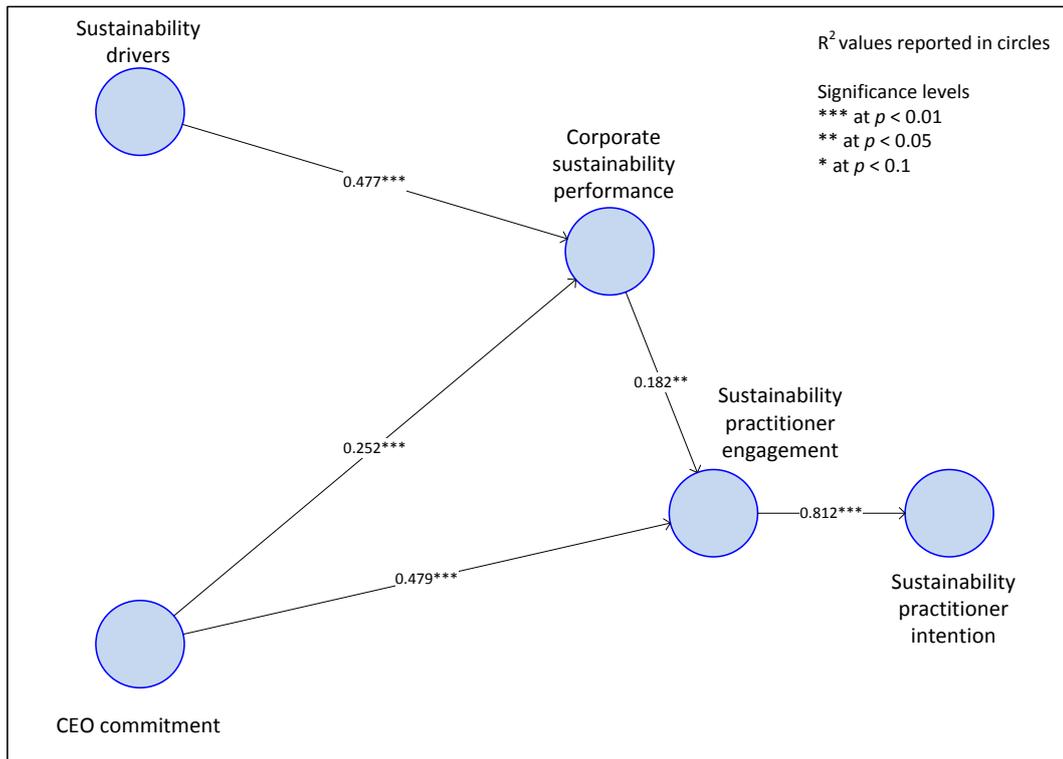
The final test applied to the core research model was an assessment of the mediation effects. Mediation effects are important because they can provide additional insights into the path relationships in a structural equation model including suppressed relationships (Hair et al., 2014).

Within the core PLS model, the *Organisational Commitment to Sustainability* construct has the potential to mediate the following three path relationships: *CEO Commitment to Sustainability* to *Corporate Sustainability Performance*; *CEO Commitment to Sustainability* to *Sustainability Practitioner Engagement*; and the *Sustainability Drivers* to *Corporate Sustainability Performance*.

To assess for mediation effects, Hair et al.'s (2014) recommended bootstrapping based process based upon Preacher and Hayes (2004 and 2008) was employed to assess the significance of indirect effects within the model. Preacher and Hayes approach has the advantage over other commonly used techniques such as Sobel's (1982) technique as it does not make distributional assumptions.

In the first step is to run the PLS model with the organisational commitment to sustainability construct omitted. The results are summarised in the path model presented in figure 6.18.

Figure 6.18: PLS Model with Organisational Commitment omitted



The above figure shows that three direct path relationships (*CEO Commitment to Sustainability to Corporate Sustainability Performance*; *CEO Commitment to Sustainability to Sustainability Practitioner Engagement*; and the *Sustainability Drivers to Corporate Sustainability Performance*) are all significant when the organisational commitment to sustainability construct is omitted.

As previously presented, in the full PLS model including the *Organisational Commitment to Sustainability* construct (see figure 6.3), all of the indirect path relationships associated with the above three relationships being examined are statistically significant in their own rights.

Next the significance of the indirect relationships was examined. Table 6.30 (overleaf) presents the assessment of the indirect relationships using the process recommended by Hair et al. (2014).

Table 6.30: Test of Mediation Effects

Organisational Commitment on relationship between CEO commitment and Corporate Sustainability Performance									
Direct effects		Indirect effect		Mediation assessment		Total effect		Variance accounted for (VAF)	
CEO commitment => Organisational commitment	Organisational commitment => Sustainability Performance	CEO commitment => Sustainability Performance		Standard deviation of boot-strapped indirect effects	t-values	p-test	Total effect		
0.528***	0.567***	0.299***	0.07	4.306	p < 0.01	0.249	1.201		
Organisational Commitment on relationship between CEO commitment and Sustainability Practitioner Engagement									
Direct effects		Indirect effect		Mediation assessment		Total effect		Variance accounted for (VAF)	
CEO commitment => Organisational commitment	Organisational commitment => Practitioner Engagement	CEO commitment => Practitioner Engagement		Standard deviation of boot-strapped indirect effects	t-values	p-test	Total effect		
0.528***	0.219**	0.116**	0.058	1.981	p < 0.05	0.473	0.245		
Organisational Commitment on relationship between Sustainability Drivers and Corporate Sustainability Performance									
Direct effects		Indirect effect		Mediation assessment		Total effect		Variance accounted for (VAF)	
Sustainability Drivers => Organisational commitment	Organisational commitment => Sustainability Performance	Sustainability Drivers => Sustainability Performance		Standard deviation of boot-strapped indirect effects	t-values	p-test	Total effect		
0.423***	0.567***	0.240***	0.047	5.121	p < 0.01	0.468	0.513		

Note: significance levels *** p < 0.01 ** p < 0.05 * p < 0.1

By dividing the indirect effect value for each relationship by the standard deviation of the product of the coefficients in the 5,000 samples generated in the boot-strapping process, the t values for each of the three indirect relationships are calculated. This indicates that all three indirect relationships are statistically significant: *CEO Commitment to Sustainability* to perceived *Corporate Sustainability Performance* and the *Sustainability Drivers* to *Corporate Sustainability Performance* at the $p < 0.01$ level and *CEO Commitment to Sustainability* to *Sustainability Practitioner Engagement* at the $p < 0.05$ level.

The final step of the process involves the calculation of the 'variance accounted for' (VAF) for each relationship. The recommended level for the identification of partial mediation is a VAF value between 0.2 and 0.8. This is the case for the two indirect relationships from the *Sustainability Drivers* to *Corporate Sustainability Performance*, and *CEO Commitment to Sustainability* to *Sustainability Practitioner Engagement*. Consequently, the path relationships in these two cases can be described as being partially mediated by *Organisational Commitment to Sustainability*.

In the case of the indirect relationship between *CEO Commitment to Sustainability* and perceived *Corporate Sustainability Performance*, the VAR is calculated as 1.201. This VAR value greater than 1 is a result of a suppressor effect whereby the introduction of the mediating variable (in this case *organisation commitment*) turns the path coefficient of the direct relationship negative (in this case -0.050). In this situation the mediation effect always represents full mediation (Hair et al., 2014).

This analysis of mediating variables allows the reconsideration of hypothesis H.3.b. which proposed a link between *CEO Commitment to Sustainability* and *Corporate Sustainability Performance*:

H.3.b.: Increases in the level of *CEO Commitment to Sustainability* lead to increases in the level of *Corporate Sustainability Performance*.

While no support was found for a direct linkage between the two constructs (see section 6.6), this section has shown that a relationship does in fact exist, and that the relationship fully mediated by *Organisational Commitment to Sustainability*. Consequently, it has now been shown that the research study does provide support for this hypothesis.

6.10 Observations from PLS model employing external measures of Corporate Sustainability Performance

In addition to running the core model with data solely gathered from sustainability practitioners, a second version of the model was constructed using additional secondary data sources to augment the *Corporate Sustainability Performance* measure. As described in section 5.4.2, one of the biggest challenges was to identify publicly available measures of corporate sustainability performance. Many of the organisations which collate relevant performance data (a number were identified in section 3.2.1) do so in order to sell their analysis to investors and accordingly do not make the data freely available for academic research purposes. Consequently, the researcher had to select measures from those publicly available, resulting in the inclusion of the following external measures of corporate sustainability performance:

- Inclusion in the Dow Jones Sustainability index (April 2015) and corresponding RobecoSAM banding from the 2015 RobecoSAM Sustainability Yearbook;
- Performance score for the 2014 CDP submission (Carbon Disclosure Project);
- Inclusion in the EuroNext Vigeo indices (May 2015); and
- Inclusion in the Ethibel Sustainability Excellence indices (March 2015).

In addition to these measures, it was decided to include a single item from the practitioner questionnaire relating to the practitioners' view on their organisations' sustainability performance. Accordingly, question number 33: 'My organisation does well in sustainability rankings' was also included in the revised reflective measure of *Corporate Sustainability Performance*.

PLS structural equation modelling is an integrated technique which calculates entire relationship path models. Consequently, if a single element of the model is varied (in this case the measurement items for *Corporate Sustainability Performance*), the entire model must be recalculated and the complete assessment process repeated (first of the measurement model and then of the structural model). This was completed and a small number of material changes were identified between the two models. These differences are now discussed, while the full PLS outputs for the revised model are presented in Appendix 7.

The first major difference identified is in the reliability of the *Corporate Sustainability Performance* scale. In the original model the perceived CSP scale had a Cronbach Alpha score of 0.809 and a composite reliability score of 0.874. As shown in table 6.31, the revised scale including external measures had a Cronbach Alpha score of 0.615 and a composite reliability score of 0.674.

Table 6.31: Composite Reliability Scores for Reflective Measures

	Cronbach Alpha	Composite Reliability
CEO Commitment	0.732	0.878
Organisational Commitment	0.919	0.935
Corporate Sustainability Performance (Ext)	0.615	0.674
Sustainability Practitioner Intention	0.844	0.909

However, the Cronbach Alpha and composite reliability scores are still in line with expectations for exploratory analysis. The items loadings for the external measures were slightly lower than in practitioner scores in the original scale ranging from 0.399 to 0.613, however they satisfied the criteria of being larger than the cross-loading (see table A7.2 in Appendix 7).

The average variance extracted (AVE) value for the revised *Corporate Sustainability Performance* measure was 0.316. While this is below the recommended ideal threshold of 0.5 (Hair et al., 2014), it is consistent with lower Cronbach Alpha score achieved for this scale. Consequently, the interpretation of the results from the revised model must be undertaken with greater caution. The AVE scores for the revised model are presented in table 6.32.

Table 6.32: Average Variance Extracted (AVE) for Reflective Measures

	Average Variance Extracted
CEO Commitment	0.709
Organisational Commitment	0.615
Corporate Sustainability Performance (Ext)	0.316
Sustainability Practitioner Intention	0.715

The reflective measures also satisfied the final assessment for discriminant validity, passing the Fornell-Larcker criterion and an examination of indicator cross-loadings (see table A7.4 in Appendix 7) including for the new Sustainability Performance scale.

There were no new formative measures included in the revised model, however for completeness the usual assessments of the outer-weights and, where necessary, the outer-loadings were performed together with analysis of the VIF scores for the outer model. All the criteria were satisfied. The outer loadings, weights, and VIF scores can be found in tables A7.5, A7.6 and A7.7 in Appendix 7.

The structural model was also assessed for collinearity and satisfied the criteria that VIF scores were less than five indicating no problematic collinearity (see table A7.8). The discriminant validity of the structural model also assessed comparing cross-loadings with the square root of the constructs' AVE values (see table A7.9). Again the model satisfied all the expected criteria.

Table 6.33 (below) presents the path coefficients for the revised model together with the significance scores for each path. In addition, the table shows which of the research hypotheses are supported by both the revised and the original structural model.

Table 6.33: Structural Path Estimation Results for the Structural Model

	Path coefficient	p Values	Revised model support for hypotheses	Original model support for hypotheses
Sustainability Drivers -> Organisational Commitment	0.425	0.000	yes (p<0.01)	yes (p<0.01)
Sustainability Drivers -> Corporate Sustainability Performance	0.091	0.486	no	yes (p<0.05)
CEO Commitment -> Organisational Commitment	0.523	0.000	yes (p<0.01)	yes (p<0.01)
CEO Commitment -> Corporate Sustainability Performance	0.101	0.325	no	no
CEO Commitment -> Sustainability Practitioner Engagement	0.360	0.000	yes (p<0.01)	yes (p<0.01)
Organisational Commitment -> Corporate Sustainability Performance	0.329	0.010	yes (p<0.05)	yes (p<0.01)
Organisational Commitment -> Sustainability Practitioner Engagement	0.328	0.001	yes (p<0.01)	yes (p<0.05)
Corporate Sustainability Performance -> Sustainability Practitioner Engagement	-0.105	0.232	no	no
Sustainability Practitioner Engagement -> Sustainability Practitioner Intention	0.812	0.000	yes (p<0.01)	yes (p<0.01)

Table 6.33 demonstrates a high degree of consistency between the two structural models. The only major difference is the direct path relationship between the *Sustainability Drivers* and

Corporate Sustainability Performance. In the original model a significant relationship was identified between the *Drivers of Sustainability* and perceived *Corporate Sustainability Performance* ($b = 0.228$, $p < 0.05$). In the revised model, this relationship had weakened ($b = 0.090$) and become insignificant ($p = 0.486$). However, when the mediation effect of *Organisational Commitment to Sustainability* is also considered, both the indirect effect and the total effect is found to be significant (see table A7.13 in Appendix 7).

In addition, there are minor changes in the significance levels of two of the path relationships (*Organisational Commitment to Sustainability* to *Corporate Sustainability Performance*; and *Organisational Commitment to Sustainability* to *Sustainability Practitioner Engagement*) with p values varying between the 5% and 1% levels.

Table 6.34 presents the overall explanatory power in terms of the R^2 values for each of the endogenous latent variables of the revised model together the equivalent values for the original model.

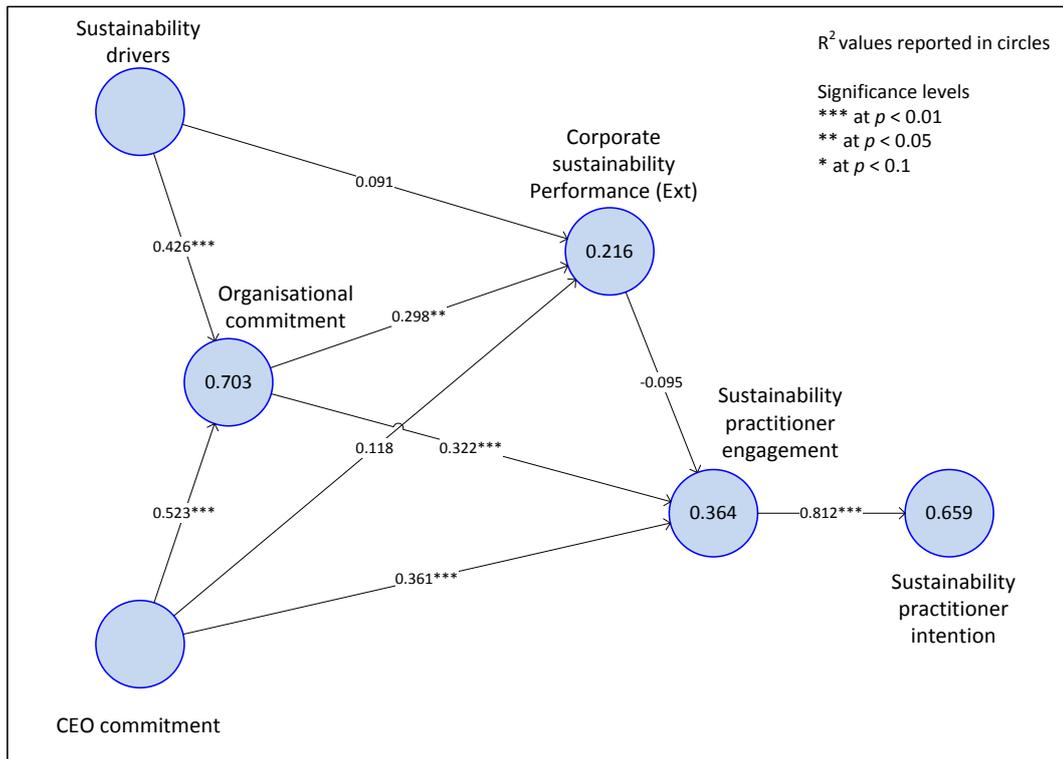
Table 6.34: Explanatory Powers (R^2) of the two Structural Models

	Original Structural Model	Revised Structural Model
Organisational Commitment	0.704	0.703
Corporate Sustainability Performance	0.505	0.216
Sustainability Practitioner Engagement	0.363	0.364
Sustainability Practitioner Intention	0.659	0.659

Table 6.34 indicates the explanatory power of the model, in terms of the R^2 values for each endogenous latent variable, is very similar for both models except in the case of the sustainability performance latent variable in which case the revised model provides significantly less explanatory power. These differences are considered further in the discussion in chapter seven.

The overall revised structural model is represented below in figure 6.19 (overleaf).

Figure 6.19: Outputs for Revised Structural Equation Model



The effect sizes (f^2) and predictive relevance (q^2) scores for the revised structural model were also calculated and are presented in Appendix 7. They were not materially different to the scores calculated for the original structural model.

6.11 Conclusion

This chapter has presented the results of the quantitative analysis conducted primarily employing Partial Least Squares structural equation modelling. Following an initial consideration of data quality, and then the validity and reliability of the various scales employed in the model using regular statistical techniques, the research model was assessed using SmartPLS software. The measurement and structural models were assessed using recommended techniques prior to the research hypotheses being investigated. Finally, an alternative structural model employing external measures of corporate sustainability performance was assessed and compared to the structural model.

The next chapter considers the implications of these results in relation to the existing theory presented in earlier chapters. As well as considering the limitations of this research and potential areas for future study, the practical implications for sustainability practitioners are also discussed.

Chapter 7 Discussion

The final chapter of this thesis examines the outcomes of the research study. It commences, in section 7.1, by reviewing the purpose and objectives set out at the beginning of this thesis.

Section 7.2 then presents the study's academic contributions to knowledge before section 7.3 examines the measurement scales developed in the course of the research. Section 7.4 then provides a summary of the research findings in the context of the research propositions and associated hypotheses developed in chapter four.

Sections 7.5 and 7.6 respectively examine the limitations of the research study and suggest a number of opportunities for developing this research further. Finally, section 7.7 discusses the practical implications of the research for sustainability practitioners before section 7.8 concludes the thesis.

7.1 Introduction

The purpose of this research investigation has been to explore the drivers and outcomes of corporate sustainability within large commercial organisations, focusing specifically on the interlinking concepts of the *Business Drivers of Sustainability*, *CEO Commitment to Sustainability*, *Organisational Commitment to Sustainability*, *Corporate Sustainability Performance* and *Sustainability Practitioner Engagement*.

The research project commenced with a review of relevant literature in order to provide an understanding of current theory as well as potential gaps in the academic literature relating to corporate sustainability. This involved reviewing a range of fields of literature including: general management theory, economics, business and society, corporate reputation, corporate responsibility, stakeholder relationships, and employee motivation theory. In addition, literature concerning organisational culture and social psychology relating to belief systems was also examined.

The literature review led to the development of the core research model initially presented in chapter four. From the research model, a series of hypotheses were elaborated relating both to the operation of the model itself and also to the impact of a number of potential organisational and practitioner related moderating factors.

The model and hypotheses were then examined through the development and application of a research survey involving an online questionnaire completed by sustainability practitioners working in 177 large commercial organisations. The design process involved the development of a series of new scales which were created with input from qualitative discussions with sustainability practitioners, a joint focus group with academic experts and finally a pilot study, prior to the full deployment of the questionnaire.

The responses to the survey were tested using a range of statistical techniques including Partial Least Squares (PLS) structural equation modelling. This final chapter provides a summary of the research findings and their implications for both academic researchers and sustainability practitioners. It starts by evaluating the contribution to knowledge of the research findings before considering both the limitations of this study and areas for potential future research.

7.2 Contributions to Knowledge

Contributions to knowledge arise in different forms. Summers (2001) argues that in the academic sphere, three different types of contributions are possible: conceptual contributions, empirical contributions, and methodological contributions. Conceptual contributions, also described as theoretical contributions, can include the development of new constructs for research and / or the incorporation of such constructs into new theoretical frameworks providing new explanations of phenomena or behaviours. In contrast, empirical contributions tend to arise from the testing of the linkages in newly hypothesised frameworks, including the assessment of the effects of moderating and / or mediating variables. Finally, methodological contributions may arise when innovative or new analytical techniques are applied to address a research question – often this can involve applying or adapting an existing technique in a new field of research.

Based upon these three categories of contributions to knowledge, this research study offers the following contributions:

Conceptual contributions

This research study has made a conceptual contribution by combining elements of a number of existing management theory models to create a new and innovative model linking the drivers of corporate sustainability (the *Business Drivers of Sustainability*, *CEO Commitment to Sustainability*, and *Organisational Commitment to Sustainability*) to the outcomes of corporate sustainability (specifically *Corporate Sustainability Performance* and *Sustainability Practitioner Engagement*).

In addition to the conceptual contribution of the overall model, the research study also offers a theoretical contribution through the creation of a number of new scales developed in order to assess the research model. The reliability and validity of these measures was carefully tested through quantitative techniques such as exploratory and confirmatory factor analysis, composite reliability analysis, and convergent and discriminant validity analysis. These assessments were critical because without adequate reliability and validity, the newly developed scales could not be considered to provide meaningful results for discussion.

Another conceptual contribution was the consideration of various organisational and practitioner related moderating variables to provide additional insights into the operation of the research model. The research applies both social axioms (Leung et al., 2002) and Hofstede et al.'s (1990) measure of organisational culture to the field of corporate sustainability for the first time.

Empirical contributions

The empirical contributions of this research study, arising from the quantitative assessment of the developed theoretical model, are discussed in detail throughout this chapter. At the highest level, the newly developed conceptualisation of the *Business Drivers* that encourage organisations to invest in corporate sustainability were shown to drive *Corporate Sustainability Performance*, partially mediated by the *Organisation's Commitment to Sustainability*.

Furthermore, the assessment of the model provides empirical insights into the role that *CEO Commitment* and *Organisational Commitment* plays in building *Sustainability Practitioner Engagement* with their employer.

In addition, empirical contributions resulted from the study of the moderating effects of organisational culture and practitioner beliefs (measured through social axioms and temporal orientation) on the research model. Finally, the importance of the mediating role played by *Organisational Commitment to Sustainability* is empirically demonstrated.

Methodological contributions

From a methodological perspective, this research study makes a contribution through its application of Partial Least Squares (PLS) structural equation modelling in the assessment of the research model. Whilst relatively established in academic fields such as information systems and marketing (Hair et al., 2014), PLS analysis has been less commonly employed in corporate sustainability related research projects. In addition, a categorical PLS multi-group analysis technique (Henseler et al., 1990; Hair et al., 2014) was employed to investigate the impact of moderator variables across the whole model, while a PLS mediating analysis technique (Preacher and Hayes, 2004 and 2008; Hair et al., 2014) was employed to investigate the mediation role played by *Organisational Commitment to Sustainability*.

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This chapter continues by discussing the importance of the new scales developed as part of the research project before discussing the research findings in the context of each of the research propositions and hypotheses.

7.3 Measures developed for use in this Research

One of the significant contributions of this research study has been the creation of the scales necessary to measure a number of the constructs within the developed research model. As described in chapters five and six, to ensure the development of reliable and valid scales, the researcher undertook a series of steps as recommended by Bagozzi et al. (1991):

- An **initial literature review** to identify the key components of the constructs within the proposed research model;

- **Qualitative interviews** with a number of sustainability practitioners to discuss the salience of the initial components identified;
- An **expert focus group** to develop and refine the specific questionnaire items. The focus group comprised of the researcher together with two academic experts who were experienced in both the development of scales and in the field of corporate sustainability;
- **Pilot testing** of the entire questionnaire with follow-up discussions with the pilot responders in order to modify any ambiguous items; and
- Finally, **thorough statistical assessment** of the scales using quantitative techniques such as exploratory and confirmatory factor analysis, composite reliability analysis, and convergent and discriminant validity analysis.

In the following four sub-sections, the specific measurement scales developed during the research study are discussed.

7.3.1 Measures of the Business Drivers of Sustainability

One of the key objectives of this research study was to understand the *Business Drivers of Sustainability*. This objective was rooted both in academic curiosity and also practitioner necessity. As discussed in chapter one, the researcher regularly hears in discussions with other sustainability practitioners that making a solid business case for sustainability investments remains a significant challenge for many practitioners.

Unlike the scales developed to measure the other constructs in this study, measuring the *Business Drivers of Sustainability* would prove more complex as it was unclear at the outset how many different factors would be significant. The initial review of literature (set out in chapter two) identified four potential categories of drivers: efficiency (reducing waste), access to markets (being acceptable to both clients and suppliers), access to resources (ensuring supplies of natural resources, financial capital and employees), and compliance (with both legislation and with NGO expectations).

In the qualitative interviews, it became clear that some of the factors identified in the literature review were not significant for practitioners. For example: it was consistently agreed that access

to suppliers based on organisational sustainability performance is not currently an issue; and also NGO pressure tended to be focused on organisations needing to access natural resources.

Based on these insights and the literature reviewed, nineteen individual scale items were developed at a focus group workshop and then were subsequently pilot tested. Pilot testing highlighted the requirement for some slight rewording of a few specific items. For example: in the items relating to financial capital, respondents suggested the use of 'shareholders / owners' rather than just 'shareholders' reflecting that not all businesses have shareholders.

Following the application of exploratory and confirmatory factor analysis techniques (described in detail in chapter six), seventeen of the nineteen proposed items were combined into five distinct scales representing:

- client demand for sustainability (Cronbach Alpha = 0.717);
- employee (both current and future) demand for sustainability (Cronbach Alpha = 0.807);
- owner demand / access to financial capital (Cronbach Alpha = 0.759);
- opportunities for efficiency gains (Cronbach Alpha = 0.680); and
- NGO demand / access to natural resources (Cronbach Alpha = 0.650).

The above factorisation of the questionnaire items was broadly in line with that expected with the only minor variation being the extraction of the compliance and access to natural resources related items together. This reflected some of the comments made in the initial qualitative consultations and also discussed above. As mentioned in chapter six, conceptually it makes sense that organisations with a greater reliance on natural resources would also be more sensitive to NGO scrutiny (Heal, 2005; Argenti, 2004). Interestingly this was supported by a more detailed examination of the data set. Organisations in the mining, water and waste, and manufacturing sectors scored highest on these items, while organisations in the financial services and professional services sectors scored lowest.

The Cronbach Alpha scores for the five scales, ranging between 0.650 and 0.807, all meet the 0.6 threshold for exploratory analysis recommended by Hair et al. (2010), with three scales meeting the more demanding higher threshold of 0.7 expected for confirmatory analysis. In

addition, the above five scales also fulfilled the requirements expected of formative measures within PLS structural equation models as recommended by Hair et al. (2014).

A significant contribution of this research study is the identification of, and development of scales to measure the five distinct business case drivers for organisations investing in corporate sustainability.

7.3.2 Measures of CEO Commitment to Sustainability

The second construct in the research model requiring a new scale was that of *CEO Commitment to Sustainability* within an organisation. As hypothesised in chapter four, CEO commitment was expected to be a key antecedent of both the *Organisation's Commitment to Sustainability* and *Corporate Sustainability Performance*, as well as being a driver of *Sustainability Practitioner Engagement* towards the organisation.

As discussed in chapter five, scales developed to measure commitment in an organisational context tend to focus on the individual's commitment to the organisation (for example: Mowday et al., 1979; Collier and Estebann, 2007; and Farooq et al., 2014) rather than commitment to broader concepts, such as sustainability. Consequently, no existing scales were identified that could be employed or modified.

A scale to measure *CEO Commitment to Sustainability* was developed by modifying the three components of individual commitment proposed by Meyer and Allen (1991) and later employed in the sustainability context by Collier and Estebann (2007), namely affective commitment, normative commitment, and continuance commitment. The component, affective commitment, relates to feelings of attachment (towards the organisation), and consequently the first proposed scale item enquired about the CEO's attachment towards (or interest in) the subject of sustainability. The other two components Meyer and Allen (1991) identify are normative and continuance commitment. In this context, these are adapted to consider the CEO's commitment to supporting the furtherance of sustainability within the organisation by supporting initiatives or campaigns that have been developed, and by ensuring that the individual(s) with responsibility for sustainability report directly into the CEO.

The three questions (items 21, 23 and 29) on the questionnaire were reviewed by the expert focus group and raised no issues with the pilot responders. Overall the *CEO Commitment to Sustainability* scale achieved a very respectable Cronbach Alpha score of 0.732 and composite reliability score of 0.877. The average variance extracted (AVE) for the scale was 0.708 and it performed well under testing for discriminant validity against the other reflectively measured scales.

7.3.3 Measures of Organisational Commitment to Sustainability

The third construct in the research model requiring a new scale was that of *Organisational Commitment to Sustainability*. As hypothesised in chapter four, organisational commitment was expected to be a key antecedent of both the organisation's *Corporate Sustainability Performance* and *Sustainability Practitioner Engagement*.

While a significant body of literature exists focusing on organisational commitment from the perspective of an employee's commitment towards an organisation, the commitment of organisations towards topics such as sustainability is under-researched. Consequently, no existing scales could be identified for measuring organisational commitment from the organisation's perspective.

Following insights from Parisi (2013) and Beheiry (2006) relating to the importance of organisational alignment and planning being significant factors in organisations demonstrating commitment towards achieving higher levels of sustainability performance, a series of items were developed. These include items to measure the alignment of the organisation to its sustainability aspirations (for example: 'In my organisation, sustainability is seen as a core business function'), items to measure the how sustainability is embedded in the organisation's planning processes (for example: 'In my organisation, sustainability is planned on a long term horizon – at least 5 to 10 years), and also items to measure the congruence between espoused values and actual values (for example: 'My organisation walks the talk when it comes to sustainability').

Each of the nine questions (items 20, 22, 24, 25, 26, 27, 28, 30 and 31) on the questionnaire were carefully reviewed by the expert focus group and no issues were raised with the pilot

responders. Overall the *Organisational Commitment to Sustainability* scale achieved an excellent Cronbach Alpha score of 0.919 and composite reliability score of 0.934. The average variance extracted (AVE) for the scale was 0.615 and it performed well under testing for discriminant validity against the other reflectively measured scales.

7.3.4 Measures of Corporate Sustainability Performance

The final construct in the research model requiring a new scale was that of the practitioner's perception of *Corporate Sustainability Performance*. As discussed in chapter three, measuring corporate sustainability performance is not unproblematic (Hockerts, 2015; Lee and Farzipoor Saen, 2012) with no single agreed standard or methodology available (Ameer and Othman, 2012; Schneider and Meins, 2012).

Based upon the review of literature and the qualitative discussions with sustainability practitioners, it was decided to approach the measurement of *Corporate Sustainability Performance* by considering the following questions:

- How well the organisation performs in sustainability rankings. Given the general lack of publicly available information from the majority of the indicator based corporate sustainability rankings discussed in chapter three, asking the sustainability practitioner was seen as a potential way of accessing this information.
- How well the organisation does in winning sustainability awards. As recommended by Schneider and Meins (2013) and Hampl and Locke (2013), sustainability awards can be seen as a proxy for sustainability performance.
- Whether the organisation is making an impact. As recommended by Longoni et al. (2014), the practitioner was asked to assess their organisation's performance in terms of its environmental and social impacts in two separate questionnaire items.
- Whether the organisation is helping its clients / customers to be more sustainable. This question was intended to measure the indirect sustainability impacts the organisation is having by considering whether it is enabling its clients / customers to be more sustainable. Ultimately, as discussed in chapter six, this question was removed from the final scale.

- Whether the organisation is lagging behind its competitors in terms of sustainability. This approach was recommended in a paper by Longoni et al. (2014) which also provided the source of the adapted item. Ultimately however, as discussed in chapter six, this question was removed from the final scale.

The six questions were reviewed by the expert focus group and subsequently tested with the questionnaire pilot group – no issues or ambiguities about the items were raised. As described in chapter six, during the scale reliability analysis, the final two items relating to assisting clients and competitor positioning were removed to improve the reliability of the scale.

The final four item scale measuring the sustainability practitioners' perceptions of *Corporate Sustainability Performance* (items 33, 34, 35 and 36) achieved a very respectable Cronbach Alpha score of 0.809 and composite reliability score of 0.909. The average variance extracted (AVE) for the scale was 0.636 and it performed well under testing for discriminant validity against the other reflectively measured scales.

7.4 Discussion of Research Findings and Implications

The discussion of the research propositions is divided into five sections:

- Research propositions relating to the organisational components of the driver-outcome model of corporate sustainability;
- Research propositions relating to sustainability practitioner components of the driver-outcome model of corporate sustainability;
- Research propositions relating to the effects of the sustainability practitioner moderators on the driver-outcome model of corporate sustainability;
- Research propositions relating to the effects of the organisational culture moderators on the driver-outcome model of corporate sustainability; and finally
- Additional observations relating to the revised model which incorporated external measures of *Corporate Sustainability Performance*.

7.4.1 Research Propositions relating to the Organisational Component of the Model

Three research propositions and five associated hypotheses were elaborated relating to the path relationships in the organisational component of the research model. Some initial discussion of the overall model fit and weightings of each of the sustainability drivers is presented before the findings for each proposition and the hypotheses are presented. The practical implications of the findings are also discussed.

Model Fit

From an empirical perspective, the model components relating to the organisational components of corporate sustainability provide good fit. The organisational commitment component has an $R^2 = 0.707$ indicating that over 70% of the variance in the *Organisational Commitment to Sustainability* construct can be attributed to the *Business Drivers of Sustainability* and the *CEO Commitment to Sustainability* measures employed in the model.

Furthermore, the *Corporate Sustainability Performance* construct has an $R^2 = 0.505$ indicating that over half of the variance in *Corporate Sustainability Performance* as perceived by the sustainability practitioners can be attributed to *CEO Commitment to Sustainability*, *Organisational Commitment to Sustainability* and the *Sustainability Drivers*.

The Weightings of the Sustainability Drivers

The statistical analysis also provided insights into the relative weights of the five formative measurement scales assessing the *Business Drivers of Sustainability*. Overall, employee demand for sustainability (both existing and future) was the strongest single driver ($w = 0.461$, $p < 0.001$), followed by client expectations ($w = 0.359$, $p < 0.01$), and then the expectations of the providers of financial capital ($w = 0.213$, $p < 0.05$). The weakest business drivers for investment in sustainability were access to natural resources ($w = 0.189$, $p < 0.05$), and the opportunity for efficiency gains ($w = 0.138$, p non-significant but associated loading significant $p < 0.001$).

This finding makes a practical contribution to understanding the relative importance of the various *Business Drivers of Sustainability*. Most significantly, across the sample of 177 large companies, employee and client expectations provided the strongest impetus for investment in sustainability, whilst the opportunity for cost savings emerged as the weakest driver. Interestingly, this latter finding accords with discussions with several CEOs conducted during the initial qualitative exploration phase where the CEOs had stressed the importance of client and employee expectations over that of incremental profit through cost savings.

Recent informal discussions with a number of sustainability practitioners about this finding (the relatively low importance of efficiency gains as a business driver of sustainability), lead to speculation that for large corporate organisations, efficiency gains are now simply seen as a positive side benefit of a wider obligatory focus on sustainability. Interestingly, several practitioners involved with making the business case in small and medium sized companies felt that opportunities for cost savings from eco-efficiency remains a critical component of getting investments signed off. This topic is clearly one which would merit future research.

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It is important to reiterate at this point that in the original assessment of the driver-outcome model, all the measurement scales were based upon items taken from the practitioner questionnaire. This leads to two important considerations: common method bias, and practitioners' perceptions versus reality.

First, as discussed in chapters five and six, common method bias can occur when attempting to measure relationships between constructs where the measurement of those constructs shares a common method (Podsakoff et al., 2003). To mitigate this risk, Harman's one-factor test for common method bias (Podsakoff and Organ, 1986; Andersson and Bateman, 1997) was applied to the data set with Harman's criteria satisfied. Secondly, external measures of *Corporate Sustainability Performance* were also introduced in a second version of the core model in order to provide additional support for the research hypotheses. Combined, these two approaches lend support to the assertion that common method bias is not a major issue in this study.

The second consideration relates to the measurement approach employed to collect the data relating to the various constructs, specifically whether the perception data collected from

sustainability practitioners can be considered as a reliable measure of the underlying constructs. In line with the researcher's ontological position of critical realism within the epistemology of post-positivism, the use of questionnaire surveys to collect responses from expert respondents is considered a consistent approach to the measurement of the research constructs (Easterby-Smith et al., 2008, Bisman, 2010). In the case of the *Corporate Sustainability Performance* measure, secondary data was also introduced into a revised core model to provide a further assessment of the robustness the core model for assessing the research hypotheses.

Each of the research propositions are now discussed in turn:

Proposition 1: A relationship exists between the level of an *Organisation's Commitment to Sustainability* and its level of *Corporate Sustainability Performance*.

The results of this study provide support for this proposition and its associated hypothesis that there is a relationship between an *Organisation's Commitment to Sustainability* and its *Corporate Sustainability Performance*.

H.1.: Increases in the level of an *Organisation's Commitment to Sustainability* lead to increases in the organisation's levels of *Corporate Sustainability Performance*.

The PLS statistical assessment provides support for this hypothesis. The path coefficient linking *Organisational Commitment to Sustainability* and the practitioners' measure of *Corporate Sustainability Performance* was both positive and significant ($b = 0.567, p < 0.001$) supporting the hypothesis that greater levels of *Organisational Commitment to Sustainability* lead to greater levels of *Corporate Sustainability Performance*.

Furthermore, as an additional assessment of the hypothesis, a revised version of the core driver-outcome model was employed utilising the measurement scale of *Corporate Sustainability Performance* augmented with external measures (as described in section 6.10). A longer discussion of the findings of the revised model is presented in section 7.4.5, however in summary the revised model also indicated a positive significant link between *Organisational Commitment to Sustainability* and *Corporate Sustainability Performance* providing additional support for this hypothesis.

From a practical perspective, the linkage between *Organisational Commitment to Sustainability* and *Corporate Sustainability Performance* has been demonstrated. More specifically *Organisational Commitment to Sustainability* has been shown to be a significant antecedent of *Corporate Sustainability Performance* whereby increased levels of organisational commitment can be expected to lead to increased levels of performance.

Given the difficulties discussed previously in measuring *Corporate Sustainability Performance* directly, this finding suggests that measuring commitment may act as alternative proxy for assessing likely performance, although as also discussed further research is required into the under-explored concept of *Organisational Commitment to Sustainability*.

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Proposition 2: A relationship exists between the *Sustainability Drivers* experienced by an organisation and both its *Organisational Commitment to Sustainability* and its *Corporate Sustainability Performance*.

The results of this study also provide support for this second proposition that there is a relationship between the *Sustainability Drivers* experienced by an organisation and both its *Commitment to Sustainability* and its *Corporate Sustainability Performance*. The results of the hypotheses associated with this proposition are presented below:

H.2.a.: Increases in the strength of the *Business Drivers of Sustainability* an organisation experiences lead to increases in the level of *Organisational Commitment to Sustainability*.

The statistical assessment provides support for this hypothesis. The path coefficient in the original model linking the *Sustainability Drivers* and *Organisational Commitment to Sustainability* was both positive and significant ($b = 0.423$ $p < 0.001$) supporting the hypothesis that the stronger the sustainability drivers experienced, the greater the level of commitment to sustainability an organisation exhibits.

H.2.b.: Increases in the strength of the *Business Drivers of Sustainability* an organisation experiences lead to increases in its level of *Corporate Sustainability Performance*.

The statistical assessment provides support for this hypothesis. The path coefficient linking the *Sustainability Drivers* and practitioner measure of *Corporate Sustainability Performance* was both positive and significant ($b = 0.228, p < 0.05$) supporting the hypothesis that the stronger the sustainability drivers experienced, the greater the level of an organisation's sustainability performance. While the direct path coefficient (between the *Sustainability Drivers* and *Corporate Sustainability Performance*) was 0.228, it was also shown that there is a significant positive indirect path relationship ($b = 0.240, p < 0.01$) with *Organisational Commitment to Sustainability* acting as a partial mediating variable. The total effect is 0.468.

The findings from the revised model also provided additional support to hypotheses H.2.a. and H.2.b. (although in the case of H.2.b., while the direct relationship from the *Sustainability Drivers* to *Corporate Sustainability Performance* was non-significant, the total effect was significant when the mediating effect of *Organisational Commitment to Sustainability* was considered).

From a practical perspective, the support for hypotheses H.2.a. and H.2.b. provides a number of interesting insights. First, for the sustainability practitioner striving to drive *Organisational Commitment to Sustainability* (in order to drive higher levels of *Corporate Sustainability Performance* as discussed in proposition 1), the importance of the identified *Business Case Drivers* has been demonstrated. Particularly, stressing the expectations of employees (as suggested by Amalric and Hauser, 2005; Heal, 2005; Turban and Greening, 1996) and of clients (as suggested by Heal, 2005 and Argenti, 2004) is likely to have the greatest impact in driving *Organisational Commitment to Sustainability*.

Second, the total effect size of 0.468 for the (direct and indirect) relationship path between the identified *Sustainability Drivers* and the practitioner measure of *Corporate Sustainability Performance* indicates that the collection of five drivers of sustainability identified in this study have a significant explanatory effect on the level of an organisation's *Corporate Sustainability Performance*. This is as conceptualised from the findings of the literature review in chapter two, and indeed extends the initial literature analysis by providing some further insights into the relative importance of the business case drivers based on the relative weightings discussed above.

*

Proposition 3: A relationship exists between an organisation's *CEO's Commitment to Sustainability* and both the *Organisation's Commitment to Sustainability* and its *Corporate Sustainability Performance*.

The results of this study also provide support for this third proposition that there is a relationship between the organisation's *CEO's Commitment to Sustainability* and both the *Organisation's Commitment to Sustainability* and its *Corporate Sustainability Performance*, although the latter relationship is fully mediated by the *Organisation's Commitment to Sustainability*. The results of the hypotheses associated with this proposition are presented below:

H.3.a.: Increases in the level of *CEO Commitment to Sustainability* lead to increases in the level of *Organisational Commitment to Sustainability*.

The statistical assessment provides support for this hypothesis. The path coefficient linking *CEO Commitment to Sustainability* and *Organisational Commitment to Sustainability* was both positive and significant ($b = 0.528, p < 0.001$) supporting the hypothesis that the stronger the CEO's level of commitment to sustainability, the greater the level of commitment to sustainability an organisation exhibits.

H.3.b.: Increases in the level of *CEO Commitment to Sustainability* lead to increases in the level of *Corporate Sustainability Performance*.

The statistical assessment provides support for this hypothesis although only indirectly through the mediation of *Organisational Commitment to Sustainability*. The direct path coefficient linking the *CEO Commitment to Sustainability* and *Corporate Sustainability Performance* was weakly negative and non-significant ($b = -0.050, p = 0.591$). However, while the direct path was non-significant, it was also shown that there was a significant positive indirect path relationship ($b = 0.299, p < 0.01$) with the *Organisational Commitment to Sustainability* variable acting as a suppressor variable. In this case full-mediation was identified, providing support for the hypothesis that the stronger the CEO's commitment to sustainability, the greater the level of corporate sustainability performance.

The findings of the revised model with external measures of *Corporate Sustainability Performance* (discussed in further in section 7.4.5) also provides additional support for hypotheses H.3.a. and H.3.b. with the path coefficients behaving in a consistent manner.

As previously noted, the importance of the role of *CEO Commitment to Sustainability* is currently an under-researched area. This research has demonstrated that *CEO Commitment to Sustainability* is an important antecedent of *Corporate Sustainability Performance*, in the same way that CEO commitment has previously been shown as an important success criterion for total quality management (Soltani, 2005), IT (Garrido-Moreno et al., 2014), diversity (Ng and Wyrick, 2011) and leadership development (Canals, 2014).

Furthermore, this study has demonstrated that the impact of *CEO Commitment to Sustainability* on *Corporate Sustainability Performance* is fully mediated by *Organisational Commitment to Sustainability*. This insight suggests that CEOs aspiring to drive sustainability performance should target their energy into driving broader organisational engagement with the topic of sustainability, a finding which is consistent with the efforts of CEOs such as Paul Polman at Unilever (Gunter, 2013) and Stuart Rose at M&S (Rose, 2009) in driving externally acclaimed successful corporate sustainability programmes.

7.4.2 Research Propositions relating to the Sustainability Practitioner Component of the Model

One proposition and three associated hypotheses were elaborated relating to the path relationships in the research model pertaining to the concept of *Sustainability Practitioner Engagement*. The findings for the proposition and associated hypotheses are presented below before the practical implications of the findings are discussed.

Proposition 4: **A relationship exists between *Sustainability Practitioner Engagement* with their organisation and their *CEO's Commitment to Sustainability*, their *Organisation's Commitment to Sustainability*, and their organisation's *Corporate Sustainability Performance*.**

The results of this study provide partial support for the fourth research proposition relating to the antecedent path relationships between *Sustainability Practitioner Engagement* and *CEO Commitment to Sustainability*, *Organisational Commitment to Sustainability*, and the organisation's *Corporate Sustainability Performance*. The results of the hypotheses associated with this proposition are presented below:

H.4.a.: Increases in the level of *CEO Commitment to Sustainability* lead to increases in the level of *Sustainability Practitioner Engagement* towards their organisation.

The statistical assessment provides support for this hypothesis. The path coefficient linking *CEO Commitment to Sustainability* and *Sustainability Practitioner Engagement* was both positive and significant ($b = 0.357, p < 0.001$) supporting the hypothesis that stronger the level of CEO commitment, the greater the level of engagement of the sustainability practitioner.

H.4.b.: Increases in the level of *Organisation Commitment to Sustainability* lead to increases in the level of *Sustainability Practitioner Engagement* towards their organisation.

The statistical assessment also provides support for this hypothesis. The path coefficient linking *Organisational Commitment to Sustainability* and *Sustainability Practitioner Engagement* was both positive and significant ($b = 0.219, p < 0.001$) supporting the hypothesis that stronger the level of *Organisation Commitment to Sustainability*, the greater the level of the *Sustainability Practitioner Engagement*.

Furthermore, while the direct path coefficient between *CEO Commitment to Sustainability* and *Sustainability Practitioner Engagement* was 0.357, it was also shown that there was a significant positive indirect path relationship ($b = 0.116, p < 0.05$) with *Organisational Commitment to Sustainability* acting as a partial mediating variable. The total effect of the relationship was 0.473.

As discussed earlier in this thesis, a considerable amount of research exists into the concept of employee engagement and its antecedents. This research study has added to the understanding of employee engagement in the specific context of sustainability practitioners. Consistent with the findings of Bass and Steidlmeier (1999) and Stander et al. (2015), the importance of leadership commitment as a driver of engagement has been demonstrated.

Furthermore, the positive linkage between employee engagement and employee intention argued by Shuck et al. (2011), Perkins (2012) and Rees et al. (2013) has been verified in the context of sustainability practitioners ($b = 0.812, p < 0.001$).

H.4.c.: Increases in the level of an organisation's *Corporate Sustainability Performance* lead to increases in the level of *Sustainability Practitioner Engagement* towards their organisation.

The statistical assessment did not provide support for this hypothesis. The path coefficient linking the practitioner measure of *Corporate Sustainability Performance* to *Sustainability Practitioner Engagement* was weakly positive but non-significant ($b = 0.090$, $p = 0.390$). The findings of the revised model were also consistent with this finding (see section 7.4.5).

The lack of support for this final hypothesis relating to the core model initially appears curious and contradictory to the findings of researchers who have previously identified a significant link between an organisation's sustainability performance and employee engagement (Epstein et al., 2010; Galpin et al., 2015). However, these studies were investigating employees in general rather than sustainability practitioners specifically. Consequently, the following tentative suggestions are proposed to explain this finding.

First, sustainability practitioners tend to be want to drive change in their organisations (Gluch et al., 2013), and hence it is feasible that working in an organisation that is already achieving high levels of *Corporate Sustainability Performance* might be less engaging for practitioners than working in an organisation where the opportunity for significant transformation is greater (and where *Corporate Sustainability Performance* might currently be lower). While this assertion is speculative, it would be consistent with the finding that *Sustainability Practitioner Engagement* is strongly linked to *CEO Commitment to Sustainability* – a key enabler in driving organisational change.

Second, it is feasible that in the relationship between *Corporate Sustainability Performance* and *Sustainability Practitioner Engagement*, sustainability performance acts as a lagged variable. Given that sustainability change initiatives take time to deliver, it is feasible that the practitioner's level of engagement increases at the point the initiative commences rather than at the point it starts to deliver performance outcomes. If this assertion is correct, the findings would be consistent as the four items employed in the *Corporate Sustainability Performance* measurement scale all assessed the current sustainability performance being delivered rather than future potential performance. As discussed further in section 7.6, the linkage between

Corporate Sustainability Performance and Sustainability Practitioner Engagement is an area which certainly merits future research.

7.4.3 Research Propositions relating to Sustainability Practitioner Moderators

Three propositions and eight associated hypotheses were elaborated relating to impact of various practitioner related moderating factors (socio-axiomatic beliefs, connectedness to nature, and temporal orientation) on the path relationships in the research model. The findings for the proposition and each hypothesis is presented below before the practical implications of the findings are discussed.

Proposition 5: The sustainability practitioner’s socio-axiomatic beliefs moderate the path relationships described in the core research model.

The results of this study provide partial support for the fifth research proposition relating to the moderating effects of the sustainability practitioner’s socio-axiomatic beliefs on the path relationships of the core research model. The results for the individual hypotheses associated with this proposition are presented below:

H.5.a.: *Cynicism* moderates one or more of the path relationships described in the core research model.

The statistical assessment provides support for this hypothesis. Specifically, a significant difference exists in two of the path relationships when comparing practitioners identified with higher levels of Cynicism with those with a lower levels of Cynicism. The first path identified relates to the relationship between the practitioner’s perceptions of *CEO Commitment to Sustainability* and *Organisational Commitment to Sustainability*. Practitioners with lower levels of Cynicism tend to perceive a stronger positive link between CEO and organisational commitment than those with higher levels of Cynicism.

Conversely, the second path identified relates to the relationship between the practitioner’s perceptions of the strength of the external *Business Drivers of Sustainability* and the level of

Organisational Commitment to Sustainability. Practitioners with higher levels of cynicism tend to perceive a stronger positive link between the external business drivers of sustainability and organisational commitment than those with lower levels of cynicism.

Combining these two findings, the research overall has identified a significant difference in how sustainability practitioners with high and low levels of Cynicism perceive the antecedent relationship paths for *Organisational Commitment to Sustainability*. Practitioners with higher levels of cynicism tend to place a greater emphasis on the *Sustainability Drivers* as driving *Organisational Commitment to Sustainability*, whereas less cynical practitioners place a greater weight on *CEO Commitment* as a driver of *Organisational Commitment*.

This finding is consistent with the assertions of Leung et al. (2002) and Chen et al. (2006) who argue that individuals with higher levels of Cynicism tend to have a negative view of human nature and a mistrust of people in powerful positions.

H.5.b.: *Fate control* moderates one or more of the path relationships described in the core research model.

The statistical assessment provides support for this hypothesis. Specifically, a significant difference exists in two of the path relationships when comparing practitioners identified with higher tendency to Fate Control with those with a lower tendency to Fate Control.

The first path relationship identified as significantly different between practitioners with high and low tendency to Fate Control was the linkage between *Organisational Commitment to Sustainability* and *Sustainability Practitioner Engagement*. Specifically, practitioners with a higher tendency towards Fate Control tend to indicate a stronger positive link between *Organisational Commitment to Sustainability* and *Sustainability Practitioner Engagement*. For practitioners with a lower tendency towards Fate Control, the path relationship was weaker but non-significant.

The second path identified as significantly different between high and low Fate Control practitioners was the linkage between *Corporate Sustainability Performance* and *Sustainability Practitioner Engagement*. While, in the full sample model, this relationship path was shown to be weakly positive but non-significant, in the case of practitioners with a low tendency to fate

control the path is much stronger and significant at the $p < 0.05$ level. For high fate control practitioners this path actually becomes negative but remains non-significant.

This finding suggests that for less fatalistic sustainability practitioners, their level of *Engagement* is positively impacted by strong *Corporate Sustainability Performance*, while conversely more fatalistic practitioners' *Engagement* is unaffected by *Corporate Sustainability Performance*, but is more significantly impacted by the level of *Organisational Commitment to Sustainability*.

It seems a consistent outcome that for an individual who believes that results are determined by external forces outside their control, their level of *Engagement* is unaffected by the *Sustainability Performance* of their organisation. This finding is also consistent with Rossenblatt's (2010) finding that a high level of fate control leads to low levels of job satisfaction, a component of employee engagement (Benn et al., 2015).

H.5.c.: *Reward for Application* moderates one or more of the path relationships described in the core research model.

The statistical assessment did not provide support for this hypothesis. There was no evidence of statistically significant differences in the path relationships between practitioners identified with high and low levels of Reward for Application. Consequently, no support is found for hypothesis H.5.c.

H.5.d.: *Social Complexity* moderates one or more of the path relationships described in the core research model.

The statistical assessment did not provide support for this hypothesis. While there was a statistically significant difference in the path coefficients for the relationship between *CEO Commitment to Sustainability* and *Corporate Sustainability Performance* for practitioners with low and high tendencies towards Social Complexity, the coefficients in both cases were non-significant (as they were in the full sample model) and consequently no support for hypothesis H.5.d can be inferred.

While not providing evidence to support these final two hypotheses, these research findings should not be used to assume that beliefs around *Reward for Application* and *Social Complexity*

are irrelevant to the path relationships in the research model. Statistically, practitioners had tended to score the questionnaire items for both *Reward for Application* and *Social Complexity* towards the top of the scales resulting in relatively high means for the scales and low standard deviations ($\bar{X}_{RA} = 5.287$, s.d. = 0.881; $\bar{X}_{SC} = 5.723$, s.d. = 0.683; Likert-type scale 1 to 7 representing low to high belief characteristics). This lack of spread across the sample on these two specific axiomatic beliefs may provide an explanation for the lack of differences found between the two sets of sub-groups. This finding is also consistent with the experience of a previous research study conducted by West (2011) which also employed categorical moderation analysis to compare the effects of social axioms on a PLS structural equation model.

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Proposition 6: The sustainability practitioner's connectedness to nature moderates the path relationships described in the core research model.

The results of this study provide no evidence to support for the sixth research proposition relating to the moderating effects of the sustainability practitioner's level of Connectedness to Nature on the path relationships of the core research model. Some observations about the hypothesis associated with this proposition are presented below:

H.6.: The sustainability practitioner's *Connectedness to Nature* moderates one or more of the path relationships described in the core research model.

While not providing evidence to support this hypothesis, the research findings should not be used to assume that the level of practitioners' Connectedness to Nature are irrelevant to the path relationships in the research model. As with the Reward for Application and Social Complexity scales, practitioners had tended to score the Connectedness to Nature questionnaire items towards the top of the scales resulting in a relatively high mean for the scale and low standard deviation ($\bar{X}_{CTN} = 5.142$, s.d. = 0.928; 7 point Likert-type scale with 1 representing low connectedness to nature). This lack of spread across the sample may provide the explanation for the lack of differences found between the low and high Connectedness to Nature sub-groups.

*

Proposition 7: The sustainability practitioner's temporal orientation moderates the path relationships described in the core research model.

The results of this study provide support for the seventh research proposition and associated hypothesis relating to the moderating effects of the sustainability practitioner's temporal orientation on the path relationships of the core research model.

H.7.: The sustainability practitioner's *temporal orientation* moderates the path relationships described in the core research model.

The statistical assessment provides support for this hypothesis. Specifically, a significant difference exists in one of the path relationships when comparing practitioners identified with a longer term orientation compared with those with a shorter term orientation. The significant path difference identified relates to the relationship between the practitioner's perceptions of *CEO Commitment to Sustainability* and *Sustainability Practitioner Engagement*. For practitioners with a shorter term orientation, the path relationship between CEO commitment and their level of engagement was stronger and significant at the $p < 0.001$ level. For practitioners with an orientation to the longer term, this path relationship was weaker but also non-significant.

This finding suggests that the engagement level of practitioners with a shorter term orientation will tend to be more strongly impacted by their perception of their *CEO Commitment to Sustainability* than with practitioners with a longer term orientation. Sharma's (2009) finding of a link between longer term orientation and an ethic of hard work may be relevant here with this finding potentially suggesting that practitioners with a shorter term orientation may be engaged more by the commitment rhetoric of their CEO than the results coming from the efforts of long-term radical change. This potential rationale would, of course, need further analysis.

7.4.4 Research Propositions relating to Organisational Culture Moderators

Any discussion related to the findings from the analysis of the organisational culture related moderators needs to start with a warning that the Hofstede et al. (1990) organisational culture scale employed in this research did not perform particularly well under scale reliability assessments. Nunnally and Bernstein (1994) and Hair et al. (2010) recommend that scales should achieve a Cronbach Alpha of 0.6 for exploratory analysis and 0.7 for confirmatory analysis. In the case of the data set collected for this research, three of Hofstede et al.'s proposed six culture scales achieved a Cronbach Alpha between 0.45 and 0.5, while the items in the other three measurement scales failed to provide any feasible scales. Consequently, these latter three scales (employee versus job orientation, parochial versus professional, and normative versus pragmatic) could not be taken forward in the moderator analysis, while the former three (process versus results, open versus closed, and loose versus tight), were taken forward with cognisance of the limited explanatory power of the scales.

One research proposition and six associated hypotheses were elaborated in chapter four relating to impact of the six dimensions of culture proposed by Hofstede et al. (1990) on the path relationships in the research model. The findings for the proposition and each hypothesis is presented below and the potential practical implications of the findings are discussed.

Proposition 8: Organisational culture moderates the path relationships described in the core research model.

The results of this study provide partial support for the final research proposition and associated hypothesis relating to the moderating effects of organisational culture on the path relationships of the core research model.

H.8.a.: An increase in an organisation's *orientation towards process rather than results* moderates the path relationships described in the core research model.

The statistical assessment provides support for this hypothesis. Specifically, a significant difference was identified in three of the path relationships when comparing organisations identified with a process oriented culture and those identified with results oriented culture. The

first path identified relates to the relationship between the level of *CEO Commitment to Sustainability* and the level of *Sustainability Practitioner Engagement*. Practitioners perceiving their organisation as having a process oriented culture, articulate a stronger positive link between *CEO Commitment to Sustainability* and their level of *Engagement* than those perceiving their organisation as having a results oriented culture (the latter relationship being weaker but non-significant).

Conversely, the second path identified relates to the relationship between the level of *Organisational Commitment to Sustainability* and the level of *Sustainability Practitioner Engagement*. Practitioners perceiving their organisation as having a results oriented culture articulate a stronger positive link between *Organisational Commitment to Sustainability* and their level of *Engagement* than those perceiving their organisation as having a process oriented culture (the latter relationship is weakly negative but non-significant).

This finding seems consistent with Hofstede's (2013) description of the process oriented culture which tends to focus on risk-avoidance and routine, with a high level of hierarchical command and control. In this situation, it is likely that the level of *CEO Commitment to Sustainability* will profoundly influence what the sustainability practitioner can achieve in driving the sustainability agenda in their organisation.

This contrasts with Hofstede's (2013) articulation of the results focused culture with its 'bias for action' (Peters and Waterman, 1982). In this situation, it seems likely that the sustainability practitioner's ability to drive change will be more determined by the overall level of *Organisational Commitment to Sustainability* rather than solely that of the CEO.

Interestingly, a comparison of the mean levels of *Corporate Sustainability Performance* reported by practitioners is statistically significantly higher (at the $p < 0.01$ level) in organisations with a result oriented culture ($\bar{x}_{\text{RESULTS}} = 5.692$; $\bar{x}_{\text{PROCESS}} = 5.069$).

Finally, the third path identified as significantly different between results and process oriented cultures was the linkage between *Sustainability Practitioner Engagement* and *Sustainability Practitioner Intention* towards the organisation. Practitioners perceiving their organisation as

having a process orientation articulate a stronger positive link between their levels of engagement and intention than those perceiving their organisation has a results culture.

Furthermore, in process oriented cultures, the level of *Sustainability Practitioner Engagement* provides greater explanatory power for *Practitioner Intention*, explaining nearly three-quarter of the variance ($R^2 = 0.741$), compared to the situation in results oriented cultures. In the latter case, only approximately one-half of the variance is explained ($R^2 = 0.524$).

While noting that in both cases the path relationships are substantial ($b = 0.861$ and $b = 0.724$ in process and results oriented cultures respectively) and significant (both at the $p < 0.001$ level), it is also interesting to note that a comparison of the mean levels of practitioner intention, trust and identification demonstrate that overall practitioners working in organisations with process oriented cultures are significant less engaged than those in results oriented organisations (see table 7.1).

Table 7.1: Levels of Engagement in Results and Process Cultures

	\bar{x}_{RESULTS}	\bar{x}_{PROCESS}	Significance of difference
Trust	5.575	5.279	$p < 0.01$
Identification	5.368	4.925	$p < 0.01$
Intention	5.915	5.474	$p < 0.01$

As organisational culture has been linked to both the organisational commitment of employees and employee intention (Joo, 2010), this finding is not inconsistent. Specifically, this study finds that overall sustainability practitioners indicate higher levels of engagement in results oriented cultures. Finally, the results suggest that in process oriented organisational cultures, sustainability practitioners are overall less engaged, however their individual level of engagement is more directly influenced by their perception of their *CEO's Commitment to Sustainability*.

H.8.d.: An increase in an organisation's *orientation towards being open rather than closed* moderates the path relationships described in the core research model.

The statistical assessment provides support for this hypothesis. Specifically, a significant difference exists in two of the path relationships when comparing organisations identified with open and closed cultures.

The first path identified relates to the relationship between the practitioner's perception of *CEO Commitment to Sustainability* and their level of organisational *Engagement*. Practitioners perceiving their organisation as having a closed culture articulate a stronger positive link between *CEO Commitment to Sustainability* and their level of *Engagement* than those perceiving their organisation having an open culture (the latter relationship being weak but non-significant). Overall the path model for organisations with closed cultures provides more explanation of the variance in levels of practitioner engagement ($R^2 = 0.378$) than the model for organisations with open cultures ($R^2 = 0.159$).

The second path identified relates to the relationship between the *Business Drivers of Sustainability* and *Corporate Sustainability Performance*. Practitioners perceiving their organisation as having a closed culture articulate a stronger positive link between the *Business Drivers of Sustainability* and the level of their organisation's *Corporate Sustainability Performance* than those perceiving their organisation having an open culture (the latter relationship is weakly negative but non-significant). Again, the overall path model for organisations with closed cultures provides more explanation of the variance in levels of sustainability performance ($R^2 = 0.555$) than the model for organisations with open cultures ($R^2 = 0.398$).

It is interesting to note that while the relationship path model provides greater explanatory power for organisations with closed cultures, practitioners in organisations with open cultures reported statistically significantly higher levels of *Practitioner Engagement* (in terms of organisational intention, trust and identification) and also higher levels of *Corporate Sustainability Performance* achieved by their organisations (see table 7.2).

Table 7.2: Levels of Engagement and Sustainability Performance in Open and Closed Cultures

	\bar{x}_{OPEN}	\bar{x}_{CLOSED}	Significance of difference
Trust	5.940	5.231	$p < 0.01$
Identification	5.548	4.873	$p < 0.01$
Intention	6.048	5.464	$p < 0.01$
Corporate Sustainability Performance	5.831	5.099	$P < 0.01$

These findings suggest that open cultures, characterised by Hofstede (2013) as being welcoming and collaborative, rather than closed cultures, described as secretive and non-inclusive (ibid), are more effective at enabling higher levels of sustainability performance. This is consistent with the findings of other researchers who have found open cultures conducive to higher levels of performance (Lin et al., 2013; Powell, 1995).

Finally, the results suggest that in closed oriented organisational cultures, sustainability practitioners are overall less engaged, however their individual level of engagement is again more directly influenced by their perception of their *CEO's Commitment to Sustainability*.

H.8.e.: An increase in an organisation's orientation towards being loose rather than tight moderates the path relationships described in the core research model.

The statistical assessment provides support for this hypothesis. Specifically, a significant difference exists in one of the path relationships when comparing organisations identified with loose and tight cultures. The relationship path identified relates to the relationship between the practitioner's perception of *CEO Commitment to Sustainability* and their level of organisational *Engagement*. Practitioners perceiving their organisation as having a loose culture articulate a stronger positive link between *CEO Commitment to Sustainability* and their level of *Engagement* than those perceiving their organisation having a tight culture (the latter relationship being weak but non-significant).

Hofstede et al.'s (1990) fifth cultural dimension relates to the amount of internal structure within the organisation and was derived from the distinction between loose and tight set out in the literature on management control (for example: Hofstede, 1967). Hofstede (2013) argues

that organisations with tight cultures would tend to be cost conscious with meetings attended punctually. These behaviours might be considered a pre-requisite for organisational performance, and indeed authors such as Walker et al. (2001) have argued that loose organisational cultures are ineffective. The findings of this study is consistent with this assertion by Walker et al.; practitioners operating in organisations with looser cultures reported, on average, statistically significant lower levels of *Corporate Sustainability Performance* than those in tighter cultures. Furthermore, they reported lower levels of *Engagement* (see table 7.3).

Table 7.3: Levels of Engagement and Sustainability Performance in Tight and Loose Cultures

	\bar{x}_{TIGHT}	\bar{x}_{LOOSE}	Significance of difference
Trust	5.722	5.377	$p < 0.05$
Identification	5.358	4.989	$p < 0.05$
Intention	5.905	5.538	$p < 0.01$
Corporate Sustainability Performance	5.569	5.297	$P < 0.10$

Finally, it is interesting to note that, once again, in the lower performing orientation of one of Hofstede et al.'s (1990) cultural dimensions (in this case the looser component of the loose versus tight dimension of organisational culture), sustainability practitioners are overall less engaged, while their individual level of *Engagement* is again more directly influenced by their perception of their *CEO's Commitment to Sustainability*.

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As noted at the beginning of this section, the final three hypotheses (H.8.b., H.8.c., and H.8.f.) could not be tested with the data collected as it failed to produce feasible scales for Hofstede et al.'s (1990) other three dimensions of culture.

H.8.b.: *An increase in an organisation's orientation towards employee rather than job moderates the path relationships described in the core research model.*

H.8.c.: *An increase in an organisation's orientation towards the parochial rather than the professional moderates the path relationships described in the core research model.*

H.8.f.: An increase in an organisation's orientation towards being normative rather than pragmatic moderates the path relationships described in the core research model.

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Final observations on the effects of organisational culture

While once again acknowledging the potential limitations of this analysis due to the statistical weakness of the three Hofstede et al. (1990) organisational culture scales employed, this section has provided some noteworthy observations about the impact of organisational culture on the core research model.

The analysis has also provided insights into the dimensions of organisational culture that are most likely to support *Corporate Sustainability Performance* and *Sustainability Practitioner Engagement*, namely results oriented, open, and tight cultures.

The consistency in the aspects of culture identified by practitioners for delivering high levels of *Corporate Sustainability Performance* and which lead to high levels of individual *Engagement* is interesting and may also provide some additional support for the assertion made in hypothesis H.4.c. that *Sustainability Practitioner Engagement* is linked to *Corporate Sustainability Performance*. While no statistically significant link between *Corporate Sustainability Performance* and *Practitioner Engagement* has been established in this study, as discussed in section 7.4.2, this finding adds to the case for future exploration of this linkage.

Finally, it is also interesting that in organisations exhibiting the cultural orientations prone to lower levels of *Corporate Sustainability Performance*, *Sustainability Practitioner Engagement* is consistently driven by the practitioner's perception of their *CEO's Commitment to Sustainability*. This finding seems to suggest that in cultures associated with lower performance outcomes, the practitioner looks more directly to the CEO's commitment to sustainability as a driver of their own organisational engagement.

7.4.5 Observations relating to the Revised Model

As set out in section 6.10, a second PLS model was tested employing a measurement scale of *Corporate Sustainability Performance* augmented with four external measures of performance in addition to questionnaire item number 33: 'My organisation does well in sustainability rankings.'

The first challenge associated with constructing the scale augmented with external measures of *Corporate Sustainability Performance* was the availability of the external indices examined in chapter three. As mentioned previously, the majority of the external indices are provided by ratings agencies on commercial terms and not made publicly available for researchers. Consequently, this research study has had to utilise that sustainability index data that is made freely available. This included using:

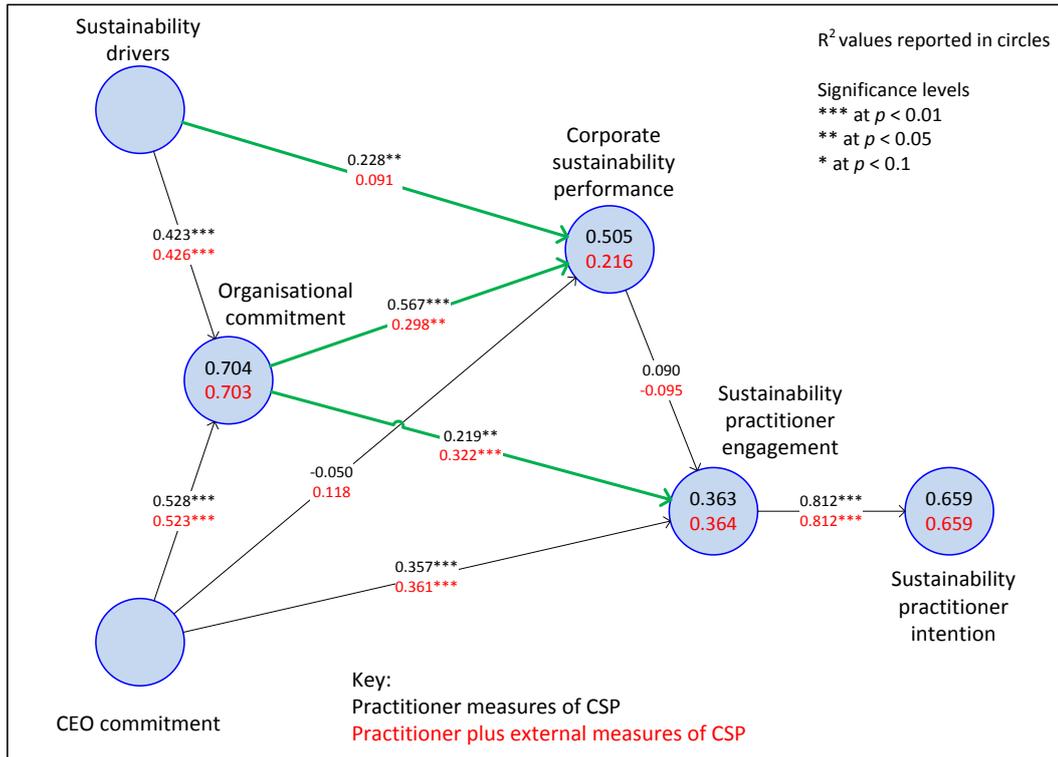
- a binary measure of inclusion in the Dow Jones Sustainability index (as at April 2015) together with and the corresponding RobecoSAM (the DJSI's analyst) banding from the 2015 RobecoSAM Sustainability Yearbook;
- the performance score for the 2014 CDP (Carbon Disclosure Project) submissions which are made transparently available;
- a binary measure of inclusion in the EuroNext Vigeo indices (as at May 2015); and
- a binary measure of inclusion in the Ethibel Sustainability Excellence indices (as at March 2015).

The second challenge with employing external measures of corporate sustainability is that the agencies focus almost exclusively on publicly traded organisations. Consequently, little external performance data is available was available for the 43 privately owned organisations in the sample.

Having collated the available data, as described in chapter six, the *Corporate Sustainability Performance* scale including external measures performed less well than scale based only on the practitioner responses. That said, overall the scale with external measures still achieved a level of Cronbach Alpha (0.615) acceptable for use in exploratory analysis.

When the PLS structural equation model was run using the revised scale for *Corporate Sustainability Performance*, the model was found to provide reasonably consistent results with the original model tested with practitioner only measures. The results from the two models are presented together in figure 7.1 (below) with the R^2 values, coefficients and significance levels indicated in black for the original model and red for the revised model.

Figure 7.1: Original and Revised PLS SEM outputs



Considering first the overall explanatory power of the model, figure 7.1 shows that the explanatory power values (R^2 values) are very similar for all the endogenous constructs with the exception of *Corporate Sustainability Performance*. Essentially the structural equation model is less effective at explaining *Corporate Sustainability Performance* when measured using the external measures. In this case approximately one-fifth of the variance in sustainability performance is explained ($R^2 = 0.216$), compared to the original model in which half the variance is explained ($R^2 = 0.505$). This finding is also consistent with the lower average variance extracted (AVE) figure of 0.316 achieved for the *Corporate Sustainability Performance* scale including external measures indicating the lower reliability of the revised scale.

Second, figure 7.1 indicates three material differences in the path relationships (which are highlighted in bold and green). Most important is the path relationship between the *Sustainability Drivers* and *Corporate Sustainability Performance*. While in the revised model the path coefficient of the direct relationship is weaker and also not statistically significant, as shown in section 6.10, the relationship is still significant when the partial mediation effect of *Organisational Commitment to Sustainability* is taken into consideration.

Two less notable differences in the path coefficients are also highlighted in the path relationships between *Organisational Commitment to Sustainability* and respectively *Corporate Sustainability Performance* and *Sustainability Practitioner Engagement*. The former of the two relationships weakens somewhat ($b = 0.567$ to $b = 0.298$) and becomes slightly less statistically significant ($p < 0.01$ level to $p < 0.05$ level), while the latter strengthens slightly ($b = 0.219$ to $b = 0.322$) and becomes slightly more statistically significant ($p < 0.05$ level to $p < 0.01$ level).

Overall, these path relationship differences are relatively minor and consequently the revised model can be seen to provide additional support to the validity of the core research model and hypotheses proposed in this research project.

Finally, while the difficulty in producing a robust measure of *Corporate Sustainability Performance* using publicly available external index measures has been frustrating, it is also a key insight of this research study and an area certainly worthy of future research.

7.5 Research Limitations

This research examined the relationships between the *Business Drivers of Sustainability*, *CEO Commitment to Sustainability*, and *Organisational Commitment to Sustainability* with *Corporate Sustainability Performance* and *Sustainability Practitioner Engagement* in the context of large commercial organisations. The first limitation of this study is that its results may not be generalizable to other types of organisation – whether small or medium size businesses or non-commercial organisations. As described in chapter six, a number of sustainability practitioners from organisations in these categories did complete the questionnaire, however their responses were removed from the analysis to provide a greater homogeneity across the sample which aimed to focus on large companies with turnover in excess of €50 million and headcount greater

than 250. The removed organisations were not examined further as their number was insufficient to provide statistically meaningful results.

A second limitation of the research was the reliance on the perceptions of a single stakeholder group, namely sustainability practitioners. Had time, budget and access permitted, alternative perspectives from other stakeholders such as CEOs, NGOs and organisations' clients, could have provided further insights into the relationships between the *Business Drivers of Sustainability*, *CEO and Organisational Commitment* and *Corporate Sustainability Performance*.

Third, the external measurement of *Corporate Sustainability Performance* was constrained by the limited availability of detailed index data from organisations such as those collating the Ethibel Sustainability index, the EuroNext Vigeo index, and the FTSE4Good index. Consequently, a binary inclusion / exclusion measure had to be included for the Ethibel Sustainability indices and the EuroNext Vigeo indices in the external measure of *Corporate Sustainability Performance*.

Fourth, while adequate for considering the 177 organisations as an overall cohort, the sample size was not large enough to explore specific industry sub-groups within this research study. It is feasible that with a larger sample, more nuanced findings relating to the operation of the core research model in different industries could have been identified.

Fifth, the research was carried out as a cross-sectional research study conducted over a specific period of time. The questionnaire data was collected between from July 2014 and May 2015. As the sustainability agenda is continuously evolving (Porritt, 2007), it is feasible that over a longer period of time some of the findings relating to the *Sustainability Drivers* and relationship paths in the core model may evolve.

Sixth, from a methodological perspective, the use of PLS multi-group analysis (MGA) to examine the effects of the moderator variables may have limited some potential findings. While multi-group analysis has the advantage of being able to assess moderating effects across an entire structural equation model (Henseler et al., 2009), the reduction of the continuous scales for each moderator into binary high-low scales resulted in the loss of potential useful information which could have provided additional insights into the effects of the moderators on the path relationships.

Seventh, the use of multi-group analysis for a number of the summated scales (specifically the social axiomatic scales for *Reward for Application* and *Social Complexity*, and the *Connectedness to Nature* scale) identified no statistically significant differences between the path relationships in the high and low sub-group core research models. This is likely to have been caused by the relatively high means and a lack of variance in the sample's distribution on these measures, perhaps caused by a homogeneity in the outlook or belief systems of the sustainability practitioners surveyed.

Finally, the weakness of the cultural orientation scales derived from Hofstede et al.'s (1990) six dimensional model of organisational culture was disappointing. Three of the suggested scales only summated weakly with Cronbach Alphas between 0.45 and 0.5, while three failed to summate at all. This led to only tentative findings being established for the process versus results, open versus closed, and loose versus tight cultural dimensions, and no findings being established in the employee versus job, parochial versus professional, and normative versus pragmatic dimensions.

7.6 Further Research Opportunities

Based upon the findings of this research study and the limitations set out in section 7.5, the following suggestions for further research are offered:

1. In order to better address the issue of generalizability, the core research model elaborated in this research study requires additional assessment in different contexts and with other samples. As highlighted in the research limitations section, the model has only been tested in the context of large commercial organisations and through the perceptions of corporate sustainability practitioners. The model could be tested in its current form with sustainability practitioners working in non-commercial organisations or in small and medium sized companies. It could be further tested by incorporating the perspectives of stakeholders other than sustainability practitioners, however this would require some modification to some of the scales employed to measure the constructs with the core model.
2. Building on the suggestion highlighted above, significantly increasing the current sample size of large corporate organisations could enable a more nuanced consideration of any

differences which might exist between different industry sectors – particularly any differences that might exist in the relative importance of the various sustainability drivers in different sectors.

3. Furthermore, the analysis in this research study has been based upon cross-sectional data collected over a relatively short period of time between July 2014 and May 2015. Since the sustainability agenda is gradually evolving (Porritt, 2007), it would be interesting to track the path relationships over time. This might provide useful insights into changes in the relative importance of the different sustainability drivers over time.
4. Turning more specifically to components of the research model, this study has identified that both *CEO Commitment to Sustainability* and *Organisational Commitment to Sustainability* are both under-researched topics. Given that both are significant antecedents to both *Corporate Sustainability Performance* and *Sustainability Practitioner Engagement*, future research into these constructs would be worthwhile. It is likely that a different research methodology, possibly based on in-depth interviews, might be necessary to unpack these important concepts further.
5. The unproven hypothesised path relationship between *Corporate Sustainability Performance* and *Sustainability Practitioner Engagement* is also an area worthy of future research. Previous studies by authors such as Epstein et al. (2010) and Galpin et al. (2015) found that higher levels of sustainability performance lead to greater levels of employee engagement (although for employees in general and not specifically sustainability practitioners). A number of suggestions were proposed in section 7.4.2 for the path relationship being statistically non-significant in this study, and it would be interesting to explore these suggestions further.
6. The examination of organisational culture as a potential moderating factor within the core research model provided some interesting insights. However, the weakness of the scales proposed by Hofstede et al. (1990) in the sample of practitioners surveyed was disappointing. The Hofstede et al. (1990) six-dimensional culture scale was selected over alternative culture scales proposed by authors such as Wallach (1986), Goffee and Jones (2003), and Cameron and Quinn (2011) due to its promise of providing insights into a broad range of cultural characteristics across six dimensions, while employing only a relatively

short 18 item scale. In hindsight, some of these other scales may have provided more robust and satisfying insights.

7. Finally, it would be interesting to extend the analysis using a wider range of external measures of *Corporate Sustainability Performance*. As noted previously, there are a number of analysts who undertake detailed sustainability analysis on behalf of institutional investors and provide this information on a commercial basis. If finance was not a constraint, it would be interesting to procure the absolute company performance scores from indices such as the Dow Jones Sustainability Index and FTSE4Good index as inputs for the PLS analysis.

7.7 Summary of Key Practical Implications

Overall, the driver-outcome model of corporate sustainability developed in this research from the literature and then empirically tested with insights from sustainability practitioners representing 177 large companies with collectively 10.5 million employees and combined annual sales of GBP 2.7 trillion provides a number of significant findings. This penultimate section of the thesis summarises the key findings from this research project by considering the practical implications of the research for sustainability practitioners, academic researchers and senior corporate executives.

7.7.1 Key Implications for Sustainability Practitioners

This research provides a number of key practical findings for sustainability practitioners. First, the research has empirically confirmed the significance of the five factors identified which contribute to the overall business case for investing in corporate sustainability initiatives. The understanding of the importance of these factors is valuable for practitioners as it provides an aide memoire of elements to include when devising business cases to substantiate the business value that can be created by specific sustainability initiatives. Specifically, in the overall research sample:

- the expectations of employees (both existing and potential) was established as the strongest component of the business case for corporate sustainability. Consistent

with the findings of Amalric and Hauser (2005) and Heal (2005), sustainability consistently remains a critical factor for employee attraction, retention and motivation. In addition to the evidence provided by this study, practitioners could employ wide-scale employee surveys or smaller-scale informal interviews or discussions with employees to collate additional data and / or anecdotal evidence to include in their business case.

- the second strongest business case component identified by this study was that of client (or customer) expectations of organisational sustainability. This is often evidenced formally in the corporate business-to-business sector by the proliferation of sustainable procurement programmes / questionnaires (for example: Pepsico, 2015). Practitioners should seek to interview major clients (or survey samples of customers in the case of mass-market business-to-consumer organisations) to understand clients' specific expectations which can then be used to strengthen the business case for sustainability. Particularly in the business-to-consumer arena, authors such as Heal (2005) and Argenti (2004) have demonstrated the significant negative economic impact that retail consumers can have on an organisation should they choose to boycott the organisation based on its sustainability performance.
- the third most important factor highlighted in this study related to access to financial capital and to meeting the expectations of the owners and shareholders of the business. Whilst from the researcher's own personal experience, most sustainability practitioners will articulate a desire that shareholders take a more active interest in sustainability, there is some evidence through the growth of SRI funds and investor questionnaires that the level of investor interest is increasing (Vigeo, 2014). Practitioners should look at the specific ownership structure of their organisation and identify and engage shareholders (or owners in the case of private companies) to understand their specific sustainability related expectations.
- the next most important component of the business case identified was meeting NGO expectations in order to secure access to the natural resources required by the organisation to operate. As might be expected, this factor was shown in the research sample to be most relevant to organisations which operate in the mining, water and waste, and manufacturing sectors. However, close collaboration with NGOs can also

benefits organisations in other business-to-consumer sectors such as retail (Steger et al., 2007). In response to this driver, practitioners should look to identify the economic benefits which could arise from collaborating with NGOs as well as the risk associated with failing to meet NGOs' expectations. These risks and opportunities can then be assimilated into the overall business case for sustainability initiatives.

- finally, while the opportunity for efficiency gains was identified as the least significant of the five business case components in the organisations sampled, the importance of efficiency opportunities should not be overlooked. Given the expectation on all managers (including sustainability practitioners) in corporate organisations to contribute to profit maximisation (Pagell et al., 2013), the opportunity to enhance profitability through cost saving efficiency initiatives should always be pursued. Within the business context, the opportunity for incremental profits delivered through sustainability related efficiency savings are very unlikely to be dismissed.

By combining the above elements of the five business case drivers, practitioners should be able to quantify the opportunities associated with undertaking specific sustainability initiatives or the risks associated with inaction.

The second set of key findings for sustainability practitioners are those connected with the various proposed linkages in the driver-outcome model of corporate sustainability elaborated and tested in this research. Specifically, the *Business Drivers of Sustainability*, *CEO Commitment to Sustainability*, and *Organisational Commitment to Sustainability* have all been confirmed as important antecedents of *Corporate Sustainability Performance*. For practitioners, this finding reinforces the importance, in addition to establishing the business case for sustainability (as discussed above), of ensuring both CEO commitment and organisational commitment to sustainability.

Practically, this finding suggests that sustainability practitioners should invest effort with CEOs and other senior executives with decision-making responsibility to maximise the level of organisational commitment to sustainability. The development of organisational commitment could involve initiatives such as the establishment of board level committees, the commitment to and publication of sustainability targets, and the introduction of sustainability related monetary rewards at executive and management levels (Bettenhausen et al., 2015). This

research has demonstrated that both *CEO Commitment to Sustainability* and *Organisational Commitment to Sustainability* are both important factors in driving the sustainability performance of an organisation, justifying both as critical components of the sustainability practitioner's focus.

7.7.2 Key Implications for Academic Researchers

This research also provides a number of key practical implications for academic researchers investigating corporate sustainability and related academic fields. The first two implications relate to the contributions made through the development of the core research model and the measurement instruments developed to assess the model. First, as identified in the literature review, there is a shortage of academic models considering the operation of corporate sustainability with large corporate organisations. This research has elaborated and empirically assessed a model linking together a number of under-researched constructs within the corporate responsibility field. The model is academically novel in combining the drivers of corporate sustainability (*Business Drivers of Sustainability*, *CEO Commitment to Sustainability*, and *Organisational Commitment to Sustainability*) with its outcomes in terms of *Corporate Sustainability Performance* and *Sustainability Practitioner Engagement*.

Second, the research has practical implications for sustainability researchers through its development and testing of new measurement scales for a number of the key constructs within the core research model. This research has created, for the first time, scales to assess the various *Business Drivers of Sustainability* together with *CEO Commitment to Sustainability* and *Organisational Commitment to Sustainability*. The research has also reaffirmed the robustness of a number of pre-existing scales (including Leung et al.'s (2002) social axioms, and Mayer and Frantz's (2004) connectedness to nature scale) in the context of a new field of research, namely with corporate sustainability practitioners.

A third practical contribution of the research, based upon an extensive review of the business and sustainability related literature, is the elaboration of the following definition of corporate sustainability:

Corporate sustainability is a future focused, multi-stakeholder concept whereby businesses undertake voluntarily initiatives to reduce their environmental impacts and contribute to the communities and wider society in which they operate, all within the context of striving to maximise their economic profitability in the long-term.

This definition, based upon the assessment of several hundred academic journal articles, combines the most important elements of the explicit and often more implicit definitions of corporate sustainability employed by a wide range of researchers. It is offered as a specific literature-based definition encapsulating the core components of the corporate sustainability concept.

Finally, there are several practical implications for researchers based upon a number of the more specific findings of the research:

- first, the lack of a significant link between the level of *Corporate Sustainability Performance* and the level of *Sustainability Practitioner Engagement* contradicted the findings of previous researchers (for example: Glavas and Piderit, 2009; Epstein, 2010; Galpin et al., 2015). While a number of potential explanations were suggested in section 7.4.2, researchers considering the link between sustainability performance and employee engagement should be cognisant of this finding.
- second, the poor performance of the organisational culture measurement scales developed by Hofstede et al. (1990) should be noted. Of the six proposed cultural dimensions, three dimensions failed standard scale reliability tests completely and the other three produced scales with Cronbach Alpha scale reliability scores of between 0.45 and 0.50. Consequently, the culture-related moderator effects identified in this study have been carefully caveated (see section 7.4.4). While it is feasible that the poor scale reliability findings are an anomaly of this research sample, future researchers might consider using different culture scales.
- finally, while the moderating effects of practitioners' socio-axiomatic beliefs (Leung et al., 2002) have been shown to only impact a small number of the linkages in the research

model (see section 7.4.3 for a full discussion of the impacts), the social axiom scales have been shown to be robust in a new context - that of sustainability practitioners.

7.7.3 Key Implications for Chief Executive Officers

The first set of practical implications of this research for Chief Executive Officers derives from the implications identified relating to *CEO Commitment to Sustainability*. Specifically, the research empirically demonstrated the linkage between the level of the *CEO's Commitment to Sustainability* and their organisation's *Corporate Sustainability Performance*. This finding confirms that CEOs have an important role in driving the sustainability agenda and performance of their organisations.

More specifically, the research identified that the linkage between the *CEO's Commitment to Sustainability* and their organisation's *Corporate Sustainability Performance* is fully mediated by the level of *Organisational Commitment to Sustainability*. This nuanced finding suggests that, in pursuing *Corporate Sustainability Performance*, CEOs should focus their efforts on raising the overall level of *Organisational Commitment to Sustainability*.

The second important finding of the research for CEOs relates to the relationship between organisational culture and *Corporate Sustainability Performance*. Based on Hofstede et al.'s (1990) dimensions of organisational culture, the research identified that organisations with results-oriented, tight and open cultures tended to deliver higher levels of *Corporate Sustainability Performance* than was the case for organisations with process-oriented, loose and closed cultures. This is relevant for the CEO as authors such as Schein (1983) have argued that the leader has significant influence in setting the overall culture of an organisation. With this in mind, CEOs looking to maximise the sustainability performance of their organisations should consider how they can ensure the culture of their organisation is optimised for sustainability performance (i.e. creating cultures which are results-oriented, tight and open).

*

This section has summarised the most important practical implications identified from the research project. Specific recommendations have been offered for sustainability practitioners, academic researchers and senior executives.

7.8 Conclusion

This thesis has made a number of contributions. First, it has contributed through the identification and quantification of five *Business Drivers of Sustainability*, namely: employee, client, and owner expectations, together with access to natural resources and opportunities for efficiency gains. Second, it has provided a theoretical model, supported by empirical findings, about the drivers and outcomes of corporate sustainability in the context of large commercial organisations. Third, it has contributed through the development of new instruments for the measurement of the *Business Drivers of Sustainability*, *CEO and Organisational Commitment to Sustainability*, and also *Corporate Sustainability Performance*. Fourth, established instruments already employed to measure employee engagement have been tested in a new context, that of sustainability practitioners. In addition, some useful insights about the effects that sustainability practitioner belief systems and organisational culture have on the theoretical model have been established.

The results suggest that the identified *Business Drivers of Sustainability*, together with *CEO Commitment to Sustainability* and *Organisational Commitment to Sustainability*, are important factors in driving *Corporate Sustainability Performance*. More specifically, *Organisational Commitment to Sustainability* has been shown to partially mediate the impact of the *Business Drivers* and fully mediate the impact of *CEO Commitment* on *Corporate Sustainability Performance*. For practitioners, this is an important finding reinforcing the need for broad organisational engagement with the sustainability agenda to maximise *Corporate Sustainability Performance*. This study suggests that CEO commitment and a clear business case may not be sufficient to maximise *Corporate Sustainability Performance*.

The research study also provided some interesting insights relating to how practitioners' belief systems impact their personal level of organisational engagement, most notably in how their perception of CEO commitment affects their own level of engagement. Finally, the analysis of organisational culture as a moderating variable provided insights both into the path

relationships in the core research model and also into some aspects of organisational culture associated with both higher levels of *Corporate Sustainability Performance* and *Sustainability Practitioner Engagement*.

Concluding with a personal reflection: the topic of sustainability is no less fascinating and daunting than on the day this research journey commenced. The aim of the study was to make a small practical contribution to the role that businesses and in particular sustainability practitioners can make in helping guide us collectively to a sustainable future. I conclude this thesis with the quote I began it with:

"The central sustainability question can be restated as asking whether the world as a whole is like Easter Island writ large or whether a major cyclical downturn can be averted" Brander (2007: 4).

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Appendix 1 – Definitions of Sustainability

Author	Journal	Definition of sustainability (if given)	Topics included within the discussion of the sustainability concept	Stakeholders discussed in relation to sustainability concept	Temporal focus discussed in relation to the sustainability concept
Angus-Leppan et al., 2010	Business Strategy & the Environment	"Corporate sustainability is a multi-layered and ambiguous concept, involving multiple stakeholders ... sustainability's three basic elements [are] economic, human and ecological sustainability (often interpreted as the triple bottom line of economic prosperity, environmental quality and social justice)" (p.231-232).	Economic, human and ecological; community and employee well-being	Employees; consumers; suppliers; NGOs; community partners; middle-managers; executives	
Arevalo, 2010	Journal of Business Ethics	"CSR in the context of this article is defined as the voluntary actions taken by a company to address economic, social, and environmental impacts of its business operations and the concerns of its principal stakeholders" (p.302).	Greening of business; transparency; economic, social, and environmental impacts; principles of the UNGC (human rights, labour, environment, anti-corruption)	Concept of "multi-stakeholder groups" included but groups not defined	
Hahn et al., 2010	Business Strategy & the Environment	Corporate sustainability defined "'as meeting the needs of a firm's direct and indirect stakeholders [...], without compromising its ability to meet the needs of future stakeholders as well'" (p.218). (Referenced to Dyllick and Hockerts, 2002)	Economic, environmental and social aspects	Concept of "stakeholders" included but groups not defined	Future orientation of sustainability established by Dyllick and Hockerts' definition.
Heuer, 2010	Journal of Corporate Citizenship	"Ecological sustainability is the ability of one or more entities, either individually or collectively, to exist and flourish (either unchanged or in evolved forms) for lengthy timeframes, in such a manner that the existence and flourishing of other collectivities of entities is permitted at related levels and in related systems" (p.32).	Environment, political, economic, social and cultural conditions; carrying capacity	Concept of "market and non-market stakeholders" included but groups not defined; shareholders; communities	Reference to "lengthy timeframes" in definition (p.32).
Isaksson et al., 2010	Journal of Business Ethics	"We interpret CSR as organizational promotion of global sustainability ... For the organization to be sustainable, it needs to meet stakeholder requirements regarding ethical behavior" (p.426).	Business ethics; supply chain; natural environment; economy	Customers; management; co-workers; suppliers; shareholders; government; NGOs; academics; media; fair-trade bodies; environmental pressure groups	

Author	Journal	Definition of sustainability (if given)	Topics included within the discussion of the sustainability concept	Stakeholders discussed in relation to sustainability concept	Temporal focus discussed in relation to the sustainability concept
Mio, 2010	CSR and Environmental Management		Environment; working conditions; labour standards; corporate governance; economic	Community; shareholders; customers; suppliers; employees	Sustainability linked to "long-term strategy" (p.252).
Sathe and Crooke, 2010	Journal of Corporate Citizenship	"'Sustainable' refers to environmentally responsible processes and products that meet the needs of the present generation without compromising the ability of future generations to meet their needs" (p.70).	Environment	Employees; managers; customers; suppliers; NGOs	Long-term focus established through Bruntland definition
Taylor and Theyel, 2010	Journal of Corporate Citizenship	Sustainability defined as "is focused on opportunities for people, business and society as well as the biosphere to flourish forever" (p.95).	Natural systems; social and natural environment	Stakeholders beyond shareholders and customers	
Wagner, 2010	Journal of Business Ethics	"Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (p.584). (The Bruntland definition referenced to World Commission on Environment and Development, 1987)	Environmentally and socially responsible behaviour; economic performance	Government; society; the environment	Long-term focus established through Bruntland definition.
Bañon Gomis et al., 2011	Business & Society Review	Sustainability defined as "a moral way of acting, and ideally habitual, in which the person or group intends to avoid deleterious effects on the environmental, social, and economic domains, and which is consistent with a harmonious relationship with those domains that is conducive to a flourishing life" (p.176).	Business ethics; global warming; environment; carbon footprint; environmental, social, and economic domains; ethics; environment, society, and economy	Concept of "stakeholders" included but groups not defined	Long-term focus established through Bruntland definition
Clifton and Amran, 2011	Journal of Business Ethics	"a sustainable world ... is described as having to do with the flourishing of life on Earth over an indefinite time frame, and where this flourishing of life goal incorporates ideas of human and ecological wellbeing, grounded in principles of intra- and intergenerational justice" (p.122).	Flourishing life on Earth; human wellbeing; justice; human rights; environment	Shareholders; financiers; employees; customers; suppliers; local communities; government	Definition includes the concept of an "indefinite time frame" (p.122).
Gallo and Christensen, 2011	Business & Society	"Sustainability refers to economic and/or ecological and/or social aspects of the relationship between business and society" (p.316).	Economic, ecological and social aspects; financial, social, and environmental impacts; ethics; corporate ethics	Concept of "stakeholders" included - only group defined is shareholders	Long-term focus established through Bruntland definition

Author	Journal	Definition of sustainability (if given)	Topics included within the discussion of the sustainability concept	Stakeholders discussed in relation to sustainability concept	Temporal focus discussed in relation to the sustainability concept
Hahn and Figge, 2011	Journal of Business Ethics	"Sustainable development as a societal concept is grounded in the three principles - environmental integrity, economic prosperity, and social equity. According to this, three pillar approach to be sustainable any development has to take into account not only economic but also environmental and social scarcities" (p.326).	Environmental, social, and economic capital; correcting for externalities; eco-efficiency; inclusive notion of corporate profitability	Shareholders; "other stakeholders" referred to but groups not defined	Intergenerational equity defined "as one of the key aspects of sustainable development" (p.326).
Jenkin et al., 2011	Business & Society		Inclusion of social and environmental concerns; ethics	Concept of "internal stakeholders" included (for example: employees)	Authors argue for engagement in "environment-centered eco-initiatives that focus on long-term sustainability" (p.277).
Kashmartian et al., 2011	Journal of Corporate Citizenship	Sustainability conceptualised as "a window on a company's future as it addresses the key environmental, economic and social issues that will determine if it will prosper in the marketplace" (p.108).	Environmental, economic and social issues	Concept of "internal and external stakeholders" included; NGOs; regional, national or international environment; health or anti-poverty groups	Long-term focus established through Bruntland definition.
Lozano, 2011	Journal of Corporate Citizenship	"Leaders are increasingly recognising the relations and interdependences of economic, environmental and social aspects and the short-, long- and longer-term effects, i.e. the four dimensions of sustainability" (p.45).	Economic, environmental and social aspects; the short-, long- and longer-term effects	Owners (shareholders and investors); employees and managers; customers; unions; suppliers and other business partners; local communities; future generations; government and regulators; civic institutions; social pressure groups; the media; academia; trade bodies; competitors; general public; the natural environment; non-human species; environmental pressure groups; animal welfare organisations	"long- and longer-term effects" included in definition (p.45).

Author	Journal	Definition of sustainability (if given)	Topics included within the discussion of the sustainability concept	Stakeholders discussed in relation to sustainability concept	Temporal focus discussed in relation to the sustainability concept
Mefford, 2011	Business & Society Review	"Sustainable business practices are defined as corporate policies and actions that attempt to satisfy the various stakeholder groups of the firm in order to insure long-term competitiveness. This definition of sustainability expands the common definition ("sustainable practices ensure that present needs are met without compromising the ability of future generations to meet their needs") to include other stakeholder groups in addition to the environment. In this paper sustainability and CSR are seen as identical" (p.110). Includes the Bruntland definition of sustainability.	Sustainable business practices; supply chain; environmental impact, bribery, anti-competitive practices; sweatshop labour	Shareholders; employees; customers; the environment; the community	Long-term focus established through Bruntland definition
Schneider et al., 2011	Journal of Corporate Citizenship	"The three pillars, or dimensions, of sustainable development are: economic, environmental and social impact" (p.70).	Economic, environmental and social impact; energy consumption; carbon footprint		
Shum and Yam, 2011	Journal of Business Ethics	"Sustainable business success requires sustained existence in a corporation's political, economic, social, technological, legal and environmental contexts" (p.549).	Economic, legal, ethical and philanthropic (community) responsibility; environmental	Shareholders; investors; employees; suppliers; communities; governments; the natural environment	Reference to "short-term economic success is not good indicia of long-term success" (p.549).
Choi and Ng, 2011	Journal of Business Ethics	Sustainability is "finding a balance between personal and societal 'needs' and nature's capacity to support human life and activity, as well as ecosystems" (p.270).	Economic, environmental, and social sustainability	Customers; society	Long-term focus established through Bruntland definition.
Wai Kong Cheung, 2011	Journal of Business Ethics	"Corporate sustainability is a multi-faceted concept that recognizes the importance of corporate growth and profitability on one hand, and also requires the corporation to pursue societal goals on the other hand, specifically those relating to sustainable development. The latter refers to the aim to increase or at least stabilize the corporate performance over time without leaving present or future generations worse off" (p.162).	Sustainability indices; reduction of negative economic, social and environmental externalities		Definition includes the need to "stabilize the corporate performance over time without leaving present or future generations worse off" (p.162).

Author	Journal	Definition of sustainability (if given)	Topics included within the discussion of the sustainability concept	Stakeholders discussed in relation to sustainability concept	Temporal focus discussed in relation to the sustainability concept
Wolf, 2011	Journal of Business Ethics	"we define supply chain sustainability integration as the degree to which a manufacturer strategically collaborates with its supply chain partners and collaboratively manages intra- and inter-organization processes for sustainability. The goal is to achieve economic, environmental and social sustainability by integrating flows of products and services, information, capital and decisions, to provide maximum value to multiple stakeholder groups" (p.223).	Natural environment; social practices; human rights, labour standards and anti-corruption; economic performance; sustainable supply chain management	Society; customers; Governmental organisations and non-governmental organisations (NGOs); suppliers; employees	Long-term focus established through Bruntland definition included in article.
Ameer and Othman, 2012	Journal of Business Ethics	"Sustainability is concerned with the impact of present actions on the ecosystems, societies, and environments of the future" (p.61).	Ecosystems, societies, and environments; community; diversity; environment; ethics	Concept of "stakeholders" included but groups not defined	Definition includes reference to the future.
Boiral and Paillé, 2012	Journal of Business Ethics	Organisational citizenship behaviour for the environment "can be defined as 'individual and discretionary social behaviours that are not explicitly recognized by the formal reward system and that contribute to a more effective environmental management by organizations'" (p.431) (Referenced to Boiral, 2009)	Environment	Employees	Single reference to "future generations" (p.436).
Caprar and Neville, 2012	Journal of Business Ethics	"Corporate sustainability means creating long-term value by adopting a business approach that is equally mindful of economic, social, and environmental implications" (p.231).	Economic, social, and environmental implications; culture	Activist groups; local communities	Definition includes ""creating long-term value" (p.231).
Chakrabarty and Wang, 2012	Journal of Business Ethics	"Sustainability practices represent a holistic, balanced, and long-term approach to conducting business with potential to have a net positive impact on ecological systems, social systems, economic systems, and various stakeholders" (p.206).	Ecological systems, social systems and economic systems	Governments; NGOs; local consumers	Sustainability practices described as involving "the adoption of a long-term focus" (p.205).
Fifka and Drabble, 2012	Business Strategy & the Environment	Sustainability reporting defined as "reporting that integrates the economic, social and environmental aspects of a company's activities" (p.457).	Economic, social and environmental aspects	Concept of "different stakeholder groups" included but groups not defined	
Lackmann et al., 2012	Journal of Business Ethics	"'Sustainability' has been frequently used by companies to describe their economical, social, and environmental orientation" (p.111).	Economic, social, and environmental perspectives, SRI investment		Sustainability concept defined as requiring a "long-term perspective" (p.115).

Author	Journal	Definition of sustainability (if given)	Topics included within the discussion of the sustainability concept	Stakeholders discussed in relation to sustainability concept	Temporal focus discussed in relation to the sustainability concept
Laszlo et al., 2012	Journal of Corporate Citizenship	Articles aim is to "reframe sustainability from <i>doing less harm to prosperity and flourishing</i> " (p.33).	Flourishing; society; environment	Employees and other stakeholders inside and outside the organisation	Authors argue that sustainability requires business leaders to have "long-term vision ... the kind of vision that it took to build cathedrals ... line of sight to a 150 year" (p.35).
Maltz and Schein, 2012	Journal of Corporate Citizenship	Sustainability defined as "meeting the needs of the present without diminishing opportunities for future generations" (p.57). (The Bruntland definition)	Resource scarcity; social problems; shared value; social and economic progress	Concept of "multiple stakeholders" included but groups not defined	Long-term focus established through Bruntland definition
Marcus, 2012	Business & Society		Economic, social, and environmental domains; widespread market instability, corporate fraud, social unrest, failing states, environmental degradation, and climate change; business, society, and nature	Concept of "stakeholders" included but groups not defined	Sustainability issues acknowledged "which could long affect future generations" (p.678).
Metcalfe and Benn, 2012	Journal of Business Ethics	"The sustainable business organisation integrates the needs of society as they unfold over time and that these increasingly complex and dynamic requirements are reflected in social, economic and environmental dimensions" (p.195).	Interconnected, dynamic economic, environmental and social systems; UNGC addresses principles in the areas of human rights, labour, environment and anti-corruption	Concept of "stakeholders" included but groups not defined	Reference to the "needs of society as they unfold over time" (p.195).
Porter and Derry, 2012	Business & Society Review	Sustainability involves "recognizing the widespread interdependence of species and ecosystems; ... considers the impact on future generations of global life of our current business practices, resource use, and waste disposal practices; ... [and] multiple dimensions of performance beyond simple economic profits. Social performance and environmental performance are the best known of these additional dimensions, but cultural sustainability is also an important parameter" (p.42-43).	Economic, ecological, social, and cultural issues; resource depletion, social inequities, and cultural breakdowns	Individual citizens; communities; public interest groups; governments	Authors include "impact on future generations" (p.43) in their definition of sustainability.
Scott and Bryson, 2012	Journal of Corporate Citizenship	Sustainability defined as "a broader concept, encompassing the social, economic, environmental and cultural systems needed to sustain any organisation" (p.140).	Demographics; technology; natural resource availability; employee health and well-being; environment	Employees; NGOs; consumers; communities	Authors argue that "a sustainable organisation is prepared to thrive today and in the future" (p.140).
Vives, 2012	Journal of Corporate Citizenship		Environmental, social and governance; socially responsible investment	Concept of "all stakeholders" included but only groups defined are shareholders / owners	Reference to the organisation needing to "remain a financially viable entity in the short and long run" (p.60).

Author	Journal	Definition of sustainability (if given)	Topics included within the discussion of the sustainability concept	Stakeholders discussed in relation to sustainability concept	Temporal focus discussed in relation to the sustainability concept
Amaladoss et al., 2013	CSR and Environmental Management	Definitions of Corporate Social Responsibility (CSR) provided from the World Business Council for Sustainable Development and the European Commission (p.66).	Social and environmental issues; ethical behaviour; economic development; labour standards; people, planet, and profit; philanthropy and community development; environmental, ethical, and stakeholder issues	Local communities; society at large; shareholders; investors; employees	Authors refer to "long-term sustainability" (p.67).
Asif et al., 2013	CSR and Environmental Management		Charity and other philanthropic activities; environmental, social, and economic aspects; transparency	Customers; regulators; suppliers; the community	Authors argue that it is important that sustainability initiatives "are considered from a long-term perspective" (p.335).
Borland and Lindgreen, 2013	Journal of Business Ethics	"Ecological sustainability is defined as the capacity for continuance into the long-term future, by living within the constraints and limits of the biophysical world" (p.174).	Environment; anthropocentric and eco-centric perspectives; eco-efficiency vs. eco-effective	Employees; suppliers; customers; "other stakeholders"	Definition includes the "capacity for continuance into the long-term" (p.174).
Carcano, 2013	Journal of Corporate Citizenship	Corporate sustainability defined "as the satisfaction of the needs for direct and indirect stakeholders of companies (shareholders, employees, customers, communities and others) without compromising the ability to satisfy the needs of future stakeholders" (p.38). (Referenced to Dyllick and Hockerts, 2002)	Social, environmental and financial performances; ethical standards	Shareholders; employees; customers; communities; and others	Future orientation of sustainability established by Dyllick and Hockerts' definition.
de Lange, 2013	Journal of Business Ethics	"Sustainability is a broad concept that advocates that human endeavors, often achieved through organizations, should be concerned with three dimensions that include: (1) care for the natural environment so that it remains intact, (2) social consciousness that results in actions that build and strengthen the social fiber of our communities, and (3) economic viability oriented toward the long term that generates benefits for current and future generations" (p.104).	Natural environment; social consciousness; economic viability	Local donors; government; local students; future local students; local firms	Long term orientation included in the definition
Elliot, 2013	Business Strategy & the Environment	Environmental sustainability defined as "'stakeholder behaviour impacting on the natural environment that meets the needs of the present without compromising the ability of future stakeholders to meet their own needs'" (p.270) (The Bruntland definition referenced to Elliot, 2011).	Environment; environmental and societal challenges	Business; government; civil backgrounds	Long-term focus established through Bruntland definition

Author	Journal	Definition of sustainability (if given)	Topics included within the discussion of the sustainability concept	Stakeholders discussed in relation to sustainability concept	Temporal focus discussed in relation to the sustainability concept
Florea et al., 2013	Journal of Business Ethics	Organisational sustainability ... "is a balanced organizational approach that considers economic, environmental, and social dimensions in holistic and enduring ways" (p.393).	Human values; environmental degradation, social and economic inequality; environmental integrity and protection	Internal stakeholders (for example: employees); concept of "external stakeholders" included but groups not defined	Long-term focus established through Bruntland definition
Gao and Bansal, 2013	Journal of Business Ethics	Business sustainability includes "corporate financial performance, social performance, and environmental performance" (p.242).	Corporate financial performance / economic prosperity, social performance / social equity, and environmental performance / environmental integrity; ethics	Concept of "stakeholders" included but groups not defined	Authors argue that "business sustainability requires organizations to develop a temporal orientation that accommodates the multiple time frames" (p.246).
Glavas and Godwin, 2013	Journal of Business Ethics	Perceived CSR is defined as "the perception stakeholders of an organization hold of the impact of a company's strategies and operating practices on the well-being of all its key stakeholders and the natural environment" (p.17).	Well-being of all key stakeholders and natural environment	Internal stakeholders (for example: employees); concept of "external stakeholders" included but groups not defined	
Guercini and Ranfagni, 2013	Journal of Corporate Citizenship		Sustainable supply chain; environment; efficient use of resources; environmental, social, organisational and economic dimensions	Shareholders; employees; clients; pressure groups; communities	Long-term focus established through Bruntland definition
Guziana and Dobers, 2013	CSR and Environmental Management		Environmental and social impacts	Employees; clients; consumers; suppliers; institutions	Authors highlight the need for sustainability efforts to have a "long-term perspective" (p.202).
Hind et al., 2013	Journal of Corporate Citizenship	"Sustainable development is defined as 'Meeting present needs without compromising the ability of future generations to meet their needs'" (p.139) (The Bruntland definition referenced to World Commission on Environment and Development, 1987)	Global warming, climate change; food, water and energy security; social, economic and environmental issues	Concept of "internal and external stakeholders" included but groups not defined	Sustainability characterized "as a significant source of both opportunity for and risk to long-term competitive advantage" (p.139).
Kurapatskie and Darnall, 2013	Business Strategy & the Environment	"Corporate sustainability is a business's capacity to reduce or eliminate its impact to the natural environment while satisfying the needs of its existing and future stakeholders (e.g. shareholders, employees, community groups, environmental nonprofits)" (p.50).	Financial performance; lower and higher order sustainability activities; environment; social integrity; communities and human well-being	Shareholders; employees; community groups; environmental non-profits	Reference to "existing and future stakeholders" in definition of sustainability (p.50).

Author	Journal	Definition of sustainability (if given)	Topics included within the discussion of the sustainability concept	Stakeholders discussed in relation to sustainability concept	Temporal focus discussed in relation to the sustainability concept
Lion et al., 2013	Journal of Business Ethics	"Sustainable development is related to the establishment or extension of economic activities which either maintain or increase the quality of life of those within its radius across three main dimensions: economic, social, and environmental" (p.789).	Economic growth and development; environment; bio-diversity; pollution	Community groups; NGOs; government officials; experts/consultants	Authors refer to "protecting [the needs] of future generations" (p.789) and "addressing both short- and long-term needs" (p.793).
Lozano, 2013	CSR and Environmental Management	Corporate Sustainability defined as "a journey for companies as they seek to continuously adjust and improve their internal activities, structure, and management, and how they engage and empower stakeholders (including the environment) to more effectively contribute to sustainable societies" (p.276). Corporate Sustainability also defined as "meeting the needs of a firm's direct and indirect stakeholders (such as shareholders, employees, clients, pressure groups, communities, etc.), without compromising its ability to meet the needs of future stakeholders as well" (p.276). (Referenced to Dyllick and Hockerts, 2002)	Environmental and societal impacts; economic, environmental, and social dimensions	Shareholders; employees; clients; pressure groups; communities; the environment	
Macagno, 2013	Business & Society Review	CSR defined as "an organization's efforts to secure resources and legitimacy for survival or competitive advantage by managing nonmarket and nonregulated issues arising from complex social and environmental problems" (p.225). Sustainability is defined as "being rooted in sustainable development that looks to achieve long-term human well-being by managing complex social and environmental problems facing society" (p.226 - 227).	Global economic, environmental, and social challenges; food; population; water; eco-systems	NGOs; government or civil society; environmental, social and economic stakeholders; customers	"Long-term human well-being" (p.226) included in definition of sustainability
Metcalf and Benn, 2013	Journal of Business Ethics	CSR ... "commonly signifying the responsibility of the corporation to stakeholders representing the issues of 'people, planet, profit'" (p.369).	People, planet, profit; ethical behaviour; complex systems theory; leadership	Concept of "inside and outside stakeholders" included but groups not defined	
Milne and Gray, 2013	Journal of Business Ethics	Sustainability defined as "the progressive maintenance of the life-supporting capacities of the planet's ecosystems requir[ing] the subordination of traditional economic criteria to criteria based on social and ecological values" (p.16).	Ecosystem; 'weak' and 'strong' sustainability	Concept of "stakeholders" included but groups not defined	Authors argue for a need for "long-term thinking" (p.24) to "control for sustainability" (ibid).

Author	Journal	Definition of sustainability (if given)	Topics included within the discussion of the sustainability concept	Stakeholders discussed in relation to sustainability concept	Temporal focus discussed in relation to the sustainability concept
Morali and Searcy, 2013	Journal of Business Ethics	Corporate sustainability defined as "meeting the needs of a firm's direct and indirect stakeholders (such as shareholders, employees, clients, pressure groups, communities, etc.), without compromising its ability to meet the needs of future stakeholders as well" (p.636). (Referenced to Dyllick and Hockerts, 2002)	Supply chain; economic, environmental, and social implications	Governments; customers; employees; shareholders; NGOs; industry practitioners; local community members	Long-term focus established through Dyllick and Hockerts' definition
O'Shea et al., 2013	Business Strategy & the Environment		Environmental health; economic sustainability; supply chain; earth resources / bio-diversity; ecosystem services; life cycle assessment	Concept of "stakeholders" included but groups not defined	Short, mid and long term referenced in author's conceptual framework of ecosystem services (p.430).
Sahamie et al., 2013	Business Strategy & the Environment	Corporate sustainability is defined "as 'meeting the needs of a firm's direct and indirect stakeholders [...], without compromising its ability to meet the needs of future stakeholders as well'" (p.245). (Referenced to Dyllick and Hockerts, 2002)	Closed-loop supply chain management; environment; economic; ecologic and social issues	Academia; NGOs; political institutions	Future orientation of sustainability established by Dyllick and Hockerts' definition.
Schaltegger et al., 2013	Business Strategy & the Environment	"Corporate sustainability can be understood as the successful market-oriented realization and integration of ecological, social and economic challenges to a company. Corporate sustainability management then covers all systematic activities to measure, analyse and improve economic, social and environmental aspects of a company to (a) achieve a sustainable development of the organization and (b) enable the organization to create a relevant contribution to a sustainable development of the economy and society, now and for the future" (p.220).	Triple bottom line (social, ecological and economic); eco-efficiency; socio-efficiency; eco-justice; integrative sustainability; supply chain and value networks	Concept of "internal stakeholders" such as employees and "external stakeholders" such as academics included	Definition of corporate sustainability includes reference to "now and for the future" (p.220).
Tideman et al., 2013	Journal of Corporate Citizenship	"Sustainable development is aimed at transforming the correlation between economic growth, the environment and society from negative to positive" (p.18).	Global poverty, global disease, global violence, biodiversity decline and climate change; ecosystems, resources; social inequality.	Concept of "internal and external stakeholders" included but groups not defined	Acknowledgement of stakeholders having "long-term interest" and that "is no longer an option from a long-term survival viewpoint" (p.19).
Zadek, 2013	Journal of Corporate Citizenship	Sustainability defined as "no more or less than acting responsibly, ethically, and with common purpose with those who have less, have been treated badly by history: those who should have more, more to eat, more to earn, and more to say" (p.6).	Anthropomorphic focus; environment		
Beckmann et al., 2014	Business Strategy & the Environment		Ecological, social and governance; ecological, social and economic problems	Employees; Concept of "upstream and downstream stakeholders" included but groups not defined	Long-term focus established through Bruntland definition

Author	Journal	Definition of sustainability (if given)	Topics included within the discussion of the sustainability concept	Stakeholders discussed in relation to sustainability concept	Temporal focus discussed in relation to the sustainability concept
Boiral et al., 2014	Journal of Business Ethics	Environmental leadership is defined as "'the ability to influence individuals and mobilize organizations to realize a vision of long-term ecological sustainability"' (p.364). (Referenced to Egri and Herman, 2000)	Environment	Government; municipalities; customers; employees	Reference to "long-term focus of ecological sustainability" (p.364).
Searcy and Buslovich, 2014	Journal of Business Ethics	"Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (p.150). The Bruntland definition	Economic, environmental, and social performance	Customers; suppliers; employees; communities; investors; shareholders; pressure groups	Long-term focus established through Bruntland definition
Edgeman and Eskildsen, 2014	Business Strategy & the Environment		Environment; people, planet, profit; equity	Society at large; the natural environment	Authors argue that the core of their sustainable enterprise excellence model "should address future and not only present and short-term needs" (p.178).
Gauthier and Genet, 2014	Journal of Business Ethics	For organisations, sustainability "includes the reduction of their negative side-effects on the natural environment and on society" (p.571).	Natural environment, society	Investors; insurers; unions; scientists; civil society; NGOs; the media	
Hahn and Lülfes, 2014	Journal of Business Ethics	Corporate sustainability defined as "'meeting the needs of a firm's direct and indirect stakeholders [...], without compromising its ability to meet the needs of future stakeholders as well'" (p.402) (Referenced to Dyllick and Hockerts, 2002)	Society; environment; economic; human rights; product responsibility	NGOs; policymakers; the media; public authorities; residents; activists; customers; employees	Future orientation of sustainability established by Dyllick and Hockerts' definition.
Hahn et al., 2014	Academy of Management Review	Corporate sustainability defined as activities "demonstrating the inclusion of social and environmental concerns in business operations and in interactions with stakeholders" (p.465) (Referenced to van Marrewijk & Werre, 2003)	Natural environment, social welfare, and economic prosperity; economic as well as environmental and social outcomes; general welfare of society; intergenerational fairness	Concept of a "wider set of stakeholders" included but groups not defined	Future orientation of sustainability established by Dyllick and Hockerts' definition.
Hofmann et al., 2014	Business Strategy & the Environment	Sustainability defined "as the degree to which firms take social and ecological criteria into account beyond minimum legal requirements" (p.162).	Supply chain; social; ecological	Media; competitors; (local) communities; governments; investors; NGOs/social movements; customers; (potential) employees; shareholders/owners; the management team; (labour) unions; suppliers	

Author	Journal	Definition of sustainability (if given)	Topics included within the discussion of the sustainability concept	Stakeholders discussed in relation to sustainability concept	Temporal focus discussed in relation to the sustainability concept
Intezari and Pauleen, 2014	Journal of Business Ethics	Sustainability defined as "an inter-play between social and environmental domains and tries 'to embody an agenda that extends beyond economic viability and environmental regeneration, reaching deeply into the structure of social organization itself by insisting on the key component of social equity and justice'" (p.398). (Referenced to Blauert and Zadek, 1998)	Environment; society	Human rights organisations; environmentalists; larger community; society	
Klettner et al., 2014	Journal of Business Ethics	"We take a broad view of the meaning of corporate responsibility using this term interchangeably with corporate sustainability and CSR which, at its simplest, is a commitment to operating in an economically, socially and environmentally sustainable manner" (p.146).	Economically, socially and environmentally aspects; UNGC principles in the areas of human rights, labour, the environment and anti-corruption	Shareholders; employees; customers; suppliers; local communities; those representing the environment	Authors describe the ultimate long-term aim of a corporation being to increase shareholder value which "involves taking into account the interests of other stakeholders" (p.149).
Lopatta and Kaspereit, 2014	Journal of Business Ethics		Labour standards; environmental and social aspects	Concept of "stakeholders" included but groups not defined	Authors refer to "sustainability projects, which are long term by definition" (p.478).
Lourenço et al., 2014	Journal of Business Ethics	Corporate sustainability (CS) defined as "meeting the needs of a firm's direct and indirect stakeholders (employees, clients, pressure groups, communities, etc.), without compromising its ability to meet the needs of future stakeholders as well." (p.18). (Referenced to Dyllick and Hockerts, 2002) "The notion of CS is nowadays related to issues such as protecting the environment, fighting against poverty, countering corruption, promoting human rights, ensuring health and safety at work" (ibid).	Reputation; environment; poverty; corruption; human rights; health and safety at work	Employees; clients; pressure groups; communities	Future orientation of sustainability established by Dyllick and Hockerts' definition.
Maas et al., 2014	Business Strategy & the Environment		Environment; pollution; environmental communication	Government; academia; general public	Authors characterize comprehensive pollution prevention capabilities as "socially complex ... [and] require long-term efforts" (p.41).
Strand, 2014	Journal of Business Ethics	"Corporate sustainability refers to the integration of economic, environmental, and social considerations on the part of corporations" (p.688).	Economic, environmental, and social considerations; business ethics; stakeholder engagement	Concept of "stakeholders" included but groups not defined	Long term nature of sustainability illustrated in examples presented
Swaim et al., 2014	Journal of Business Ethics	Environmental sustainability defined "as reducing harm to the environment (e.g., management of pollution, emissions, waste, and conservation of natural resources)" (p.465).	Economic and environmental aspects	Customers; government; employees	

Author	Journal	Definition of sustainability (if given)	Topics included within the discussion of the sustainability concept	Stakeholders discussed in relation to sustainability concept	Temporal focus discussed in relation to the sustainability concept
Williams, 2014	Journal of Corporate Citizenship	"Sustainability focuses on the long-term contribution of business to society and the impact of that activity on future generations" (p.13).	Physical environment; social/ethical climate; working conditions in developing countries; human rights; sustainable value; shared value	Customers; team members (employees); investors; vendors; communities; the environment	Long-term focus included in definition.
Wolf, 2014	Journal of Business Ethics	"Sustainable development is often understood to comprise three dimensions: economic, environmental and social" (p.318).	Sustainable supply chain management; social and environmental dimensions of sustainability	Concept of "external stakeholders" included with reference to NGOs and local communities	Long-term focus established through Bruntland definition
de Lange et al., 2015	Business & Society	Corporate sustainability as "an approach to conducting business that encompasses economic, environmental, and social issues in balanced, holistic, and long-term ways that benefit current and future generations of concerned stakeholders" (p.3).	Economic, environmental, and social issues	Concept of "current and future generations of concerned stakeholders" included but groups not defined	Definition includes reference to "current and future generations" (p.3).
Glavas and Mish, 2015	Journal of Business Ethics	Sustainability defined as "caring for the well-being of others and the environment in such a way that value is created for the business" (p.625).	Economic, social, and environmental; climate change; UNGC: environment, human rights, labour, and anti-corruption; people, planet, profit; ethics	Consumers; employees; investors; suppliers; community; government; broader society; direct partners; customers	Authors discuss the need for "long-term success in addressing environmental and social issues while creating economic value" (p.624).
Hahn et al., 2015a	Journal of Business Ethics	Sustainable development "represents a normative concept outlining desirable development paths of societies, which has received increasing attention in the management and organisation literature" (p.298). Corporate sustainability "recognizes that corporate growth and profitability are important, [but] it also requires the corporation to pursue societal goals, specifically those relating to sustainable development— environmental protection, social justice and equity, and economic development" (p.298) (Referenced to Wilson, 2003)	economic, environmental and social issues; environmental protection, social justice and equity, and economic development; welfare of society	Social activists; NGOs; local communities; governments; other firms; investors; scientists	Authors discuss sustainability in context of "intergenerational fairness" (p.465-466) and also emphasize its "long-term nature" (p.466).
Hahn et al., 2015b	Business & Society	Corporate sustainability "goes beyond corporate growth and profitability and also includes a firm's contribution to societal goals of environmental protection, social justice and equity, and economic development" (p.2).	Societal goals of environmental protection, social justice and equity, and economic development; social and environmental issues by for-profit firms; climate change; poverty alleviation and social justice; base of the pyramid; loss of biodiversity; environmental, and social objectives	Concept of "stakeholders" included but groups not defined	Referring to the Bruntland report, authors argue that sustainability includes "a temporal dimension by considering the interests of future generations" (p.6).

Author	Journal	Definition of sustainability (if given)	Topics included within the discussion of the sustainability concept	Stakeholders discussed in relation to sustainability concept	Temporal focus discussed in relation to the sustainability concept
Patel and Rayner, 2015	Business & Society	Corporate Sustainability is "comprised of three core values: (a) economic development (promoting profits, creating jobs, etc.), (b) environmental stewardship (conserving energy and resources, reducing the firm's carbon footprinting, etc.), and (c) social well-being (improving labor standards, delivering socially responsible products and services, etc.)" (p.284).	Economic, environmental, and social issues	Employees; members; community; different sections of society; governing bodies; larger society; specific subsections of society; customers; investors; shareholders	
Schneider, 2015	Journal of Business Ethics	Aim of corporate sustainability defined as "following three principles: 'environmental integrity through corporate environmental management; social equity through corporate social responsibility; economic prosperity through value creation'" (p.526) (Referenced to Bansal, 2005)	Natural environment, economic system, and society at large; eco-efficiency and socio-efficiency; economic, ecological, and social considerations	Concept of "stakeholders" included but groups not defined	Long-term focus established through Bruntland definition
Slawinski et al., 2015	Business & Society		Climate change; greenhouse gas emissions	Governments; international agencies; NGOs	Authors argue that "short-termism has been linked to poor sustainability outcomes at various levels of analysis" (p.6).
Strand and Freeman, 2015	Journal of Business Ethics		Social and environmental sustainability; human rights	Suppliers; governments; local community organisations; owners; consumer advocates; customers; competitors; media; employees; Special Interest Groups; environmentalists	Authors argue "company-stakeholder cooperation is necessary for both long-term firm profitability of companies and the social and environmental sustainability of the world" (p.82).
Strand et al., 2015	Journal of Business Ethics	Sustainability defined as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (p.2) (The Bruntland definition)	Social and environmental issues	Employees; management; local authorities; owners; customers; the state; suppliers	Long-term focus established through Bruntland definition
Wolfgramm et al., 2015	Journal of Business Ethics	Sustainability defined as "balancing the needs of the present with the needs of the future in a societal and environmental sense" (p.650).	Societal and environmental; sustainability leadership; planet; demand for resources; population; food and water security; hyper-consumerism	Shareholders; Concept of "other stakeholders" included but groups not defined	Definition includes "balancing the needs of the present with the needs of the future" (p.650).
Zeidan et al., 2015	Journal of Business Ethics		Equator Principles; economic growth, environmental protection, social progress, socio-economic development, eco-efficiency, and socio-environmental development	Shareholders; Concept of "other stakeholders" included but groups not defined	Authors argue that assessing sustainability should involve considering both "short- and long-term risks and opportunities" (p.283).

Appendix 2 – Consent Statement

Introduction

Thank you for agreeing to participate in this research project. The objective of this research is to investigate the impact that sustainability professionals and other managers have on the sustainability performance of their organisations. Considering organisational culture and a number of other contextual factors, the research aims to provide new practical insights for sustainability professionals in their daily activities.

What is the background and how will the results be used?

This questionnaire forms part of a doctoral study being conducted by the researcher at Henley Business School designed to provide practical research based insights and advice for sustainability professionals as they drive sustainability further into their organisations. You have been approached because of your involvement with, and insight into, the sustainability initiatives within your organisation.

All information collected will be held in strict confidence. Respondents' participation is entirely voluntary and you have the right to withdraw from the project at any time without detriment. The project has been subject to ethical review in accordance with the procedures specified by the University of Reading Research Ethics Committee and has been given a favourable ethical opinion for conduct.

All responses are anonymous and respondents will not be identified by name or organisation in the final thesis or any other report. A practitioner summary report will be made available to all participants at the end of the research. It is understood that by completing the questionnaire you are confirming that you are giving consent for your responses to be used for the purposes of this research project.

The questionnaire should take approximately 15 minutes to complete.

Details of Researcher:
James Robey j.robey@pgr.reading.ac.uk
Doctoral programme, Henley Business School

Appendix 3 – Questionnaire

Note: Questions highlighted in *red and italicised* are reserve coded items.

Introduction

Thank you for agreeing to participate in this research project. The objective of this research is to empirically investigate the impact that sustainability professionals, combined with the organisational culture of their businesses and a number of other contextual drivers, have on the sustainability performance of their business. Specifically, the aim of the questionnaire is to provide practical new insights for sustainability professionals in their daily endeavours.

What is the background and how will the results be used?

This questionnaire forms part of a doctoral study being conducted by the researcher at Henley Business School designed to identify research-based practical insights and advice for sustainability professionals striving to drive sustainability further into their organisations. You have been approached because of your involvement with and insight into the sustainability initiatives within your organisation. A practitioner summary report will be made available to all participants at the end of the research.

All responses are anonymous and respondents will not be identified by name or organisation in the final thesis. All information collected will be held in strict confidence and no reference to your organisation's name will be disclosed in any report or thesis without your specific permission. Respondents' participation is entirely voluntary and you have the right to withdraw from the project at any time without detriment.

This project has been reviewed by the University Research Ethics Committee and been given a favourable ethical opinion for conduct.

It is understood that by completing and returning the questionnaire you are confirming that you are giving consent for your responses to be used for the purposes of this research project.

The questionnaire should take approximately 15-20 minutes to complete.

Details of Researcher:

James Robey j.robey@pgr.reading.ac.uk
Doctoral programme, Henley Business School

Section 1: Name of your Company

Name of Company _____

Please note that this information will be held in strict confidence and no reference to the company's name will be disclosed in any report or thesis without your specific permission. It is being collected here so that additional publicly available demographic information can be collected by the researcher, hence reducing the time required to complete the questionnaire.

Section 2: This section contains a series of statements looking at your view of the drivers of sustainability in your organisation.

From your perspective, please indicate whether you agree or disagree with each statement selecting which of the seven options is true for your business. Only select “not applicable” if the statement is not relevant for your organisation.

In this study, sustainability initiatives are taken to encompass initiatives designed to reduce the organisation’s environmental impacts and / or make a positive social impact on the communities and wider society in which the organisation operates.

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly Agree
1. Our customers / clients put pressure on us to act sustainably	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
2. Our sustainability approach helps us to attract the best talent	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
3. Our shareholders put pressure on us to act sustainably	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
4. Saving money through efficiency initiatives is an important driver of our approach to sustainability	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
5. Our customers / clients choose us based on our sustainability track-record	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
6. Our sustainability initiatives protect us from NGO (pressure group) campaigns	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
7. Sustainability has enabled us to create new revenue streams for our business	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
8. Our sustainability approach helps us to access the natural resources we need to do business	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
9. Our sustainability approach has significantly reduced our energy consumption	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
10. <i>Our customers / clients are disinterested in our sustainability initiatives</i>	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
11. Our employees are motivated by our approach to sustainability	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
12. Our sustainability approach is critical in complying with legislation (environmental, social)	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
13. Sustainability provides us with an opportunity for creating new products and services	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
14. Without our focus on sustainability, we would struggle to secure the natural resources we need	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
15. <i>Our shareholders are disinterested in our approach to sustainability</i>	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
16. Pressure from NGOs (pressure groups) is a key driver of our sustainability approach	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
17. Our sustainability approach helps us to retain our employees	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
18. Our sustainability approach is important in securing the financial capital we need	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
19. Our sustainability approach has significantly reduced the amount of waste we generate	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7

Section 3: This section contains a series of statements looking at sustainability within your organisation.

From your perspective, please indicate whether you agree or disagree with each statement selecting which of the seven options is true for your business. Only select “not applicable” if the statement is not relevant for your organisation.

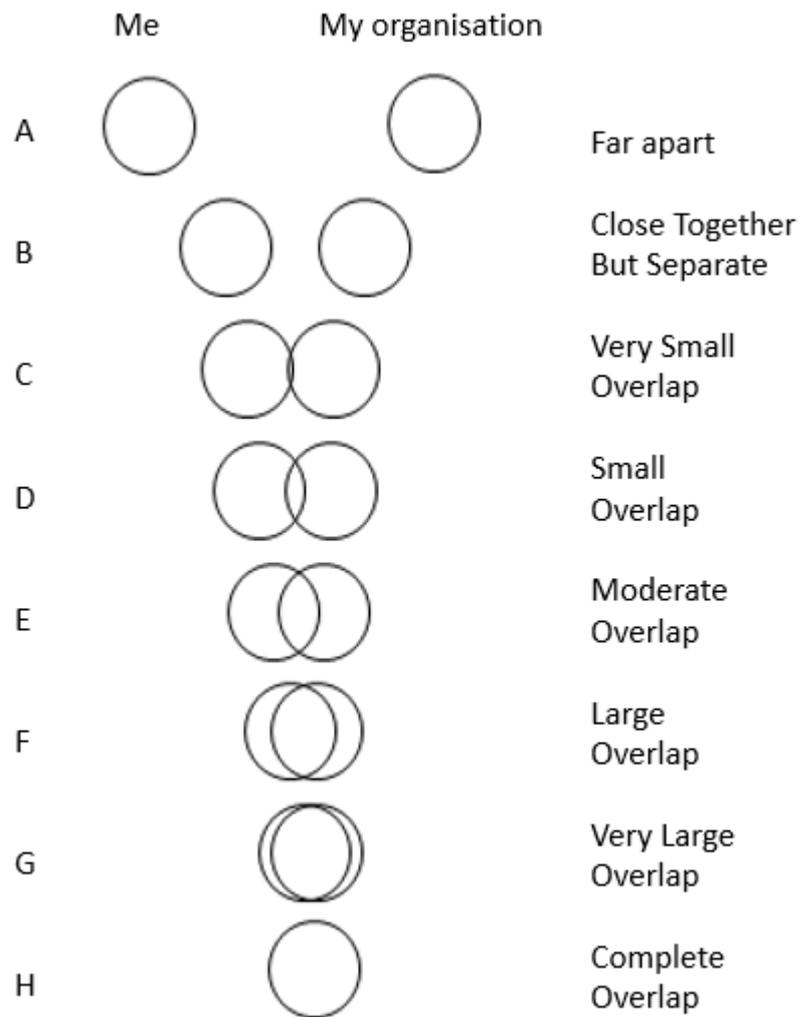
	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly Agree
20. In my organisation, sustainability is seen as a core business function	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
21. My CEO is personally very interested in the subject of sustainability	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
22. In my organisation, sustainability is a key factor in strategic planning	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
23. My CEO is very supportive of sustainability campaigns that are developed	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
24. My organisation walks the talk when it comes to sustainability	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
25. In my organisation, sustainability is planned on a long term horizon (at least 5 to 10 years)	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
26. In my organisation, the sustainability function is seen as an innovator rather than a cost	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
27. Our sustainability initiatives are driven by a desire to be the most sustainable organisation in our sector	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
28. In my organisation, sustainability issues are driving our business strategy	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
29. In my organisation, sustainability reports directly into the CEO	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
30. <i>In my organisation, there is a disconnect between how sustainability is talked about and the behaviours of executives</i>	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
31. <i>In my organisation, the sustainability function is seen as an add-on</i>	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
32. <i>My organisation's sustainability approach is lagging behind those of our competitors</i>	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
33. My organisation does well in sustainability rankings	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
34. My organisation makes a real difference to society as a result of our focus on sustainability	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
35. My organisation wins sustainability awards	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
36. My organisation is reducing its environmental footprint	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
37. My organisation is helping our clients / customers to be more sustainable	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7

Section 4: This section contains is series of questions about your relationship with your organisation.

From your perspective, please indicate whether you agree or disagree with each statement selecting which of the seven options is true for you.

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly Agree
38. My organisation is an organisation that I trust	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
39. Though times may change and the future is uncertain, I know that my organisation will always be willing to offer me support	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
40. If my organisation made me a promise, I am sure that it would be kept	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
41. My self-image overlaps strongly with my organisation's image	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
42. The relationship I have with my organisation is something I intend to maintain for the foreseeable future	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
43. The relationship I have with my organisation is something I am prepared to put a lot of effort into maintaining	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
44. If I left my organisation as an employee, I would continue to support the organisation as much as I could	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
45. I would recommend my organisation as an employer	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
46. I am willing to go the 'extra' mile to make sure my work has an impact	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
47. When someone praises my organisation, it feels like a personal compliment	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
48. When someone criticises my organisation, it feels like a personal insult	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
49. I am very interested in what others think about my organisation	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
50. When I talk about my organisation, I usually say "we" rather than "they"	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
I really care about the fate of this organisation	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7

We sometimes identify with an organisation. Imagine that the circle on the left in each column represents your own personal identity and the other circle, on the right, represents your organisation's identity. Please indicate which case (A, B, C, D, E, F, G or H) best describes the level of overlap between your own and your organisation's identity.



51. Please indicate which case best describes the level of overlap between you and your organisation's identity A B C D E F G H

Section 5: This section contains a series of statements about your personal outlook on the world.

Please indicate whether you agree or disagree with each of the statements below selecting which of the seven options most accurately reflects your personal viewpoint.

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly Agree
52. People may behave in completely different ways, depending on the occasion / circumstances	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
53. All things in the universe have been predetermined	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
54. Success requires showing no concern for the means needed to achieve success	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
55. Hard-working people will achieve more in the end	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
56. People will succeed if they really try	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
57. Human behaviour changes with the social context	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
58. Generous people are often taken advantage of	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
59. Adversity can be overcome by effort	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
60. People don't always behave in a way that reflects how they truly feel	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
61. Fate determines people's successes and failures	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
62. Every problem has a solution	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
63. Kind-hearted people are easily bullied	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
64. Individual characteristics such as our birthday and appearance affect our fate	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
65. Power and status make people arrogant	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
66. Good luck follows if we survive a disaster	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
67. Good deeds will be rewarded, and bad deeds will be punished	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
68. <i>There is usually only one way to solve a problem</i>	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
69. There are ways to help us improve our luck and avoid unlucky things	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
70. Powerful people tend to exploit others	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
71. One has to deal with matters according to the specific circumstances	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7

		Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly Agree
72.	I believe in planning for the long term	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
73.	I work hard for success in the future	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
74.	I am willing to give up today's fun for success in the future	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
75.	I do not give up easily even if I do not succeed on my first attempt	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
76.	I plan everything carefully	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
77.	I consider many alternatives before making any decision	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
78.	I often feel a sense of oneness with the natural world around me	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
79.	I think of the natural world as a community to which I belong	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
80.	<i>I often feel disconnected from nature</i>	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
81.	When I think of my life, I imagine myself to be part of a larger cyclical process of living	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
82.	I have a deep understanding of how my actions affect the natural world	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
83.	Like a tree can be part of a forest, I feel embedded within the broader natural world	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
84.	<i>My personal welfare is independent of the welfare of the natural world</i>	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7

Section 6 contains a series of statements about how you perceive the culture of your business.

This final section contains a list of two opposite descriptions on each line. **For example:**

...	Where I work everybody always smokes	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7	Where I work nobody ever smokes
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If it is true that everybody always smokes where you work, please mark 1. If nobody ever smokes, please mark 7. If the truth is in-between, choose 2, 3, 4, 5 or 6 depending on whether the truth is closer to 1, to 7, or just in-between.

In my organisation:

85.	People are uncomfortable in unfamiliar situations; they try to avoid taking risks	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7	People are comfortable in unfamiliar situations; they do not mind taking risks
86.	<i>There is a strong pressure for getting the job done; there is little concern for personal problems of employees</i>	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7	<i>Personal problems of employees are always taken into account; getting the job done comes second</i>
87.	<i>People's private lives are considered their own business</i>	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7	<i>The norms of our organisation cover people's behaviour both on the job and at home</i>
88.	Our organisation and people are open and transparent to newcomers and outsiders	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7	Our organisation and people are closed and secretive, even among insiders
89.	<i>Everybody is highly conscious of the cost of time and/or materials</i>	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7	<i>Nobody ever thinks of the cost of time and/or materials</i>
90.	<i>The major emphasis is on meeting the needs of the customer</i>	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7	<i>The major emphasis is on correctly following organisational procedures</i>
91.	People spend the least effort possible	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7	Everybody always put in a maximum effort
92.	Our company/organisation takes a major responsibility for the welfare of its employees and their families	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7	Our company/organisation is only interested in the work our employees
93.	<i>Job competence is the only criterion used for hiring people; their background does not influence the decision</i>	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7	<i>People from the right family, social class, or school background have a better chance of being hired</i>
94.	Almost anyone would fit into our organisation	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7	Only very special people fit into our organisation
95.	<i>Meeting times are kept very punctually</i>	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7	<i>Meeting times are only kept approximately</i>
96.	Correct procedures are more important than results	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7	Results are more important than following correct procedures
97.	<i>Each day brings new challenges</i>	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7	<i>Each day is pretty much the same</i>
98.	<i>All important decisions are taken by individuals</i>	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7	<i>All important decisions are taken by groups or committees</i>
99.	We do not think more than a day ahead	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7	We think three years ahead or more
100.	<i>New employees usually need more than a year before they feel at home</i>	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7	<i>New employees usually need only a few days to feel at home</i>
101.	We make a lot of jokes about the company / organisations and our job	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7	We always speak seriously of the company / organisation and our job
102.	We have high standards of business ethics and honesty, even at the expense of short-term results	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7	In matters of business ethics, we are pragmatic, not dogmatic

Section 7 - Demographic questions

Please indicate your role: Chief Executive Officer / Managing Director
 Chief Financial Officer / Finance Director
 Sustainability Director
 Other Functional Director *please specify* _____
 Sustainability Manager
 Other Functional Manager *please specify* _____
 Other *please specify* _____

Time with organisation: under 2 years 2 to 5 years 6 to 10 years over 10 years

Gender: Male Female

Age: under 25 25 to 34 35 to 44
 45 to 54 55 to 64 65 and over

Nationality: *please specify* _____

Thank you for completing the questionnaire.

If you would be willing to participate in a short (15 – 20 minute) telephone interview exploring some of these themes in greater depth, please complete your contact details below.

Name: _____

Email: _____

Telephone: _____

If you would like to receive a practitioner summary report detailing the outcomes of this research, please tick here:

Email: _____

Appendix 4 – Assessments of Normality

All items were measured on a seven-point Likert-type scale except item 51 which was measured on an eight-point visual identification scale (see section 5.5.1). Skewness and Kurtosis measures were considered at the $p = 0.05$ level (i.e. Zskew and Zkurt greater than $+ / - 1.96$).

- $Z_{skew} = \text{skewness} / \text{standard error of skewness} = \text{skewness} / (\sqrt{6/N})$
- $Z_{kurt} = \text{kurtosis} / \text{standard error of kurtosis} = \text{kurtosis} / (\sqrt{24/N})$
- Shaded areas of table indicate the presence of significant levels of skewness / kurtosis in the distribution of the responses to that item

Table A4.1: Assessment of Normality for all questionnaire items

ID	Question	N	Missing values	Mean	Standard Deviation	Skewness	Zskew (Standard error = 0.183)	Kurtosis	Zkurt (Standard error = 0.363)
Part 1 - Questions related to the business drivers of sustainability									
1	Our customers / clients put pressure on us to act sustainably	177	0	5.068	1.384	-0.890	-4.874	0.286	0.788
2	Our sustainability approach helps us to attract the best talent	177	0	5.277	1.111	-0.817	-4.477	1.240	3.415
3	Our shareholders / owners put pressure on us to act sustainably	177	0	5.068	1.338	-0.701	-3.837	-0.056	-0.153
4	Saving money through efficiency initiatives is an important driver of our approach to sustainability	177	0	5.763	1.319	-1.207	-6.614	1.231	3.390
5	Our customers / clients choose us based on our sustainability track-record	177	0	4.277	1.417	-0.489	-2.680	-0.457	-1.259
6	Our sustainability initiatives protect us from NGO (pressure group) campaigns	177	0	4.706	1.281	-0.369	-2.023	-0.416	-1.146
7	Sustainability has enabled us to create new revenue streams for our business	177	0	4.825	1.537	-0.576	-3.155	-0.376	-1.035
8	Our sustainability approach helps us to access the natural resources we need to do business	177	0	4.226	1.565	-0.156	-0.856	-0.670	-1.843
9	Our sustainability approach has significantly reduced our energy consumption	177	0	5.486	1.244	-0.900	-4.927	0.870	2.395
10	Our customers / clients are disinterested in our sustainability initiatives (reverse coded item)	177	0	4.944	1.364	-0.576	-3.156	-0.483	-1.331
11	Our employees are motivated by our approach to sustainability	177	0	5.356	1.094	-1.194	-6.538	2.226	6.128
12	Our sustainability approach is critical in complying with legislation (environmental, social)	177	0	5.763	1.178	-1.196	-6.553	1.512	4.162
13	Sustainability provides us with an opportunity for creating new products and services	177	0	5.520	1.306	-1.081	-5.920	1.046	2.879
14	Without our focus on sustainability, we would struggle to secure the natural resources we need	177	0	3.718	1.630	0.329	1.805	-0.598	-1.647
15	Our shareholders / owners are disinterested in our approach to sustainability (reverse coded item)	177	0	4.977	1.469	-0.363	-1.987	-0.825	-2.272
16	Pressure from NGOs (pressure groups) is a key driver of our sustainability approach	177	0	3.576	1.608	0.341	1.870	-0.867	-2.388
17	Our sustainability approach helps us to retain our employees	177	0	4.763	1.197	-0.497	-2.722	0.353	0.971
18	Our sustainability approach is important in securing the financial capital we need	177	0	3.938	1.527	-0.078	-0.428	-0.800	-2.204
19	Our sustainability approach has significantly reduced the amount of waste we generate	177	0	5.520	1.225	-1.171	-6.415	1.932	5.320

ID	Question	N	Missing values	Mean	Standard Deviation	Skewness	Zskew (Standard error = 0.183)	Kurtosis	Zkurt (Standard error = 0.363)
Part 2 - Questions related to sustainability within the respondent's organisation									
20	In my organisation, sustainability is seen as a core business function	177	0	4.814	1.717	-0.565	-3.095	-0.699	-1.926
21	My CEO is personally very interested in the subject of sustainability	177	0	5.446	1.518	-1.025	-5.611	0.354	0.975
22	In my organisation, sustainability is a key factor in strategic planning	177	0	4.678	1.571	-0.351	-1.924	-0.755	-2.078
23	My CEO is very supportive of sustainability campaigns that are developed	177	0	5.503	1.302	-0.936	-5.128	0.785	2.161
24	My organisation walks the talk when it comes to sustainability	177	0	5.311	1.382	-1.032	-5.652	0.920	2.534
25	In my organisation, sustainability is planned on a long term horizon (at least 5 to 10 years)	177	0	5.107	1.704	-0.908	-4.974	-0.141	-0.388
26	In my organisation, the sustainability function is seen as an innovator rather than a cost	177	0	4.638	1.479	-0.466	-2.552	-0.500	-1.375
27	Our sustainability initiatives are driven by a desire to be the most sustainable organisation in our sector	177	0	4.864	1.782	-0.531	-2.906	-0.846	-2.330
28	In my organisation, sustainability issues are driving our business strategy	177	0	4.367	1.697	-0.280	-1.535	-0.868	-2.391
29	In my organisation, sustainability reports directly into the CEO	177	0	3.780	2.242	0.203	1.111	-1.562	-4.302
30	In my organisation, there is a disconnect between how sustainability is talked about and the behaviours of executives (reverse coded item)	177	0	4.136	1.646	0.036	0.195	-1.174	-3.231
31	In my organisation, the sustainability function is seen as an add-on (reverse coded item)	177	0	4.362	1.710	-0.074	-0.408	-1.125	-3.097
32	My organisation's sustainability approach is lagging behind those of our competitors (reverse coded item)	177	0	5.090	1.726	-0.751	-4.113	-0.471	-1.297
33	My organisation does well in sustainability rankings	177	0	5.486	1.439	-1.095	-5.997	0.850	2.342
34	My organisation makes a real difference to society as a result of our focus on sustainability	177	0	5.333	1.449	-0.883	-4.834	0.450	1.239
35	My organisation wins sustainability awards	177	0	5.418	1.594	-1.195	-6.544	0.847	2.333
36	My organisation is reducing its environmental footprint	177	0	5.887	1.112	-1.553	-8.507	3.398	9.356
37	My organisation is helping our clients / customers to be more sustainable	177	0	5.469	1.243	-1.094	-5.994	1.863	5.130

ID	Question	N	Missing values	Mean	Standard Deviation	Skewness	Zskew (Standard error = 0.183)	Kurtosis	Zkurt (Standard error = 0.363)
Part 3 - Questions related to the respondent's relationship with their organisation									
38	My organisation is an organisation that I trust	177	0	5.870	1.061	-1.557	-8.530	3.751	10.329
39	Though times may change and the future is uncertain, I know that my organisation will always be willing to offer me support	177	0	5.441	1.200	-1.104	-6.049	1.285	3.537
40	If my organisation made me a promise, I am sure that it would be kept	177	0	5.356	1.203	-0.934	-5.117	0.768	2.114
41	My self-image overlaps strongly with my organisation's image	177	0	4.785	1.492	-0.685	-3.751	-0.149	-0.411
42	The relationship I have with my organisation is something I intend to maintain for the foreseeable future	177	0	5.418	1.424	-1.270	-6.958	1.057	2.909
43	The relationship I have with my organisation is something I am prepared to put a lot of effort into maintaining	177	0	5.684	1.154	-1.332	-7.296	2.426	6.678
44	If I left my organisation as an employee, I would continue to support the organisation as much as I could	177	0	5.277	1.269	-1.091	-5.978	1.644	4.526
45	I would recommend my organisation as an employer	177	0	5.859	1.075	-1.296	-7.097	2.597	7.151
46	I am willing to go the 'extra' mile to make sure my work has an impact	177	0	6.458	0.715	-1.501	-8.223	3.183	8.765
47	When someone praises my organisation, it feels like a personal compliment	177	0	5.706	1.145	-1.333	-7.301	2.709	7.459
48	When someone criticises my organisation, it feels like a personal insult	177	0	4.678	1.542	-0.405	-2.219	-0.673	-1.853
49	I am very interested in what others think about my organisation	177	0	5.593	1.115	-1.083	-5.934	1.825	5.025
50	When I talk about my organisation, I usually say "we" rather than "they"	177	0	5.955	1.076	-1.489	-8.153	3.426	9.434
51	Please indicate which case best describes the level of overlap between you and your organisation's identity	177	0	5.023	1.450	-0.888	-4.866	0.738	2.031

ID	Question	N	Missing values	Mean	Standard Deviation	Skewness	Zskew (Standard error = 0.183)	Kurtosis	Zkurt (Standard error = 0.363)
Part 4 - Questions related to the respondent's personal beliefs									
52	People may behave in completely different ways, depending on the occasion / circumstances	177	0	5.718	1.055	-1.234	-6.756	2.294	6.316
53	All things in the universe have been predetermined	177	0	2.243	1.431	1.081	5.922	0.185	0.509
54	Success requires showing no concern for the means needed to achieve success	177	0	1.904	1.233	1.842	10.089	3.380	9.306
55	Hard-working people will achieve more in the end	177	0	5.266	1.383	-0.801	-4.386	0.069	0.191
56	People will succeed if they really try	177	0	5.282	1.138	-0.621	-3.399	0.566	1.558
57	Human behaviour changes with the social context	177	0	5.842	0.851	-0.640	-3.507	0.543	1.494
58	Generous people are often taken advantage of	177	0	4.350	1.362	-0.288	-1.577	-0.331	-0.913
59	Adversity can be overcome by effort	177	0	5.373	0.871	-0.543	-2.976	1.169	3.217
60	People don't always behave in a way that reflects how they truly feel	177	0	5.610	0.860	-0.889	-4.871	1.864	5.132
61	Fate determines people's successes and failures	177	0	2.475	1.489	0.933	5.108	-0.074	-0.203
62	Every problem has a solution	177	0	5.226	1.487	-0.951	-5.209	0.056	0.154
63	Kind-hearted people are easily bullied	177	0	3.266	1.370	0.313	1.717	-0.603	-1.660
64	Individual characteristics such as our birthday and appearance affect our fate	177	0	2.853	1.617	0.388	2.124	-1.136	-3.128
65	Power and status make people arrogant	177	0	4.130	1.314	-0.471	-2.577	-0.544	-1.498
66	Good luck follows if we survive a disaster	177	0	2.463	1.406	0.560	3.065	-0.863	-2.375
67	Good deeds will be rewarded, and bad deeds will be punished	177	0	3.729	1.517	-0.193	-1.055	-0.730	-2.009
68	There is usually only one way to solve a problem (reverse coded item)	177	0	6.288	0.912	-1.787	-9.788	4.286	11.802
69	There are ways to help us improve our luck and avoid unlucky things	177	0	3.881	1.788	-0.308	-1.688	-1.077	-2.964
70	Powerful people tend to exploit others	177	0	3.853	1.357	-0.254	-1.392	-0.714	-1.967

ID	Question	N	Missing values	Mean	Standard Deviation	Skewness	Zskew (Standard error = 0.183)	Kurtosis	Zkurt (Standard error = 0.363)
Part 4 (Continued) - Questions related to the respondent's personal beliefs									
71	One has to deal with matters according to the specific circumstances	177	0	5.616	0.947	-0.947	-5.187	1.633	4.496
72	I believe in planning for the long term	177	0	5.966	1.076	-1.592	-8.722	3.314	9.123
73	I work hard for success in the future	177	0	6.119	0.748	-0.691	-3.785	0.486	1.339
74	I am willing to give up today's fun for success in the future	177	0	5.203	1.236	-0.577	-3.161	0.044	0.120
75	I do not give up easily even if I do not succeed on my first attempt	177	0	6.056	0.781	-1.039	-5.692	2.146	5.908
76	I plan everything carefully	177	0	5.011	1.319	-0.442	-2.422	-0.528	-1.453
77	I consider many alternatives before making any decision	177	0	5.424	1.031	-0.924	-5.062	1.430	3.938
78	I often feel a sense of oneness with the natural world around me	177	0	4.960	1.311	-0.247	-1.354	-0.554	-1.526
79	I think of the natural world as a community to which I belong	177	0	5.429	1.233	-0.609	-3.335	-0.293	-0.807
80	I often feel disconnected from nature (reverse coded item)	177	0	5.226	1.290	-0.655	-3.586	-0.402	-1.106
81	When I think of my life, I imagine myself to be part of a larger cyclical process of living	177	0	5.056	1.417	-0.561	-3.074	-0.320	-0.881
82	I have a deep understanding of how my actions affect the natural world	177	0	5.356	1.099	-0.848	-4.647	1.065	2.932
83	Like a tree can be part of a forest, I feel embedded within the broader natural world	177	0	4.825	1.343	-0.444	-2.431	-0.254	-0.700
84	My personal welfare is independent of the welfare of the natural world (reverse coded item)	177	0	4.881	1.804	-0.673	-3.685	-0.654	-1.799

ID	Question	N	Missing values	Mean	Standard Deviation	Skewness	Zskew (Standard error = 0.183)	Kurtosis	Zkurt (Standard error = 0.363)
Part 5 - Questions related to the culture of the respondent's organisation									
85	People are uncomfortable in unfamiliar situations; they try to avoid taking risks	174	3	3.770	1.476	0.120	0.657	-0.945	-2.602
86	There is a strong pressure for getting the job done; there is little concern for personal problems of employees (reverse coded item)	174	3	4.109	1.256	0.199	1.089	-0.518	-1.427
87	People's private lives are considered their own business (reverse coded item)	174	3	4.356	1.377	0.075	0.412	-0.871	-2.399
88	Our organisation and people are open and transparent to newcomers and outsiders	174	3	3.086	1.401	0.368	2.014	-0.759	-2.089
89	Everybody is highly conscious of the cost of time and/or materials (reverse coded item)	174	3	5.172	1.332	-0.573	-3.140	-0.319	-0.879
90	The major emphasis is on meeting the needs of the customer (reverse coded item)	174	3	5.161	1.393	-0.733	-4.017	0.043	0.120
91	People spend the least effort possible	174	3	5.207	1.114	-1.078	-5.907	1.964	5.408
92	Our company/organisation takes a major responsibility for the welfare of its employees and their families	174	3	2.994	1.366	0.726	3.974	0.028	0.076
93	Job competence is the only criterion used for hiring people; their background does not influence the decision (reverse coded item)	174	3	5.224	1.419	-0.784	-4.296	0.077	0.211
94	Almost anyone would fit into our organisation	174	3	3.638	1.273	-0.279	-1.529	-0.787	-2.167
95	Meeting times are kept very punctually (reverse coded item)	174	3	4.402	1.458	-0.172	-0.943	-0.986	-2.716
96	Correct procedures are more important than results	174	3	4.443	1.270	-0.281	-1.539	-0.187	-0.515
97	Each day brings new challenges (reverse coded item)	174	3	5.477	1.324	-1.158	-6.344	1.371	3.774
98	All important decisions are taken by individuals (reverse coded item)	174	3	3.511	1.433	0.227	1.242	-0.613	-1.688
99	We do not think more than a day ahead	174	3	5.195	1.329	-0.499	-2.736	-0.236	-0.650
100	New employees usually need more than a year before they feel at home (reverse coded item)	174	3	3.862	1.391	0.367	2.011	-0.295	-0.811
101	We make a lot of jokes about the company / organisations and our job	174	3	4.241	1.244	0.023	0.126	-0.485	-1.337
102	We have high standards of business ethics and honesty, even at the expense of short-term results	174	3	2.569	1.452	0.899	4.924	0.346	0.953

Appendix 5 – Scale Reliability Assessment

Table A5.1: Scale Reliability – Business Drivers of Corporate Sustainability scales

ID	Question	Scale mean if deleted	Scale variance if deleted	Item-total correlation	Squared Multiple Correlation	Alpha if item deleted
Client scale (5 item scale, no items removed) Cronbach Alpha = 0.717						
1	Our customers / clients put pressure on us to act sustainably	19.560	15.611	0.509	0.355	0.656
5	Our customers / clients choose us based on our sustainability track-record	20.360	15.140	0.540	0.293	0.643
7	Sustainability has enabled us to create new revenue streams for our business	19.810	15.065	0.475	0.333	0.670
10	Our customers / clients are disinterested in our sustainability initiatives (reverse coded item)	19.690	16.579	0.419	0.326	0.691
13	Sustainability provides us with an opportunity for creating new products and services	19.110	16.749	0.434	0.298	0.685
Efficiency scale (3 item scale, item number 12 removed) Cronbach Alpha = 0.680						
4	Saving money through efficiency initiatives is an important driver of our approach to sustainability	11.010	4.437	0.465	0.217	0.626
9	Our sustainability approach has significantly reduced our energy consumption	11.280	4.454	0.525	0.278	0.545
19	Our sustainability approach has significantly reduced the amount of waste we generate	11.250	4.654	0.493	0.250	0.588
Employee scale (3 item scale, no items removed) Cronbach Alpha = 0.807						
2	Our sustainability approach helps us to attract the best talent	10.120	4.253	0.628	0.396	0.764
11	Our employees are motivated by our approach to sustainability	10.040	4.231	0.653	0.432	0.739
17	Our sustainability approach helps us to retain our employees	10.630	3.745	0.688	0.475	0.701
Owner scale (3 item scale, no items removed) Cronbach Alpha = 0.759						
3	Our shareholders / owners put pressure on us to act sustainably	8.920	6.408	0.653	0.483	0.599
15	Our shareholders / owners are disinterested in our approach to sustainability (reverse coded item)	9.010	5.881	0.643	0.481	0.598
18*	Our sustainability approach is important in securing the financial capital we need	10.050	6.612	0.468	0.219	0.805
NGO / natural resources scale (3 item scale, item number 16 removed) Cronbach Alpha = 0.650						
6	Our sustainability initiatives protect us from NGO (pressure group) campaigns	7.940	8.099	0.312	0.171	0.739
8	Our sustainability approach helps us to access the natural resources we need to do business	8.420	4.961	0.660	0.442	0.267
14	Without our focus on sustainability, we would struggle to secure the natural resources we need	8.930	5.700	0.469	0.351	0.565

* Item 18 was retained despite lowering the overall Cronbach Alpha, as Cronbach Alpha score > 0.070

Table A5.2: Scale Reliability – Organisational Commitment and Performance scales

ID	Question	Scale mean if deleted	Scale variance if deleted	Item-total correlation	Squared Multiple Correlation	Alpha if item deleted
CEO commitment scale (3 item scale, no items removed) Cronbach Alpha = 0.732						
21	My CEO is personally very interested in the subject of sustainability	9.280	9.056	0.686	0.666	0.516
23	My CEO is very supportive of sustainability campaigns that are developed	9.230	10.426	0.655	0.646	0.594
29*	In my organisation, sustainability reports directly into the CEO	10.950	7.174	0.452	0.210	0.885
Organisational commitment scale (9 item scale, no items removed) Cronbach Alpha = 0.919						
20	In my organisation, sustainability is seen as a core business function	37.460	102.261	0.756	0.598	0.906
22	In my organisation, sustainability is a key factor in strategic planning	37.600	103.117	0.811	0.721	0.903
24	My organisation walks the talk when it comes to sustainability	36.970	108.374	0.736	0.569	0.909
25	In my organisation, sustainability is planned on a long term horizon (at least 5 to 10 years)	37.170	105.392	0.662	0.469	0.913
26	In my organisation, the sustainability function is seen as an innovator rather than a cost	37.640	106.187	0.758	0.600	0.907
27	Our sustainability initiatives are driven by a desire to be the most sustainable organisation in our sector	37.410	104.016	0.668	0.496	0.913
28	In my organisation, sustainability issues are driving our business strategy	37.910	101.549	0.790	0.707	0.904
30	In my organisation, there is a disconnect between how sustainability is talked about and the behaviours of executives (reverse coded item)	38.140	105.963	0.673	0.520	0.912
31	In my organisation, the sustainability function is seen as an add-on (reverse coded item)	37.920	107.487	0.594	0.410	0.918
Corporate sustainability performance scale (4 item scale, items 32 and 37 removed) Cronbach Alpha = 0.809						
33	My organisation does well in sustainability rankings	16.640	11.812	0.641	0.420	0.754
34	My organisation makes a real difference to society as a result of our focus on sustainability	16.790	11.473	0.678	0.472	0.736
35	My organisation wins sustainability awards	16.710	10.561	0.688	0.498	0.732
36	My organisation is reducing its environmental footprint	16.240	14.546	0.523	0.285	0.808

* Item 29 was retained despite lowering the overall Cronbach Alpha, as Cronbach Alpha score > 0.070

Table A5.3: Scale Reliability – Sustainability Practitioner Engagement scales

ID	Question	Scale mean if deleted	Scale variance if deleted	Item-total correlation	Squared Multiple Correlation	Alpha if item deleted
Sustainability practitioner trust scale (3 item scale, no items removed) Cronbach Alpha = 0.877						
38	My organisation is an organisation that I trust	10.800	5.106	0.714	0.518	0.869
39	Though times may change and the future is uncertain, I know that my organisation will always be willing to offer me support	11.230	4.210	0.813	0.664	0.778
40	If my organisation made me a promise, I am sure that it would be kept	11.310	4.352	0.769	0.611	0.821
Sustainability practitioner identification scale (6 item scale, no items removed) Cronbach Alpha = 0.844						
41	My self-image overlaps strongly with my organisation's image	26.950	23.407	0.656	0.510	0.813
47	When someone praises my organisation, it feels like a personal compliment	26.030	25.715	0.696	0.515	0.807
48	When someone criticises my organisation, it feels like a personal insult	27.060	23.229	0.639	0.467	0.817
49	I am very interested in what others think about my organisation	26.150	28.103	0.487	0.302	0.842
50	When I talk about my organisation, I usually say "we" rather than "they"	25.790	26.238	0.699	0.508	0.809
51	Please indicate which case best describes the level of overlap between you and your organisation's identity	26.720	24.136	0.622	0.473	0.819
Sustainability practitioner intention scale (5 item scale, item 46 removed) Cronbach Alpha = 0.861						
42	The relationship I have with my organisation is something I intend to maintain for the foreseeable future	23.280	11.645	0.697	0.626	0.806
43	The relationship I have with my organisation is something I am prepared to put a lot of effort into maintaining	23.010	12.557	0.803	0.689	0.770
44	If I left my organisation as an employee, I would continue to support the organisation as much as I could	23.420	12.961	0.644	0.472	0.816
45	I would recommend my organisation as an employer	22.840	13.547	0.726	0.539	0.794

Table A5.4: Scale Reliability – Sustainability Practitioner Social Axiom scales

ID	Question	Scale mean if deleted	Scale variance if deleted	Item-total correlation	Squared Multiple Correlation	Alpha if item deleted
Social Complexity scale (3 item scale, items 68 and 71 removed) Cronbach Alpha = 0.579						
52	People may behave in completely different ways, depending on the occasion / circumstances	11.450	1.863	0.425	0.183	0.428
57	Human behaviour changes with the social context	11.330	2.415	0.400	0.163	0.466
60	People don't always behave in a way that reflects how they truly feel	11.560	2.498	0.354	0.125	0.529
Fate control scale (5 item scale, no items removed) Cronbach Alpha = 0.675						
53	All things in the universe have been predetermined	11.670	18.392	0.470	0.334	0.608
61	Fate determines people's successes and failures	11.440	18.884	0.395	0.297	0.639
64	Individual characteristics such as our birthday and appearance affect our fate	11.060	17.672	0.436	0.229	0.621
66	Good luck follows if we survive a disaster	11.450	17.908	0.532	0.293	0.583
69	There are ways to help us improve our luck and avoid unlucky things	10.030	17.840	0.343	0.160	0.671
Cynicism scale (5 item scale, no items removed) Cronbach Alpha = 0.729						
54	Success requires showing no concern for the means needed to achieve success	15.600	16.526	0.310	0.112	0.744
58	Generous people are often taken advantage of	13.150	13.835	0.539	0.385	0.662
63	Kind-hearted people are easily bullied	14.240	13.943	0.521	0.336	0.669
65	Power and status make people arrogant	13.370	14.553	0.486	0.332	0.684
70	Powerful people tend to exploit others	13.650	13.411	0.593	0.430	0.640
Reward for Application scale (4 item scale, item 67 removed) Cronbach Alpha = 0.657						
55	Hard-working people will achieve more in the end	15.880	7.514	0.394	0.187	0.649
56	People will succeed if they really try	15.860	7.413	0.597	0.360	0.513
59	Adversity can be overcome by effort	15.770	9.335	0.436	0.196	0.630
62	Every problem has a solution	15.920	6.732	0.450	0.259	0.617

Table A5.5: Scale Reliability – Sustainability practitioner Term Orientation and Connectedness to Nature scales

ID	Question	Scale mean if deleted	Scale variance if deleted	Item-total correlation	Squared Multiple Correlation	Alpha if item deleted
Personal term orientation scale (6 item scale, no items removed) Cronbach Alpha = 0.729						
72	I believe in planning for the long term	27.810	11.607	0.573	0.394	0.658
73	I work hard for success in the future	27.660	13.305	0.569	0.389	0.677
74	I am willing to give up today's fun for success in the future	28.580	12.427	0.346	0.189	0.734
75	I do not give up easily even if I do not succeed on my first attempt	27.720	13.951	0.412	0.187	0.708
76	I plan everything carefully	28.770	10.724	0.522	0.369	0.677
77	I consider many alternatives before making any decision	28.360	12.515	0.465	0.311	0.691
Connectedness to Nature scale (6 item scale, item 84 removed) Cronbach Alpha = 0.816						
78	I often feel a sense of oneness with the natural world around me	25.890	21.562	0.633	0.477	0.774
79	I think of the natural world as a community to which I belong	25.420	21.359	0.712	0.551	0.758
80	I often feel disconnected from nature (reverse coded item)	25.630	24.337	0.392	0.210	0.826
81	When I think of my life, I imagine myself to be part of a larger cyclical process of living	25.800	21.720	0.550	0.410	0.794
82	I have a deep understanding of how my actions affect the natural world	25.500	24.513	0.484	0.295	0.806
83	Like a tree can be part of a forest, I feel embedded within the broader natural world	26.030	20.391	0.725	0.555	0.752

Table A5.6: Scale Reliability – Organisational Culture scales

ID	Question	Scale mean if deleted	Scale variance if deleted	Item-total correlation	Squared Multiple Correlation	Alpha if item deleted
Process vs. Results orientation scale (2 item scale, item 85 removed) Cronbach Alpha = 0.498						
91	People spend the least effort possible	5.480	1.754	0.336	0.113	.
97	Each day brings new challenges (reverse coded item)	5.210	1.240	0.336	0.113	.
Employee vs. Job orientation scale (No feasible scale available)						
Parochial vs. Professional scale (No feasible scale available)						
Open vs. Closed scale (2 item scale, item 94 removed) Cronbach Alpha = 0.474						
88	Our organisation and people are open and transparent to newcomers and outsiders	3.860	1.935	0.401	0.160	.
100	New employees usually need more than a year before they feel at home (reverse coded item)	3.090	1.964	0.401	0.160	.
Loose vs. Tight scale (2 item scale, item 101 removed) Cronbach Alpha = 0.448						
89	Everybody is highly conscious of the cost of time and/or materials (reverse coded item)	4.400	2.126	0.339	0.115	.
95	Meeting times are kept very punctually (reverse coded item)	5.170	1.774	0.339	0.115	.
Normative vs. Pragmatic scale (No feasible scale available)						

Table A5.7: Descriptive Statistics for Final Scales

Scales	N	Minimum	Maximum	Mean	Std. Deviation
Business Drivers of Corporate Sustainability scales					
Client scale	177	1.40	7.00	4.927	0.961
Efficiency scale	177	2.33	7.00	5.589	0.986
Employee scale	177	1.00	7.00	5.132	0.964
Owner scale	177	2.00	7.00	4.661	1.184
NGO / natural resources scale	177	1.67	7.00	4.217	1.155
Organisational Commitment and Corporate Sustainability Performance scales					
CEO commitment scale	177	1.33	7.00	4.910	1.400
Organisational commitment scale	177	1.33	7.00	4.697	1.274
Sustainability performance scale	177	1.00	7.00	5.531	1.124
Sustainability practitioner engagement scales					
Practitioner trust scale	177	1.00	7.00	5.556	1.036
Practitioner identification scale	177	2.10	6.86	5.194	0.961
Practitioner intention scale	177	1.00	7.00	5.559	1.039
Sustainability practitioner social axiom scales					
Social Complexity scale	177	3.67	7.00	5.723	0.683
Fate control scale	177	1.00	5.40	2.783	1.024
Cynicism scale	177	1.00	5.80	3.501	0.920
Reward for Application scale	177	2.75	7.00	5.287	0.881
Sustainability practitioner temporal orientation and connectedness to nature scales					
Personal temporal orientation scale	177	3.83	7.00	5.630	0.687
Connectedness to nature scale	177	2.67	7.00	5.142	0.928
Organisational culture scales					
Process vs. Results orientation scale	174	1.00	7.00	5.342	0.998
Open vs. Closed scale	174	1.00	6.50	3.474	1.168
Loose vs. Tight scale	174	1.50	7.00	4.787	1.142

Appendix 6 – Assessment of Core PLS Model

Table A6.1: Composite Reliability score for Reflective Measures

	Cronbach Alpha	Composite Reliability
CEO Commitment	0.732	0.877
Organisational Commitment	0.919	0.934
Corporate Sustainability Performance	0.809	0.874
Sustainability Practitioner Intention	0.844	0.909

Table A6.2: Outer loadings and Cross-loadings of Reflective Measures

Item	CEO Commitment	Organisational Commitment	Corporate Sustainability Performance	Sustainability Practitioner Intention
21	0.925	0.685	0.440	0.484
23	0.915	0.722	0.536	0.461
29	0.657	0.488	0.263	0.281
20	0.700	0.821	0.569	0.413
22	0.667	0.862	0.514	0.380
24	0.667	0.804	0.672	0.478
25	0.539	0.734	0.516	0.254
26	0.585	0.816	0.600	0.362
27	0.551	0.747	0.581	0.269
28	0.592	0.845	0.543	0.328
30	0.580	0.743	0.467	0.408
31	0.444	0.661	0.371	0.297
33	0.412	0.496	0.777	0.199
34	0.462	0.669	0.864	0.470
35	0.402	0.571	0.823	0.214
36	0.333	0.434	0.719	0.300
42	0.472	0.463	0.337	0.843
43	0.405	0.389	0.302	0.891
44	0.378	0.282	0.277	0.800
45	0.430	0.409	0.405	0.846

Note: figures in bold represent the item loadings on the four hypothesised scales

Table A6.3: Average Variance Extracted (AVE) for Reflective Measures

	Average Variance Extracted
CEO Commitment	0.708
Organisational Commitment	0.615
Corporate Sustainability Performance	0.636
Sustainability Practitioner Intention	0.715

Table A6.4: Construct Cross-correlation Matrix for Reflective Measures

	CEO Commitment	Organisational Commitment	Corporate Sustainability Performance	Sustainability Practitioner Intention
CEO Commitment	0.841			
Organisational Commitment	0.761	0.784		
Corporate Sustainability Performance	0.508	0.692	0.798	
Sustainability Practitioner Intention	0.498	0.457	0.391	0.846

Note: figures in bold represent the square-root of the AVE for the construct

Table A6.5: Outer-weights for Formative Measures

Items	Original Sample (O)	Sample Mean (M)	Standard Error	t statistic	p value
Client driver scale -> Sustainability driver construct	0.359	0.353	0.108	3.320	0.001
Efficiency driver scale -> Sustainability driver construct	0.138	0.133	0.094	1.459	0.145
Employee drivers scale -> Sustainability driver construct	0.461	0.458	0.082	5.623	0.000
NGO / resources driver scale -> Sustainability driver construct	0.189	0.192	0.091	2.083	0.037
Owner driver scale -> Sustainability driver construct	0.213	0.208	0.102	2.090	0.037
Identification scale -> Practitioner engagement construct	0.429	0.434	0.081	5.328	0.000
Trust scale -> Practitioner engagement construct	0.674	0.669	0.072	9.346	0.000

Table A6.6: Outer-loadings for Formative Measures

	Original Sample (O)	Sample Mean (M)	Standard Error	t statistic	p value
Client driver scale -> Sustainability driver construct	0.814	0.802	0.059	13.792	0.000
Efficiency driver scale -> Sustainability driver construct	0.554	0.543	0.093	5.950	0.000
Employee drivers scale -> Sustainability driver construct	0.797	0.785	0.063	12.577	0.000
NGO / resources driver scale -> Sustainability driver construct	0.643	0.636	0.064	10.089	0.000
Owner driver scale -> Sustainability driver construct	0.667	0.658	0.071	9.333	0.000
Identification scale -> Practitioner engagement construct	0.850	0.850	0.039	21.825	0.000
Trust scale -> Practitioner engagement construct	0.942	0.938	0.026	36.693	0.000

Table A6.7: VIF scores for Formative Measures

	VIF
Client driver scale -> Sustainability driver scale	1.743
Efficiency driver scale -> Sustainability driver scale	1.343
Employee drivers scale -> Sustainability driver scale	1.333
NGO / resources driver scale -> Sustainability driver scale	1.453
Owner driver scale -> Sustainability driver scale	1.517
Identification scale -> Practitioner engagement scale	1.642
Trust scale -> Practitioner engagement scale	1.642

Table A6.8: VIF scores for the Structural Model

	VIF
Sustainability Drivers -> Organisational Commitment	1.441
Sustainability Drivers -> Corporate Sustainability Performance	2.044
CEO Commitment -> Organisational Commitment	1.441
CEO Commitment -> Corporate Sustainability Performance	2.380
CEO Commitment -> Sustainability Practitioner Engagement	2.383
Organisational Commitment -> Corporate Sustainability Performance	3.376
Organisational Commitment -> Sustainability Practitioner Engagement	3.392
Corporate Sustainability Performance -> Sustainability Practitioner Engagement	1.922
Sustainability Practitioner Engagement -> Sustainability Practitioner Intention	1.000

Table A6.9: Structural path estimation results for the Structural Model

	Path coefficient (original sample)	Path coefficient (mean of sub-samples)	p Values	Support for hypotheses
Sustainability Drivers -> Organisational Commitment	0.423	0.431	0.000	yes (p<0.01)
Sustainability Drivers -> Corporate Sustainability Performance	0.228	0.240	0.050*	yes (p<0.05)
CEO Commitment -> Organisational Commitment	0.528	0.520	0.000	yes (p<0.01)
CEO Commitment -> Corporate Sustainability Performance	-0.050	-0.057	0.591	no
CEO Commitment -> Sustainability Practitioner Engagement	0.357	0.355	0.000	yes (p<0.01)
Organisational Commitment -> Corporate Sustainability Performance	0.567	0.563	0.000	yes (p<0.01)
Organisational Commitment -> Sustainability Practitioner Engagement	0.219	0.221	0.040	yes (p<0.05)
Corporate Sustainability Performance -> Sustainability Practitioner Engagement	0.090	0.089	0.390	no
Sustainability Practitioner Engagement -> Sustainability Practitioner Intention	0.812	0.813	0.000	yes (p<0.01)

Note: * actual value = 0.499968 (to 6 significant figures)

Table A6.10: Latent variables cross-correlation matrix for the Structural Model

	CEO Commitment	Organisational Commitment	Corporate Sustainability Performance	Sustainability Drivers	Sustainability Practitioner Engagement	Sustainability Practitioner Intention
CEO Commitment	0.841					
Organisational Commitment	0.761	0.784				
Corporate Sustainability Performance	0.508	0.692	0.797			
Sustainability Drivers	0.553	0.715	0.605	(formative)		
Practitioner Engagement	0.570	0.554	0.424	0.397	(formative)	
Sustainability Practitioner Intention	0.498	0.457	0.315	0.315	0.812	0.846

Note: figures in bold represent the square root of the AVE values for the endogenous latent variables.

Table A6.11: Effect sizes (f^2) for the Structural Model

Endogenous Construct	Exogenous Construct	$R^2_{included}$	$R^2_{excluded}$	f^2	Effect size
Organisational Commitment	Sustainability Drivers	0.704	0.580	0.419	Large
Organisational Commitment	CEO Commitment	0.704	0.511	0.652	Large
Corporate Sustainability Performance	Sustainability Drivers	0.505	0.482	0.046	Weak
Sustainability Performance	Organisational Commitment	0.505	0.421	0.170	Moderate
Sustainability Performance	CEO Commitment	0.505	0.504	0.002	Weak
Practitioner Engagement	Sustainability Performance	0.363	0.358	0.008	Weak
Practitioner Engagement	Organisational Commitment	0.363	0.352	0.017	Weak
Practitioner Engagement	CEO Commitment	0.363	0.309	0.085	Weak
Practitioner Intention	Practitioner Engagement	0.659	N/A	N/A	N/A

Table A6.12: Predictive relevance (q^2) for the Structural Model

Endogenous Construct	Exogenous Construct	$Q^2_{included}$	$Q^2_{excluded}$	q^2	Effect size
Organisational Commitment	Sustainability Drivers	0.423	0.347	0.132	Moderate
Organisational Commitment	CEO Commitment	0.423	0.307	0.201	Moderate
Corporate Sustainability Performance	Sustainability Drivers	0.303	0.292	0.016	Weak
Sustainability Performance	Organisational Commitment	0.303	0.246	0.082	Weak - Moderate
Sustainability Performance	CEO Commitment	0.303	0.304	-0.001	None
Practitioner Engagement	Sustainability Performance	0.272	0.276	-0.005	None
Practitioner Engagement	Organisational Commitment	0.272	0.265	0.010	Weak
Practitioner Engagement	CEO Commitment	0.272	0.235	0.051	Weak
Practitioner Intention	Practitioner Engagement	0.462	N/A	N/A	

Appendix 7 – Assessment of Revised Core PLS Model

The revised model included external measures of the corporate sustainability performance as described in section 6.10

Table A7.1: Composite Reliability score for Reflective Measures

	Cronbach Alpha	Composite Reliability
CEO Commitment	0.732	0.878
Organisational Commitment	0.919	0.935
Corporate Sustainability Performance (Ext)	0.615	0.674
Sustainability Practitioner Intention	0.844	0.909

Table A7.2: Outer loadings and Cross-loadings of Reflective Measures

	CEO Commitment	Organisational Commitment	Corporate Sustainability Performance (Ext)	Sustainability Practitioner Intention
21	0.921	0.685	0.343	0.484
23	0.906	0.721	0.331	0.460
29	0.675	0.489	0.337	0.281
20	0.700	0.822	0.380	0.413
22	0.666	0.863	0.308	0.380
24	0.663	0.801	0.370	0.478
25	0.538	0.734	0.350	0.254
26	0.583	0.815	0.349	0.362
27	0.551	0.749	0.493	0.269
28	0.594	0.846	0.385	0.328
30	0.579	0.743	0.313	0.408
31	0.444	0.661	0.227	0.297
33	0.412	0.496	0.839	0.199
CDP	0.103	0.122	0.399	0.031
DJSI	0.098	0.105	0.495	-0.001
Ethibel	0.159	0.143	0.613	-0.009
Vigeo	0.159	0.143	0.613	-0.009
42	0.471	0.462	0.178	0.843
43	0.406	0.389	0.115	0.891
44	0.377	0.281	0.053	0.800
45	0.426	0.408	0.144	0.846

Note: figures in bold represent the item loadings on the four hypothesised scales

Table A7.3: Average Variance Extracted (AVE) for Reflective Measures

	Average Variance Extracted
CEO Commitment	0.709
Organisational Commitment	0.615
Corporate Sustainability Performance (Ext)	0.316
Sustainability Practitioner Intention	0.715

Table A7.4: Construct cross-correlation matrix for Reflective Measures

	CEO Commitment	Organisational Commitment	Corporate Sustainability Performance	Sustainability Practitioner Intention
CEO Commitment	0.842			
Organisational Commitment	0.760	0.784		
Corporate Sustainability Performance	0.395	0.453	0.610	
Sustainability Practitioner Intention	0.496	0.455	0.145	0.846

Note: figures in bold represent the square-root of the AVE for the construct

Table A7.5: Outer-loadings for Formative Measures

	Original Sample (O)	Sample Mean (M)	Standard Error	t statistic	p value
Client driver scale -> Sustainability driver scale	0.805	0.791	0.062	12.950	0.000
Efficiency driver scale -> Sustainability driver scale	0.509	0.501	0.101	5.060	0.000
Employee drivers scale -> Sustainability driver scale	0.795	0.782	0.070	11.392	0.000
NGO / resources driver scale -> Sustainability driver scale	0.667	0.652	0.071	9.441	0.000
Owner driver scale -> Sustainability driver scale	0.682	0.670	0.084	8.159	0.000
Identification scale -> Practitioner engagement scale	0.846	0.847	0.041	20.737	0.000
Trust scale -> Practitioner engagement scale	0.944	0.941	0.024	39.008	0.000

Table A7.6: Outer-weights for Formative Measures

Items	Original Sample (O)	Sample Mean (M)	Standard Error	t statistic	p value
Client driver scale -> Sustainability driver scale	0.327	0.324	0.106	3.091	0.002
Efficiency driver scale -> Sustainability driver scale	0.063	0.066	0.100	0.633	0.527
Employee drivers scale -> Sustainability driver scale	0.467	0.462	0.094	4.964	0.000
NGO / resources driver scale -> Sustainability driver scale	0.245	0.237	0.100	2.459	0.014
Owner driver scale -> Sustainability driver scale	0.250	0.242	0.125	1.994	0.046
Identification scale -> Practitioner engagement scale	0.421	0.426	0.079	5.339	0.000
Trust scale -> Practitioner engagement scale	0.682	0.676	0.071	9.559	0.000

Table A7.7: VIF scores for Formative Measures

	VIF
Client driver scale -> Sustainability driver scale	1.743
Efficiency driver scale -> Sustainability driver scale	1.343
Employee drivers scale -> Sustainability driver scale	1.333
NGO / resources driver scale -> Sustainability driver scale	1.453
Owner driver scale -> Sustainability driver scale	1.517
Identification scale -> Practitioner engagement scale	1.637
Trust scale -> Practitioner engagement scale	1.637

Table A7.8: VIF scores for the Structural Model

	VIF
Sustainability Drivers -> Organisational Commitment	1.450
Sustainability Drivers -> Corporate Sustainability Performance	2.060
CEO Commitment -> Organisational Commitment	1.450
CEO Commitment -> Corporate Sustainability Performance	2.370
CEO Commitment -> Sustainability Practitioner Engagement	2.386
Organisational Commitment -> Corporate Sustainability Performance	3.364
Organisational Commitment -> Sustainability Practitioner Engagement	2.534
Corporate Sustainability Performance -> Sustainability Practitioner Engagement	1.268
Sustainability Practitioner Engagement -> Sustainability Practitioner Intention	1.000

Table A7.9: Structural path estimation results for the Structural Model

	Path coefficient (original sample)	Path coefficient (mean of sub-samples)	p Values	Support for hypotheses
Sustainability Drivers -> Organisational Commitment	0.426	0.433	0.000	yes (p<0.01)
Sustainability Drivers -> Corporate Sustainability Performance	0.091	0.123	0.455	no
CEO Commitment -> Organisational Commitment	0.523	0.516	0.000	yes (p<0.01)
CEO Commitment -> Corporate Sustainability Performance	0.118	0.119	0.248	no
CEO Commitment -> Sustainability Practitioner Engagement	0.361	0.362	0.000	yes (p<0.01)
Organisational Commitment -> Corporate Sustainability Performance	0.298	0.278	0.019	yes (p<0.05)
Organisational Commitment -> Sustainability Practitioner Engagement	0.322	0.318	0.001	yes (p<0.01)
Corporate Sustainability Performance -> Sustainability Practitioner Engagement	-0.095	-0.089	0.249	no
Sustainability Practitioner Engagement -> Sustainability Practitioner Intention	0.812	0.813	0.000	yes (p<0.01)

Table A7.10: Latent variables cross-correlation matrix for the Structural Model

	CEO Commitment	Organisational Commitment	Corporate Sustainability Performance	Sustainability Drivers	Sustainability Practitioner Engagement	Sustainability Practitioner Intention
CEO Commitment	0.842					
Organisational Commitment	0.760	0.784				
Corporate Sustainability Performance	0.395	0.453	0.610			
Sustainability Drivers	0.557	0.717	0.382	(formative)		
Sustainability Practitioner Engagement	0.568	0.553	0.194	0.400	(formative)	
Sustainability Practitioner Intention	0.496	0.455	0.145	0.323	0.812	0.846

Note: figures in bold represent the square root of the AVE values for the endogenous latent variables.

Table A7.11: Effect sizes (f^2) for the Structural Model

Endogenous Construct	Exogenous Construct	R2 included	R2 excluded	f^2	Effect size
Organisational Commitment	Sustainability Drivers	0.703	0.578	0.421	Large
Organisational Commitment	CEO Commitment	0.703	0.515	0.633	Large
Corporate Sustainability Performance	Sustainability Drivers	0.216	0.209	0.009	Weak
Corporate Sustainability Performance	Organisational Commitment	0.216	0.191	0.032	Weak
Corporate Sustainability Performance	CEO Commitment	0.216	0.214	0.003	Weak
Sustainability Practitioner Engagement	Corporate Sustainability Performance	0.364	0.358	0.009	Weak
Sustainability Practitioner Engagement	Organisational Commitment	0.364	0.323	0.064	Weak
Sustainability Practitioner Engagement	CEO Commitment	0.364	0.308	0.088	Weak
Sustainability Practitioner Intention	Sustainability Practitioner Engagement	0.659	N/A	N/A	

Table A7.12: Predictive relevance (q^2) for the Structural Model

Endogenous Construct	Exogenous Construct	Q2 included	Q2 excluded	q2	Effect size
Organisational Commitment	Sustainability Drivers	0.422	0.346	0.131	Moderate
Organisational Commitment	CEO Commitment	0.422	0.308	0.197	Moderate
Corporate Sustainability Performance	Sustainability Drivers	0.045	0.046	-0.001	None
Corporate Sustainability Performance	Organisational Commitment	0.045	0.032	0.014	Weak
Corporate Sustainability Performance	CEO Commitment	0.045	0.043	0.002	None
Sustainability Practitioner Engagement	Corporate Sustainability Performance	0.270	0.276	-0.008	None
Sustainability Practitioner Engagement	Organisational Commitment	0.270	0.240	0.041	Weak
Sustainability Practitioner Engagement	CEO Commitment	0.270	0.233	0.051	Weak
Sustainability Practitioner Intention	Sustainability Practitioner Engagement	0.462	N/A	N/A	

Table A7.13: Test of Mediation Effects

Organisational Commitment on relationship between Sustainability Drivers and Corporate Sustainability Performance						
Direct effects		Indirect effect		Mediation assessment		
Sustainability Drivers => Organisational commitment	Organisational commitment => Sustainability Performance	Sustainability Drivers => Sustainability Performance	Standard deviation of boot-strapped indirect effects	t-values	p-test	Variance accounted for (VAF)
0.426***	0.298**	0.127**	0.055	2.302	p < 0.05	0.582
						0.218

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