IMPACT OF ORGANIZATIONAL CULTURE ON SUSTAINABILITY ENDEAVOURS: THE REAL STORY OF SUSTAINABILITY

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ABSTRACT

Increasingly, organizations are expected to improve their ecological and environmental performance, and to contribute to local and global communities. Researchers have suggested organizations progress though different stages of commitment to sustainability, ranging from opposing sustainability, to fully embracing sustainability. Further, some advocate that organizations intending to adopt more environmentally and socially sustainable strategies and practices, should examine and transform their underlying values and beliefs, and cultivate a consistent, clearly articulated and shared organizational culture. However, little empirical work has been undertaken to understand the specific characteristics of such a culture, or its contribution to organizations' commitment to embed sustainability.

The dimensions of corporate cultures which researchers have purported to be important for embedding sustainability were delineated and tested in a rich mixed methods case study of a major Australian owned multinational organization. Two surveys were developed to measure the organization's commitment to sustainability and the presence of these cultural dimensions. In-depth senior executive interviews and a thematic document review completed the picture.

Using IBM SPSS AMOS 21, a series of confirmatory factor analyses (CFA) assessed the factorial structures of survey scales, and the fit of the data to the model. Multigroup analysis determined the impact of subcultures. The qualitative interview and document data was coded and themed.

Overall, the key findings were firstly, there are two distinct cultural aspects: General Cultural dimensions, comprised of those which may exist in organizations regardless of whether they are progressing towards sustainability; and more specific Sustainability Cultural dimensions. Secondly, each of these had a strong positive association with organizational commitment to sustainability. Thirdly, of the 18 tested individual cultural dimensions, seven made a positive contribution to organizational commitment to sustainability. Finally, the study determined an organization's subcultures may make a very small difference to the relationships between organizational culture and organizational commitment to sustainability.

CERTIFICATION

This thesis is submitted in fulfilment of the requirements of the degree of PhD in the Macquarie Graduate School of Management (MGSM), Macquarie University. This represents the original work and contribution of the author, except as acknowledged by general and specific references.

I hereby certify that this has not been submitted for a higher degree to any other university or institution.

I further certify that the research conducted for this thesis has received ethics approval from the Macquarie University Human Research Ethics Committee, Faculty of Business and Economics Ethics Sub-Committee with Reference no: 5201100407(D).

Signed:

Lenore K. Pennington

Date: 24 July 2014

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I am privileged to have so many friends, who for four years generously accepted my disappearing from their lives to focus on my PhD, and when I did emerge, forgave my absentmindedness.

Finally, huge thanks are due to my treasured husband, Ian Robertson, who, for the first six months of our very new marriage, tirelessly encouraged and supported me through the final stages of writing and editing my thesis.

I will always be grateful to all of these people.

Western Man: tend(s) to count nothing as an expenditure other than human effort; he does not seem to mind how much mineral matter he wastes &, far worse, how much living matter he destroys. He does not seem to realise at all that human life is a dependent part of an ecosystem of many different forms of life. As the world is ruled from towns where we are cut off from any form of life other than human, the feeling of belonging to an ecosystem is not revived. This results in a hard and improvident treatment of things upon which we ultimately depend, such as water & trees.

Bertrand de Jouvenel des Ursins (French philosopher, political economist, and futurist, as cited by Schumacher, 1993, p. 63).

CHAPTER 1 INTRODUCTION

It is amazing how little practical improvement has been achieved in sustainable development in the everyday functioning of various organizations, national, regional and international policies or within different communities. (Baumgartner & Korhonen, 2010, p. 72).

1.1 Chapter 1 Overview

The aim of this research study was to investigate the relationship between organizational culture and organizational sustainability, and to understand the specific characteristics of that culture, and its contribution to organizations' commitment to embed sustainability into their businesses and their operations.

The first part of this chapter introduces the background to this research study. The chapter also establishes the purpose and significance of this study, briefly discusses the research method and conclusions, and provides the framework for the thesis itself.

1.2 Research Background

Economic and industrial activity has long been understood to cause significant damage to the world's ecology and to impact on social structures. More recently, globally there has been mounting awareness and debate surrounding sustainability and, increasingly, attention is being given to the escalating environmental and social damage, and resources shortages caused by economic development. Predictions of unstable economies, social unrest, a collapsing environment and depleted resources abound (Dunphy, Griffiths, & Benn, 2007; Gore, 1992, 2006; Goverse, 2014; Hails, 2006; Hart, C., 1997; Hawken, 1993a; Heinberg, 2011; Homer-Dixon, 2010; Moghaddam, 2010; Schmidheiny, 1992; Shrivastava, 1995b; Starik & Kanashiro, 2013; Stern, N., 2007; Yohe et al., 2007). The growing evidence to support these predictions, has resulted in wide ranging debates on how to conserve natural resources, and to reduce the pressure on the environment caused by the current levels of economic activity, while also meeting the needs of the global population (Flannery, 2003, 2010; Garnaut, 2008; Gore, 2006; Pfeffer, Jeffrey, 2010; World Wide Fund For Nature, 2012).

Although environmental and ecological sustainability, and the role of governments are subject to ongoing public debate, corporate sustainability has had a lower profile (Russell, Haigh, & Griffiths, 2007). Support for the view that the practices of organizations, as the primary units of economic development, have played and continue to play a significant part

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in creating the environmental, resources shortages and social problems now facing the world, continues to rise, and their behaviours are a serious concern (e.g. Avery & Bergsteiner, 2010; Benn & Dunphy, 2007b; Borland, 2009; Enticott & Walker, 2008; Starik & Marcus, 2000; Welford, 1997).

Progressively, pressure increasingly is being placed on organizations to change their business and operational practices to more sustainable ones which minimize harm (Cescau, 2007). Organizations are expected to improve their ecological and environmental performance, to contribute to local and global communities and to address and mitigate problems they have created (Benn & Dunphy, 2009; Bevan & Gitsham, 2009; Cescau, 2007; Commissioner of the Environment and Sustainable Development, 1999; Dunphy et al., 2007; Garnaut, 2008; Preuss & Co´rdoba-Pachon, 2009). They also are expected to demonstrate they are better managing the social and environmental risks of their activities (Benn & Dunphy, 2007a). Despite this, while many companies have started to address sustainability, there has been only a slight impact on the environment and society (Espinosa & Porter, 2011). This has led to debate about how committed organizations are to sustainability (Dando & Swift, 2003; Doane, 2000; Steger, Ionescu-Somers, & Salzmann, 2007).

Some claim that sustainability is now among the most significant concerns for organizations, and, for organizations to survive, let alone be successful through the 21st century, they must become sustainable (Bacon, 2007; Bielak, Bonini, & Oppenheim, 2007; Galbreath & Nicholson, 2009). To achieve this, it is important that organizations examine and transform the underlying beliefs which drove their environmentally and socially unsustainable strategies, and to cultivate a culture which will enable them to change their business and operational practices to those which minimise harm (Cescau, 2007; Edwards, M. G., 2009; Molnar & Mulvihill, 2003).

Organizational culture is known to be critical to organizations' success (Balthazard, Cooke, & Potter, 2006; Chan, Shaffer, & Snape, 2004; Denison, 1990; Denison & Mishra, 1995; Kotter & Heskett, 1992; Wilderom, Glunk, & Maslowski, 2000). A strong organizational culture facilitates high levels of employee motivation and commitment (Sheridan, 1992; Virtanen, 2000), intention to remain with the company (Lok & Crawford, 1999, 2004; Lund, 2003; MacIntosh & Doherty, 2005; Schwepker, 2001), and team work (Goffee & Jones, 1996). Further, organizational culture impacts upon customer satisfaction and can determine

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whether the customer continues to do business or seeks other suppliers (Bellou, 2007; Gillespie, Denison, Haaland, Smerek, & Neale, 2008; MacIntosh & Doherty, 2005). Strong links also have been drawn between organizational culture and the successful implementation of TQM programs (Powell, 1995; Prajogo & McDermott, 2005; Zu, Robbins, & Fredendall, 2010). An organization's culture also influences change readiness, and the outcomes of change efforts (Hannan, Laszlo, & Carroll, 2003; Jones, R. A., Jimmieson, & Griffiths, 2005; Lakomski, 2001). Some attention has been given to the relationship between organizational culture and organizational sustainability strategies and performance (Azzone, Bianchi, Mauri, & Noci, 1997; Smith, P. A. C. & Sharicz, 2011). A number of scholars suggest that organizations intending to adopt sustainability principles should cultivate a clearly articulated and shared organizational culture, which is consistent with, and enables sustainable development (e.g. Avery & Bergsteiner, 2010; Baumgartner, 2008, 2009, 2012; Benn, Dunphy, & Griffiths, 2006; Crane, 2000; Dunphy, 2011; Fernández, Junquera, & Ordiz, 2003; Molnar & Mulvihill, 2003; Russell & McIntosh, 2011; Shrivastava & Hart, 1995; Starik & Rands, 1995). Recommendations range from integrating sustainability into values and culture (Edwards, M. G., 2009; Epstein & Buhovac, 2010; Molnar & Mulvihill, 2003), to requiring "a complete moral transformation", and a "radical overhaul of business culture" and values (Crane, 2000, p. 674). Van Marrewijk and Werre (2003, p. 117) propose that an organization's values and culture differ according to the level of aspiration for sustainability, and that "dominant value systems can determine the potential for sustainability". Some argue that, to become ecologically sustainable, organizations must institutionalize environmentally responsible values, beliefs and behaviours, and sustainable processes, which effectively requires a change in their culture (Borland, 2009; Harris, L. C. & Crane, 2002; Linnenluecke & Griffiths, 2010; Quinn, L. & Dalton, 2009).

The literature revealed certain organizational values, attitudes, behaviours and cultural dimensions which researchers consider to be imperative for organizations to become sustainable. These, effectively constitute an organization's culture (Denison, 1990; Gordon & DiTomaso, 1992; Schein, 2004). However, relatively little research has been undertaken to understand the specific nature of such a culture, its presence in highly sustainable organizations, or in organizations which are actively endeavouring to become more sustainable, or, its impact on an organization's drive towards sustainability.

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In 2012, Australia's ecological footprint per person was seventh highest in the world, exceeded only by Qatar, Kuwait, the United Arab Emirates, Denmark, the United States of America, and Belgium (World Wide Fund For Nature, 2012). Further, Australia is one of the most vulnerable of all countries to the impacts of climate change (Garnaut, 2008), and any changes to corporate behavior which can be made to mitigate climate change are invaluable and urgent. Faced with these dire facts, it is important that Australian organizations act quickly to become sustainable, and for this reason, this research was conducted on an Australian company.

1.3 Research Objectives

The overarching aim of this research study was to determine the characteristics, relevance and comparative importance of organizational culture in enabling organizations to embed sustainability mindset and practices, and become more sustainable.

More specifically, the study identified and tested the key dimensions of corporate cultures purported in the literature to be important for enabling organizations' commitment to sustainability, and investigated the relationship between these and organizational commitment to sustainability.
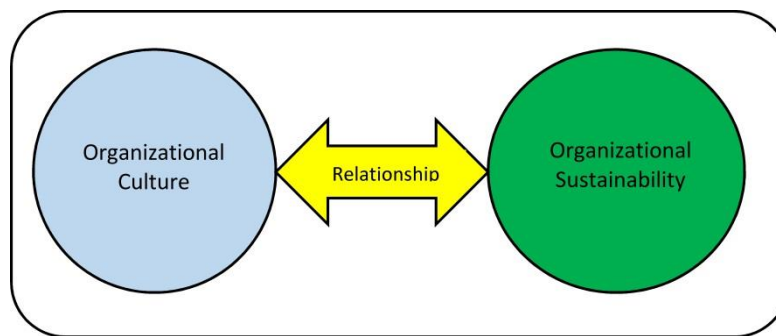
Figure 1.1 Research Objective

1.4 Research Questions

Three specific research questions evolved from the central objective of this research study, and from the literature:

- R1: Is there a relationship between organizational culture and the level of organizational commitment to sustainability? If so, what is the nature of that relationship?

- R2: Given there are different types of organizational culture, which of the identified cultural dimensions are most important to an organization's commitment to sustainability?

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- R3: Does the presence of subcultures within an organization make a difference to the relationship between organizational culture and organizational commitment to sustainability?

The development of each research questions is explained in Chapter 5.

1.5 Research Methods

To obtain a broader perspective, and a richer understanding of the research questions, the selected research approach was a mixed methods case study, applied within a major Australian owned multinational organization (Company A), in which the quantitative and qualitative research was conducted concurrently (Creswell, 2009; Greene, Caracelli, & Graham, 1989). The principle research tool was two quantitative surveys, supplemented by qualitative interviews and a thematic document analysis, which provided a more holistic picture. The case study was comprised of multiple sites within a single organization, making it a collective, or multiple study, structured as a concurrent, nested mixed methods study, which is aligned with Greene et al.'s (1989) expansion purpose for mixed methods, and Creswell et al.'s (2003) concurrent nested research strategy.

Figure 1.2 illustrates the design of this research study all the steps undertaken during this research study, and their sequence.

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                          │  Literature Review  │
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Literature Review

Organizational Culture   **Research Questions & Hypotheses**   **Sustainable Development**

Measuring Organizational Culture

Research Method

Organizational Sustainability

Organizational Culture Surveys

Mixed Methods Design

Measuring Organizational Commitment to Sustainability

Surveys

Research Process Design Surveys, Interview Guides, Communications, Data collection processes

Qualitative Interviews

Phases models of organizational commitment to sustainability

Thematic Document Review

Identify organization(s) for Case Study

Potential Cultural Dimensions for Sustainable Organizations

Conduct Case Study

Employee Survey: Organization Culture & Commitment to Sustainability

Semi Structured Interviews: 8 – 10 Senior Executives

Executive Survey: Organizational Commitment to Sustainability & Phases Model

Thematic Document Review Organization Culture & Organizational Commitment to Sustainability

Data Analysis

Culture model of sustainable organizations

Organizational Commitment to Sustainability

Relationship between Culture & Sustainability

Conclusions

Figure 1.2 Research Process & Design

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1.6 Thesis Structure

This thesis has seven chapters, which follow the format presented in Figure 1.3

Research Aims & Questions	Literature Review	Research Model	Research Questions & Method	Analysis & Outcomes	Discussion & Conclusions

Chapter 1	Chapters 2 & 3	Chapters 4 & 5	Chapter 6	Chapter 7

Introduction	Conceptual Development & Theory	Operalization Design & Propositions	Confirmation / Disconfirmation	Discussion & Conclusions
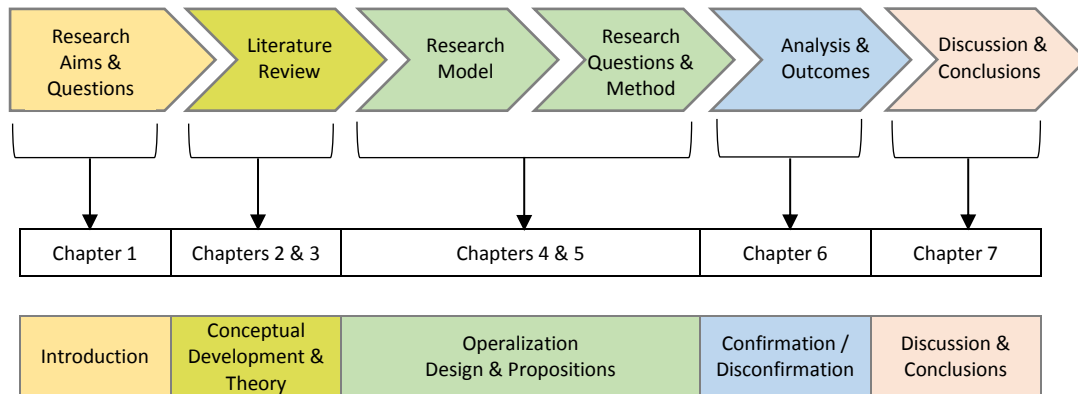
Figure 1.3 Thesis Structure

1.6.1 Chapter 1

Chapter 1 provides an introduction to the research study, the research background, the research objectives, the research approach, and the structure of this thesis.

1.6.2 Chapter 2

Chapters 2 and 3 examine the theory underlying this research study. Chapter 2 reviews the sustainable development and organizational sustainability literature, and identifies the key theories, and the reasons for their increasing relevance to organizations today. The many, varied understandings of sustainability are discussed, and a definition identified for the purposes of this research study. Representative models of organizational commitment to sustainability are discussed, and the relationship between organizational sustainability and organizational culture is introduced.

1.6.3 Chapter 3

Chapter 3 reviews the organizational culture literature and discusses the nature and relevance of culture to organizations. It also reviews that literature which considers the convergence between organizational culture and organizational sustainability commitment and behaviour. Finally, it identifies specific cultural traits which researchers have associated with organizational sustainability.

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1.6.4 Chapter 4

This chapter discusses the research paradigm, research methodologies, and the chosen research design. The rationale for the selected mixed method approach to the case study, combining quantitative survey research, and qualitative interviews and document analysis, is explained.

1.6.5 Chapter 5

Chapter 5 provides the specific research questions, and develops the related hypotheses which were investigated and analysed in this research study. Further, the chapter gives a detailed description of the development, implementation, and application of the mixed methods approach to this research. It explains the development of the two surveys and structured interview questions, sampling, and the data collection procedures.

1.6.6 Chapter 6

Chapter 6 presents the data analyses and the results. A background to the case study organization is provided to give some context to the research study. The preparation of the quantitative data, the qualitative data obtained from interviews, the thematic analyses of company documents, the demographics of the sample populations, the data analysis, hypotheses testing, and the findings are all presented.

1.6.7 Chapter 7

Chapter 7 integrates the results of this research study. It compares and contrasts the results from the qualitative and quantitative analyses, draws conclusions from the key research findings, and discusses their implications for current thinking. Limitations of the study and recommendations for future research also are considered.

This final chapter integrates the results of this research study, and discusses the results from the qualitative and quantitative analyses. It presents conclusions from the key research findings, and discusses their implications for current thinking. Limitations of the study and recommendations for future research are presented.

1.7 Study Conclusions

The outcomes of this research study include a clearly defined set of cultural dimensions which are related to organizational sustainability. These fall into two categories, General Culture and Sustainability Culture, each of which are related to an organization's

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commitment to sustainability. Individually, no single culture dimension was found to contribute to the individual components of commitment to sustainability, although the individual Sustainability Culture dimensions had a more significant impact on Commitment to Sustainability than did the General Culture dimensions. This indicates that organizations considering changing their culture to enable sustainability change, to begin with should focus on incorporating these dimensions into their culture.

Finally, in this study, subcultures were found to have a less significant impact on the relationship between the organizational culture dimensions and commitment to sustainability than had been concluded in previous studies (Harris, L. C. & Crane, 2002; Howard-Grenville, 2006; Linnenluecke, Russell, & Griffiths, 2009).

1.8 Significance of this Research Study

This study makes an original contribution to knowledge by integrating organizational culture theory and organizational sustainability theory to build a model of specific organisational culture dimensions that supports an organization's sustainability endeavours. The present research study has provided a valid theoretical framework and model for future research, and results of this study may encourage further research into the impact of organizational culture on organizations' sustainability commitment. The more research and more information about this relationship, the more organizations may be able to refine their cultures, and thus further progress towards becoming more holistically sustainable.

This study also provides researchers with a comprehensive survey tool which measures specific sustainability related cultural dimensions, and the extent to which sustainability is embedded in an organization. This research has practical value for managers seeking to increase an organization's commitment to sustainability, and hence introduce cultural changes and the consequent strategic operational changes, which will enhance the organization's ability to behave in a more environmentally, and socially sustainable manner.

1.9 Chapter 1 Summary

Chapter 1 has introduced the research study and the structure of this thesis. The next two chapters are the literature reviews. Chapter 2 reviews the organizational sustainability literature, and Chapter 3 examines the organizational culture literature and draws the links between organizational culture and organizational sustainability.

CHAPTER 2 LITERATURE REVIEW: ORGANIZATIONAL SUSTAINABILITY

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Sustainability has become a mantra for the 21st century. It embodies the promise of societal evolution towards a more equitable and wealthy world in which the natural environment and our cultural achievements are preserved for generations to come (Dyllick & Hockerts, 2002, p. 130).

2.1 Overview of Chapter 2
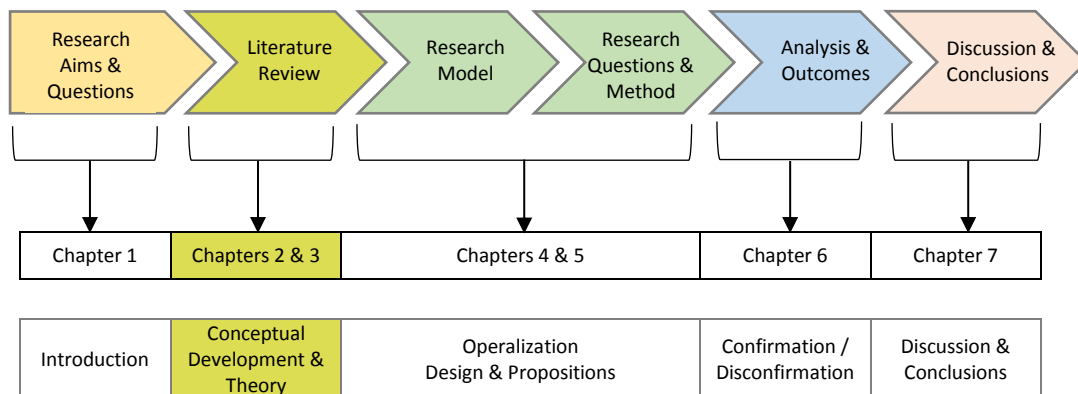
Figure 2.1 Thesis Structure

Chapter 1 briefly introduced the importance of organizational sustainability, and organizational culture, and the potential relationship between an organization's culture and its organizational sustainability commitment and behaviour.

This chapter reviews the findings in the literature about organizational sustainability. Chapter 3 will review the literature on organizational culture, and will discuss the connections with organizational sustainability, and identify the nature of a sustainability culture.

The purpose of the literature review discussed in this chapter, was to identify the key theories surrounding sustainability, organizational sustainability, and the reasons for their increasing relevance to today's organizations.

2.2 Background to Organizational Sustainability

Corporations are recognised to be the mainstay of society's economic activities, by producing goods and services, and providing employment, and generating income and profits (Borland, 2009; Wood, 1991b). Yet this same economic and industrial activity has long been understood to cause significant damage to the world's ecology. Some damage has been of a dramatic and catastrophic nature, including industrial accidents which have taken heavy environmental and human tolls, such as the 1979 Three Mile Island nuclear plant

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partial meltdown, Union Carbide's 1984 Bhopal disaster, the 1986 explosion at the Chernobyl Nuclear Power plant, and the 1989 Exxon *Vuldez* oil spill. These took heavy environmental tolls, as have the more recent 2010 BP Deep water Horizon oil spill, the 2010 toxic sludge spill in Ajka Hungary, the 2013 clothing factory fire in Baldi, Pakistan, and the 2013 clothing factory collapse in Dhaka Bangladesh. Other damage, less immediately disastrous but with long term impact, includes air and water pollution. Some commentators also see organizations as bringing about social problems by producing unsafe products, generating pollution, controlling employment opportunities (Wood, 1991c, p. 66), and exploitation of child labour (Bertrand, 2010). Polluting activities for which business can also be responsible include: noise, light, water pollution, air emissions, contamination of soil, and the environmental problems associated with transport and waste disposal (European Commission, 2001).

With 50 of the largest organizations among the top 100 economic entities in the world, including countries, large organizations have very large impacts on the world (Hubbard, 2009b). There is growing support for the view that the practices of organizations, as "fundamental cells of economic activity" (Dunphy et al., 2007), have played, and continue to play a significant part in creating the resources shortages, and the environmental and social problems now facing the world, and their behaviours are a serious concern (Avery & Bergsteiner, 2010; Bacon, 2007; Enticott & Walker, 2008; Pfeffer, Jeffery, 2009; Shrivastava, 1995b; Starik & Marcus, 2000). Some go as far as to claim that "while business is neither homogeneous, nor speaks with a single voice, business largely does control political, economic, and social agenda" (Bebbington & Gray, 2001, p. 560), including that of sustainable development. Welford (1997, p. 4) put this strongly, when he wrote:

> Business has to accept a very large share of the responsibility for this devastation and crises. Businesses are central to a system which is destroying life on Earth and if we continue with this path not one area of wilderness, indigenous culture, endangered species or uncontaminated water supply will survive the global market economy.

Consequently, it is widely acknowledged that business can play a significant role in the development of sustainable societies (Baumgartner, 2008, p.170; 2010) and in reducing deteriorating environmental quality, poverty, and social inequality, and in advancing society towards sustainable development (Harris, L. C. & Crane, 2002). Many believe companies have a responsibility to address sustainability by operating in more sustainable ways as a

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minimum (Hart, C., 1997; Hawken, 1993a), to improve their ecological and environmental performance (Shrivastava, 1995a), to contribute to local and global communities (Bevan & Gitsham, 2009; Bradbury & Clair, 1999; Cescau, 2007; Commissioner of the Environment and Sustainable Development, 1999; Dunphy et al., 2007; Kolk & van Tulder, 2010; Preuss & Co´rdoba-Pachon, 2009), and to address and mitigate problems they have created (Garnaut, 2008; Russell et al., 2007). Organizations increasingly are expected to demonstrate they are better managing the social and environmental risks (Benn & Dunphy, 2007b). Investors, customers, governments, employees, suppliers, and the communities in which organizations operate, have pressured companies to provide detailed information about the sustainability of their activities which is not provided by traditional financial reports (Marshall & Brown, 2008; McElroy, Jorna, & van Engelen, 2008).

Over the past two or three decades, consumer and public pressure, and an associated rise of government environmental legislation has awakened organizations to environmental and ecological sustainability in particular (Elkington, 1994), and has forced them to consider their environmental impact. While many companies have started to address sustainability, there is debate about how committed organizations are to sustainability (Dando & Swift, 2003; Doane, 2000; Steger et al., 2007), and, so far, company efforts have had only a slight positive impact on the environment and society (Espinosa & Porter, 2011).

2.3 History of Sustainability and Sustainable Development

Everyone knows what the solution is: we must begin to live sustainably. But what does that actually mean? 'Sustainability' is a word that can mean almost anything to anyone. Whether used by cosmetics advertisers or fruit sellers, it is bandied about as if it were the essence of virtue. Yet so recent is the word that my spell-checker doesn't recognize it (Flannery, 2009).

Given that the wide ranging discussion and debates about sustainability can generate controversy and misunderstanding, it was important to consider the history of sustainability, the various understandings, and determine a working definition for the purposes of this research study.

There are varying views about the origin of the concept of sustainable development. Many view the World Commission on Environment and Development (WCED)'s report in 1987, also frequently referred to as the Brundtland Report or the Brundtland Commission (Brundtland & Khalid, 1987), as the origin of the concept of sustainable development (Aras & Crowther,

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2010; Brent & Pretorius, 2007; Briassoulis, 2001; Fuller, 2010; Garriga & Mele, 2004; Sneddon, Howarth, & Norgaard, 2006). The National Research Council of the National Academies (1999, p. 2) found that the concept of sustainable development arose from scientific research which considered the relationship between society and the environment, with the Brundtland Commission, and the 1992 United Nations Conference on Environment and Development, propagating the concept.

Others trace the history of sustainability to the environmental movement which started to gain influence during the 1960s (Egri & Herman, 2000; Millar, Hind, & Magala, 2012). Some specifically attribute Rachel Carson's 1963 book *Silent Spring*, which expounded the dangers of toxins and pollutants, and, particularly of the impacts of agricultural pesticides on the environment, humans and animals, fostered ecological awareness, and generated a new groundswell of concern amongst the public and US government agencies (Edwards, A. R., 2005, p. 14; Guha, 2000). Other earlier 20th century influences include Neo-Malthusians, such as Fairfield Osborn's *Our Plundered Planet* (1948), William Vogt's *Road to Survival* (1948), Garrett Hardin's *The Tragedy of the Commons* (1968), and Paul Ehrlich's *The Population Bomb* (1968), which all warned that human numbers and consumption were outstripping what the earth could provide in perpetuity (Shabecoff, 2000). These were followed by Dennis and Donella Meadows', Jorgen Randers' and William W. Behrens' III *Limits to Growth* (1972), which warned of depletion of the Earth' non-renewable resources (Turner, G., 2008). The work of both Meadows et al. (1972) and Ehrlich (1968) subsequently were updated to incorporate more recent sustainability debates and findings (Ehrlich, P. & Ehrlich, 1990; Meadows, Meadows, & Randers, 1992).

However, sustainability concerns predate these seminal 20th century works. Environmental historians have traced writing expressing concerns about the environment and welfare dating back centuries (Hoffmann, 2001; Hughes, 2001), including significant loss of forests, due to the European industrial revolution (Steurer, Langer, Konrad, & Martinuzzi, 2005; Weisz et al., 2001). Some argue that medieval Europeans massively reconfigured natural eco systems, with resulting deforestation and eradication of natural woodland, resulting in erosion and flooding (Hoffmann, 2001, p. 145), so that by the 17th century, a rule was established that the cutting down of trees should be limited to a rate at which forests could renew themselves (Steurer et al., 2005, p. 264; Zink, 2005). Even earlier, in the Baltic region, between the seventh and ninth centuries through to the 12th and 13th centuries, and later

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during the 14th and 15th centuries, in the North Sea and the Danish Straits, overfishing depleted stocks of food fish (Hoffmann, 2001, p. 144).

The "first wave" of the environmental protection movement began in the 1860's in the United States of America, in response to environmental degradation, and which led to environmental organizations being established to protect and conserve wilderness and resources for future generations (Egri & Herman, 2000; Guha, 2000). Some attribute the birth of sustainability to transcendentalists, such as Bronson Alcott, Margaret Fuller, George, Ripley, Henry Thoreau and Ralph Waldo Emerson (Edwards, A. R., 2005; Shrivastava, 2010), and Henry David Thoreau, who lamented the impact of industrialism, which he blamed for destroying wilderness areas, and weakening the human spirit (Shabecoff, 2000). Others name George Perkins Marsh as being one of the original environmentalists (Thomas Jr, 1956; Wilbanks, 1994).

In 1864, Marsh published *Man and Nature, or Physical Geography as Modified by Human Action*, in which he aimed to "indicate the character and, approximately, the extent of the physical changes produced by human action on the physical conditions of the globe we inhabit" (p. iv.), and to describe the "general effects and prospective consequences of human action upon the earth's surfaces and the life which peoples it" (p. v). He discussed the vast loss of forests, soil from mountains and pastures being washed away, destroyed meadows, and shrinking rivers (p. 3) across Asia Minor, Northern Africa, Italy and Spain (p. 4), blaming "man's ignorant disregard of the laws of nature" (p. 5) (Marsh, G. P., 1965 [1864]).

Others also were influential. Gifford Pinchot (1865-1946), a utilitarian conservationist, who was the first head of the US Forest Service, believed that resources, such as lumber, coal and water, should be sustainably used, and that the federal government should regulate their use. He also opposed social discrimination and economic inequality (Miller, 2001, p. 4; Pinchot (1988 [1948], p. 27)). Pinchot's friend and mentor, Jon Muir (1838-1914), a preservationist who believed that wilderness should be undisturbed and maintained as wilderness, strenuously argued that nature should be protected from development. He founded the Sierra Club, and was instrumental in establishing Yosemite and Sequoia Parks National Park Preserves (Shabecoff, 2000; Van Dyke, 2008).

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This environmental debate was not limited to a few crusaders. Commencing in the USA's colonial era, there were debates over public health and natural resources, with newspapers and magazines publishing articles about environmental concerns. More specifically, articles about air and water pollution, and protection of forests, bird and animal life, were published in the USA press as early as 1899 (Kovarik, 1998; Neuzil & Kovarik, 1996).

Conservation also had political support. Theodore Roosevelt, the US President from 1901 to 1909, saw logging and mining in the west of the USA as "wasteful and undemocratic", with a few individuals and companies profiting from natural assets that he believed belonged to all citizens. During his presidency, Roosevelt made conservation a national priority, and established 52 federally protected wildlife sanctuaries and five national parks (Van Dyke, 2008, pp. 13-14).

The renewed interest in environmentalism which followed Rachel Carson's (1963) seminal work was accelerated, firstly by the first Earth Day in 1970, and then, by the publication of the Club of Rome's controversial report, *The Limits to Growth* (Meadows et al., 1972), whose thesis triggered international debate. This was followed shortly by the global 1972 Stockholm United Nations Conference on the Human Environment, after which the United Nations Environmental Program (UNEP) was established to be the "the voice for the environment within the United Nations system, and to promote "the wise use and sustainable development of the global environment" (United Nations Environment Programme, n.d.). A few years later, the words of the UNEP's mission, "To provide leadership and encourage partnership in caring for the environment by inspiring, informing, and enabling nations and peoples to improve their quality of life without compromising that of future generations" (United Nations Environment Programme, n.d.), were incorporated into the World Commission on Environment and Development's definition of sustainable development: "development that allows the present generation to meet our current needs, without compromising the ability of future generations to meet their needs" (Brundtland & Khalid, 1987, p. 47).

From the early 1980's, research scientists, governments and international bodies increasingly have focused on global environmental change. It is strongly believed that, if continued, loss of biodiversity (Dirzo & Raven, 2003; Maurer, 1996; Weisz et al., 2001; Zamanou & Glaser, 1994), the significant increase of carbon dioxide in the Earth's

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atmosphere, caused by the destruction of 40% of the world's forests and soils, and burning fossil fuels, the related warming of the oceans, and increasing Earth's average temperature (Flannery, 2010, pp. 195-196), will lead to risk of "abrupt or irreversible climatic shifts" and will increasingly "threaten the well-being and continued development of human society" (Goverse, 2013, 2014; Richardson et al., 2009, p. 6).

2.4 Defining Sustainability and Sustainable Development

At the same time as interest in sustainability has grown rapidly, the term "sustainability" has become one of the "most overused words in business" (Aras & Crowther, 2010, p. 51), to the point where it is disliked and regarded as jargon.

The term "sustainability" is used widely, arbitrarily, and in manifold ways by business, the media, governments, and even some academics. The words "sustainable" and "sustainability" have multiple and sometimes contradictory meanings, and are used in a variety of contexts (Aras & Crowther, 2010; Byrch, Kearins, Milne, & Morgan, 2007; Dimitrov, 2010; Hart, S. L. & Dowell, 2011; Haugh & Talwar, 2010; Martens, 2006; Parris & Kates, 2003; van Zeijl-Rozema, Cörvers, Kemp, & Martens, 2008; Williams & Millington, 2004). As the British environmentalist, Sir Jonathon Porritt said: "Sustainable development is one of those ideas that everybody supports but nobody knows what it means" (Byrch et al., 2007, p. 27). Further, Williams and Millington (2004, p. 9) describe sustainable development as "a notoriously difficult, slippery and elusive concept to pin down". Even the International Institute for Sustainable Development (IISD) concedes that the concept remains elusive (Drexhage & Murphy, 2012, p. 6). Drexhage and Murphy (2012, p. 10) claim that "while the concept is widely accepted and sustainable development has been adopted as a desirable goal by many institutions, governments, businesses, and NGOs, the term sustainable development suffers from definitional ambiguity or vagueness".

As a result, sustainability and the associated concepts are, at best, confusing (Hopwood, B., Mellor, & O'Brien, 2005; Sarkis, Gonzalez-Torre, & Adenso-Diaz, 2010), and at worst, "a cliché", empty of meaning (Fuller, 2010, p. 7), and an "oxymoron" (Fuller, 2010, p. 8; Johnson, H. T., 2008, p. 92; Redclift, 2005, pp. 92-94) which presumes the human economy can grow endlessly (Johnson, H. T., 2008, p. 90). Some have gone as far as to say the concept is contentious and should be rejected (Beckerman, 1994, 1995; Beckerman & Pasek, 2001).

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Despite some disparagement of the concept, sustainable development has become well known, and broadly accepted as a guiding principle (Steurer et al., 2005).

However, a significant consequence of the vagueness of the terms "sustainability" and "sustainable development", is that they mean many different things to many different people and organizations (Banerjee, 2011; Mebratu, 1998; Robinson, 2004). Sustainability is described by Garriga and Mele (2004, pp. 61-62) as "another values based concept…with numerous definitions"; by Wheeler, Colbert and Freeman (2003, p. 17) as ''an ideal toward which society and business can continually strive"; by Lozano (2013, p. 57) as "lacking completeness and continuity"; and by Luke (2013, p. 90) as "elusive", "an amorphous concept", and an "idea (with) a quite fluid meaning".

Going even further, Pezzoli (1997) claims that the term is used to mean anything that people want it to mean; while Borne (2010) suggests that it can be interpreted as all things to all people, and Pearce, Markandja and Barbier (1989, p. 1) similarly claim sustainable development "has come to mean whatever suits the advocacy of the individual concerned". As Briassoulis (2001, p. 410) concludes, "the conceptual and practical difficulties encountered with this all-encompassing concept suggest that it is a multidimensional, fuzzy concept or a meta-variable". Further, the literature on sustainable development has been characterised as "muddled" (Borne, 2010) and "fragmented" (Jabareen, 2004).

Early on, Fowke and Prasad (1996) identified more than 80 definitions of the concept of sustainable development, while Banerjee (2008) claims there are over 100 definitions. With the terms sustainable and sustainable development frequently used interchangeably, the concept has become increasingly ambiguous (Banerjee, 2008). This vagueness has led to ongoing debates about the meaning and intent of sustainability, along with a bourgeoning number of terms: sustainable development, sustainability; triple bottom line, corporate citizenship, corporate social performance, corporate sustainability, social performance, and more.

The definition of sustainable development expounded in the Brundtland report, *Our Common Future* (Brundtland & Khalid, 1987, p. 43), is the most widely known and cited: "Development that meets the needs of current generations without compromising the ability of future generations to meet their needs and aspirations". The Brundtland Commission's definition of sustainable development has been interpreted to require

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balancing economic growth with maintaining the environment and resources, while ensuring social equity and justice, for current and future generations (Banerjee, 2008; Mebratu, 1998).

After considering sustainable development from an economic perspective, Emilio (2002, p. 81) concluded that, for future generations to be treated equitably, today's society must "recognize and protect their right to enjoy at least the same capacity of economic and ecological resources that present generations enjoy" and, therefore, sustainability is an equity commitment to future generations.

These three areas of sustainable development were reiterated at the 2002 World Summit on Sustainable Development in Johannesburg where the catch phrase 'people, planet, prosperity' was adopted to emphasise the balance of all three components, and which later became known as the "Three Pillars" of sustainability (White, L. & Lee, 2009). Most definitions of sustainability and sustainable development incorporate all three elements – economics, environment, and society/ people.

A more recent interpretation of sustainable development was generated by Lozano (2008), following his analysis of various perspectives and approaches to sustainable development. Lozano and Huisingh (2011, p. 99) identify five categories of definitions:

1. conventional economists' perspective
2. non-environmental degradation perspective
3. integrational perspective, i.e. encompassing the economic, environmental, and social aspects
4. inter-generational perspective
5. holistic perspective which has two tiers: the first of which includes the oft cited economic, environmental and social perspectives, and the second, which focuses on the time - whether short term or long term.

Dunphy's (2011, p. 9) clear, succinct definition of sustainability, which meets categories 2, 3, 4 and 5 of Lozano and Huisingh's (2011) criteria, was adopted for this research study; that is, sustainability consists in actions that:

- extend the socially useful life of organizations
- enhance the planet's ability to maintain and renew the viability of the biosphere and protect all living species
- enhance society's ability to maintain itself and to solve its major problems
- maintain a decent level of welfare, participation and personal freedom for present and future generations of humanity.

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2.5 Business and Sustainable Development

It is widely acknowledged that business can play a significant role in reducing deteriorating environmental quality, poverty, and social inequality, and in advancing society towards sustainable development (Harris, L. C. & Crane, 2002; Margolis & Walsh, 2003). Businesses are seen to be "the engines of the economy ... the key means through which economic activity takes place, … and often the seat of innovation through which growth is sought, and sites of increasing economic and political power" (Gray & Bebbington, 2005, p. 1). Businesses and industry, local, national, and international also are significant contributors to the exploitation of non-renewable resources, and destruction of ecosystems, and therefore have a significant role in slowing the depletion of ecosystem resources, and conserving non-renewable resources for future generations (Shrivastava & Hart, 1995, p. 156), and to contribute to economic, environmental and social wellbeing (Banerjee, 2002c; Orlitzky, Siegel, & Waldman, 2011; Schaltegger, Bennett, & Burritt, 2006). The substantial contribution that businesses and international corporations can make to sustainable development was recognized at the 1992 United Nations Conference on Environment and Development (the "Earth Summit"), held in Rio De Janeiro. At this conference, the United Nations (UN) adopted Agenda 21, as an action plan for governments, international organizations, businesses and the community to achieve sustainability. Chapter 30, Section 1 of Agenda 21 emphasised the role which business and industry play in the economic development of countries, and stressed that, whether local or transnational, business and industry and their associated organizations should fully participate in implementing, and evaluating activities related to Agenda 21 (United Nations, 1992). Since then, the UN increasingly has discussed the role of business in contributing to sustainable development. For example, the 2002 UN Global Compact (2002) specified ten principles for business which covered human rights, labour, environment and anti-corruption (United Nations Global Compact, 2014). The same year, the World Summit on Sustainable Development, held in Johannesburg, emphasised the critical roles of businesses in achieving sustainability, corporates' responsibility and accountability towards "the evolution of equitable and sustainable communities and societies", and the need for businesses to be genuinely committed to private initiatives to enable sustainable development (Doran, 2002, p. 2).

In response to the 1987 WCED report , Agenda 21, and the UN Global Compact, many other organizations, including governments, developed sustainability strategies and action plans

(Azapagic & Perdan, 2000). Corporations similarly have responded to increasing criticisms about their impact on the environment, and have developed and promulgated policies about their environmental and social policies, many of which have been criticized as motherhood statements (Bebbington & Gray, 2001) and public relations exercises (Bebbington & Gray, 1993), and have promoted their environmental activities in order to market themselves as being "green" (Banerjee, 2008, p. 65). Gray and Bebbington (2000) propose that current accounting methods, and their underlying financial focus, are in conflict with organizational sustainability and the broader sustainability agenda, and thereby question whether organizations are capable of adopting the broader, non-financial aspects of sustainability. Others see businesses taking more positive steps towards environmental sustainability, and contributing towards sustainable development by acknowledging sustainability, using resources more efficiently, preventing pollution and producing more cleanly, which, in turn, has the economic benefits of reducing costs, and thus increasing profits (Azapagic & Perdan, 2000, p. 244).

2.6 Defining Organizational Sustainability

Organizational sustainability, sometimes referred to as corporate sustainability (Montiel, 2008), has evolved from the broader concepts of sustainability and sustainable development (Russell et al., 2007). Increasingly acknowledged by the private sector (Drexhage & Murphy, 2012), in the organizational context, sustainable development is variously understood as organizational sustainability, corporate social responsibility (CSR), corporate responsibility (Egri & Ralston, 2008), Triple Bottom Line (TBL) or People Planet Profit (Elkington, 1994), and corporate social performance (Wood, 1991a).

As with sustainable development, there is a plethora of understandings of the term organizational sustainability (Atkinson, 2000). A review of organizational sustainability literature revealed a multitude of definitions and understandings of the term organizational sustainability, some of which have evolved from the broader, global sustainable development and others which have their origins in CSR. The majority of understandings of organizational sustainability incorporate the three components: economic or financial sustainability, thereby ensuring the ongoing viability of the organization, protecting environmental resources, and providing social benefits.

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2.6.1 Relationship between CSR and Organizational Sustainability

Current understandings of CSR are believed to have originated with Bowen's (1953) seminal work in which he described the social responsibilities of businessmen to be an obligation to "pursue those policies, to make those decisions, or to follow those lines of action which are desirable in terms of the objectives and values of our society" (Bowen, 1953, p. 6). Carroll (1979, 1991, 1999) systematized and perpetuated CSR as an important management concept, comprised of economic, legal, ethical, and philanthropic responsibilities. CSR also has multiple understandings (Castelló & Lozano, 2009; D'Amato & Roome, 2009; Garriga & Mele, 2004; Hediger, 2010; Lozano, 2012), both between and within countries (Freeman & Hasnaoui, 2011). The various understandings include economic, profit, and wealth creation responsibilities (Friedman, 1970; Porter, M. E. & Kramer, 2006); responding to stakeholder requirements; the idea of legal responsibility or liability (Schwartz, M. S. & Carroll, 2003); charitable contributions or philanthropy which sometimes is viewed as altruism (Castelló & Lozano, 2011; Windsor, 2006); social consciousness (Votaw, 1972); social investment (Matten, Crane, & Chapple, 2003); responding to public policy and social issues and needs (Sethi, 1975; Windsor, 2006, p. 93); doing the right thing to ensure a good society and acting ethically (Carroll, 1979, 1991, 1999; Garriga & Mele, 2004); and ensuring universal human rights (United Nations Global Compact (2014). All of these can be a "tool for developing market opportunities" (Windsor, 2006, p. 99), and ensuring organizational legitimacy (Castelló & Lozano, 2011; Dowling & Pfeffer, 1975). Another aspect of CSR, Corporate Social Performance, relates CSR to an organization's financial measures, stakeholder relations, and volunteerism (Dennis, D'Intino, Houghton, Neck, & Boyles, 2008; Schwartz, M. S. & Carroll, 2003).

Some include corporate citizenship within CSR; this may include compliance with laws and regulations, ethical behaviour, and contributions to social and economic welfare (Carroll, 1999; Rondinelli & London, 2003; Schwartz, M. S. & Carroll, 2008). Lockett, Moon & Visser's (2006) meta-analysis of research papers published in leading USA-based management journals over 11 years from 1992 to 2002, identified four main CSR themes: social; environmental; ethics; and stakeholders, with research on the environmental and ethical aspects of CSR being predominant. When Egri and Ralston (2008) extended Lockett et al.'s (2006) research to investigate to include international publications, they found the examined

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papers focused on ethics (37%) and governance (25%), followed by environmental topics (19%) and CSR (18%) (Egri & Ralston, 2008, p. 323).

Over the past few years, the understandings of organizational sustainability and CSR have merged, with some using the terms interchangeably. Lockett, Moon and Vissar's (2006) meta-analysis of management literature published in leading USA-based management journals over 11 years from 1992 to 2002, identified four main CSR themes: social, environmental, ethics and stakeholders, with research on the environmental and ethical aspects of CSR predominating. Montiel's (2008) comprehensive meta- analysis of over 700 research articles published from 1970 to 2005, identified that, despite differing historical and philosophical origins, the terms are now "converging" boundaries between them are becoming increasingly blurred (Montiel, 2008, p. 260). Originally focused on urging organizations to look beyond their economic and financial focus on production and economic growth, and to consider the social responsibilities of business, and improve the quality of life of society at large, many explanations of CSR now incorporate environmental preservation. In part, this, can be explained by prominent organizations such as the European Union's promotion of CSR as part of its Sustainable Development Strategy (Aras & Crowther, 2009; Azapagic, 2003; European Commission, 2001, 2002), and the World Business Council of Sustainable Development (WBSCD) including CSR as the social component of its definition of sustainable development for businesses (Holme & Watts, 2000). Montiel (2008, p. 264) concluded, however, that while researchers have tended to include a wider range of issues and concepts under the CSR banner, organizational sustainability remains based on the WCED definition (Brundtland & Khalid, 1987).

Several researchers, including Dyllick and Hockerts (2002), Bansal (2005), Russell et al. (2007), and Linnenluecke et al. (2009), emphasise that achieving organizational sustainability requires that organizations take a holist approach, and commit to all three key aspects of sustainable development: economic, environmental, and social. Sharma (2002, p. 2) established that sustainable organizations "build on natural capital, enhance human and societal welfare, and contribute to appropriate economic and technological development". Bansal (2005, pp. 198, 200) determined that Corporate Sustainable Development (CSD) is based on three principles, all of which are "necessary conditions for corporate sustainable development":

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1. economic prosperity through value creation
2. environmental integrity through corporate environmental management
3. social equity through corporate social responsibility.

Similarly, Russell et al. (2007, p. 395) identified four perspectives on organisation sustainability, in that sustainable organizations:

1. work towards long-term economic performance
2. work towards positive outcomes for the natural environment
3. support people and social outcomes
4. take a holist approach which incorporates all three of the above.

Linnenluecke et al. (2009) extended this to usefully provide a model of four frameworks wherein sustainable organizations:

1. continue to focus on long term economic performance
2. adopt responsibility for minimising or even mitigating ecological and environmental outcomes of their activities
3. give attention to stakeholder groups, including employees and the local and global communities which they impact
4. take a holist approach, in which sustainability incorporates all three of the above perspectives.

This researcher similarly has adopted Bansal's (2005), Russell et al.'s (2007) and Linnenleucke et al.'s (2009) holistic approaches, whereby achieving organizational sustainability requires commitment to all four perspectives.

2.7 Why Organizations are Adopting Sustainability

Many companies have started to address sustainability, and have voluntarily included social and environmental policies and practices into their operation (Serafeim, 2013). Their objectives range from minimal compliance with legislative environmental and employment requirements, to environmental mitigation, with a more limited number seeking to positively contribute to ecological and societal welfare sustainability (Bansal, 2005; Hopwood, B. et al., 2005; Linnenluecke et al., 2009). Their endeavours have included modifying existing or developing new products, adopting new processes to reduce pollution or resources usage, and a wide range of programs to contribute to local communities (Linnenluecke et al., 2009) or improve relations with other stakeholders (González-Benito & González-Benito, 2006). However, as indicated earlier, to date, the impact on the environment and society has been slight (Espinosa & Porter, 2011), fuelling debate about whether organizations take sustainability seriously or how genuinely committed they are to

operating sustainably (Adams & Evans, 2004; Dando & Swift, 2003; Espinosa & Porter, 2011; Owen, Swift, Humphrey, & Bowerman, 2000).

In addition to the traditional expectations to achieve economic success, organizations are increasingly being pressured to meet environmental and social standards (Zadek, 1999). Many of these pressures are legislated at levels ranging from local councils, to government agencies, to the conventions established by global organizations, such as the World Trade Organization (WTO), the International Labour Organization (ILO), and the Organization for Economic Cooperation and Development (OECD) (Waddock, Bodwell, & Graves, 2002; Zadek, 1999). Other pressures come from an increasingly wider range of stakeholders, such as consumers (Bansal & Roth, 2000; Shrivastava & Hart, 1995; Waddock et al., 2002), shareholders (Shrivastava & Hart, 1995), and the general public (Hess & Warren, 2008; Shrivastava & Hart, 1995). Global activists and NGOs also are pressuring organizations to become more responsible and to operate more sustainably (de Bakker, 2012; Porter, M. E. & Kramer, 2006; Waddock et al., 2002). Various corporate scandals and collapse have contributed further to pressures on organizations from their various stakeholders to behave ethically (Brønn & Vidaver-Cohen, 2009).

Among the earlier drivers for organizations to improve their environmental performance were various government environmental protection departments and agencies which set standards, monitor organizations' environmental performance, and enforce environmental regulations (Azapagic & Perdan, 2000; Bansal & Roth, 2000; Epstein, 2008; Hess & Warren, 2008; Rondinelli & Berry, 2000; Shrivastava & Hart, 1995). However, as can be seen in Appendix 2.1, organizations obtain financial benefits from adopting sustainability, which range from cost reductions (Abbett, Coldham, & Whisnant, 2010; Azapagic & Perdan, 2000; Bansal & Roth, 2000; Porter, M. E. & Van der Linde, 1995a; Rondinelli & Berry, 2000; Thorpe & Prakash-Mani, 2003; Weber, M., 2008; Zadek, 2001), to increased profits (Davis, K., 1973; Epstein, 2008; Epstein & Roy, 2003; McDonald, L. M. & Rundle-Thiele, 2008; Székely & Knirsch, 2005). Some of these are generated by waste reduction (Azapagic & Perdan, 2000; Delmas, Etzion, & Nairn-Birch, 2013; Székely & Knirsch, 2005), or by process innovation and improvements (Porter, M. E. & Van der Linde, 1995a; Rondinelli & Berry, 2000; Thorpe & Prakash-Mani, 2003).

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Increasingly, corporations are expected to move beyond simply making a profit and creating jobs, and additionally, to help build a better society for all (European Commission, 2001; Hediger, 2010). The findings of the 1999 The Millennium Poll on Corporate Social Responsibility, revealed that one in two of the survey's respondents form their impression of a company according to its labour practices, business ethics, environmental impacts, and its responsibility to society at large (Environics International Ltd., 1999). This survey, which was conducted across an average of 1000 people, from each of 23 different countries, revealed that in the 21st century, organization will be expected to "demonstrate their commitment to society's values and their contribution to society's social, environmental and economic goals through actions", to "do well by doing good, and to help build a better society for all" (Environics International Ltd., 1999, p. 4). Further, globally, 40 percent of the survey respondents had thought about punishing a specific company for not behaving responsibly, and 20 percent had avoided a company's products, or had spoken to others about their concerns about the company's behaviour. The Millenium Poll thus clearly demonstrates the expectations which "ordinary" citizens increasingly have of companies.

More recent research has determined that adopting environmental sustainability may benefit the economic performance of a firm. Porter and Van der Linde (1995a, p. 98) supported strict environmental regulations, suggesting that by improving competitiveness, they encourage innovation, thereby "partially or more than fully offset(ting) the costs" of compliance". Hart (1995) went further, suggesting that the cost savings generated by sustainability related process and product innovations, including decreased resourced usage and waste, generate increased financial performance. Others conclude that companies with proactive environmental strategies also develop unique, competitively valuable organizational capabilities (González-Benito & González-Benito, 2005; Sharma, Sanjay & Vredenburg, 1998). Yet, there is no clear evidence that, in the short term, proactive environmental organizations have higher profitability (González-Benito & González-Benito, 2005; Wolf, 2013). Waddock and Graves (1997) are less certain, concluding that social sustainability activities eventually may be reflected in financial performance and may be a competitive advantage. Orlitzky, Schmidt and Rynes' (2003) meta-analysis of 52 United States (US) studies concluded that organizations' environmental and social performance is positively related to financial performance. Allouche and Laroche (2005), who undertook a larger meta-analysis of 82 US, Canadian and United Kingdom research studies found some

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support for Orlitzky et al. (2003), with the rider that organizations' reputation according to published indices (refer Section 2.9.1) have a greater effect on financial performance, than on actual social or environmental performance.

A summary of reasons for organizations adopting sustainability is presented in Appendix 2.1.

As Campbell (2007) highlights, there can be legitimate reasons for organizations to not adopt, or to reduce their existing focus on sustainability, suggesting that organizations are less likely to act in socially responsible ways when they are achieving poor financial results, or poor productivity, or when the economy in which they operate is weak, which, in turn, may impact consumer confidence. This was supported by the results of the first annual MIT Sloan Management Review Global Sustainability Survey, which found that almost 25% of surveyed organizations reduced their commitment to sustainability during the economic downturn subsequent to the 2008 Global Financial Crisis (Berns et al., 2009).

2.8 Measuring Sustainability Performance

Measuring sustainability activities and outcomes is important for providing both direction and evidence of organizations' sustainability achievements (Adams & Frost, 2008). Ethical, social, environmental and economic data are important for organizations seeking to improve their sustainability performance, and are essential for recording performance, evaluating risk, developing plans, making decisions, and considering risks and impacts of these plans and decisions. Adams and Frost (2008, p. 290) recommend that organizations develop specific key performance indicators (KPIs) which measure "financial, physical and even attitudinal aspects of performance". Their research identified that most companies commence sustainability reporting for business reasons, rather than ethical or moral reasons (Adams & Frost, 2008, p. 300). In addition to meeting compliance requirements, these reasons may include: the impact of the organization's operations on the environment; a desire to differentiate the organization from competitors; to increase market share and improve profitability; to build trust with key stakeholders, including local communities; or pressure to compete with already reporting organizations. Other researchers, similarly, have found some evidence that an increasing number of organizations use sustainability performance data for corporate planning and decision making, including setting sustainability targets, monitoring performance against these, and even rewarding managers for achieving sustainability objectives (Adams & Frost, 2008; Adams & Larrinaga-Gonza´lez,

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2007; Adams & McNicholas, 2007; Pérez, Ruiz, & Fenech, 2007). While most sustainability reporting is voluntary, Ioannou and Serafeim (2011, p. 3) found that mandatory sustainability reporting effectively promotes socially responsible managerial practices; and, further, once mandatory disclosure laws and regulations are introduced, business leaders become more socially responsible and are more likely to promote environmental, social and governance performance and ethical practices within their organization.

2.9 Sustainability Reporting

In response to the concerns about organizational sustainability performance, over the past two decades there has been a surge in organizations reporting on environmental and social issues, in addition to financial performance reporting (Gray & Bebbington, 2005; Kolk, 2003). Initially driven by government mandates to report compliance with environmental protection and occupational health and safety regulations, environmental reporting by corporations has become widespread, although social reporting still is less extensive (Gray & Bebbington, 2005; Kolk, 2003). These reports are intended to: "provide additional accounts which capture some of the externalities and, by doing so, to encourage behaviour which will ameliorate the consequences of Western economic life" (Gray, Owen, & Adams, 1996, p. 2).

Many organizations, including public and private companies, not-for-profit, and government organizations, now are reporting on their environmental, social and sustainability impacts, although larger, higher profile organizations are more likely to report (Dando & Swift, 2003). KPMG's 2013 survey of corporate responsibility reporting identified that 71% of the 4,100 surveyed companies prepared corporate responsibility reports; these companies were from 43 countries and included 95 percent of Global Fortune 250 (G250) companies (Bartels, 2013).

A number of questions have arisen about the veracity of these reports and whether reporting organizations are genuinely committed to environmental and social sustainability. The following sections review current sustainability reporting and discuss the flaws in sustainability reporting which have led to these concerns.

2.9.1 Indices and Frameworks

In response to the pressure for sustainability reporting, a range of reporting frameworks have evolved, including indexes for socially responsible investment (e.g. Dow Jones Sustainability Index; FTSE4good; MSCI ESG (Environmental, Social, and Governance)

(previously known as the Kinder, Lydenberg and Domini (KLD) 400 Social index); Bloomberg, and Thomson Reuters ASSET4); reputation ratings such as the Fortune Corporate Reputation Index, Newsweek Green Rating; and a series of global awards (e.g. CorporateRegister.com, Association of Certified Chartered Accountants, Global Reporting Initiative) (Hubbard, 2009b). According to Sadowski, Whitaker and Buckingham (2010), there are more than 50 different distinct rating methodologies for assessing environmental and social performance, with more than one of these appearing since 2005. The underlying assumption of many of these reporting frameworks is that sustainability reporting may drive economic performance (Serafeim, 2013). Some studies have concluded that these rating schemes, in addition to influencing the organizations themselves (Chatterji & Toffel, 2010), can significantly influence stakeholders' behaviour, including consumers (Sen & Bhattacharya, 2001), and investors (Becchetti, Ciciretti, Hasan, & Kobeissi, 2012), with higher CSR ratings reducing the cost of equity (Cheng, B., Ioannou, & Serafeim, 2011; Ghoul, Guedhami, Kwok, & Mishra, 2011).

Among the more widely known sustainability reporting frameworks are the TBL and the Global Reporting Initiative (GRI), which both emerged in 1997. Derived from the Brundtland Report's (Brundtland & Khalid, 1987) definition of sustainable development and applying principles from stakeholder theory, the TBL's underlying premise is that organizations must widen their range of stakeholders from those with direct economic links (shareholders, supplies, customers), to include employees, the community and governments (Hubbard, 2006). TBL assumes that objective measures can be applied to organizations' environmental and social performance, and measuring and reporting on these will encourage organizations to operate more sustainably (Atkinson, 2000; Gray & Bebbington, 2005; Norman & MacDonald, 2004). Those organizations which provide TBL reports are perceived to be more concerned about environmental, social and economic sustainability (Dillard, Brown, & Marshall, 2009). However, some deem it impossible for such reports to consider all areas of the environmental or social impacts of organizations' activities (Milne, Ball, & Gray, 2005), and, as a consequence, TBL and GRI reports are "narrow", "incomplete", and "little more than soothing palliatives" (Milne, Ball, & Gray, 2008). Similarly, an analysis of sustainability reports prepared by eight New Zealand organizations, concluded that overall, "wider social issues of equity and social justice … (were) absent from these reports and so from their conceptions of sustainable development" (Milne, Tregidga, & Walton, 2005, p. 21).

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The GRI, generally regarded as the international benchmark for sustainability reporting (Centre for Australian Ethical Research, KPMG, & Greene, 2005), was developed by The United Nations in conjunction with the Boston-based Coalition for Environmentally Responsible Economics (CERES) (Tschopp, 2005). Claimed to be the most developed standards for sustainability reporting (Dillard et al., 2009), and to standardise sustainability reporting (Tschopp, 2005), the GRI report format is broad, with 100 core and supplementary questions covering environmental, social, product responsibility, and economic areas of organizations' operations (Global Reporting Initiative, 2013). Of the various sustainability reporting formats, GRI has had the greatest uptake, with around 40% of 6,500 corporate non-financial, environmental, sustainability and community reports submitted in 2012 following the GRI format (CorporateRegister.com, 2013). 82% of the top Global 250 companies and 78% of the 100 largest companies by revenue, which published sustainability reports, followed the GRI Guidelines (Bartels, 2013, p. 31).

Some companies see potential financial benefits of sustainability: increasing company reputation, creating market opportunities*,* improving stakeholder relationships, and reducing risk (Daub, 2007). Kolk (2003; 2010, p. 368) identified a number of other reasons organizations adopt sustainability reporting, including, the "enhanced ability to track progress against specific targets"; "facilitating the implementation of the environmental strategy"; increased organizational awareness of broad environmental issues; increased transparency, which, in turn improves organizational credibility; "license to operate and campaign"; reputational benefits"; and "cost savings identification". Bebbington, Higgins and Frame (2009, p. 20) added "a mix of legitimacy and accountability"; an "'appropriate', 'normal' activity or 'the right thing to do'"; differentiating the company, and the reports provide "a symbol of their sustainable development positioning".

Others believe corporate sustainability is a means for creating long term shareholder value, and investors consider sustainability to be "a proxy for innovative and future-oriented management" (Australian SAM Sustainability Index (AuSSI), n.d.). Several sustainability indices provide ratings for companies wanting to be listed on stock exchanges as leading, sustainability driven companies, and enable investors to objectively measure the investment portfolios of sustainable companies. Launched in 1999 by Dow Jones, in conjunction with SAM Research, Inc., and now jointly produced by S&P Dow Jones Indices LLC and RobecoSAM AG, the S&P Dow Jones Sustainability Indices (DJSI) define corporate

sustainability as a: "business approach that creates long-term shareholder value by embracing opportunities and managing risks deriving from economic, environmental and social developments" (Australian SAM Sustainability Index (AuSSI), n.d.). The DJSI are comprised of global, European, North American, Asia/Pacific benchmarks, individual country measures, and a number of customised indexes. The indices exclude companies that generate revenue from alcohol, tobacco, gambling, armaments & firearms, and/or adult entertainment (S&P Dow Jones Indices, 2014). Globally, in 2013, 1831 companies were analysed against the DJSI criteria, which included climate strategy, stakeholder engagement, product stewardship, operational eco efficiency, and financial risk and systemic risk (RobecoSAM, 2014).

Another financially driven index, the FTSE4Good, created in 2001, is aimed at companies which wish to position themselves as environmentally and socially responsible. The FTSE4Good Index is focussed on environmental management, climate change mitigation, human and labour rights, supply chain and anti-bribery criteria. Originally excluding companies operating in the tobacco, nuclear power, nuclear weapons and uranium mining and processing industries, it now has two industry exclusions, Tobacco and Weapons. Globally around 894 companies have a FTSE4Good rating (FTSE, 2011b). Additionally, around 2400 securities are rated against the FTSE4Good Environmental, Social and Governance (FTSE4Good ESG) criteria which consider environmental management, climate change, human and labour rights, countering bribery, and corporate governance (FTSE, 2011a).

In fact, there are at least 250 different global and local sustainability rating, ranking and awards schemes (Corporate Citizenship, 2013, p. 3). They very in what they measure, and the weightings they give to each measure; some of the measures included in these ratings are not related to sustainability performance (Chatterji & Levine, 2008; Delmas & Blass, 2010; Delmas et al., 2013; Porter, M. E. & Kramer, 2006), and have varying predictive ability (Chatterji & Levine, 2008).

An alternative to investment ratings, certified management systems provide tools for structured processes, policies, objectives, targets and measures. The leading Environmental System (EMS), ISO 14001 has been taken up in over 167 countries (International Organization for Standardization, 2013), but many organizations believe costs outweigh the benefits, and in-house systems are as effective: in some industries, for example, forestry and

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chemicals, the industry-specific standards are stricter than ISO 14001 and require external reporting (Bansal, 2002). With more stringent auditing requirements, than ISO14001, the Environmental Measurement & Auditing System (EMAS) has more limited acceptance (Rowland-Jones, Pryde, & Cresser, 2005). Another certification system is focussed on human rights: SA8000 is framed around global conventions: The Universal Declaration of Human Rights, Declaration of Human Rights, and the United Nations Convention on the Rights of the Child (Tschopp, 2005).

While surveys by organizations such as KPMG, CorporateRegister.com, and Accenture, reveal a steady rise in non-financial reports (social, environmental, sustainability and community sustainability), the increase appears to be limited to the largest companies in developed countries (Gray & Bebbington, 2005). GRI revealed that, in 2012, almost 2500 organizations submitted GRI reports to the GRI Sustainability Disclosure Database (Global Reporting Initiative, 2013), which is a very small portion of all companies worldwide (Marimon, Alonso-Almeida, Rodríguez, & Cortez Alejandro, 2012). A 2008 survey by KPMG found 79 per cent of the Global 250 companies worldwide issued reports, up from about 50 per cent in 2005; globally, reporting varies by industry sector, with finance, insurance, and securities companies dominating, followed by oil and gas, utilities and, electronics (Bartels, 2008). In December 2013, KPMG released the results of its 2013 study of 4,100 companies across 41 countries, revealing that, of the Global 250 companies, 93 percent published the annual corporate responsibility reports, which was a decrease from 95 percent in 2011, which KPMG attributed to changes in the companies which were included in the Global 250 reports (Bartels, 2013, p. 22), with the GRI reporting framework applied by 78 percent (Bartels, 2013, p. 31). Interestingly, and in-line with discussion earlier in this chapter about the merging of meanings of organizational sustainability, CSR, and other related concepts, while the earliest KPMG reports were titled "Corporate Sustainability Reporting", since 2005 the KPMG reports have been titled "corporate responsibility", reflecting the variation in terminology used by companies. KPMG intends that "corporate responsibility" encompasses "sustainability", which in 2013 was used by 43% of organizations, "corporate responsibility" (used by 14 percent), "CSR" (used by 25%), and range of other similar terms (Bartels, 2013, p. 6).

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2.9.2 Concerns about sustainability reporting

Despite their positive tenor, the survey results from KPMG are limited to the largest publically listed global and national companies. Overall, these numbers remain relatively small, compared with the number of companies (Lozano & Huisingh, 2011). According to Hohnen (2012, p. 9), of an estimated 80,000 multinational companies, only 4,000 provide sustainability reports, and an even lower percentage of smaller organizations, public agencies and government organization do any sustainability reporting.

While reporting organizations see environmental, social and sustainability reporting as an important means of communicating their sustainability activities with stakeholders, there are questions about the completeness, transparency, veracity and usefulness of the data, and whether it meets stakeholder expectations (Font, Walmsley, Cogotti, McCombes, & Häusler, 2012). There are many instances where the reports are little more than "slick" statements of policies and intentions, and lack substance and real data (Hopwood, A. G., 2009; Kolk, 2003). There also is considerable scepticism about the sincerity of the reporting organizations (Owen et al., 2000), and whether sustainability reporting is driving organizations to operate sustainably (Adams & Evans, 2004; Dando & Swift, 2003).

Thus, the growth in reporting is not accompanied by an "increased confidence in the ability or intention of business to take sustainability seriously" (Dando & Swift, 2003, p. 195). They tend to express "concerns, intentions and policies", rather than demonstrate actual corporate behaviour and outcomes (Kolk, 2003, p. 228). Many organizations continue to provide incomplete reports on their social and environmental performance responsibility (Adams & Evans, 2004). The information contained in these reports is "piecemeal" (Bouten, Everaert, Van Liedekerke, De Moor, & Christiaens, 2011, p. 202), the reports lack rigour (Adams & Larrinaga-Gonza´lez, 2007; Hubbard, 2009a), and they fail to provide detailed objectives and quantified targets with expected achievement dates, or to report the organizations' performance against those (Adams, 2004, p. 732). Further, preparing these reports and the information contained therein, often is seen by organizations as a fringe activity that sits outside their mainstream financial reporting activities (Hubbard, 2006). Consequently, both the sincerity of the reporting organizations and the data they provide increasingly is questioned (Adams, 2004; Aras & Crowther, 2009; Tregidga & Milne, 2006).

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2.9.2.1 Voluntary reporting

A frequently cited criticism is the voluntary nature of most preparation and submission of environmental, social and sustainability reports, in both form and content, enabling companies to put a positive spin on their activities, and avoid being held accountable for their actions (Golob & Bartlett, 2007; Moneva, Archel, & Correa, 2006). With the exception of companies listed on South Africa's Johannesburg Securities Exchange, and country specific environmental protection requirements, companies are not obliged to prepare and submit sustainability reports. Reporting organizations also are able to "cherry pick" from their internal data (Fonseca, 2010; Moneva et al., 2006), and focus on reporting those activities which present their organization in the best light. The range of available reporting frameworks and differing reporting options within these provide organizations with further means for selective reporting (Moneva et al., 2006). Within the GRI framework, organizations can focus either on the environmental or the social aspects of sustainability (Roca & Searcy, 2012), or on the areas the organization deems relevant to its business the industry in which it operates , and thus emphasise positive areas of their sustainability performance, while concealing weaker areas (Freundlieb & Teuteberg, 2013). The TBL similarly allows for separate environment, social and community reports, combined social and environment reports, a complete TBL report, or including data in corporate annual reports. Further, Eccles, Krzus, Rogers and Serafeim (2012) and Serafeim (2013) identified a high degree of selectivity by organizations regarding what is included in sustainability reports, and where information was disclosed. They also found significant variation in the information disclosed, ranging from "boilerplate language", which adds little or no value to readers of the reports, to some quantifiable measures. This "cherrypicking" of favourable information significantly limits the value of the reports, and has led some to conclude that sustainability reports are predominately marketing tools (Roome & Bergin, 2006; Roome & Wijen, 2006; Sweeney, L. & Coughlan, 2008; Waddock, 2007).

2.9.2.2 Greenwashing

There are frequent criticisms of "greenwashing" or presenting a favourable rather than a realistic view of organizations' performance, and there is increasing evidence that, rather than change their environmental and social behaviours and actions, organizations are using sustainability and CSR reports to present the illusion that they are committed to sustainability (Cho, Guidry, Hageman, & Patten, 2012; Cho, Roberts, & Patten, 2010).

Sustainability reporting is critiqued for giving the impression that organizations are concerned about economic, environmental and social issues (Dillard et al., 2009). Data provided can be inadequate, and provide a falsely positive picture of actual activities (Banerjee, 2002a, 2011; Clarkson, Overell, & Chapple, 2011; Delmas et al., 2013; Dillard et al., 2009; Font et al., 2012; Hubbard, 2009a; O'Dwyer & Owen, 2005), and may hide the fact they are not actually endeavouring to act sustainably (Delmas et al., 2013). Supporting these concerns, KPMG found that 55% of companies prepare reports to enable a positive corporate image (Bartels, 2008), and Gray and Bebbington (2005, p. 8) believe reports can be "downright dishonest". Endorsing this, an Australian survey found that of 40 large publically listed organizations, 65 to 95% of the TBL reports were favourably biased towards the reporting organizations (Hubbard, 2009a). Porter and Kramer (2006, p. 81) claim that most CSR reporting is cosmetic rather than strategic: glossy public relations and media, which "support a new cottage industry of report writers", and which rarely provide specific information about the impact of environmental or social efforts. Leiss (2006) observed that unfavourable information about organizations' social and environmental activities is withheld from CSR and sustainability reports, or may be provided by other media channels and not the sustainability report. Cho, Roberts and Patten (2010, p. 442) concluded that corporate environmental information provided by "poorer performing firms appear to emphasize good news, obfuscate bad news, and slant attributions of performance to their advantage in an attempt to manage stakeholder impressions of their corporate environmental performance". A further study by Cho, Guidry, Hageman and Patten (2012), supported this finding, and identified that the worst performing companies made more extensive environmental disclosures, in order to counter their poor performance and reputation (p. 23). Freeman and Hasnaoui (2011) came to similar conclusions.

Laufer (2003) and Wang and Bansal (2012) found corporate sustainability reports increasingly are presenting misleading information which overstates both organizations' sustainability performance, and their commitment to performance. Reports often include one-off examples of good practice, usually as a case study or example with glossy photographs which rarely represent typical organization-wide performance, and may even conceal the realities and negative impacts of the organization's activities on the environment and on communities (Banerjee, 2011, p. 725; Gray & Bebbington, 2005), with the case studies rarely going into detail (Hubbard, 2009b). Other research has found that, with

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unclear, poorly explained methodologies and uneven standards, the sustainability performance information provided often is of little value (Hubbard, 2009b).

2.9.2.3 Comparability

Unlike accounting and other financial reporting standards, there are no agreed, uniform standards or regulations for measuring all aspects of environmental, social and sustainability performance reporting(Dando & Swift, 2003). Describing sustainability ratings as a "black box", Delmas and Blass (2010, p. 248) explain that each of the rating systems have a different emphasis, including environmental impact, regulatory compliance and accounting and managements systems, and use different metrics, thus making reports very difficult to compare.

Sustainability report formats are unique to each organization, which makes it difficult to measure and compare an organization's performance year on year, or with other organizations (Eccles, Krzus, et al., 2012; Hohnen, 2012; Searcy & Buslovich, 2014). The descriptive nature of most reports, with few targets and little benchmarking (Marshall & Brown, 2003), adds to the comparability problems. Organizations also frequently report information by product, line of business, or country, rather than aggregated international information, which hides overall sustainability performance (Hubbard, 2009b). Even where corporations use frameworks such as GRI to report, many do not follow the reporting standards, or select which of the GRI measures they will use and report, which further erodes data comparability (Dillard et al., 2009; Roca & Searcy, 2012). The lack of consistent reporting standards and guidelines enables companies to use the reports as marketing strategy or "spin" (Tschopp, 2005, p. 56).

2.9.2.4 Managerialism

Corporate managements' control over the collection, production and distribution of the reports, has been critiqued by researchers, as it restricts publication to that information which presents a positive corporate image. O'Dwyer and Owen's (2005, p. 205) study found "a large degree of management control over the reporting process". Further, the frameworks used to collect, analyse, report and audit the information are oriented to management needs, not those of other stakeholders. Several researchers have argued that stakeholder involvement is critical for organizations achieving sustainability (Hubbard, 2009a; Stubbs & Cocklin, 2007).

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2.9.2.5 Assurance

Currently, there are no generally accepted accounting or auditing standards for sustainability reports, and no public or regulatory requirements (Dillard et al., 2009; Searcy & Elkhawas, 2012). This lack of audited, standardised, company-wide reports and external monitoring enables companies to provide positively biased reports (Hubbard, 2006; Laufer, 2003). O'Dwyer and Owen (2005) found, for the most part, the assurance providers are selected and appointed by management, who can set restrictions on the audit scope and on the audit report. KPMGs 2008 survey revealed globally only 40% of those companies submitting reports had their report independently verified (Bartels, 2008), while in 2013 the number was little changed at 38 percent (Bartels, 2013). O'Dwyer and Owen's (2005) analysis of assured reports identified that "little thought has gone into what assurance statements are supposed to be providing" and they concluded any assurance tends to be symbolic rather than rigorous. AA1000 and AA1000S were developed as a tool for assuring accuracy of the data based on auditing standards but have had a low take up (Dando & Swift, 2003). Without external, third party structured auditing, it is extremely difficult to determine the extent of the gap between publically reported compliance or sustainable performance and genuine performance responsibility (Laufer, 2003).

2.9.2.6 Sustainability Context

GRI requires that the information provided about sustainability performance should be placed in context, that is: "how an organization contributes, or aims to contribute in the future, to the improvement or deterioration of economic, environmental, and social conditions, developments, and trends at the local, regional, or global level" (Global Reporting Initiative, 2006). While including this context adds significant meaning to the reported information (Moneva et al., 2006), most reports, including most GRI reports, fail to present this information, with the result that reports tend to be "at best, top-line trend or efficiency reports" (McElroy et al., 2008, p. 224), rather than presenting organizations' capacity to sustain the social or environmental benefits of their activities.

2.9.2.7 Low Priority

Corporations remain driven by profitability and shareholder value, and unless they can quantify the financial impact of their sustainable activities, sustainability will continue to be given lower priority than other business issues (Accenture Sustainability Services, 2009; Gray & Milne, 2002). Many companies find the sustainability reporting framework requirements,

including GRI's, cannot be integrated with their existing financial and other performance measures, and their preparation, therefore, requires significant additional time, effort and cost (Hubbard, 2009a).

2.9.2.8 Other concerns

Other concerns about sustainability reporting include the lack of completeness of sustainability reports, including a failure to link sustainability to the organization's strategy or financial performance (Hohnen, 2012, p. 9). Further, they often fail to provide information about the systems, processes and competencies which lie underneath the information provided (Dando & Swift, 2003). Moreover, the majority of sustainability reports continue to focus on environmental matters while social sustainability reporting lags behind (Ehrenfeld, 2005; Sharma, Sanjay & Ruud, 2003).

2.10 Determining Organizational Commitment to Sustainability

Nevertheless, given the importance of companies' adopting sustainable approaches to their business operations, the slow take up of sustainability reporting, and the questions raised about data quality and whether the reports reveal a genuine commitment to sustainability, it is possible to determine whether organizations are developing a genuine and strategic approach to sustainability. A number of models have been developed which can be used to assess organizations' commitment to embedding social, environmental and economic sustainability into business operations and practices. Most often structured as an evolution, a continuum (Castelló & Lozano, 2009), or successive stages of increasing ownership of organizational sustainability, these models provide an aspirational framework for organizations endeavouring to fully integrate sustainability into their business (Quinn, L. & Dalton, 2009). They also offer guidelines for strategy, the ability to compare divisions within organizations, and compare sustainability commitment across organizations (Dunphy & Benveniste, 2000).

Dunphy et al.'s (2007) model presents six stages of both social (human) and ecological sustainability. The lowest stage, Rejection, is outright denial and even hostility, with organizations perceiving sustainability as a threat to their right to operate as they wish. Employee exploitation, and ignoring community concerns, environmental exploitation, pollution and degradation are status quo. The highest level, the Sustaining Corporation, is a complete contrast, with organizations actively supporting the community and society,

applying environmental best practice to all operation and activities, and influencing other organizations, government and the community to build an ecologically, environmentally and socially sustainable society. Similarly, van Marrewijk (2003) and Van Marrewijk and Werre (2003) present six ambition levels of Corporate Sustainability from Pre-Corporate Sustainability to Holistic. Pre-Corporate Sustainability organizations respond to legal requirements and to some stakeholder pressure; Holistic companies integrate sustainability throughout their organizations, and see their responsibilities as being towards all people and organizations, now and in the future.

Mirvis and Googins (2006a, 2006b, 2009) put forward a five stage model commencing with Elementary, where profit is the dominant objective, and social and environmental responsibilities are limited to complying with legal requirements. Transforming, the fifth level, involves companies fully integrating social and environmental responsibilities into business strategy, and partnering with other organizations to develop innovative solutions.

Zadek (2004) takes a different perspective when he describes organizations' path to corporate responsibility as a complex and iterative learning pathway with five stages: Defensive, Compliance, Managerial, Strategic and Civil. Munilla and Miles' (2005) three stage framework specifically considers circumstances where a small number of external stakeholders force a company to adopt aspects of social responsibility which negatively impact the organization's ability to create value for other stakeholders. Wheeler, Colbert and Freeman (2003) draw together stakeholder theory, sustainability and the creating of organization values into a three stage corporate culture model: Compliance, Relationship Management, and Sustainable Organization.

Each of the models is proposed as an ideal representation of the stages though which an organization moves, from minimal compliance to positively contributing to ecological and social welfare. The models enable organizations both to compare their progress across different divisions, and to compare themselves with other organizations in the same, or other industries. The models have a number of common characteristics, as illustrated in Table 2.1. Several of the models, particularly Dunphy et al.'s (2007) "Phases in Developing Sustainability", Mirvis and Googins' (2006a, 2006b, 2009) five "Stages of Corporate Citizenship", and Zadek's (2004) "Stages of Organizational Learning", provide a set of

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indicators for each stage of sustainability, with Mirvis and Googins'(2006a, 2006b, 2009) and Dunphy et al.'s (2007) being the most comprehensive.

Dunphy et al.'s (2007) Phases model delineates between human or social sustainability and ecological sustainability, which gives it a particular advantage. By providing organizations with a clearly defined, phase by phase set of standards for both human and environmental sustainability, the Phases model provides organizations with a detailed tool to determine their level of sustainability ambition, set objectives, determine the actions needed to improve their sustainability performance and track their progress. Distinguishing between human and environmental sustainability highlights whether organizations' human and environmental sustainability are at the same or different stages. Regarding their people as a long term commitment, and investing in human capital is essential for building environmental sustainability (Benn & Dunphy, 2004a), and, using the Phases model highlights any gaps. Organizations are unlikely to progress systematically through these Phases, but rather, may "leap-frog phases or regress by abandoning previously established sustainability practices" (Benn et al., 2006, p. 157).

Mirvis and Googins' (2006a, 2006b, 2009) model is similarly comprehensive. Including social and environmental sustainability, ethics, philanthropy, and stakeholder management within their understanding of Corporate Citizenship, their framework comprises a grid which assesses progress through the five stage of citizenship in seven areas: overall citizenship; the strategic intent, or purpose of citizenship; where responsibility for citizenship is placed in the organization's structure; leaders' knowledge of and visible support for citizenship; management of leadership issues; stakeholder relationships; and how transparent, open and honest organizations are about their financial, social, and environmental performance.

Details of Dunphy et al.'s (2007) Phases in Developing Sustainability, and Mirvis and Googins' (2006a, 2006b, 2009) Stages of Corporate Citizenship models are displayed in Tables 2.2, and 2.3. These two models were compared and aligned, and the results are presented in Table 2.4.

Table 2.1 Comparison of Models of Stages of Organizations' Commitment to Sustainability

Model	Authors	Stage 1	Stage 2	Stage 3	Stage4	Stage 4.5	Stage 5	Stage 6
Journey to Sustainable Development	CESD (1999)		Coping	Compliance	Comprehensive Environmental Management		Pursuit of Sustainable Development	
Phases in Developing Sustainability	Dunphy et al. (2007)	Rejection	Non-Responsive-ness	Compliance	Efficiency		Strategic Proactivity	The Sustaining Corporation
Ambition Levels of Corporate Sustainability	Van Marrewijk & Werre (2003)	Pre-Corporate Sustainability		Compliance Driven	Profit Driven	Caring	Synergistic	Holistic
Corporate Culture	Wheeler, Colbert & Freeman (2003)			Compliance	Relationship Management		Sustainable Organization	
Stages of Organizational Learning	Zadek (2004)	Defensive		Compliance	Managerial		Strategic	Civil
CSR Continuum	Munilla & Miles (2005)			Compliance			Strategic	Forced
Stages of Corporate Citizenship	Mirvis & Googins, (2006a, 2006b, 2009)		Elementary	Engaged	Innovative		Integrated	Transforming
CSR Postures	Castello & Lozano (2009)			Risk Management			Strategic Intent	Citizenship
Sustainability Maturity	Baumgartner & Ebner (2010)		Introverted	Beginning	Elementary		Satisfying	Sophisticated/ Outstanding
Sustainability Performance	Russell & MacIntosh (2011)		Reactive	Defensive	Accommodative		Proactive	Sustainable

Table 2.2 Dunphy et al.'s Phases in Developing Sustainability

	Phase 1 Rejection	Phase 2 Non-Responsiveness	Phase 3 Compliance	Phase 4 Efficiency	Phase 5 Strategic Proactivity	Phase 6 The Sustaining Corporation
	All resources – employees, community infrastructure and the ecological environment –there to be exploited by the firm for immediate economic gain.	Lack of awareness or ignorance rather than from active opposition to a corporate ethic wider than financial gain. Concentrates on 'business as usual' and ignores issues of sustainability. Unaware of or ignores community concerns about environmental sustainability and social matters.	Focus is reducing risk of sanctions for failing to meet minimum standards. Changes primarily reactive to growing legal requirements & community expectations for more sustainable practices.	Growing awareness are real advantages to be gained by proactively instituting sustainability practices.	Sustainability is intelligent corporate self-interest. Sustainability used to seize emerging opportunities.	Sustainability is internalized. Organization actively promotes society that supports ecological viability of the planet and its species. Organization contributes to just, equitable and democratic social practices and human fulfilment.
Financial Sustainability	Organization exists to maximize profit.	Focuses on financial gain. Financial & technological factors exclude broader social concerns.	Focus is reducing risk of fines/ sanctions for failing to meet minimum standards.	Sustainability practices directed toward cost reduction & increased operational efficiency.	Believes commitment to sustainability is important for maximizing longer-term profitability. Improving competitive advantage by positioning organization as leader in sustainable business practices.	Pursues excellent return to investors. Voluntarily actively promotes ecological sustainability values & practices in industry & society generally.

(Benn et al., 2006; Dunphy et al., 2007; Griffiths, 2003, 2004)

Table 2.2 (cont.) Dunphy et al.'s Phases in Developing Sustainability

	Phase 1 Rejection	Phase 2 Non-Responsiveness	Phase 3 Compliance	Phase 4 Efficiency	Phase 5 Strategic Proactivity	Phase 6 The Sustaining Corporation
Ecological Sustainability	Environment regarded as a free good to be exploited. Disregards destructive environmental impacts activities. Actively opposes any attempts by governments & 'green' activists to place constraints on activities.	Environmental risks, costs, opportunities & imperatives seen as irrelevant & are excluded from decision making. Disregards environmental consequences of the firm's activities.	Non-committal position on politicised sustainability issues. Address only ecological issues that are likely to attract strong litigation or strong community action.	Environmental issues ignored if are not seen as generating avoidable cost of increasing inefficiencies. Sales of by-products encouraged.	Proactive environmental strategies such as product & process redesign seen as source of competitive advantage. Develop innovative, quality products that are environmentally safe & healthy. Environmental sustainability focus goes beyond costs reduction and increased efficiency to adding value, and maximising speed, flexibility, innovation and responsiveness.	Works with society toward ecological renewal & positive sustainability policies. Contributes to ecological regeneration.
Human Sustainability	Employees & contractors exploited for economic gain. Health & safety measures for employees & community ignored or given 'lip service' Community concerns rejected outright.	Exclude broader social concerns. Any HR strategies, focused mainly on creating & maintaining compliant workforce. Industrial relations a major issue. Emphasis on cost of labour. Community issues are ignored where possible.	Emphasize compliance with legal requirements for Industrial relations & safety. HR policies focus on legal compliance. Benevolent paternalism & expect employee loyalty in return. Little integration between HR functions such as industrial relations, training & TQM.	Technical, supervisor & interpersonal skills training to achieve sustainable longer term. Community projects & HR value-add strategies pursued only when is a clear cost benefit. Starts to develop organizational cultures and industrial practices that support innovation.	Advanced human resource strategies help organization to be an 'employer of choice'. Corporate citizenship initiatives build stakeholder relationships and support.	Equity & human welfare in & outside organization are key goals. Partner with stakeholders and other organizations to promote sustainability. Build workforce capability. Contribute to community regeneration.

Table 2.3 Mirvis and Googins' Stages of Corporate Citizenship

	Description	Stage 1 Compliant	Stage 2 Engaged	Stage 3 Innovative	Stage 4 Integrated	Stage 5 Transforming
Relating to Society: Outside In	**Issues Management**: Whether organizations establish citizenship policies & programs, & measure their citizenship progress & performance.	Defensive	Reactive Policies	Responsive Programs	Pro-Active Systems	Defining
	Stakeholder Relationships: Way in which organizations interact with, & influence their stakeholders.	Unilateral	Interactive	Mutual Influence	Partnership	Multi-Organization Alliances
	Transparency: How open & honest organizations are about their financial, social, & environmental performance.	Flank Protection	Public relations	Public Reporting	Assurance	Full Exposure
Responding to Society: Inside out	**Citizenship Concept**: Ranges from a purely compliance, economic approach to innovative & cooperate approaches across industries & sectors.	Jobs, Profits & Taxes	Philanthropy, Environmental Protection	Responsible to Stakeholders	Sustainability or Triple Bottom Line	Change the Game
	Strategic Intent: Organization's purpose for citizenship in a company, & whether it is focussed on a business case, or is values & principles driven.	Legal Compliance	Reputation	Business case	Value Proposition	Market Creation or Social Change
	Leadership: Top leaders knowledge about & visible support for citizenship.	Lip Service: Out of Touch	Supporter: In the Loop	Steward: On Top of It	Champion: In Front of It	Visionary: Ahead of the Pack
	Structure: Where citizenship responsibility is placed in organization. Is citizenship a separate function, managed cross-functionally, or incorporated into processes and systems.	Marginal: Staff driven	Functional Ownership	Cross-Functional Coordination	Organizational Alignment	Mainstream: Business Driven

(Mirvis & Googins, 2006a, p. 108; 2009, p. 7)

Table 2.4 Alignment of Mirvis & Googins' Five Stages Model & Dunphy et al.'s Six Phases Model

Mirvis & Googins' Stages of Corporate Citizenship	Dunphy et al.'s Phases in the Development of Corporate Sustainability
	Phase 1 Rejection • All resources – employees, community infrastructure and the ecological environment – there to be exploited for immediate economic gain. • Organization exists to maximize profit. • Environment regarded as a free good to be exploited. • Disregards the destructive environmental impacts of its activities. • Actively opposes attempts by governments and 'green' activists to place constrain its activities • Employees and subcontractors exploited for economic gain. • Health & safety measures for employees & community ignored or given 'lip service'. • Community concerns rejected outright.
Stage 1 Elementary • Generally uninterested or indifferent to corporate citizenship. • Takes defensive position to outside pressures. • Has episodic citizenship activity. • Has undeveloped citizenship programs. • Scant awareness or understanding of corporate citizenship. • Has limited interactions with external stakeholders, particularly in the social and environmental sectors. • Policies and practices often focussed narrowly on compliance with laws and industry standards.	**Phase 2 Non Responsiveness** • Lack of awareness or ignorance rather than from active opposition to a corporate ethic wider than financial gain. • Concentrates on 'business as usual' and ignores issues of sustainability. • Unaware of or ignores community concerns about environmental sustainability and social matters. • Focuses on financial gain. • Financial & technological factors exclude broader social concerns. • Environmental risks, costs, opportunities & imperatives seen as irrelevant & are excluded from decision making. • Disregards environmental consequences of the firm's activities. • Any HR strategies, focused mainly on creating & maintaining compliant workforce. • Industrial relations a major issue. • Emphasis on cost of labour. • Community issues are ignored where possible.

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Table 2.4 (cont.) Alignment of Mirvis & Googins' Five Stages Model & Dunphy et al.'s Six Phases Model

Mirvis & Googins' Stages of Corporate Citizenship	Phases in the Development of Corporate Sustainability
Stage 2. Engaged • Becomes aware of society's increasing expectations. • Pays more attention to community, environmental, and social issues. • Reacts to emerging social and environmental issues. • Begins to develop a new outlook on the company's role and responsibilities. • May adopt a "policy-based approach" to mitigate the likelihood of litigation and risks to reputation.	**Phase 3 Compliance** • Focus is reducing risk of sanctions or penalties for failing to meet minimum standards. • Changes primarily reactive to legal requirements and community expectations for more sustainable practices. • Non-committal position on politicised sustainability issues. • Addresses only those environmental issues that likely strong litigation or strong community action. • Emphasize compliance with legal requirements for Industrial relations & safety. • HR policies focus on legal compliance. • Benevolent paternalism & expect employee loyalty in return. • Little integration between HR functions such as industrial relations, training & TQM.
Stage 3. Innovative • Broadens its business agenda to embrace a more comprehensive concept of citizenship • Develops programs that respond to societal concerns about its citizenship. • Begins to monitor social and environmental performance and publish the results. • Increases innovation and learning. • Increases open, two-way communication, and consultation with a diversity of stakeholders. • Increases contact with leading-edge companies and experts through forums, conferences, and professional meetings.	**Phase 4 Efficiency** • Growing awareness are real advantages to be gained by proactively instituting sustainability practices. • Sustainability practices directed toward cost reduction & increased operational efficiency. • Environmental issues ignored if are not seen as generating avoidable cost of increasing inefficiencies. • Sales of by-products encouraged. • Community projects & HR value-add strategies pursued only when is a clear cost benefit. • May invest in employee training & development of employees to achieve sustainable longer term. • Starts to develop organizational cultures and industrial practices that support innovation.

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Table 2.4 (cont.) Alignment of Mirvis & Googins' Five Stages Model & Dunphy et al.'s Six Phases Model

Stages of Corporate Citizenship	Phases in the Development of Corporate Sustainability
Stage 4. Integrated • Leaders champion and drive sustainability within the organization. • Has "dual commitment" to business success and social responsibility. • Sets sustainability targets and key performance indicators, and monitors performance. • Citizenship efforts based less on a specific business case and more on core corporate values.	**Phase 5 Strategic proactivity**: • Sustainability is intelligent corporate self-interest. • Sustainability used to seize emerging opportunities. • Believes commitment to sustainability is important for maximizing longer-term profitability. • Improving competitive advantage by positioning organization as leader in sustainable business practices. • Proactive environmental strategies such as product & process redesign seen as source of competitive advantage. • Develop innovative, quality products that are environmentally safe & healthy. • Environmental sustainability focus goes beyond costs reduction and increased efficiency to adding value, and maximising speed, flexibility, innovation and responsiveness. • Advanced human resource strategies help organization to be an 'employer of choice'. • 'Corporate citizenship' initiatives build stakeholder relationships and support.
Stage 5. Transformative Organization: • Makes citizenship a more central part of their business model. • Ensures social and environmental activism is central to their mission, identity, and appeal to consumers. • Develops strategies to create new markets by combining their business and citizenship agendas. • Develops partnerships and alliances with other businesses, community groups, and NGOs to address problems, reach new markets, and develop local economies.	**Phase 6 The Sustaining Corporation** • Has fully embraced sustainability. • Sustainability is internalized. • Organization actively promotes society that supports ecological viability of the planet and its species. • Contributes to just, equitable and democratic social practices and human fulfilment. • Pursues excellent return to investors. • Actively promotes ecological and social sustainability values and practices in the industry and society generally. • Works with society toward ecological renewal & positive sustainability policies. • Contributes to ecological regeneration. • Contributes to just, equitable and democratic social practices and human fulfilment. • Partner with stakeholders and other organizations to promote sustainability. • Builds workforce capability. • Contributes to community regeneration.

Adapted from (Benn & Dunphy, 2004a; Benn et al., 2006; Dunphy et al., 2007; Griffiths, 2003, 2004; Mirvis & Googins, 2006a, 2006b, 2009)

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2.11 Shifting Organizations towards Sustainability

As Dunphy (2011, p. 9) strongly stated: "The foremost issue in shifting to the post-carbon sustainable economy is to create the cultural change needed to move the multitude of organizations that make up the economy to a more sustainable operational model". Earlier, Welford (1995, p. 114) succinctly expressed the challenge for organizations is to establish a corporate culture "consistent with the concept of sustainable development". Other researchers concur, believing the challenge remains today. Benn et al. (2006) and Russell and McIntosh (2011, p. 393) highlight that, for organizations to become sustainable, they must also address their organizational culture, and adopt new values, beliefs and behaviours.

A number of other authors propose that an organization's culture is fundamental to promoting sustainability (Hitchcock & Willard, 2008; Lacy, Arnott, & Lowitt, 2009; Morsing & Oswald, 2009; Rimanoczy & Pearson, 2010; Wirtenberg, Harmon, Russell, & Fairfield, 2007). Early on, Stead and Stead (1992) established that organizations need to fully understand that their long term viability depends on the survival of the ecosystem, and, in turn, this requires changing their underlying values to those which endorse ecological sustainability. Post and Altman (1994) concluded organizations endeavouring to address environmental problems, must develop a new organizational culture. Similarly, Shrivastava (1995a, 1995b) recommended organizations intending to become ecocentric, must align their mission, values and goals towards their natural and social environments.

Starik and Rands (1995) determined that environmentally sustainable organizations will have organizational cultures that emphasise the importance of ecological sustainability. Crane (2000) concluded that a rigid organizational culture can limit the adoption of green practices. Harris and Crane (2002), Howard-Grenville (2006), and Howard-Grenville, Hoffman and Wirtenberg (2003) found that, for social initiatives to succeed, they must be aligned with an organization's core culture. Likewise, Molnar and Mulvihill's (2003, p. 174) research revealed that "sustainability must be integrated into a business's culture, mission and vision". Hoffmann (2010) emphasised the strong influence of organizations' culture and values on their strategy and business decisions, and contended that a failure to address cultural values will prevent organizations from taking actions to address climate change.

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Fernández, Junquera and Ordiz (2003) determined that an organization's culture is fundamental to strong environmental performance. Schneider (2009, p. 13) *submits that* an organizational culture dedicated to sustainability is a "precondition for corporate sustainability", while Wilson and Holton (2003), van Marrewijk (2004), and Morsing and Oswald (2009) all stress the importance of a close relationship between organizational culture and sustainability.

Some have emphasized that companies which voluntarily adopt environmental and social policies and practices have an underlying culture which supports sustainability, along with clearly specified values and beliefs and that this sustainability culture is likely to be a competitive advantage (Eccles, Ioannou, & Serafeim, 2011; Eccles, Miller Perkins, & Serafeim, 2012). Other researchers take a stronger position, contending that changing organizational culture is a necessary condition for organisational sustainability (Abbett et al., 2010; Azzone et al., 1997; Bansal, 2003; Epstein, Buhovac, & Yuthas, 2014; Fernández et al., 2003; Gladwin, Krause, & Kennelly, 1995; Linnenluecke & Griffiths, 2010; Post & Altman, 1994; Shrivastava, 1994; Shrivastava & Hart, 1995; Starik & Rands, 1995; Welford, 1995).

Following a qualitative case study, Baumgartner and Zielowski (2007, p. 112) concluded that organizations need to recognize the importance of the relationship between organizational culture and organizational sustainability, and to endeavour to fit the culture to their sustainability activities. Baumgartner (2009, 2012; 2007) also believes that, regardless of organizations' strategic approach, sustainability strategies and organizational culture are interdependent; that organizational culture is a precursor for sustainability success; and, sustainability activities and strategies must be embedded deeply in the organization's culture. Similarly, Russell and Macintosh (2011) argue that, while organizations can commence addressing sustainability issues without significant changes in their culture, culture change is requisite for organizations to become fully sustainable.

Other studies relate the importance of an organization's culture to its CSR activities (Collier & Esteban, 2007; Maignan, Ferrell, & Hult, 1999; Mirvis & Googins, 2006a, 2006b; Smith, B. J. & Yanowitz, 1999; Swanson, 1995; van Marrewijk & Werre, 2003), and Deng and Hu (2010) found a significant correlation between an organization's culture and the implementation of CSR. According to Sakai (2010), organizational culture is an important influence on

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organizations' CSR efforts, in that it focusses managers' and employees' attention on CSR in day to day activities and decision-making.

2.12 Chapter 2 Summary

It can be seen from the literature that organizational sustainability and corporate social responsibility have merged, and while there are many and varied understandings of organizational sustainability, they have common factors: economic or financial sustainability, thereby ensuring the ongoing viability of the organization, protecting environmental resources, and providing social benefits. Additional elements may include the voluntary nature of sustainability, and an intergenerational emphasis with a focus on preserving the earth's resources for future generations.

Linnenluecke et al.'s (2009) model of four sustainability frameworks was adopted, wherein sustainable organizations:

1. continue to focus on long term economic performance
2. adopt responsibility for minimising or even mitigating ecological and environmental outcomes of their activities
3. give attention to stakeholder groups, including employees and the local and global communities which they impact
4. take a holistic approach in which sustainability incorporates all three of the above perspectives.

A number of stages models, which represent organizations' sustainability actions and increasing commitment to sustainability were considered, with Dunphy et al.'s (2007) Phases model, and (Mirvis & Googins, 2006a, 2006b, 2009) Stages of Corporate Citizenship seen to be the most comprehensive. Finally, the relationship between organizational culture and organizational sustainability was introduced.

Chapter 3, therefore, examines organizational culture literature, its impact on organizational performance, and identifies a number of specific dimensions of organizational culture which researchers have proposed are important for those organizations endeavouring to become sustainable.

CHAPTER 3 LITERATURE REVIEW: ORGANIZATIONAL CULTURE

3.1 Chapter 3 Overview
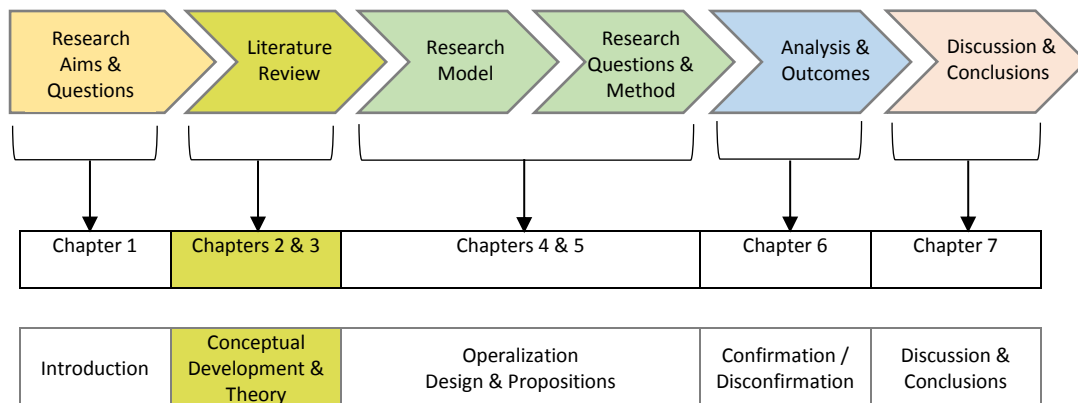
Figure 3.1 Thesis Structure

Chapter 2 reviewed the findings in the literature about organizational sustainability. This chapter discusses the literature on organizational culture and introduces the major connections between organizational culture and sustainability. Chapter 3 commences with a literature review discussing organizational culture, its background and attributes. This is followed by a review of the literature which considers the convergence between organizational culture, and organizational sustainability commitment and behaviour. Finally, it identifies specific cultural traits which researchers have associated with organizational sustainability.

3.2 Introduction

Organizational culture became a popular management theory and tool in the late 1970s and the 1980s (Hofstede, 1986; Jelinek, Smircich, & Hirsch, 1983), particularly in the United States of America (USA) where, at the time, businesses, and predominantly manufacturing, were facing significant competition from Japanese companies (Alvesson, 1990; Hofstede, 1986; Schein, 1990). Confronted with apparently higher employee commitment, lower absenteeism, and higher productivity, lower costs and increasing growth from their Japanese competitors (Lincoln & Kalleberg, 1990), United States companies sought to adopt their management styles (Ouchi, 1981b; Pascale & Athos, 1981b; Wilkins, 1983) Culture was identified as an important explanation for the greater success of Japanese corporations compared with that of United States (US) based organizations (Pascale, 1984; Pascale & Athos, 1981a).

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Organizational culture has proven to be a complex concept (Petty, Beadles, Chapman, Lowery, & Connell, 1995), with multiple perspectives, and divergent views about its nature, its importance, and its role in organizations. Now its complexity has increased, attention is increasingly being given to the relationship between organizational sustainability and organizational culture, ranging from the importance of integrating sustainability into values and culture (Edwards, M. G., 2009; Molnar & Mulvihill, 2003), to requiring "a complete moral transformation", and a "radical overhaul of business culture" and values (Crane, 2000, p. 674). Van Marrewijk and Werre (2003, p. 117) propose that an organization's values and culture differ according to the level of aspiration for sustainability, and that "dominant value systems can determine the potential for sustainability". Harris and Crane (2002) argue that, to become ecologically sustainable, organizations must institutionalize environmentally responsible values, beliefs and behaviours, and sustainable processes. This, in turn, requires a significant change in management philosophy, and is, in effect, a change in organizational culture.

3.3 History of Organizational Culture

Organizational culture is a broad theoretical concept emerging from the comprehensive theoretical studies of ethnic and national differences in the disciplines of anthropology, history, sociology and social psychology, which have been adapted to management research (Baumgartner, 2009; Sackmann, 1992; Smircich, 1983; Trice & Beyer, 1993; Weiss, 1973; Wilkins & Ouchi, 1983).

Organizational culture's strongest links, however, are with anthropology and sociology (Allaire & Firsirotu, 1984; Ashkanasy, Wilderom, & Peterson, 2000a; Baumgartner, 2009; Camerer & Vepsalainen, 1988; Cameron & Quinn, 2006; Cooke & Rousseau, 1988; Hawkins, 1997; Smircich, 1983; Wilkins & Ouchi, 1983), with one of anthropology's fundamental and distinctive concepts being culture (White, L. A., 1974). In particular, anthropologists seek and observe artifacts, rituals, language, and kinship structures, using these to extrapolate the "basic assumptions", and values of a society (Camerer & Vepsalainen, 1988, p. 124).

The idea of culture most likely originated in Ancient Greece. In 431 BC, in a speech at the funeral of Athenian soldiers, Pericles spoke powerfully of an ideal society and Athens' greatness, and stressed Athens' values and beliefs in equal justice under law, merit being

more important than social class, fairness in public matters, and openness to other nationalities (Clemens, 1986; Fisher & Alford, 2000; Jarnagin & Slocum, 2007).

While culture may date back this far, cultural anthropology is a comparatively recent field, having existed for little more than 100 years (Potter, 1989). Organizational culture theory was strongly influenced by two anthropologists: Bronislaw Malinkowski and Alfred Radcliffe-Brown. Malinkowski (1944) postulated that myths, institutions, and other aspects of culture exist to meet people's fundamental needs; if they fail to meet these needs, they will disappear (Allaire & Firsirotu, 1984). Radcliffe-Browne (1952, pp. 4-5) explained culture as the process by which a person acquires knowledge, skills, ideas, beliefs, tastes and sentiments from contact with other people, or from such things as books or works of art. He saw social structures as a "network of social relations, which are not random, but are controlled by norms, rules and patterns", and also believed that the continuity of social life in human, and even animal societies, depended upon social adaption, and behavioural adjustment to these norms (Gilmore, 1981, p. 390). Radcliffe-Brown and his cohorts saw culture as one factor within a larger social system, and which assisted in maintaining order and equilibrium (Allaire & Firsirotu, 1984, p. 197).

Despite existing for over a century in anthropology circles, and almost 40 years in business management, there has been considerable debate and discussion, and little agreement about how best to define culture (Potter, 1989). According to Lee (2001), culture's definition continues to be contested and elusive. Over sixty years ago, in 1952, Alfred Kroeber and Clyde Kluckhohn conducted a comprehensive and critical review of the concept of culture, and its definitions, and they identified 164 different meanings (Kroeber & Kluckhorn, 1952). Thirty years later, the definition of culture continued to be contentious among anthropologists, as evidenced by Cole (1982, as cited in Potter, 1989, p. 17) who claims:

> Culture is the most discussed concept in anthropology. And as yet a great deal of disagreement surrounds these discussions. Anthropologists are quite certain about what they do not mean by the term; the problem centres on determining what it is.

Described variously as loose and vague, and underpinned by "befuddled or mysterious notions", the understanding of culture has continued to evolve (Weiss, 1973, p. 1395). Over 100 years ago, anthropologist Edward B. Tylor offered a broad definition, stating that culture is "that complex whole which includes knowledge, belief, art, morals, law, custom, and any

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other capabilities and habits acquired by man as a member of society" (Tylor, 1889, as cited in Lee, I., 2001, p. 1110). However, even Franz Boas, one of the earliest American anthropologists, who coined one of the earlier definitions of culture, took many years to finalize a definition of culture for publication (Stocking, 1966), concluding that: "Culture embraces all the manifestations of a community, the reactions of the individual as affected by the habits of the group in which he lives, and the products of human activities as determined by these habits" (Boas, 1930, as cited in D'Andrade, 1999, p. 86).

A few years later, Melville J. Herskowits (1948, as cited in Hawkins, 1997, p. 418), described culture as "a construct describing the total body of beliefs, behaviour, knowledge, sanctions, values and goals that make up the way of life of a people". A more recent description of culture was presented by Geertz (1973a, p. 69) as: "an historically transmitted patterns of meanings embodied in symbols, a systems of inherited conceptions expressed in symbolic forms, by means of which men (and women) communicate, perpetuate and develop their knowledge about attitudes towards life". Others believed that culture underpins the ways by which society functions. Keesing (1974, p. 75) understood culture to be "socially transmitted behaviour patterns that serve to relate human communities to their ecological settings".

Clifford Geertz (1973a, p. 4) complained that culture had become a "conceptual morass", explaining that Harvard anthropologist Clyde Kluckhohn (1949) provided 12 different definitions of culture within 27 pages. However, Geertz (1973a, p. 4) also provided a wide range of words to describe culture, including: "integration", "rationalization", "symbol", "ideology", "ethos", "revolution", "identity", "metaphor", "structure", "ritual", "world view", "actor", "function", and "culture".

More recently, there has been increased consensus among anthropologists on the definition of culture, although differences remain. While one stream of researchers see culture as ideas, beliefs, knowledge and meaning, a second influential group emphasises symbols and meaning (D'Andrade, 2001). Kluckhohn (1949) is more closely aligned with the latter group. He discussed myths and rituals as preserving the cohesion of a society, and concluded that adherence to these myths and rituals protected individual members of that society from conflict, and enabled individuals to adjust to that society, whether it be a national society, a tribe within that society, or a religious society.

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3.4 From Anthropology to Organizational Culture

While cultural anthropology was focussed on societies, some anthropologists and sociologists developed an interest in culture in organizations (Hatch, 1993). Industrial anthropology was a spin off from traditional anthropology, with the earliest versions of organization culture research being ethnographic industrial studies, which began in the 1920s as Human Relations studies (Gregory, 1983). In 1927, one of the first industrial researchers, Elton Mayo, conducted psychological and productivity studies in a Philadelphia textiles mill, and at Western Electric's Hawthorne factory (Bendix & Fisher, 1949). By the 1940s and 1950s, industrial anthropology increasingly focussed on traditions and customs in organizations (Hatch, 1993; Holzberg & Giovannini, 1981). A notable number of these studies treated businesses as self-contained social communities, which were distinctive, homogenous, and self-sufficient, and thus could be treated as representative of "the human whole" (Redfield, 1956). As Holzberg and Giovannini (1981, p. 318) explained, "… in anthropological terms, industry also involves the social arrangements of persons and the cultural systems of meaningful symbols, values, and attitudes that integrate individuals" as they participate in the industrial process of production. The recognition that workplaces were themselves social communities, was acknowledged by Donald Roy (1952, p. 427), who stated that: "… one may learn about the 'human group' by studying behaviour on a production line as well as in an interracial discussion group". Roy (1952) concluded that the culture of organizations caused industrial practices to lag far behind technology, and he encouraged other anthropologists to take an interest in modern industry.

Others, such as Elliott Jacques, studied culture in factories, and defined the culture of a factory as the:

> customary and traditional way of thinking and of doing things, which is shared to a greater or lesser degree by all its members, and which new members must learn, and at least partially accept, in order to be accepted into service in the firm… culture is part of second nature to those who have been with the firm for some time. Ignorance of culture marks out the newcomers, while maladjusted members are recognised as those who reject or are otherwise unable to use the culture of the firm (Jacques, 1951, as cited in Potter, 1989, p. 17).

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Increasingly, industrial firms became a popular setting in which to carry out research. In the 1940s and 1950s, researchers saw work places as the ideal setting in which to study social interaction and group structures. From their meta-analysis of over 300 anthropological studies of industry, Holzberg and Giovanni (1981, p. 327) identified organization studies, including supervision and leadership patterns and qualities, personality, internal communication across and through organizations, social relationships between workers, the integration of women, ethnic and racial minorities into the workplace, morale, work structures and reactions to change.

In 1969, Trice, Balasco and Alutto transferred key anthropological concepts, such as ceremonies, to organizations, and discussed the importance of symbols, ceremonies and rituals, and the symbolism of organizational values, in understanding organizational behaviour. Although not specifically referring to organizational culture, Trice et al. (1969) regarded an organization's systems practices, procedures, and operational techniques, as a form of ceremony and socialization practices, which, in turn, communicate to employees the organization's values, norms, attitudes, and expectations. Similarly, in 1978, Katz and Kahn considered roles, values and norms in organizations to be of importance. Trice and Beyer (1984) continued the themes introduced by Trice et al. (1969). Claiming that organizational researchers' focus on "single, discrete elements of culture such as symbols, myths, or stories" (p. 653) was too narrow, they recommended that, to gain insights into organizational life, organizational culture researchers should examine rites, ceremonials, rituals, myths, sagas, legends, stories, customary language, gestures, ritualized behaviours, artifacts, and other symbols (pp. 654-655).

While the term ''corporate culture'' was used by Blake and Mouton (1964), by the 1970s, anthropological and sociological research evolved into the new field of organizational culture, with the term first used in academic literature by Pettigrew (1973), who applied anthropological based cultural analysis, and examined symbols, language, ideologies, beliefs, rituals, and myths, concluding these concepts were potentially useful for understanding organizational culture (Detert, Schroeder, & Mauriel, 2000; Hatch, 1993; Scott, Mannion, Davies, & Marshall, 2003). Management researchers observed that, similar to societal cultures, members of organizations engage in rituals, accept and promulgate corporate myths and stories, and use language and jargon which is specific to that organization. Using anthropological approaches to study behaviours and individual's opinions about their

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corporate experiences, they recognized that in organizations, as well as in broader society, people act as if there is a common culture, with shared meanings (Gregory, 1983).

In his 1972 paper, Clarke claimed that macro organizational theory had been focussed on the roles of structure and technology in organizational effectiveness, and therefore, he encouraged more research on the cultural and expressive aspects of organizations, particularly on the role of belief and sentiment.

Specific anthropological aspects of organizational culture also were introduced by other researchers, for example:

- culture is transmitted though myths, stories and symbols (Dandridge, Mitroff, & Joyce, 1980; Louis, M. R., 1983; Martin, Joanne, 1982; Siehl & Martin, 1982)
- patterns and assumptions (Dyer Jr, 1982; Schein, 1984a, 1992)
- shared understanding, interpretations or perspectives (Louis, M. R., 1983; Van Maanen & Barley, 1984, 1985; Van Maanen & Schein, 1977).

The interest in organizational culture proliferated in the early 1980s, and continued throughout the 1990's (Barley, Meyer, & Gash, 1988; De Witte & van Muijen, 1999), bringing with it a wide variety of understandings and definitions, as illustrated by Scholz (1987, p. 80), when he described corporate culture as an "extremely multifaced concept characterized by many different approaches, (and) many different points of view". However, some considered organizational culture to be a fad (Hofstede, Neuijen, Ohayv, & Sanders, 1990).

Schein (1983, 1984a, 1986) was one of the first to develop an organizational culture framework, which became the basis for understanding organizational culture. His framework parallels that of many anthropologists, and continues to be utilized by researchers to this current day (Deal & Kennedy, 1982; Kilmann, Ralph H., Saxton, & Serpa, 1985; Ouchi, 1981a; Pascale & Athos, 1981b; Peters & Waterman, 1982; Sathe, 1983). Schein's work was followed quickly by a wave of academic articles on organizational culture (Barley et al., 1988), including three management books, all of which saw culture as a lynchpin for organizational performance and success. *Theory Z* (Ouchi, 1981b), *In Search of Excellence* (Peters & Waterman, 1982) and *Corporate Cultures* (Deal & Kennedy, 1982), all of which rapidly gained popularity, launched the culture concept into both the business and academic worlds.

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3.5 Defining Organizational Culture

While this research study is not focussed on investigating the meaning and interpretation of the term organizational culture, but rather, is concerned with the application and relevance of organizational culture to organizational sustainability, it is, nevertheless, important to outline some of the complexities of culture, and the interpretations adopted in this study.

Organizational culture has various understandings and definitions (Ott, 1989; Schein, 1990; Scott, Mannion, Davies, et al., 2003), with Fisher and Alford (2000, p. 207) claiming that there were no less than least 164 different culture definitions. These may include an organization's customary dress, beliefs, values, assumptions, symbols of status and authority, ceremonies and rituals, and modes of deference and subversion. The multiplicity of definitions has led to some confusion about the true meaning of culture (Scott, Mannion, Davies, et al., 2003).

Schein (1984a) described culture as a pattern of basic assumptions which can be analysed at three different levels: firstly, basic artifacts; secondly, values; and finally, underlying assumptions, which is closely aligned with Chick's (1997) Mental, Behaviour and Material group of anthropological. Of his thesis, Schein (1984a, p. 5) specified that culture exists in groups, and that any group may either create, host, or own a particular culture. Importantly, a group, or organization's culture develops once that group has existed for sufficient time for it to be faced with, and share, experiences and problems, and to have resolved problems. These solutions become a way of perceiving, thinking and feeling which is then socialized with new members (Schein, 1983, 1984a). Schein's model of organizational culture, which Hatch (1993) claims is one of the few conceptual models, continues to be used today.

Schein (1984a, p. 3) formally defined culture as:

> the pattern of basic assumptions that a given group has invented, discovered, or developed in learning to cope with its problems of external and internal integration and that have worked well enough to be considered valid and therefore is to be taught to new members as the correct way to perceive, think and feel in relation to these problems.

As with other organizational culture research, the origins of Schein's definition can be traced to anthropologists (Avison & Myers, 1995, pp. 48-49), such as Radcliffe-Brown and Eggan (1957, p. 53), who stated that artifacts are "part of a traditional system (i.e., what we call a

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culture system…)". The importance of symbols in culture similarly was noted by anthropologists such as Sapir (1934, p. 494), who claimed that "all culture is in fact heavily charged with symbolism"; and Radin (1924, p. 29) who wrote that "it is universally admitted that symbolism permeates every aspect of primitive man's culture". Schein's (1984a) inclusion of symbols in his definition of culture similarly has been adopted from anthropology, (Avison & Myers, 1995).

These three components of organizational culture have become a common thread in many definitions (Sackmann, 1992). Ouchi (1981b) sees organizational culture as a set of symbols, ceremonies, and myths that communicate underlying values and beliefs of an organization and its employees. Smircich's (1983) understanding of artifacts includes rituals, myths, stories, legends, and specialised language. Martin and Seihl (1983) add management practices as a fourth component of culture, and see artifacts as special jargon, stories, rituals, dress and décor. French and Bell (1984) expand Schein's three levels definition to include attitudes, beliefs, expectations, activities, interactions, norms, and sentiments. Lundberg (1985) describes culture as shared verbal, behavioural and physical artifacts, perspectives and assumptions, while (Denison, 2000; Denison, Haaland, & Goelzer, 2003) incorporates underlying and enduring values, beliefs and principles. Martin (1992, p. 3) describes the "manifestations of organizational culture" as "dress norms, stories people tell about what goes on, the organization's formal rules and procedures, its informal codes of behaviour, rituals, tasks, pay systems, jargon and jokes only understood by insiders". More recently, Archidvilli, Mitchell and Jondle (2009) see shared beliefs, traditions and principles as guiding culture.

Organizational culture also is described as a philosophy (Pascale & Athos, 1981b) which enables people to interpret situations (Pettigrew, Andrew M., 1979), guides the behaviour of individuals and the organization (Scholz, 1987; Van der Post, De Coning, & Smit, 1998), provides affective energy for mobilization, and determines who belongs or not (Ott, 1989). It is variously portrayed as the social and normative glue that holds or binds an organization together (Deal & Kennedy, 1982; Schein, 1984a; Van den Berg & Wilderom, 2004; Vandenberghe & Peiro, 1999; White, J., 1991), and which provides identity and strength (Schein, 1984a); the "way we do things round here" (Deal & Kennedy, 1982); a root metaphor or fundamental means for conceptualizing organizations (Smircich, 1983); a backdrop for action (Smircich, 1985); the "implicit, invisible, intrinsic, and informal

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consciousness of the organization which guides the behaviour of the individuals and which shapes itself out of their behaviour." (Scholz, 1987, p. 80); and the foundation for an organization's behaviour and practices (Denison, 1990).

Other representative definitions of organizational culture are presented in Appendix 3.1.

Johnson, Scholes and Whittington (2005) captured the various understandings of organizational culture in their Cultural Web (Figure 3.2), which they use to identify the underlying assumptions, and hence the culture of an organization.
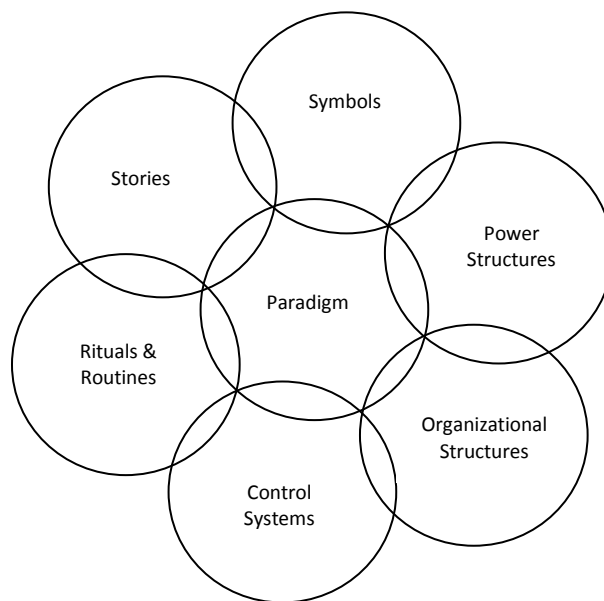
Figure 3.2 Johnson, Scholes & Whittington's Cultural Web

It can be seen from this discussion that, while in the multitude of definitions of organizational culture, there may be differing emphases, there are common phrases and terminology, including beliefs, values, symbols, and their shared nature.

As this research study needed a consistent and accepted definition of organizational culture, the definition put forward by Schein (1985a, p. 3) was adopted as the formal definition. The rationale was that Schein is regarded as being one of the most cited organizational culture researchers (Ogbonna, 1992), and his definition is one of the most widely used by other researchers, and has been applied in a wide range of studies.

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3.6 Organizational "Culture" vs "Climate"

The concept of organizational climate emerged earlier than that of organizational culture (Ashkanasy, Wilderom, et al., 2000a; Glisson, 2007). Organizational climate evolves from the 1939 work of Lewin, Lippitt and White in which they examined the relationship between leadership style and social climates amongst boys groups. Lewin et al. (1939) found that workers' productivity was similar, regardless of whether their leaders were democratic or authoritarian, but workers were more satisfied and discord was significantly lowered with democratic leadership (Reichers & Schneider, 1990; Schneider, B., Brief, & Guzzo, 1996). Ensuing climate research includes that of Hellriegel and Slocum (1974), Jones and James (1979), Litwin and Stringer (1968), Schneider (1975), and Tagiuri and Litwin (1968).

There has been some debate about the differences and similarities between organizational climate and organizational culture. As Wallace, Hunt and Richards (1999, p. 551) observed, the relationship between the two is "close and sometimes ambiguous" while Schneider (2000, p. xix) indicated the two terms often are used "synonymously" and interchangeably.

Similar to organizational culture, organizational climate is closely linked to anthropology. It is comprised of members' perceptions about the organization, which, in turn, provide a cognitive framework which people use to make sense of the organization, and its requirements, and to guide their behaviour (Allaire & Firsirotu, 1984; James & Jones, 1974; Tagiuri & Litwin, 1968). Some of the earlier organizational researchers extended individuals' cognitive frameworks to organizations, claiming that organizations have minds, perceptions, memories and, hence, develop cognitive maps (Hedberg & Jönsson, 1978; Heirs & Pehrson, 1977). Allaire and Firsirotu (1984, p. 204) conclude that this view sees organizations as "social artifacts of shared cognitive maps", which approximate, and are related to, individual members' cognitive maps.

Organizational climate was variously described by these earlier researchers as a set of attributes which can be perceived about a particular organization and/or its subsystems, and that can be deduced from the way that an organization and/or its subsystems deal with their members and environment (Hellriegel & Slocum Jr, 1974, p. 256), or the psychological atmosphere of an organization (Pritchard & Karasick, 1973).

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Pritchard and Karasick (1973, p. 126) synthesized definitions from some of the earlier culture researchers (such as Gellerman, 1959; Georgopoulos, 1965; Gilmer, 1966; Litwin & Stringer Jr, 1966; Meyer, 1967; Tagiuri, 1968), and concluded that climate is that:

> relatively enduring quality of an organization's' internal environment distinguishing it from other organizations; (a) which results from the behaviour and polices of members of the organizations, especially top management; (b) which is perceived by members of the organizations; (c) which serves as a basis for interpreting the situation; and (d) acts as a course of pressure for directing activity.

Some draw strong similarities between organizational climate and psychological climate, in that climate is a micro-concept which is the outcome of personal values, while organizational culture is a group level, macro concept, which manifests from organizations' systems, norms, and social interactions, and any difference between organizational climate, and culture "is more a matter of emphasis or degree, than a true qualitative difference in frames of reference" (James, James, & Ashe, 1990, p. 77). Schneider, Brief, and Guzzo, (1996, p. 9) were more specific, stating that "climate and culture are interconnected. Employees' values and beliefs (part of culture) influence their interpretations of organizational policies, practices, and procedures (climate)". Pettigrew (1990) took a different approach, observing that the difference between climate and culture lies in their research methods: climate being most effectively measured using quantitative research methods, while culture is more effectively studied using qualitative methods. However, as Rousseau (1990a) pointed out, quantitative studies of culture have existed for a number of years.

In the late 1990's, in an attempt to differentiate between climate and culture, Verbeke, Volgering and Hessels (1998) identified more than 30 definitions of organizational climate, and over 50 for organizational culture, and, from their content analysis, determined that "climate" reflects the way in which "people perceive and come to describe the characteristics of their environment", while "culture" captures the "way things are done in an organization" (Verbeke et al., 1998, p. 320).

Other comparisons of organizational climate and culture are presented in Appendix 3.2.

While Denison (1996) saw some definitional differences between organizational culture, and organizational climate, he argued that organizational climate and culture actually "address a common phenomenon: the creation and influence of social contexts in organizations",

(Denison, 1996, p. 646). Payne (2000) concurs, adding that many of the definitions of culture and climate can easily be substituted for each other. In this research study, climate and culture will be regarded as similar constructs.

3.7 Properties of Organizational Culture

3.7.1 Levels of culture

As discussed in Section 3.5, Schein, (2004, p. 25) explained culture as manifesting itself at three levels, the highest level being visible and observable artifacts, the next level, values, and the deepest level, which is comprised of deeply embedded, taken for granted, unconscious basic assumptions that form the essence of culture. Each level reflects the "degree to which the cultural phenomenon is visible to the observer". These levels are illustrated in Figure 3.3.
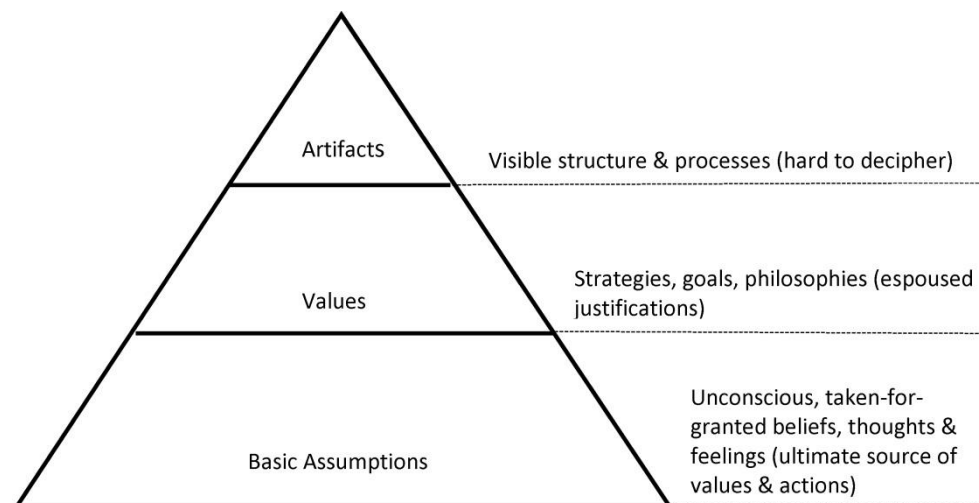
Diagram adapted from Baumgartner (2009, p. 106)

Figure 3.3 Schein's Three Levels of Organizational Culture

Visible artifacts are the obvious signs of culture that people can touch and see. Artifacts include the physical environment such as office layout and decoration, mission and values statements, spoken language and jargon, technology and products, artistic creations an organization's style including dress and logos, manners of address, emotional displays, and symbols such as myths and stories told about the organization (Dandridge et al., 1980; Martin, Joanne & Siehl, 1983; Pettigrew, Andrew M., 1979; Schein, 2004; Wilkins & Ouchi, 1983), published lists of values (Hawkins, 1997; Schein, 2004), observable rituals and ceremonies (Schein, 2004), and logos (Cooke & Rousseau, 1988). The next deeper level, espoused beliefs and values, is derived from the learning history of individuals in the

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organization: if a solution to a problem works, and, if the group has a shared perception of that success, new beliefs develop (Schein, 2004, p. 28). As Ott (1989, p. 39) explains, beliefs and values differ: beliefs are those things which people "believe to be true or not true", whereas values are those things which "are important to people", and incorporate beliefs. According to Kotter and Heskett (1992, p. 4), these values, which are difficult to observe, "tend to persist over time even when group membership changes". Should these values continue to work reliably, they gradually will become socially validated, embedded assumptions. Assumptions are implicit; they guide behaviour and tell organization members how to perceive, think and feel about things; as they are "nonconfrontable, and nondebatable", basic underlying assumptions are very difficult to change (Schein, 2004, p. 31).

Wilkins, (1983, p. 27) described underlying assumptions as an "automatic pilot", which people tend not to think about. He presented three reasons for the hidden nature of assumptions, namely: assumptions are implied through an organization's visible cultural manifestations, or artifacts; people are reluctant to reveal any personal assumptions that differ from an organization's stated norms; and, organizations have subcultures, within which there are underlying assumptions which may not be representative of the broader shared assumptions.

Several researchers have extended Schein's three level model of culture. Martin and Siehl (1983) proposed that a fourth category of culture, management practices, be added to Schein's original three levels. This category is comprised of activities such as hiring, training, performance appraisal, and allocation of rewards. In 1997, Hawkins offered a five level model of culture, which is presented in Table 3.1 and Figure 3.4.

Hawkins (1997, pp. 428-429) also proposed that organizational culture is sensed, and communicated, through three consciousness levels:

1. espoused culture – the public presentation of the collective self; the organizational persona
2. enacted conscious culture – the lived culture that is noticed and can be verbalised
3. unconscious culture – the unthought known that is collectively experienced, but unnoticed by conscious reflection and not able to be verbalized.

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Table 3.1 Five Level Model of Culture

Level		Description
Above the surface	Level 1 - Artifacts	Demonstrated espoused values. Policy statements., mission statements, logo, annual reports. Dress codes, furnishings, buildings, public relations.

	Level 2 - Behaviour	Values in action:
		  What people say and do.
		  What is rewarded.
		  How conflict is resolved.
		  How mistakes are treated.

Beneath the surface	Level 3 - Mindset	Hold belief systems in place. Organizational world view. Ways of thinking that constrain behaviour. Organizational values in use. Basic assumptions.
	Level 4 - Emotional Ground	Organizational climate. Unconscious emotional states and need that create a context within which events are perceived.
	Level 5 - Motivational Roots	Alignment of individual purpose with collective organization's purpose. Underlying sense of purpose that links individuals and the organization.

Adapted from Hawkins (1997, p. 426)
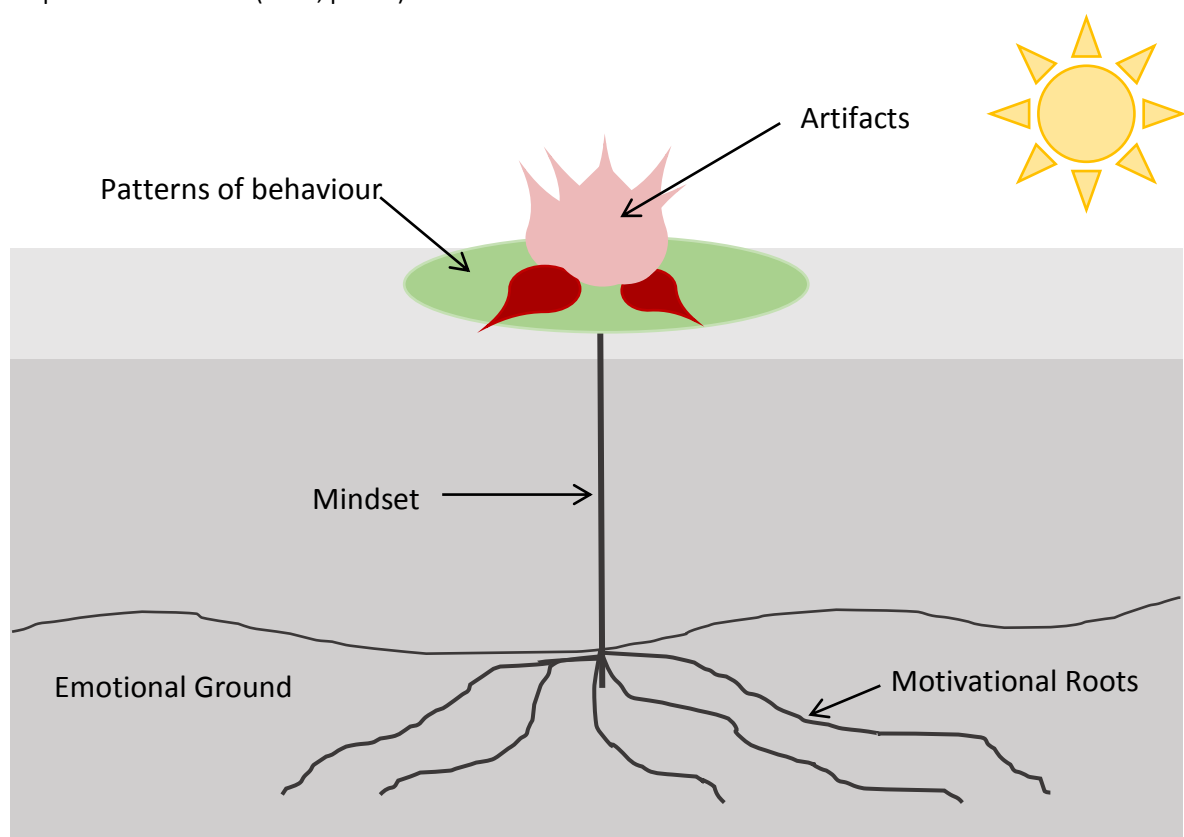
Adapted from Hawkins (1997, p. 426; Schein, 1985b)

Figure 3.4 Hawkins' and Schein's "Water Lily Image" of Organizational Culture

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3.7.2 Culture strength

The earlier anthropology researchers assumed that the whole society had the same culture with little, if any internal variation (Gregory, 1983). On the occasions that their research identified cultural variances, they described the culture as lacking integration (Benedict, 1934). In the 1980s, an alternative view was adopted by some organizational researchers, who referred to organizational cultures as "strong" or "weak", with strong cultures having a greater impact on organizational performance (Barker, 1994; Saffold III, 1988; Schein, 1984a; Sørensen, 2002). Schein (1984a, p. 7) defined culture strength in terms of the "homogeneity and stability of group membership", and the "length and intensity of the group's shared experiences". Thus groups with more homogeneity and stable membership were said to have stronger cultures. In a strong culture, the organization's beliefs, values and symbols are consistent and common throughout the organization, and are clearly understood, and shared by the organization's members (Denison, 1990; Yilmaz & Ergun, 2008). Importantly, in organizations with a strong culture, actual behaviour and practices conform to the stated values and beliefs. Deal and Kennedy (1982) claimed that a strong culture guides employee's behaviour which, in turn, leads to increased productivity, whereas employees in weak cultures are less able to know how to behave. A widely shared, strong culture is believed to generate increased coordination and control (O'Reilly, 1989; O'Reilly & Chatman, 1996), improved employee alignment with organizations' goals and objectives, and increased employee commitment and effort (Gordon & DiTomaso, 1992; Kotter & Heskett, 1992; Sheridan, 1992; Virtanen, 2000).

After comparing organizational culture and performance in 969 organizations, over a 5 year period, Denison (1984) concluded that an organization's culture, and the related behavior of its members, can measurably impact an organization's performance. In particular, he found that cultures which encouraged "adaptable work methods have a clear competitive advantage" (Denison, 1984, p. 13). Arogyaswamy and Byles (1987) suggested that an organization's culture can determine how it interprets its environmental and organizational conditions, which, in turn, influences its strategy.

Strong cultures are variously described as homogeneous and stable (Ouchi & Price, 1978; Schein, 1984b), thick and widely shared (Sathe, 1983, p. 11), having shared rule-based expectations congruent with members' shared values (Schall, 1983, p. 573), stable and intense (Schein, 1985a) having congruence between espoused beliefs and actual practices

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(Smart & John, 1996, p. 223), coherent (Deal & Kennedy, 1982; Weick, 1985), consistent (Camerer & Vepsalainen, 1988; Denison, 1984), and having widely shared and intensely held norms and values across organizational members (Harris, L. C. & Ogbonna, 1998; Kilmann, Ralph H. et al., 1985; Sørensen, 2002). Cooke and Rousseau (1988) view strong cultures as having similar content and a high degree of consensus about this content. Another description of strong culture is "thick", an oft-quoted concept advanced by anthropologist Clifford Geertz (1973b), which subsequently was adopted by Camerer and Vepsalainen (1988) and Saffold III, (1988) for use in the context of organizational culture. After reviewing various authors' definitions of cultural strength, Gordon and DiTomaso (1992, p. 785) concluded that cultural strength is a "function of some combination of the following: who and how many accept the dominant value set; how strongly, deeply or intensely the values are held; and how long the values have been dominant". Kilman et al. (1985, p. 89) explained that the strength of an organization culture is the "level of pressure that a culture exerts on members in the organization, regardless of the direction".

Organizations in which there are groups whose culture varies from the defined management philosophy are oppositely described as "weak" (Deal & Kennedy, 1982; Peters & Waterman, 1982). Weak cultures occur where there is low perceptual agreement and inconsistencies in cultural understandings, or the culture is hard to identify (Deal & Kennedy, 1982; Glick, 1985).

Strong cultures incorporate clearly understood values, with those within the organization strongly agreeing with, and supporting these values (Boisnier & Chatman, 2002, p. 3). Strong cultures tend to limit the development of subcultures (O'Reilly, 1989; Saffold III, 1988), and are seen to "capture the group's energy and imagination and move activity", to encourage employees to "behave in certain ways" (Kilmann, Ralph H., Saxton, & Serpa, 1986, p. 89), and to achieve the organization's goals (Chatman & Cha, 2003). Importantly, strong cultures are believed by many to contribute to an organization's success (Cabrera, Cabrera, & Barajas, 2001; Denison, 1984; Ouchi, 1981b; Peters & Waterman, 1982; Posner, Kouzes, & Schmidt, 1985; Schein, 2004; Tichy, 1983).

More recently, Chatman and Cha (2003, p. 23) asserted that strong cultures have two distinct characteristics: "high levels of agreement among employees about what's valued"

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and "high levels of intensity about these values", and that these vary across organizations. They identified four types of culture strengths, which are presented in Table 3.2

Table 3.2 Characteristics of Culture Strength

Culture Strength	Level of Agreement	Level of Intensity
Strong	High	High
Warring factions	Low	High
Vacuous	High	Low
Weak	Low	Low

Adapted from Chatman and Cha (2003)

They proposed that the most common type of organizational culture is the "vacuous culture" in which members agree about what's important, but they are disinterested in the organization, or its objectives, and therefore, are uncommitted and are not prepared to put in additional effort to ensure the organization's success.

While strong cultures are advantageous when aligned with an organization's strategy and planned direction (Chatman & Cha, 2003), strong cultures which are misaligned with strategy can misdirect behaviour, and inhibit ethical decision making (Deal & Kennedy, 1982; Kilmann, Ralph H. et al., 1986; Saffold III, 1988; Sinclair, 1993; Weick, 1985). From their 1992 study, Kotter and Heskett (1992) concluded that, while strong organizational cultures have long-term economic performance benefits, they also may inhibit strong performance. Further, strong cultures, and particularly the underlying values, can become obsolete should the business environment, and hence, the organization's strategies and direction change; and also can generate resistance to any planned organizational change (Cabrera et al., 2001; Deal & Kennedy, 1982). Additionally, they can cause conformity and restrict alternate viewpoints, generating a "strategic myopia", which leads managers to ignore changes in the business environment (Lorsch, 1985), and can inhibit organizations' capacity to foresee and react to stakeholders' demands (Sinclair, 1993, p. 67).

3.7.3 Espoused vs Actual Culture

In some organizations, there is a dissonance between the espoused culture, and the enacted culture, which weakens the organization's culture. Many organizations have clearly articulated culture statements, many of which are expressed in terms of values and expected behavioural norms (Posner et al., 1985). While organizations may have well publicised culture and values statements, the actual behaviour of managers, supervisors, and staff may be in contradiction with the stated culture (Schein, 1996b). This enacted

culture reflects the everyday activities within and between groups of employees, tells employees what actually is important, and defines the lived culture of an organization (Martin, Joanne & Frost, 2011, p. 319; O'Reilly, 1989, p. 13).

3.7.4 An Organization *Is* Culture or *Has* Culture

Smircich (1983) argued that there are two, fundamentally different approaches to organizational culture: some believe that organizations *are* cultures, while others contend that organizations *have* cultures (Bolman & Deal, 2008, p. 269). The former perspective, which is closely aligned with anthropologists' approach to culture, views culture as a metaphor of the organization (Meyerson & Martin, 1987; Smircich, 1983), or a form of human expression, in which organizations are a pattern of symbolic relationships and meanings sustained through the process of human interaction" (Smircich, 1983, p. 353). Researchers with this perspective take the subjective, interpretive approach to culture, believing that language, symbols, myths, rituals and stories are the visible forms of a culture's ideologies and meanings, represent the ways in which the culture is expressed and communicated, and guide members' behaviour (Trice & Beyer, 1984, p. 654). This view considers an organization's culture to be fully embedded in the organization, inseparable from the organization itself, and therefore, very difficult to change (Ogbonna, 1992; Siehl, 1985, p. 125).

The alternative approach, that organizations *have* culture, takes an objective, sociocultural and functionalist approach to culture, and holds the view that culture is built within an organization by its members, and is an independent critical variable. From this perspective, culture influences members' behaviour, gives organisational members a sense of identity, and provides a framework for decision making (Ogbonna, 1992, p. 42), which, in turn, contributes to organizations achieving their objectives (Smircich, 1983).

Alvesson (1990, p. 39) classifies organizational culture researchers into three groups. The first group is comprised of "cultural purists" such as Martin (1985) and Smircich (1983), who are viewed as a minority group, and who view culture to be "deep seated", and unable to be managed or controlled. The other two groups believe that culture, or aspects of culture, can be managed. The pragmatics, are consultants and popular authors such as Ouchi (1981b), Deal and Kennedy (1982), and Peters and Waterman (1982), whose work catalysed both public and academic interest in organizational culture, which is seen as a powerful

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organization tool, that can be managed and controlled to support an organization's existing, or changed, strategies and objectives (Cameron & Quinn, 2006; Chatman & Cha, 2003; Glaser, S. R., Zamanou, & Hacker, 1987; Kilmann, Ralph H. et al., 1986; Ogbonna, 1992; Peters & Waterman, 1982; Trice & Beyer, 1993; Wilson, A. M., 2001; Young, 2000).

The third group, academic pragmatists, is described as people based in academia who research to academic standards, have a "managementcentric interest", and whose research focus is about managing and controlling culture or parts of culture (Trice & Beyer, 1985). These perspectives influence the research approach, as those who believe organizations *are* culture must take an interpretivist approach using qualitative and perhaps ethnographic methods (Geertz, 1973b), while those who consider organization to *have* cultures, may take a positivist approach to their research studies (Baumgartner, 2012).

As this researcher identifies with the latter group, this study has adopted the perspective that organizations *have* culture and, therefore, culture is a viable variable which affects organizations' actions and outcomes.

3.7.5 Subcultures

While the earlier literature on organizational culture tended to assume that an organization had a single, unified culture, or one dominant culture (Louis, M. R., 1985; Schein, 2004), others disagree, claiming that cultures are heterogeneous (Bloor & Dawson, 1994; Boisnier & Chatman, 2002; Cabrera et al., 2001; Goffee & Jones, 1996; Gregory, 1983; Hofstede, 1998; Jermier, Slocum, Fry, & Gaines, 1991; Linnenluecke et al., 2009; Lok, Rhodes, & Westwood, 2011; Meyerson & Martin, 1987; Sackmann, 1992, 2003; Saffold III, 1988; Sinclair, 1993; Trice & Beyer, 1993; Trice & Morand, 1991; Van Maanen & Barley, 1984). These researchers take the view that, although the dominant culture is shared by the majority of members of an organization (Martin, Joanne & Siehl, 1983, p. 53), different groups within an organization may develop their own sub-cultures (Quinn, R. E. & Rohrbaugh, 1983). Some claim that organizational cultures are rarely homogeneous, and that subcultures are the norm, with unified cultures being the exception (Martin, Joanne, 2002; Saffold III, 1988; Schein, 1996b). Harris (1998, p. 358) describes organizational culture as "a mosaic of subcultural shared meaning (often with similar traits)" which are unified by dominant shared meanings. Adkins and Caldwell, (2004) concur when they describe organizations as holding both overarching values, and peripheral values shared by subgroups.

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Subcultures are "distinct clusters of understandings, behaviours and cultural forms that identify groups of people in the organisation", which "differ noticeably from the common organisational culture in which they are embedded (Trice & Morand, 1991). They are those groups which have a common set of shared norms and beliefs. Van Maanen and Barley (1985, p. 38) specifically described them as:

> … a subset of an organization's members who interact regularly with one another, identify themselves as a distinct group within the organization, share a set of problems commonly defined to be the problem of all, and routinely take action on the basis of collective understanding unique to the group.

Subcultures differ from countercultures: the differences between subcultures and the overarching culture are tolerated, as although the values may conflict with the values of the dominant culture, they tend not to dislodge them. By contrast, as countercultures contest certain characteristics of the dominant culture, they are not accepted by the organization as a whole (Boisnier & Chatman, 2002).

There is a wide range and type of subcultures, and a number of factors contribute to the formation of subcultures, including employees' personal backgrounds and individual demographics, such as age, gender, race or ethnic identity, family background, education, or social class membership, and the culture of the community and society in which the organization is situated (Beyer, 1981; Burrus, 1997; de Vries, 1997; Gregory, 1983; Helms & Stern, 2001; Hofstede, 1998; Jermier et al., 1991; Li & Jones, 2010; Martin, Joanne, 2002; Martin, Joanne & Frost, 2011; Martin, Joanne, Frost, & O'Neill, 2004; Meyerson & Martin, 1987; Sinclair, 1993; Trice & Beyer, 1984; Van Maanen & Barley, 1984).

Organizational structures also contribute to the formation of subcultures within teams, departments, divisions and hierarchical levels (Boisnier & Chatman, 2002; Jermier et al., 1991; Martin, Joanne et al., 2004; Martin, Joanne, Sitkin, & Boehm, 1985; Ouchi & Price, 1978; Quinn, R. E. & Rohrbaugh, 1983; Riley, 1983; Trice & Beyer, 1984, 1991; Van Maanen & Barley, 1984). Subcultures arise in organizations which are loosely coupled (i.e. situations in which elements are responsive, but retain evidence of separateness and identity) (Orton & Weick, 1990, p. 203), or "tied together either weakly, or infrequently, or with minimal interdependence" (Weick, 1976, p. 5).

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Other contributory factors which may lead to the formation of subcultures include:

- business units which are in distinct geographic locations (Boisnier & Chatman, 2002; Jermier et al., 1991; Kekale, Fecikova, & Kitaigorodskaia, 2004; Martin, Joanne et al., 2004; Quinn, R. E. & Rohrbaugh, 1983; Riley, 1983)
- industry (Sackmann, 1992)
- occupation (Denison & Mishra, 1995; Jermier et al., 1991; Trice, 1993; Van Maanen & Barley, 1984, 1985)
- professional identities (Barley et al., 1988)
- organizational roles, work responsibilities and projects (Gregory, 1983; Hofstede, 1998; Kleinberg, 1994; Schein, 1996a; Stevenson & Bartunek, 1996; Trice & Beyer, 1993; Van Maanen & Barley, 1984)
- level of position held in the organization (Keeton & Mengistu, 1992)
- the technical requirements of the work (Jermier et al., 1991)
- staff turnover (Meyerson & Martin, 1987)
- the length of tenure with the organization (Maynard-Moody, Stull, & Mitchell, 1986)
- individual value profiles.

Differences in personal demographic characteristics such as age, gender, level of education and length of tenure with organizations may affect employees' perceptions of their work environment and the organization which in turn influences their perceptions of the organization's culture (Helms & Stern, 2001).

Martin and Siehl (1983) identified three different sets of sub cultures: enhancing, orthogonal and countercultural. Within an enhancing subculture, group members are more zealous about the dominant culture and its core values than the rest of the organization, while in orthogonal subcultures, group members accept both the dominant culture and its core values and the subgroup's unique set of values. In the third category, counterculture, the values of the subgroup contradict, so that members challenge the dominant culture which can generate conflict and may even destabilize the organization.

3.7.5.1 Impact of Subcultures

Subcultures within organizations may have a range of impacts. Pragmatists (refer Section (3.7.4), who believe the manipulation of organizational culture to be a key to organizational effectiveness, regard subcultures as potentially inhibiting the required culture change. It is argued that the presence of subcultures can diminish the strength of the overall organizational culture (Boisnier & Chatman, 2002). Others observe that strong cultures are change resistant, with change inducing major conflict and dissent (Flynn & Chatman, 2001) From this perspective, organizations can utilize subcultures to introduce change. Further, values differences between subcultures may inhibit knowledge sharing and collaboration,

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which is needed for change projects (such as technology innovations and implementation), which, in turn, generates conflict and change (Huang, J. C., Newell, Galliers, & Pan, 2003; Leidner & Kayworth, 2006). Subcultures may also have a greater impact on employee commitment to an organization, and hence on their effort, than does the overarching culture (Lok & Crawford, 1999; Lok et al., 2011; Mathew & Ogbonna, 2009; Sinclair, 1993).

By contrast, others see subcultures to be advantageous. Firstly, the existence of differing values between subgroups, and between subgroups and the overarching culture, may stimulate discussion, and over time, subcultures' values may become important organization-wide values (McShane, Olkalns, & Travaglione, 2011; Sinclair, 1993). Subgroups may also introduce external values, which are of import to the organization, may otherwise have been overlooked, and are more appropriate to the changing external environment (McShane et al., 2011). While members of a unitary strong culture may resist change, subcultures may be more accepting of this change, thereby overcoming some of the conflict generated by the change (Boisnier & Chatman, 2002). Subcultures may also foster constructive conflict, which, in turn, generates innovative and creative thinking (Boisnier & Chatman, 2002). Sinclair (1993) pointed out that subcultures provide a wide range of perspectives, thereby protecting an organization from "group think". A wide diversity of viewpoints is more likely to stimulate ethical debate and provide ethical vigilance, than a single, strong culture (McShane et al., 2011).

3.8 Approaches to Organizational Culture

As evidenced by the preceding discussion, organizational researchers have different understandings of organizational culture; similarly, they have applied different approaches to its study, as is discussed further in Chapter 5. Martin (1992, p. 3) emphasized that individual organizational members have different interpretations of an organization's culture, due to their individual perceptions, memories , beliefs, experiences and values. Martin (2002, p. 91) argued that the ways researchers define culture is less important than how they "operationalize it". Meyerson and Martin (1987), Martin and Meyerson (1988), and Martin (1992) developed a now generally accepted model, which helped to distinguish between the various perceptions and perspectives of organizational culture, with most studies of organizational culture framed within one of three perspectives: integration, differentiation, and fragmentation. Briefly, integrated cultures are cohesive and

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homogeneous, with commonly accepted and understood values and beliefs, and are oriented toward consensus; differentiated cultures are characterized as collections of subcultures, with consensus within each subculture, and ambiguity outside the subcultures; and fragmented cultures are inconsistent, ambiguous, open to members' multiple interpretations, and lack consensus (Boisnier & Chatman, 2002; Martin, Joanne, 2002; Martin, Joanne et al., 2004; Martin, Joanne & Meyerson, 1988; Meyerson & Martin, 1987).

Martin (2002) provided metaphors for each perspective:

- Integration**:** a solid monolith "seen the same way by most people, no matter from which angle they view it", hologram, a clearing in the jungle (Martin, Joanne, 1992, p. 13; 2002, p. 94), or as "an area of meaning carved out of a vast mass of meaninglessness, a small clearing of lucidity in a formless, dark, always ominous jungle" (Berger, 1967, p. 23 cited by Martin, Joanne et al., 2004).
- Differentiation: "islands of clarity in a sea of ambiguity" (Martin, Joanne, 1992, p. 13; 2002, p. 94; Martin, Joanne et al., 2004, p. 12).
- Fragmentation: A web, or jungle (Martin, Joanne, 1992, p. 13): "culture is no longer a clearing in a jungle of meaninglessness. Now, culture is the jungle itself" (Martin, Joanne et al., 2004, p. 17).

Viewing organizations from all three perspectives provides greater understanding of the culture (Martin, Joanne, 1992, p. 4), and avoids blinds spots that may be created by using only one perspective (Meyerson & Martin, 1987, p. 643).

3.8.1 Differentiation Perspective

From this viewpoint, an organizational culture is not unitary; rather, it is a "nexus where environmental influences intersect, creating a nested, overlapping set of subcultures within a permeable organizational boundary" (Martin, Joanne et al., 2004). Thus, the unique nature of any organization's culture is generated by the nature, variety, and combinations of its subcultures (Wilson, A. M., 2001). The presence of these subcultures may restrict the ability of managers to change an organization's overall culture (Harris, L. C. & Crane, 2002). Thus, cultural change needs to be addressed at the subgroup level, resulting in incremental change which occurs at differ rates throughout an organization (Martin, Joanne et al., 2004).

3.8.2 Fragmentation Perspective

From the fragmentation perspective, consensus is influenced by events, and therefore is "transient and issue-specific, producing short-lived affinities that are quickly replaced by a different pattern of affinities, as a different issue draws the attention of a different subset of cultural members" (Martin, Joanne et al., 2004), and there is little or no consensus, either

organisation-wide or within subgroups. Consequently, organizational culture change, and broader organizational changes are likely to be difficult to implement, or control (Martin, Joanne et al., 2004).

3.8.3 Integration Perspective

The integration perspective understands culture to have organization wide consensus, and consistency among employees regarding the interpretation of artifacts, values and beliefs (Barley, 1983; Martin, Joanne, 2002; Schein, 2004). Those researchers who hold the integration perspective, focus on cultural strength and its impact on organizational performance, as discussed in Section 3.7.2 (e.g. Barley, 1983; Deal & Kennedy, 1982; Denison, 1984; Peters & Waterman, 1982; Schein, 2004), with some claiming that leader's values will automatically spread down through their organizations. Researchers who hold the integration perspective believe that culture change should be addressed organization wide, and changing leaders' values will initiate culture change throughout the organization (Howard-Grenville, 2006; Jarnagin & Slocum, 2007; Martin, Joanne et al., 2004).

According to Linnenluecke and Griffiths (2010) the integration perspective also has been popular among sustainability researchers such as Crane (1995), Dodge (1997), and Welford, (1995).

3.9 Values and Organizational Culture

Values are a key component of organizational culture. They have been defined as "generalized, enduring beliefs about the personal and social desirability of modes of conduct or 'end-states' of existence" (Kabanoff, Waldersee, & Cohen, 1995, p. 1076). Organizational values, as are personal values, are deep seated, pervasive standards that influence moral and ethical judgements, commitments to personal and organizational goals, and underpin all organizational decisions, objectives and activities (Posner et al., 1985, p. 294; Vandenberghe & Peiro, 1999, p. 572). In the organizational setting, values are "the defining elements of a culture" (Chatman & Jehn, 1994, p. 524), and the bedrock of organizational culture (Detert et al., 2000; Posner et al., 1985, p. 298; Quinn, R. E. & Rohrbaugh, 1981, 1983). As such, values determine the evolution of behavioural norms, artifacts, symbols, rituals and language, and thus culture (O'Reilly, Chatman, & Caldwell, 1991).

Rousseau (1990a) argued that, while assumptions are problematic to measure, values, behaviour, and artifacts may be measured to identify an organization's culture. As

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Vandenberghe, and Peiro (1999) and Ogbonna and Harris (2000) found, a number of those researchers who define culture in terms of values, also measure culture in terms of values (e.g. Chatman, Polzer, Barsade, & Neale, 1998; O'Reilly, 1989; Saffold III, 1988). Likewise, Chatman and Jehn, (1994) assert the way to identify and assess an organization's culture is to identify and assess the values. Others have followed suit, including Howard (1998) and Ott, (1989), with Denison, Janovics, Young, and Cho, (2006, p. 9) declaring that, given it is easier to make generalizations about organizational cultures from values and behaviour than from underlying assumptions, most researchers who are endeavouring to measure culture, measure values and behavioural norms. Values also have been used to assess the culture of sustainable organization (Eccles et al., 2011; Linnenluecke & Griffiths, 2010).

3.10 Cultural Dimensions

Other researchers have sought to identify cultural categories, or dimensions, rather than individual values or overall patterns of values; these tend to be comprised of both values and behaviours (Kabanoff et al., 1995). For example, Glaser, Zamanou and Hacker (1987, p. 174) developed the Organizational Culture Survey which categorized behaviours into six groups: teamwork and conflict, climate and morale, information flow, involvement, supervision, and meetings. Cooke and Lafferty (Cooke, 1989; Cooke & Lafferty, 1987; Cooke & Szumal, 1993) developed a culture measure named the Organizational Culture Inventory (OCI) which was comprised of 12 cultural traits: Humanistic/Helpful, Affiliation, Achievement, Self-Actualization, Approval, Conventionality, Dependence, Avoidance, Oppositional, Power, Competitive, and Perfectionism (Cooke & Rousseau, 1988). O'Reilly et al. (1991) identified 54 values which were categorised into seven clearly defined factors, which they called "dimensions": innovation, outcome orientation, respect for people, team orientation, stability, aggressiveness and attention to detail. When studying organizational justice, Kabanoff, Waldersee and Cohen (1995) categorised nine values into a matrix comprised of four value structures, according to the emphasis on equity or power.

The GLOBE studies of both culture and leadership in organizations across 61 countries, which were based on a number of premises, including the influence of societal culture on organizations' cultures, practices and structures, categorised values into nine dimensions:

- Performance Orientation
- Future Orientation
- Assertiveness

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- Power Distance
- Humane Orientation
- Societal Collectivism
- In-Group Collectivism
- Uncertainty Avoidance
- Gender Egalitarianism (House, R. J., Javidan, Hanges, & Dorfman, 2002).

In response to the wide range of cultural dimensions, a number of researchers have analysed sets of organizational culture dimensions to identify the similarities (or differences) and overlaps between the various dimensions.

Following a quantitative analysis of four organizational culture survey instruments, the Corporate Culture Survey (Glaser, R., 1983); the Kilmann-Saxton Culture Gap Survey (Kilmann, R.H. & Saxton, 1983); the Organizational Beliefs Questionnaire (OBQ) (Sashkin, 1984; Sashkin & Fulmer, 1987); and the Organizational Culture Inventory (OCI) (Cooke, 1989; Cooke & Lafferty, 1987; Cooke & Szumal, 1993), Xenikou and Furnham (1996) concluded that there were a number of overlaps between the total 30 scales used across the four surveys (p. 369) and identified five separate factors:

- Openness to change
- Tasks oriented organizational growth
- The human factor in a bureaucratic culture
- Negativism and resistance to new ideas
- Positive social relations in the workplace.

After examining the content of seven quantitative survey questionnaires, Rousseau (1990a, p. 179)[1] concluded there were three general categories of organizational culture dimensions which appear as either values or behaviours:

- Task related: innovation, quality, analysis, risk taking and perfectionism
- Interpersonal; values and behaviours: communicating, valuing people, fairness, fitting in and team spirit/morale
- Individual: freedom, self-expression and flexibility

- [1] Norms Diagnostic Design Index (Allen & Dyer, 1980)
- Kilmann-Saxton Culture Gap Survey (Kilmann, R.H. & Saxton, 1983)
- Corporate Culture Survey (Glaser, R., 1983)
- Organizational Beliefs Questionnaire (Sashkin, 1984; Sashkin & Fulmer, 1987)
- Organizational Values Congruence Scale
- Organizational Culture Profile (O'Reilly, Chatman, & Caldwell, 1988)
- Organizational Culture Inventory (Cooke, 1989; Cooke & Lafferty, 1987; Cooke & Szumal, 1993)

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In a meta-analysis of culture dimensions, van der Post, de Coning and Smit (1997; 1998) identified 114 dimensions of organisational culture, many of which were not unique, but rather had overlapping content; these were condensed to 15 separate dimensions. Ashkanasy, Broadfoot and Falkus (2000) advanced a model comprised of ten organizational culture dimensions which measure behaviour and behaviour norms. Subsequent to a meta-analysis of culture literature from the previous 20 years, Detert et al. ((2000) p. 854) concluded there are eight cultural dimensions:

- The basis of truth and rationality
- The nature of time and time horizon
- Motivation
- Stability vs change/innovation/personal growth
- Orientation to work, task and co-workers
- Isolation vs. collaboration/cooperation
- Control, coordination/ and responsibility
- Orientation and focus – internal and/or external.

When Delobbe, Haccoun, and Vandenberghe (2002) examined the cultural dimension measured by 17 different organizational culture survey questionnaires to determine commonalities and differences they identified four core domains:

- People orientation: perceived support, cooperation, mutual respect and consideration between organizational members
- Innovation: general openness to change, the propensity to experiment and take risks
- Control: the level of work formalization, existence of rules and procedures and importance of organizational hierarchy
- Results/outcome orientation: measures the expected level of productivity or performance.

In their effort to develop an aggregated theory which explained the relationship between organizational culture and organizational effectiveness, Denison et al. (2006) developed a model with four independent cultural traits, in which each trait has three dimensions, the majority of which focus on behaviour, and only one, Core Values, focuses on values.

Gineviču & Vaitkūnaite's (2006) meta-analysis of 53 published papers on organizational culture in which the dimensions had been tested and validated, determined that there are 25 different types of cultural dimensions. Finally, after studying 70 different culture survey tools, Jung et al. (2007) concluded there are 26 different organizational culture dimensions.

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3.11 Organizational Culture and Performance

From the perspective that organizations *have* culture, organizational culture is claimed to be critical to organizations' short and long term performance (e.g. Barney, 1986; Chatman & Jehn, 1994; Deal & Kennedy, 1982; Denison, 1984, 1990; Denison & Mishra, 1995; Gordon & DiTomaso, 1992; Kotter & Heskett, 1992; Lund, 2003; Peters & Waterman, 1982; Saffold III, 1988; Weber, R. A. & Camerer, 2003; Wilderom et al., 2000; Yilmaz & Ergun, 2008). Over 30 years ago, Schwartz, and Davis, (1981) stated: "for better or worse, a corporate culture has a major impact on a company's ability to carry out objectives and plans, especially when a company is shifting its strategic direction". Following a series of studies, Kotter and Heskett (1992, p. 11) concluded that corporate culture has a significant impact on long term economic performance. Many others have concluded that an organization's culture impacts various aspects of its performance and operations. Some of these are summarised in Table 3.3.

However, not all researchers are certain that there is positive connection between organizations' culture and performance (Reynolds, 1986; Saffold III, 1988). After reviewing multiple studies, Lim (1995, p. 20) concluded that, although culture is a "useful explanatory tool", and many agree that organizational culture has a powerful role, many of the studies contained issues such as multiple definitions, problems measuring organizational culture, and lack of methodological rigour. He found the studies did not reveal conclusively any contributory relationship between culture and short-term performance. Wilderom, Glunk and Maslowski (2000) similarly determined that there is not a link is not well established, and were critical of the design of some of the significant studies which linked organizational culture and performance. Lee and Yu's (2004) study of ten Singaporean companies in the high-tech manufacturing, hospitals and insurance industries, concluded cultural strength was related to performance in only a few cases, and the results could not be generalized across other organizations.

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Table 3.3 Impact of Organizational Culture

Area of Impact	Author
Short-term future company performance.	Gordon & Ditomaso (1992)
Positively impacts organisational performance. Organizational performance is closely related to how strongly cultural values are held, or how widely they are shared throughout the organization.	Denison (1984) Denison & Mishra (1995) Fey & Denison (2003)
Some cultural dimensions correlate with organizational effectiveness.	van der Post, de Coning, & Smit (1998)
Strong cultures enable higher sales growth, and overall financial performance than organizations with a weak culture.	Barney (1986)
Impact of culture on performance is moderated by the external environment: in volatile environments, culture's contribution to performance diminishes considerably.	Sørensen (2002)
Constructive culture enables effective communication, role clarity, and employee-organization fit.	Balthazard, Cooke & Potter (2006)
Business process change.	Skerlavaj, Stemberger, Skrinjar, & Dimovsk (2007)
Customer satisfaction. Can determine whether the customer continues to do business or seeks other suppliers.	Bellou (2007) Gillespie et al. (2008) MacIntosh & Doherty (2007)
Higher sales growth & overall financial performance than organizations with a weak culture.	Denison & Mishra (1995) Gordon & DiTomaso (1992)
Employee commitment, job satisfaction and retention.	Balthazard, Cooke, & Potter, (2006) Lok & Crawford (1999, 2004) Lund (2003) MacIntosh & Doherty (2005) O'Reilly, Chatman, & Caldwell (1991) Posner, Kouzes, & Schmidt (1985) Rashid, Sambasivan, & Johari (2003) Schwepker Jr (2001)
Employee motivation & commitment.	Sheridan, (1992) Virtanen (2000)
Knowledge management systems implementation.	Park, Ribière, & Schulte Jr. (2004)
Merger success.	Chatterjee, Lubatkin, Schweiger, & Weber (1992) Weber & Shenkar (1996) Weber & Camerer (2003)
Organizational Change: readiness & outcomes of change programs.	Hannan et al. (2003) Jones et al. (2005) Lamonski (2001)
Organizational procedure formation.	Deal & Kennedy (1982) Jarnagin & Slocum (2007)
Organizational strategy.	Schwartz & Davis (1981) Scholz (1987) Choe (1993) Collins & Porras (1994) O'Reilly & Pfeffer (2000)
Supply chain integration.	Braunscheidle, Suresh, & Boisnier (2010)
Team work.	Goffee & Jones (1996)
Technology adoption.	Chatman & Jehn (1994)
Quality Management programs: successful implementation.	Prajogo & McDermott (2005) Pun & Jaggernath-Furlonge (2009) Zu et al. (2010)

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Arogyaswamy and Byles (1987) recognized that organizational culture was only one of many organizational variables which influenced performance. Sorensen's (2002) research identified that, while organizations with strong cultures perform well under stable economic conditions, they are less successful in volatile business and economic environments, particularly if they need to explore new opportunities which require new competencies.

Regardless of these criticisms, as shown in the following sections, organizational culture continues to be regarded by many researchers as important.

3.12 Organizational Culture and Change

Organisation change has become a consistent feature and the most frequently occurring phenomena of our times (Self & Schraeder, 2009; Van Tonder, 2006), and may include business expansion, merger and acquisition, downsizing, re-structure, process changes or re-engineering, systems or technology change, and TQM implementation (Cameron & Quinn, 2006; Detert et al., 2000; Kotter, 1996; Poole, 1998; Self & Schraeder, 2009; Smith, M. E., 2003). These changes are a response to external competitive forces, changes in the business environment (Kotter, 1996; Smith, M. E., 2002, 2003; Van Tonder, 2006), or customer issues (Smith, M. E., 2003), and are an endeavour to maintain or improve organisation performance and competitive position. Despite the significant importance of organisation change programs and the substantial resources, talent and committed people dedicated to change efforts (Senge et al., 1999), approximately 65 to 75 percent of change programs fail (Beer & Nohria, 2000; Cameron & Quinn, 2006; Kotter, 1996; Turner, D. & Crawford, 1998; Van Tonder, 2006), and, at the very least, organisation change is failing to deliver performance outcomes (Balogun & Jenkins, 2003).

Various researchers have suggested that managing and changing organizational culture are critical to the success of organizational change (Bettinger, 1989; Deal & Kennedy, 1982; Denison, 1984; Kilmann, Ralph H. et al., 1985; Lorsch, 1986; Peters & Waterman, 1982; Schein, 1986, 1990, 1992; Schneider, B. et al., 1996; Tichy, 1983; Trice & Beyer, 1984; Wilkins & Bristow, 1987; Wilkins & Ouchi, 1983). Further, with the high failure rate of organizational change programs, it is suggested that, often, ignoring organisational culture and its impact on change efforts is a reason for the failure of change programs (Cameron & Quinn, 2006; Heracleous, 2001, 2002; Linnenluecke & Griffiths, 2010).

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As transitioning towards organizational sustainability requires significant organizational change, it can be inferred that organizations' cultures are correspondingly essential for their achieving sustainability.

3.13 Organizational Culture - Sustainability Relationship

As discussed in Chapter 2, Section 2.11, attention has turned increasingly to the nature and impact of an organization's culture on organizational sustainability strategies and performance (Abbett et al., 2010; Azzone et al., 1997; Smith, P. A. C. & Sharicz, 2011). According to Quinn and Dalton, (2009) to achieve sustainability, organizations should fully integrate social and environmental issues into their vision, values and operations. Linnenleucke and Griffiths (2010) found that organizations require socially and environmentally responsible values if they are to progress towards sustainability.

While some organizations' values reflect their commitment and motivation towards sustainability (van Marrewijk, 2004), questions have been raised as to whether the culture and values of many organizations are appropriate to support sustainability practices (Quinn, L. & Dalton, 2009). Some maintain that it is essential for organizations to have organizational values which support sustainability (Bansal & Kandola, 2004). Therefore, to become sustainable, it is argued that organizations should significantly change their values and beliefs, radically overhaul their culture (Crane, 2000; Edwards, M. G., 2009; Molnar & Mulvihill, 2003; Rimanoczy & Pearson, 2010; Shrivastava & Hart, 1995), and institutionalize sustainability beliefs into the organization (Harris, L. C. & Crane, 2002). Van Marrewijk and Werre (2003, p. 117) propose that an organization's values and culture differ according to the level of aspiration for sustainability, and the "dominant value systems can determine the potential for sustainability". Fernandez, Junquera and Ordiz (2003, p. 641) argue that excellent environmental performance depends upon incorporating environmental issues into organizational culture. Epstein, Buhovac, and Yuthas (2010) advise that a sustainability-related culture enables organizations' decision makers to balance economic, environmental and social objectives.

Earlier, Shrivastava and Hart (1995, p. 162) were convinced that organizational values should emphasize "harmonious co-existence with the natural world, view humans as part of the natural world, and acknowledge the rights of nature to exist". Starik and Rands (1995) emphasized that environmentally sustainable organizations must cultivate cultures founded

on shared environmental values, pro-sustainability behavioural norms, and artifacts which accentuate the importance of environmental sustainability. Later, Stubbs and Cocklin (2007), Stubbs (2009), and Wirtenberg et al. (2007) also discovered that deeply embedded sustainability related values are essential to sustainability.

Thus, to become sustainable, organizations must undergo a paradigm shift in their values and culture (Edwards, M. G., 2009), and this culture shift must impact every part of the organization's life (Rimanoczy & Pearson, 2010).

Smith and Sharicz (2011) point out that, although they emphasize the importance of culture to achieving sustainability, a number of these authors provide little detail about whether specific cultural dimensions significantly contribute to sustainability and, if so, what are these dimensions. Avery and Bergsteiner (2010) identified the foundational practices which drive sustainable organizations, one of which is organizational culture. From their observations of 47 sustainable organizations, they concluded that sustainable organizations foster a consistent, clearly articulated and shared organizational culture, and have non-negotiable core values, and organizations aspiring to sustainability need to build an enabling culture. However, Avery and Bergsteiner (2010) also did not specify whether particular traits of these shared organizational cultures are distinctive to sustainable organizations.

3.13.1 Sustainability Culture Dimensions

Despite the increasing conviction that organizations' culture is integral to attaining organizational sustainability, relatively little research has been undertaken to identify the specific characteristics of this culture (Smith, P. A. C. & Sharicz, 2011). While some, including Maignan, Ferrell and Hult (1999), Ardichvili, Mitchell and Jondle (2009), and Übius and Alas (2009) have examined the types of organizational cultures that support Corporate Social Responsibility, other writers have restricted their contributions to suggested, or even inferred, cultural dimensions and values they consider important to organizational sustainability. The frequently-cited work of Linnenluecke et al. (2009) and Linnenluecke and Griffiths (2010) focussed on culture typologies, rather than individual cultural dimensions.

Nonetheless, a detailed review of the organizational sustainability literature revealed particular values, attitudes, behaviours, and cultural dimensions which researchers consider important to organizational sustainability. For example, Benn et al. (2006, pp. 156, 162) drew a clear association between culture and organizational sustainability, identified questioning,

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challenging, extending to open dissent; innovation; learning; respect; trust; transparency and candour to be as essential cultural dimensions, along with empowerment, teamwork and continuous learning. Likewise, Rodriguez, Ricart and Sanchez (2002) named questioning, stakeholder relations, collaboration, and innovation, as important for organizations' advancement toward sustainability. In their study of Bendigo Bank's approach to community engagement and sustainability, Stubbs and Cocklin (2007) recognized trust, loyalty, integrity and honesty to be key values. Stubbs and Cocklin (2008a, p. 114; 2008b, p. 520) additionally regard stakeholder engagement, collaboration and cooperation as necessary to sustainability, concurring with Korhonen, von Malmborg, Strachan and Ehrenfeld (2004, pp. 298, 300), who recommend organizations should adopt trust, "diversity, cooperation, community, and connectedness and locality".

A future orientation and proactiveness are further aspects of culture considered to be critical for organizations wishing to adopt sustainable practices (Searle, 2009). For social sustainability, van Marrewijk (2004, p. 138) advocates that organizations must have social skills such as dialogue, engagement, transparency, plus community values, including trust, respect, fairness, harmony and care.

Sharma and Kearins' (2011, p. 194) qualitative study revealed the importance and complexities of collaboration between organizations, and noted the contribution which shared ideas, and new approaches, can make to achievement of sustainability goals. However, they also concluded that, as interorganizational collaboration can be time consuming, inefficient, confused by differing understandings, and fraught with conflict, power imbalances, personal and organizational priorities, and political agendas, therefore collaboration is not, in itself, "a panacea". Yet Abbett, Coldham and Whisnant (2010) concluded that collaboration is positively related to successful sustainability initiatives. Their definition of collaboration was broad, however, incorporating undefined concepts such as teamwork, mentoring, support, communication, empowerment, and listening. In their comprehensive study, Haanaes, Reeves, Von Streng Velken, Audretsch, Kiron and Kruschwitz (2012, p. 10) also ascertained that more sustainable organizations develop collaborative relationships, both inside and outside their organization, and between geographic units.

Eccles et al. (2011) found, when compared with "Low Sustainability" companies, "High Sustainability" companies were more likely to have formal stakeholder engagement

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processes; build long term relationships with key stakeholders based on mutual respect, trust and cooperation; measure and disclose non-financial information, such as environmental, social corporate governance data; and outperform low sustainability companies on measures such as stock market performance, cumulative return on assets (ROA) and cumulative return on equity (ROE). Eccles, Miller Perkins, and Serafeim (2012) added employee engagement strategies and innovation processes.

Sustainability requires both an organizational strategy and an organizational change. As one CEO has said, "No vision, no strategy can be achieved without able and empowered employees" (Argyris, 1998, p. 98). Empowerment also is an important enabler of organizational innovation and creativity (Jung, D. I. & Sosik, 2002).

Empowerment has a range of definitions, including:

- "The importance of giving employees both the ability and the responsibility to take active steps to identify problems in the working environment that affect quality or customer service and to deal effectively with them" (Leitch, Nieves, Burke, Little, & Gorin, 1995, p. 72).

- "The process of providing employees with the necessary guidance and skills, to enable autonomous decision making, including (accountability and the responsibility) for making these decisions within acceptable parameters, that are part of an organizational culture" (Geroy, Wright, & Anderson, 1998).

- "People are involved in setting, owning, and implementing a joint vision; responsibility is distributed close to decision making so that people are motivated to learn toward what they are held accountable to do" (Marsick & Watkins, 2003, p. 139).

- "An organization's process to create, and share a collective vision and get feedback from its members about the gap between the current status and the new vision" (Yang, B., Watkins, & Marsick, 2004, p. 34).

Enander and Pannullo (1990), and Daily and Huang (2001) concluded that employee empowerment is critical to organizations' achieving environmental responsibility. They are supported by Govindarajulu & Daily (2004) who state that, "empowered employees who have autonomy and decision-making power are also more likely to be more involved in the improvement of the environment", and be "motivated and committed to participate and engage in good environmental practices". Similarly, a study by Hanna, Newman & Johnson (2000) identified that the key to both operational and environmental performance is likely to be employee involvement.

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In all, the literature revealed 42 different cultural dimensions related to organizational sustainability, which are provided in Appendix 3.3. Closer examination of the definitions of each of the 42 cultural dimensions, and the various authors' definitions, revealed that a number were similar. Ultimately, after several iterations, the 42 definitions were condensed down to a set of 18 specifically defined dimensions, as presented in Table 3.4.

Table 3.4 Cultural Dimensions for Sustainable Organizations

Cultural dimension	Summary definition	Authors
Challenge current thinking	Seeking new ideas and approaches. Questioning, challenging, disputing, and breaking away from conventional beliefs and past ways of thinking and working.	Avery & Bergsteiner (2010) Benn et al. (2006) Fenwick (2007) Hind, Wilson, & Lenssen (2009) Wilson & Holton (2003)
Collaboration with stakeholders	Building relationships, strategic networks, alliances and partnerships and multi-way dialogue with internal and external stakeholders, including all sectors of society. Seeking and sharing information and knowledge to develop wider perspectives and visions for sustainability.	Benn & Dunphy (2003) Benn & Dunphy (2004b) Benn et al. (2006) Benn, Dunphy, & Martin (2004) CESD Section 7.61 (1999) Champy & Nohria (1996) Eccles et al. (2011) Epstein (2008) Haanaes et al. (2012) Hart & Milstein (2003) Hind et al. (2009) Jamrog, Vickers, & Bear (2006) Mirchandi & Ikerd (2008) Molnar & Mulvihill (2003) Petts, Herd, Gerrard, & Horne (1999) Polonsky, Rosenberger III, & Ottman (1998) Quinn & Dalton (2009) Robert, Schmidt-Bleek, de Larderel, Basile, Jansen, Kuehr, Thomas, Suzuki, Hawken & Wackernage (2002) Rodriguez et al. (2002) Sakai (2010) Stubbs (2009) Stubbs & Cocklin (2008a, 2008b) Vachon & Klassen (2008) van Kleefe & Roome (2007) Wirtenberg et al. (2007)
Connectedness	Understanding and respecting the interconnectedness and interdependence of the environment and ecology, human and societal welfare, and the economy. Recognizing that activities which damage any part of these, will impact the long term viability of organizations, nations, populations and the planet.	Gladwin, Kennelly, & Krause (1995) Kidder (2005) Mirchandi & Ikerd (2008)

Table 3.4 (cont.) Cultural Dimensions for Sustainable Organizations

Cultural dimension	Summary definition	Authors
Cooperation (internal)	Working cooperatively internally, coordinating together and readily resolving conflict reduces barriers and facilitates resolution of complex and difficult sustainability challenges.	Adler & Kwon (2002) Bansal (2002) Benn et al. (2006) Jenkins (2002) Mirchandi & Ikerd (2008) Sagawa & Segal (2000) Stubbs (2009) Stubbs & Cocklin (2008a)
Diversity	Respecting diversity, understanding differences and encouraging participation by people of diverse backgrounds including skills, knowledge and experience, gender, race, culture or other aspects, to enable understanding the complexity of sustainability, and thinking creatively to find new solutions.	Eccles et al. (2011) Hind et al.(2009) Jamrog, Vickers, & Bear (2006) Mirchandi & Ikerd (2008) Stubbs (2009) Wilson & Holton (2003) Wirtenberg et al. (2007)
Empowerment and inclusiveness	Empowering employees and encouraging their involvement in planning and implementing organizational sustainability activities.	Bansal (2002) Daily & Huang (2001) Daily, Bishop & Steiner (2007) Govindarajulu & Daily (2004) Hanna, Newman & Johnson (2000) Fernández, Junquera & Ordiz (2003) Petts et al. (1999) Wirtenberg et al. (2007)
Fairness/ equity	Carefully managing the scale and impact of activity, and appropriately using environmental and ecological, human and social resources. Fairly distributing resources and property rights, within and between generations.	Costanza, Wainger, Folke, & Midler (1993) Gladwin et al. (1995) Ludwig, Hilborn & Walters (1993) Mirchandi & Ikerd (2008)
Innovation and creativity	Fostering creativity, ingenuity and innovation to modify existing or develop new products, services and technologies which integrate and support the various elements of sustainability.	Avery & Bergsteiner (2010) Benn et al. (2006) CESD (1999) D'Amato & Roome (2009) Searle (2009) Sharma & Vredenburg (1998) Stubbs (2009) Ramus (2001) Rodriguez et al. (2002) Van Kleef & Roome (2007)
Integrity	Considering sustainability and making sustainability based decisions in strategic planning and implementation of the business.	Mirchandi & Ikerd (2008) Sakai (2010) Stubbs & Cocklin (2007, 2008a)
Knowledge sharing/ Open communication with all stakeholders	Seeking and sharing knowledge, information, ideas, and success stories within the organization and with stakeholders and competitors.	Benn et al. (2006) CESD (1999) Epstein (2008) Jamrog et al. (2006) Stubbs (2009)

Table 3.4 (cont.) Cultural Dimensions for Sustainable Organizations

Cultural dimension	Summary definition	Authors
Learning	Cultivating curiosity, encouraging experimentation, improvisation, acquiring and transferring knowledge, tolerating mistakes, and reflecting on these.	Benn & Dunphy (2004b) Benn, Dunphy, & Griffiths (2004) Benn et al. (2006) Dunphy et al. (2007) Edwards (2009) Fernández, Junquera, & Ordiz (2003) Hart (1995) Jamali (2006) Molnar & Mulvihill (2003) Petts et al. (1999) Sakai (2010) Sarkis, Gonzalez-Torre, & Adenso-Diaz (2010) Senge & Carstadt (2001) Sharma & Vredenburg (1998) Smith & Sharicz (2011) Stubbs (2009) Wirtenberg et al. (2007) Wolf (2013)
Long term perspective	Emphasizing long-term goals which incorporate environmental, social and financial sustainability, sustainable products and services, and long-term relationships with stakeholders.	Archidvili, Mitchell & Jondle (2009) Eccles et al. (2011) Ross (2009) Sakai (2010) Smith & Sharicz (2011) Stubbs & Cocklin (2008a) van Marrewijk (2004) Wang & Bansal (2012)
Proactive	Self-starting. Voluntarily actively seeking opportunities and taking actions that positively impact on current and future sustainability beyond regulations and industry standards.	Benn et al. (2006) Epstein (2008) Searle (2009) Sharma & Vredenburg (1998) Stubbs (2009)
Reflection	Examining attitudes and values towards sustainability and encouraging openness to the changes required for sustainability.	Benn et al. (2006) Dunphy et al. (2007) Eccles et al. (2011) Edwards (2009) Griffiths, Haigh, & Rassias (2007) Mirchandi & Ikerd (2008) Smith and Sharicz (2011)
Responsibility	Accepting responsibility for decreasing and eliminating the environmental, ecological and social impact of the entire lifecycle of products and services.	Mirchandi & Ikerd (2008) Sakai (2010) Stubbs & Cocklin (2007, 2008b)

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Table 3.4 (cont.) Cultural Dimensions for Sustainable Organizations

Cultural dimension	Summary definition	Authors
Systems Thinking	Creating an integrated systems perspective by recognising the organization operates in an open system – diverse cultures, constraints and opportunities between the internal and external.	Egri & Pinfield (1996) Gladwin et al.(1995) Hind et al. (2009) Jamali (2006) Korhonen, et al. (2004) Mirchandi & Ikerd (2008) Molnar & Mulvihill (2003) Stubbs & Cocklin (2008a, 2008b) Waddock (2007)
Transparency and openness/ Trust	Developing trust by communicating openly, honestly and consistently to all internal and external stakeholders concerning environmental, social and financial performance and impacts on all stakeholders.	Benn et al. (2006) Eccles et al. (2011) Epstein (2008) Mirchandi & Ikerd (2008) Robert et at. (2002) Rodriguez et al. (2002) Stubbs (2009) Stubbs & Cocklin (2007) Sakai (2010) Wolf (2014)
Wholism	Considering the entire product lifecycle from cradle to grave, not only the delivered product or service.	Epstein (2008) Hart (1995) Hart & Dowell (2011) Mirchandi & Ikerd (2008) Stubbs & Cocklin (2008a)

3.13.2 Subcultures and Sustainability

Subcultures within organizations may also impact the ease with which organizations become sustainable. Harris, and Crane (2002) who examined the presence of green organizational cultures in organizations, identified that subcultures could inhibit the development of an organization-wide green culture. From her case study of ChipCo, Howard-Grenville (2006, p. 68) concluded that an organization's culture, and the presence of subcultures, determine which environmental issues it chooses to address. Linnenluecke et al. (2009) found that subcultures in organizations can impact on employees' level of understanding of sustainability within their organization.

3.14 Chapter 3 Summary

It can be seen from the organizational culture literature that, while there are differences of opinions between researchers, there also are areas of agreement. The literature strongly proposes that an organizations' culture is an important determinant of the success of its sustainability initiatives and for the level of sustainability it achieves. The literature also presents a number of values, behaviours, and cultural dimensions which are deemed to be

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important to organizations attaining their desired level of sustainability. In this chapter, these values, attitudes, behaviours, and cultural dimensions have been categorised into 18 organizational culture dimensions.

However, while the literature revealed these dimensions, the nature of the relationship between many of these identified cultural dimensions and organizational sustainability has not been comprehensively tested to determine their presence in highly sustainable organizations, or in organizations which are actively endeavouring to become more sustainable. Therefore, the remainder of this thesis examines and tests the identified organizational culture dimensions which researchers have purported to be important for embedding sustainability mindset and practice.

Chapters 4 and 5 discuss the methodology and research design for the research study.

CHAPTER 4 RESEARCH MODEL

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4.1 Overview of Chapter 4

This thesis has seven chapters, which follow the format presented in Figure 1.4
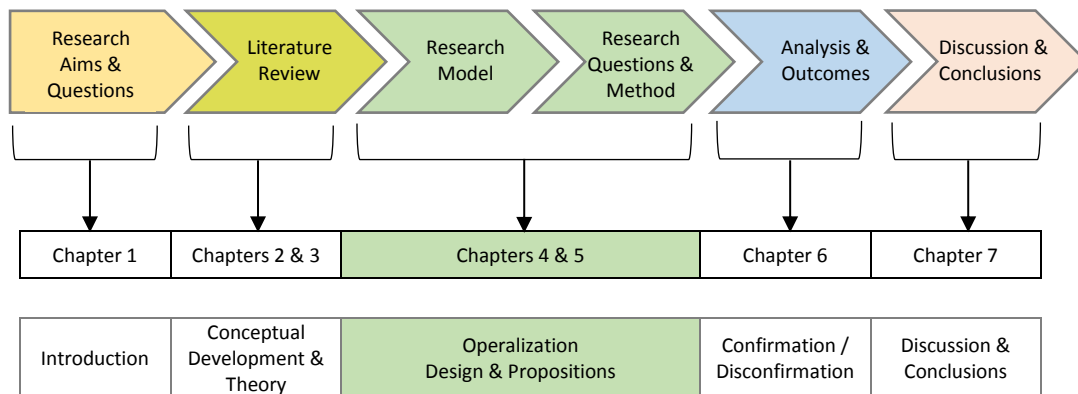
Figure 4.1 Thesis Structure

This chapter discusses the research paradigm, research methodologies, and the chosen research design. Carter and Little (2007) propose that the framework for a research project is driven by epistemology, methodology and method, while others stress the importance of researchers' paradigms. Following the research model presented in Figure 4.2, the rationale for the selected mixed method approach to the case study, combining both qualitative interviews and quantitative survey research, will be elucidated.

4.2 Research Paradigm

Research has been described as a systematic, controlled, valid and rigorous investigation (Burns, 2000), in which data are collected, analysed and interpreted in order to "understand, describe, predict or control an educational or psychological phenomenon or to empower individuals in such contexts" (Mertens, 2005, p. 2).

To explain the type of knowledge this research study uncovers, this section will describe the wider theoretical frameworks, or paradigms, within which it is situated. This clarification is critical, as paradigms determine researchers' interpretations of information and experiences, research objectives, and underpin their choice of literature, methodology, methods, literature and research design, and the interpretation of the result (Bryman, 2008; Denzin & Lincoln, 2000; Guba & Lincoln, 1994; Mackenzie, N. & Knipe, 2006; Morgan, G. & Smircich, 1980; Weaver & Olson, 2006). Thus, it is important for researchers to start with an understanding of their own research paradigms (Mackenzie, N. & Knipe, 2006; Mertens, 2005).

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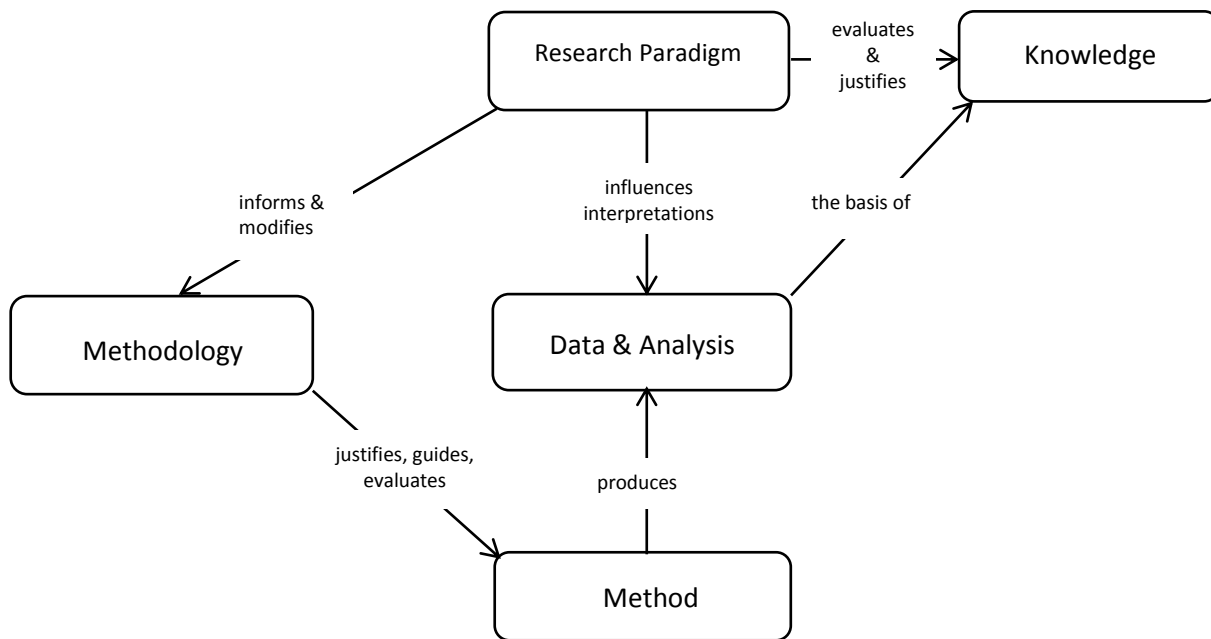
Adapted from Carter & Little (2007, p. 1317)

Figure 4.2 Research Framework

Paradigms were initially conceived by Thomas Kuhn for the purposes of sciences research, and his view of paradigms has subsequently been applied in the fields of social science and management, despite Kuhn himself being unsure its applicability outside the hard sciences of nature (Gow & Dufour, 2000). In the first edition of his seminal book, *The Structure* of *Scientific Revolutions*, Kuhn (1962) applied the term 'paradigm' to describe linked assumptions, and patterns of thinking, approaching, and studying scientific problems. He proposed that significant scientific developments are more likely to occur when researchers adopt new beliefs, viewpoints and methods, and even redefine the initial problems, rather than from persistently seeking new evidence (Hallahan, 1993, p. 198). However, Kuhn was imprecise when explaining paradigms, with Masterman (1970) identifying that Kuhn used the term "paradigm" in at least 21 different ways.

In the second edition of *The Structure of Scientific Revolutions,* Kuhn (1970) conceded his definition was "inadequate", and clarified paradigms to be the "entire constellation of beliefs, values and techniques and so on shared by members of a given community" (Kuhn, 1970, p. 175), with one element in that constellation being exemplar (Gow & Dufour, 2000). Kuhn saw paradigms as being "so deeply implanted in the members of the community that it

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achieves the status of tacit knowledge, invisible so long as its effectiveness is not challenged" (Bizzell, 1979, p. 767).

In social sciences and management, the understandings of paradigms draw heavily on Kuhn's work (Gow & Dufour, 2000). For example, in applying Kuhn's ideas to sociology, Ritzer (1975, p. 157) concluded that a paradigm is a fundamental image of the subject matter within a science. It serves to define what should be studied, what questions should be asked, how they should be asked, and what rules should be followed in interpreting the answer obtained. The paradigm is the broadest unit of consensus within a science and serves to differentiate one scientific community (or sub-community) from another. It subsumes, defines and inter-relates the exemplars, theories, methods, and instruments that exist within it.

In discussing research methods, Guba and Lincoln (1994, p. 107) defined paradigms as:

> … a set of basic beliefs (or metaphysics) that deals with ultimates or first principles. It represents a worldview that defines, for its holder, the nature of the world, the individual's place in it, and the range of possible relationships to the world and its part.

Paradigms also are referred to as the philosophical intent or motivation for undertaking study (Cohen, L. & Manion, 1994, p. 38; Mackenzie, N. & Knipe, 2006, p. 195); broadly conceived research methodologies (Neuman, 2006); the theoretical framework, as distinct from a theory (Bogdan & Biklen, 1998); or more simply, fundamental basic assumptions (Mertens, 2005; Smith, J. K. & Heshusius, 1986, p. 4), which, in turn, determine the researcher's philosophical framework (Filstead, 1979, p. 34). They also have been described as "a loose collection of logically related assumptions, concepts or proposition that orient thinking and research" (Bogdan & Biklen, 1998, p. 38), and may be held commonly by a group of researchers (Johnson, R. B. & Onwuegbuzie, 2004; Johnson, R. B., Onwuegbuzie, & Turner, 2007). These explanations of paradigms are captured effectively by Weaver and Olson (2006, p. 460), who described them as "patterns of beliefs and practices that regulate inquiry within a discipline by providing lenses, frames and processes through which investigation is accomplished".

Researchers in the social and behavioural sciences may adopt a number of paradigms. Guba (1990) and Guba and Lincoln (1994) proposed four research paradigms: Positivism, Post

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positivism, Critical Theory and Constructivism. Creswell proposes two additional schools of thought: advocacy participatory, and pragmatism (Creswell, 2009; Onwuegbuzie, Johnson, & Collins, 2009)**.**

The theories and early formed suppositions underlying this research study - that an organization 'has' culture, that organizations vary in their commitment to sustainability, and culture has an influence on sustainability commitment - and the intent to empirically test these suppositions, indicate a postpositivist paradigm (Creswell, 2009, p. 7).

4.3 Quantitative and Qualitative Research Methods

Both quantitative and qualitative research methods can be used to study organizational culture (Yauch & Steudel, 2003, p. 465). For many years, and particularly in the period from the 1970s – 1990s (Teddlie & Tashakkori, 2003), there has been an ideological debate and a strong divide between those researchers who supported quantitative research methods and those supporting qualitative research. Quantitative researchers align with a positivist paradigm (Johnson, R. B. & Onwuegbuzie, 2004, p. 14; Teddlie & Tashakkori, 2003, p. 4), while supporters of qualitative research methods take an interpretivist or constructivist approach (Sale, Lohfield, & Brazil, 2002; Teddlie & Tashakkori, 2003), and may apply anthropological research methods (Steckler, McLeroy, Goodman, Bird, & McCormick, 1992, p. 1).

The significant and almost intractable gulf between positivists and interpretivists has led to vigorous, almost "war like" debates (Bryman, 2006b; Datta, 1994; Denzin, 2010; House, E. R., 1994; Johnson, R. B. & Onwuegbuzie, 2004, p. 14; Rossman & Wilson, 1985, p. 628; Tashakkori & Teddlie, 2003, p. ix), with some believing that the paradigms underlying the two methods and the approaches are so incompatible as to make unworkable any agreement between the factions (Gelo, Braakmann, & Benetka, 2008). In addition to the underlying positivist and interpretivist paradigms, quantitative and qualitative research approaches differ in the type of data gathered, the investigative methods, the data analysis and the interpretation of the results (Bazeley, 2004).

Those researchers adhering to the positivist and post positivist paradigms, advocate objective research methods, and, particularly, quantitative research methods which originated in the physical sciences (Johnson, R. B. & Onwuegbuzie, 2004, p. 14; Mackenzie, N. & Knipe, 2006; Smith, M. L., 1994; Steckler et al., 1992). To date, quantitative research

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methods have been the prevalent research method in both social and psychological science (Gelo et al., 2008). Quantitative researchers supposedly maintain a detached approach; by remaining emotionally distanced from and uninvolved with the people and organizations they are studying, as it is believed they remain objective and value free (Gelo et al., 2008; Johnson, R. B. & Onwuegbuzie, 2004, p. 14; Sale et al., 2002; Steckler et al., 1992). Their research employs empirical methods to generate precise numerical data, which can be analysed to determine underlying and contributory relationships by using statistical analysis (Bryman, 2008; Creswell, 2009; Denzin & Lincoln, 1994). Quantitative research requires constructing measures that are reliable, generalizable and unbiased, and the collection of data in numerical form, or which can readily be translated into numerical form (Bryman, 2008; Creswell, 2009; Sandelowski, 2000b). Quantitative research methods may include structured protocols, written or orally administered questionnaires which provide a limited range of predetermined responses, and, given that statistical methods are used, large sample sizes to ensure data representative of the population (Sale et al., 2002).

By contrast, qualitative methods usually generate data not easily reduced to numbers (Rossman & Wilson, 1985). Evolved from anthropological research methods, qualitative approaches to social and human research emerged in the 19th century, as an alternative to the quantitative methods adopted from the physical and natural sciences (Gelo et al., 2008), and regard the world as socially and psychologically constructed (Amaratunga, Baldry, Sarsha, & Newton, 2002, p. 19). Those who advocate qualitative research assert that, by situating themselves within the domain they are studying, researchers are able to become familiar with their subjects in a way that is denied to quantitative researchers (Gelo et al., 2008; Sechrest & Sidani, 1995), so gaining insiders' perspectives in order to comprehend how they construe their experiences (Amaratunga et al., 2002; Denzin & Lincoln, 2000; Silverman, 1998). Qualitative researchers take an interpretive and inductive approach to their research, seeking rich descriptions, explanations and contextual understanding (Amaratunga et al., 2002), in contrast to the qualitative researchers' deductive approach, which, for analytical purposes, attempts to condense the whole to its simplest elements (Amaratunga et al., 2002, p. 19; Steckler et al., 1992). Qualitative data is comprised of the words which are obtained though methods including interviews, participant observation, participation, focus groups, game playing, or role playing, all of which provide data and

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perspectives on participants experiences and their environment (Amaratunga et al., 2002, p. 19; Yauch & Steudel, 2003, p. 466).

Both quantitative and qualitative research methods have their strengths and weaknesses. Overall, it is agreed that qualitative methods obtain richer, and more detailed data that respect and maintain the perspectives of the population studied, and may provide more in-depth information, albeit of a smaller sample; whereas, quantitative research produces unbiased, objective, data which can be generalized across broader populations (Steckler et al., 1992).

Some researchers, however, regard the distinction between quantitative and qualitative research as an artificial and unhelpful divide (Connolly, 2007), and a growing number of researchers are more pragmatic and, unlike those who take a purist approach, are less committed to the paradigms which underlie the quantitative and qualitative research methods. These pragmatic researchers believe that the research questions, and the research outcomes, are of greater significance than adherence to a particular research paradigm (Bryman, 2006b; Teddlie & Tashakkori, 2003). Consequently, it is increasingly recognized that complex social phenomena can be identified and interpreted by applying both quantitative and qualitative research approaches (Rossman & Wilson, 1994, p. 315).

4.4 Mixed Methods

While the majority of researchers held strong allegiances to either quantitative or qualitative research, by the mid to late 1950s, a few researchers considered the benefits of using both methods. Creswell (2009) suggests that the concept of mixing both methods in research studies most likely was instigated by Campbell and Fiske (1959), when studying psychological traits. Since then, there has been increasing interest in mixed methods research, particularly from the 1960s, with others, such as Webb, Campbell, Schwartz, and Sechrest (1966), Denzin (1970), Jick (1979), Trend (1979), and Cook and Reichardt (1979), being credited with developing the concept (Denscombe, 2008). According to Greene et al. (1989), others who have called for using both qualitative and quantitative research methods include Louis (1981), Madey (1982), Smith (1983), Martin (1987), and Mark and Shotland (1987). Now, this approach is more prevalent (Leech & Onwuegbuzie, 2009), to the extent that "mixed, multiple, and emergent methods are everywhere today, in handbooks, readers, texts. Their

use is endorsed by major professional societies, as well as by public and private funding agencies and institutes" (Denzin, 2010, p. 419).

Both qualitative and quantitative research methods have some limitations, as well as some particular strengths. While some researchers, referred to as "purists" (Sandelowski, 2000a), continue to argue that quantitative and qualitative research methods and their paradigms are mutually exclusive, and combining qualitative and quantitative methods risks damaging their underlying epistemology (Gelo et al., 2008; Steckler et al., 1992), integrating both qualitative and quantitative research methods enables researchers to obtain the advantages of each, and use these advantages to counteract their limitations (Creswell et al., 2003; Johnson, R. B. & Turner, 2003; Kelle, 2006, p. 294; Steckler, 1989). Woolley (2009, p. 7) concurs when she concludes that integrating qualitative and quantitative research in a research study can be "mutually illuminating, thereby producing findings that are greater than the sum of the parts". Sandelowski (2000a, p. 254) also concluded that well-constructed studies which combine both quantitative and qualitative research methods, offer boundless combinations of sampling, data collection and analysis methods, which increases analytic power.

Known as "mixed methods research", combining qualitative and qualitative research has been defined variously. After studying a number of definitions of mixed methods, Creswell et al. (2003, p. 212) suggested that:

> ... a mixed methods study involves the collection of analysis of both quantitative and/or qualitative data in a single study in which the data are collected concurrently or sequentially, are given a priority, and involve the integration of the data at one of more stages in the process of the research.

Despite its critics, the use of mixed methods research has developed rapidly in recent years, and has become accepted as a distinct research approach (Denscombe, 2003). With the more recent strong advocacy of people including John Creswell, Abbas Tashakkori, Burke Johnson, Anthony Onwuegbuzie, Jennifer Greene, Charles Teddlie, and David Morgan, the mixed methods approach has become widely accepted as a separate, third legitimate research practice (Johnson, R. B. et al., 2007).

As with qualitative and quantitative research methods, each of which have a variety of accepted practices, so mixed methods approaches have a diverse range of understandings

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and techniques (Bryman, 2006b; Denscombe, 2002, 2003; Greene et al., 1989; Rocco, Bliss, Gallagher, & Pérez-Prado, 2003; Tashakkori & Teddlie, 2003). When Johnson, Onwuegbuzie and Turner (2007) examined the literature, they identified 19 different definitions of mixed methods research. From this detailed review, they concluded that mixed methods "combines elements of qualitative and quantitative research approaches (e.g., use of qualitative and quantitative viewpoints, data collection, analysis, inference techniques) for the broad purposes of breadth and depth of understanding and corroboration" (Johnson, R. B. et al., 2007, p. 118). However, it is important to be aware that the application of mixed methods continues to evolve (Tashakkori & Creswell, 2007), and, while the majority of mixed methods definitions refer to the inclusion of both quantitative and qualitative methods, the ways in which mixed methods are conceptualized and expounded vary (Tashakkori & Creswell, 2007, p. 3).

4.4.1 Mixed Methods Research Purposes

Mixed methods research is conducted for many purposes, including using results from qualitative research to expand upon and shed light on statistical quantitative data, or conducting a quantitative investigation to substantiate the outcomes of qualitative research (Bazeley, 2006, p. 65; Kelle, 2006, p. 309). Overall, the objective of mixed methods is to utilize the strengths of each of the quantitative and qualitative research methods and to offset their shortcomings (Johnson, R. B. & Onwuegbuzie, 2004; Truscott et al., 2010) and, as such, it can be described as a pragmatic research approach to research (Greene, Benjamin, & Goodyear, 2001; Truscott et al., 2010).

There is no single, definitive approach to mixed methods research; rather, there are a multiplicity of combinations and permutations of qualitative and quantitative methods which come together as mixed methods research. Various attempts have been made to categorize mixed methods research designs, according to a combination of the theoretical perspective, purpose of the study, whether the research is concurrent or multi-stage; the number of phases; the emphasis accorded to the qualitative and quantitative elements; the sequence and priority given to the various qualitative and quantitative components within or across stages; the degree of integration of the data; and the point at which integration occurs (Bazeley, 2008; Creswell, 2009; Niglas, 2000; Teddlie & Tashakkori, 2006). Researchers have identified between three and eight different categories of mixed methods studies (Sandelowski, 2000b).

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Campbell, as one of the first to recommend mixed methods, claimed using two different methods would confirm research results, and is necessary for validation (Campbell, D. T. & Fiske, 1959; Morgan, D. L., 1998). While Campbell and his colleagues labelled this "convergence" or "conformation", Denzin (1978) subsequently named it "triangulation" (Jick, 1979; Morgan, D. L., 1998).

Rossman and Wilson (1985) saw triangulation as having three main purposes: corroboration and convergence, elaboration, and initiation. Firstly, corroboration can be used to substantiate or refute the results from one research approach with the results of the other. Secondly, elaboration enables researchers to obtain different perspectives, and richer, more comprehensive data, and strengthens arguments and conclusions. Thirdly, initiation reveals inconsistencies, contradictions and gaps between the data obtained from each method, and may "suggest conclusions to which other methods would be blind" (Jick, 1979, p. 603); and further, may suggest potential areas for further research and analysis.

Mark and Shotland (1987) discussed three different models: triangulation, in which multiple methods leads to a single, more correct answer than would be obtained from one single method; bracketing, in which the results from different methods provide a range of outcomes, within which the correct answers may be identified; and complementary purposes which can be used to provide differing viewpoints, thus enriching the results and strengthening the conclusions.

After systematically examining 57 mixed methods evaluation studies in education and the social sciences, Greene et al. (1989) identified five purposes for mixed methods: triangulation, complementarity, development, initiation and expansion. Explaining triangulation as using different methods to measure the same phenomena, with the intent to find "convergence, corroboration, correspondence of results from the different methods" (Greene et al., 1989, p. 259) , they concur with Campbell and Fiske's (1959) earlier discussions. They describe complementarity as a method in which "qualitative and quantitative methods are used to measure overlapping but also different facets of a phenomenon, yielding an enriched, elaborated understanding of that phenomenon" (Greene et al., 1989, p. 258), and suggest it is used for seeking "elaboration, enhancement, illustration, clarification of the results from one method with the results from another" (Greene et al., 1989, p. 259). The third purpose, development, occurs when researchers use

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the two methods in sequence, and the results of the first methods are used to inform the development of the second method, thereby increasing validity. For example, data obtained from qualitative interviews may be used to design a quantitative survey. Initiation provides new insights by utilizing the different paradigms and perspectives proffered by mixed methods, which, in turn, enable broader and deeper analysis and interpretations (Greene et al., 1989, p. 259). In initiation, the two methods are conducted independently of each other (Greene & Caracelli, 2003). Finally, expansion applies different methods to different components of the study, in order to broaden the research and provide a more complete picture (Bazeley, 2006, p. 65), and more comprehensive information (Greene et al., 1989). Greene et al.'s (1989) study also revealed that for the majority of the studies they analysed, mixed methods were used for complementarity or expansion purposes. For this research study, mixed methods was adopted for expansion purposes, and to gather more information that one method alone would provide; it also was used to for complementarity purposes, and particularly to obtain a richer understanding. Chapter 5 provides specific details about the methods applied.

4.4.2 Approaches to Mixed Methods Research

Further to the typologies of mixed methods research purposes, there also have been attempts to classify mixed methods by the order and priority which is given to the quantitative and qualitative components. Caracelli and Greene (1997), in proposing ways to create mixed methods evaluation designs, presented two broad classes: component and integrated designs. In component designs, quantitative and qualitative research methods are conducted separately from each other throughout the research study, with the two methods being brought together during discussion and conclusions. By contrast, integrated designs combine the two methods throughout the research study. Building on Caracelli and Greene's (1997) work, Creswell et al. (2003), and Creswell (2009), present a classification system with six principal mixed methods design systems, which are further grouped into two categories: three sequential designs (explanatory, exploratory, and transformative) and three concurrent designs (triangulation, nested, and transformative). Each of these differ according to whether the qualitative and quantitative data is collected concurrently, or sequentially; the emphasis given to the qualitative and quantitative data; and the point during the research project is amalgamated, for example during data collection, data

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analysis, or during data interpretation (Creswell et al., 2003; Hanson, Creswell, Plano Clark, Petska, & Creswell, 2005).

For this research study, the quantitative and qualitative data were collected concurrently, with emphasis given to the quantitative data. This is explained more fully in Chapter 5.

Collins et al.'s (2006) comprehensive content analysis of 494 articles that used the term "mixed methods research", additional theoretical, methodological and conceptual articles, and books on mixed methods, identified 65 distinct purposes for undertaking mixed methods research, which were grouped into four main themes: participant enrichment, instrument fidelity, treatment integrity and significance enhancement. Participant enrichment represents the mixing of quantitative and qualitative methods in order to optimize the sample, and particularly to expand the number of research subjects (Collins, K. M. T. et al., 2006, p. 76). Instrument fidelity focusses on researchers' actions, whether using qualitative, quantitative or mixed methods, methods to obtain trustworthy, credible, dependable, legitimate, valid, plausible, applicable, consistent, neutral, reliable, objective, confirmable, and transferable data (Collins, K. M. T. et al., 2006, p. 77). Treatment integrity refers to mixing quantitative and qualitative research techniques in order to assess the dependability, credibility and reliability of interventions, treatments, or programs such as those intended to enhance students' skills and capabilities (Collins, K. M. T. et al., 2006, p. 80 & 82). Finally, significance enhancement represents mixing quantitative and qualitative techniques in order to enrich and increase data analysis and interpretations (Collins, K. M. T. et al., 2006, p. 83).

In this research study, a mixed methods approach was selected to obtain more meaningful interpretations; thus it falls into the significance enhancement category.

4.4.3 Advantages of Mixed Methods Research

Pundits in mixed method research proffer a range of advantages over conducting quantitative or qualitative research, including obtaining thicker, richer data (Collins, K. M. T. et al., 2006; Currall & Towler, 2003; Jick, 1979; Krivokapic-Skoko & O'Neill, 2011; Rossman & Wilson, 1985). Other benefits include: broadening and strengthening a research study (Yin, 2006); increasing confidence in the results (Collins, K. M. T. et al., 2006; Jick, 1979; Johnson, R. B. et al., 2007); enhancing understanding of the phenomenon under study (Caracelli,

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2000; Kidder, L. H. & Fine, 1987; Morse, 2003); and validating research findings (Madey, 1982; Mark & Shotland, 1987).

Table 4.1 Classification of Principal Mixed Methods Design Systems
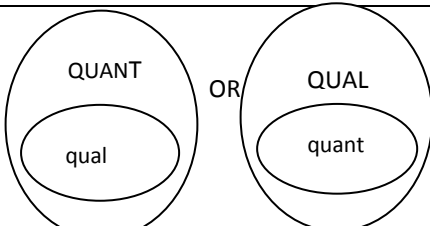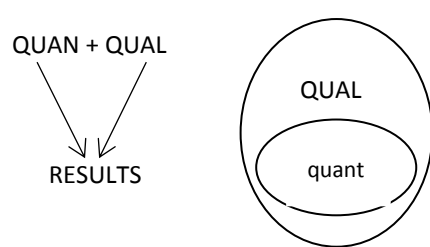
Research Strategy	Design	Procedure
Sequential explanatory strategy	Quantitative data collected & analysed first. Qualitative data collected and analysed second and is used to clarity the quantitative data.	QUANTITATIIVE -> qualitative
Sequential exploratory strategy	Qualitative data collected & analysed first. Often the qualitative data is used to develop a quantitative instrument. Quantitative data collected and analysed second.	QUALITATIVE -> quantitative
Sequential transformative strategy	Two distinctly separate quantitative and qualitative data collection and analysis phases. Either can occur first. Any priority to be given to either method is decided after data collection.	QUANTITATIIVE -> qualitative OR QUALITATIVE -> quantitative
Concurrent triangulation strategy	Quantitative and qualitative methods take place simultaneously but separately.	QUANTITATIVE + QUALITATIVE → RESULTS
Concurrent nested strategy	Quantitative and qualitative data are collected simultaneously. One or other method is primary while the other is supplementary. The data is combined during analysis.	QUANT (qual) OR QUAL (quant)
Concurrent transformative strategy	May be either a triangulated or nested approach. Priority may be given to either quantitative or qualitative methods, or the two methods may be given equal weight. Data integration is most likely to occur during data interpretation.	QUAN + QUAL → RESULTS QUAL (quant)

Table adapted from: Creswell (2009); Hanson et al. (2005, p. 228); Steckler, McLeroy, Goodman, Bird, & McCormick (1992).

4.4.4 Challenges of Mixed Methods Research

While mixed methods research has many supporters, there also are some detractors. Creswell (1994, p. 178) warned that applying mixed methods to research design necessitates researchers having a comprehensive knowledge of both qualitative and quantitative research methods. He also claimed that researchers are most likely to adopt the method (either qualitative or quantitative) in which they have been trained, and with which they are most familiar (Creswell, 2003).

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As can be seen from Section 4.4.2 of this chapter, there are multiple quantitative-qualitative frameworks, and new frameworks continue to evolve. Creswell and Garrett (2008, p. 324) present a number of concerns about mixed methods research, including: the development of a new, specific research language, the actual design and techniques, and the tensions between the qualitative and quantitative paradigms. Among other concerns are the complexity and time required (Johnson, R. B. & Onwuegbuzie, 2004, p. 21; Teddlie & Tashakkori, 2003), the additional number of researchers required (Johnson, R. B. & Onwuegbuzie, 2004), and the more comprehensive skills entailed (Bazeley, 2008; Collins, K. M. T. et al., 2006; Creswell, 1994; Teddlie & Tashakkori, 2003). Further, researchers need to clearly understand both their own paradigms, and those of the research methods they are considering (Collins, K. M. T. et al., 2006). Bryman (2007b, pp. 21-22) believes mixed methods research lacks guidelines, "templates, or rules of thumb", and, more attention needs to be paid to writing up the findings "in such a way that the quantitative and the qualitative findings are genuinely integrated. If this does not occur, researchers risk losing the benefits of integrating the two methods. Greene et al. (1989) expressed some concern when they observed that 44% of examined articles did not integrate the two methods, and, of those with some integration, where there were mismatches in the data from each method, the discrepancies either were not discussed, or not resolved. Bryman (2007a) and O'Cathain, Murphy and Nicholl (2007) suggest that mixed methods researchers tend not to genuinely integrate their qualitative and quantitative research data sets, with Bryman (2007a) concluding that researchers find this integration difficult.

Thus, researchers using mixed methods need to pay attention to the exhortations of Jick (1983), and Shotland and Mark (1987) to fully explore and explain inconsistent results from qualitative and quantitative components of their research studies.

4.4.5 Reasons for a Mixed Methods Approach

A widely diverse range of areas of management and organizations are researched, and an equally diverse research methods have been employed (Bazeley, 2008; Currall & Towler, 2003) and no one method is superior over any other (McCall & Bobko, 1990). As Miles and Huberman (1994, p. 42) claim, combining the "careful measurement, generalizable samples, experimental control, and statistical tools of good quantitative studies", with "the up-close, deep, credible understanding of complex real-world contexts that characterize good

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qualitative studies", is very powerful. It therefore behooves researchers to select the research method which best aligns with the objective of the study (Currall & Towler, 2003).

When selecting the most appropriate method for this research study, careful consideration was given to the strengths and limitations of quantitative, qualitative and mixed methods research, and their underlying paradigms, this researcher's paradigm position, and, practical considerations such as this researcher's skills. With the focus on organizational culture, the strong research history of utilizing quantitative surveys to measure organizational culture traits (Ashkanasy, Broadfoot, et al., 2000; Ashkanasy, Wilderom, & Peterson, 2000b; Denison et al., 2006) (for examples, refer Appendix 5.1), and the expediency of survey distribution and collection, this researcher initially was inclined towards a quantitative study.

Therefore, initially, the intent was to conduct quantitative research, using survey methods to assess organization's commitment to sustainability and the culture of these organizations. However, as the literature review progressed, it became clear that, while surveys are effective tools for testing the existence of defined cultural traits (Cooke & Rousseau, 1988; Reichers & Schneider, 1990), understandings of organizational sustainability, and, particularly, the drivers and nature of organizations' sustainability commitment, requires a qualitative lens. As evidenced in Chapter 2, the concept of holistic organizational sustainability is of comparatively new interest to researchers, theories of organizational sustainability are limited, and sustainability constructs and testable theories are under development. Therefore, qualitative research also is a fitting approach.

4.4.6 Research approach for this study

The methodology selected for this research study, was a mixed methods case study, in which the quantitative and qualitative research was conducted simultaneously. The primary method was quantitative surveys, with qualitative interviews providing a more holistic picture. Thus, the researcher adopted Greene et al.'s (1989) expansion purpose for mixed methods, and Creswell et al.'s (2003) concurrent nested research strategy, with the quantitative research as the primary method and the qualitative method being the supplementary method.

This research approach aligns with Bryman's (2006a) study in which he identified that more than 82% of researchers employed a survey instrument, while 57% integrated qualitative,

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semi-structured interviews, leading him to conclude that quantitative methods prevail in mixed methods research.

4.5 Case Study Research

Case studies examine contemporary phenomena in their real life (Benbasat, Goldstein, & Mead, 1987) and are particularly beneficial to researchers who are seeking to understand a particular phenomenon or the context of this phenomenon (Cavaye, 1996; Yin, 1981, 2002). Case studies are used to generate theory, develop theory, test theory, or provide detailed description of a situation (Darke, Shanks, & Broadbent, 1998; Eisenhardt, 1989; Handfield & Melnyk, 1998), and, are especially beneficial in providing deeper knowledge and for elaborating cause and effect relationships (Numagami, 1998; Stoecker, 1991; Stuart, McCutcheon, Handfield, McLachlin, & Samson, 2002).

In the social sciences, case studies are an important research strategy (Patton & Appelbaum, 2003; Thomas, G., 2011; Yin, 1981) and are highly suitable for management research (Gibbert, Ruigrok, & Wicki, 2008); when researchers are developing and exploring new management theory (Gibbert et al., 2008; Otley & Berry, 1994); and when new, distinctive viewpoints are requisite to building contemporary knowledge (Eisenhardt, 1989). Case studies offer a unique opportunity to add to existing knowledge of individual, organizational, social, and political conditions (Patton & Appelbaum, 2003). Management case studies describe real management situations (Bonoma, 1985, p. 203; Gibbert et al., 2008) and focus on understanding the characteristics existing in these settings (Eisenhardt, 1989, p. 534).

Case studies have not been clearly defined (Stoecker, 1991). Mitchell (1993, p. 192) describes case studies as a "detailed examination of an event (or series of related events) which the analyst believes exhibits (or exhibit) the operation of some identified general theoretical principles". Yin (1989, p. 23) is similarly ambiguous, when he defines case studies as: "an empirical inquiry that investigates a contemporary phenomenon within a real life context; when the boundaries between phenomenon and context are not clearly evident and in which multiple sources of evidence are used".

Lee's (1989, pp. 119-120) description of organizational case studies is more specific:

> (1) the intensive study of a single case where (2) the case consists of the entire configuration of individuals, groups and social structure in the setting of an organization, and (3) the researcher passively observes the rich details of events.

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In his endeavours to elucidate case study research, Verschuren (2003, p. 137) concluded that:

> A case study is ... holistic in nature, following an iterative-parallel way of proceeding, looking at only a few strategically selected cases, observed in their natural context in an open-ended way, explicitly avoiding (all variants of) tunnel vision, making use of analytical comparison of cases or subcases, and aimed at description and explanation of complex attributes, patterns, structure or processes.

More succinctly, case-study research investigates in-depth, a small number of naturally occurring cases (Foster, Gomm, & Hammersley, 2000, p. 216).

Regardless of the definition, it is generally agreed that the in-depth nature of case studies enables researchers to obtain richer and more detailed data, and contextual understandings (Creswell, Hanson, Plano Clark, & Morales, 2007). Further, case studies are a research strategy or design, as distinct from a specific research method (Otley & Berry, 1994; Rowley, 2002; Yin, 1981). Qualitative, quantitative or mixed methods research can be used to collect the required data (Cavaye, 1996; Eisenhardt & Graebner, 2007; Gibbert et al., 2008; Yin, 1981), and thus, may be underpinned by positivist or interpretivist philosophies (Darke et al., 1998).

Sometimes described as small sample studies (Scapens, 1990, p. 269), case study research can be based on one, or a number of cases. Single cases can provide rich descriptions (Dutton & Dukerich, 2006; Siggelkow, 2007; Weick, 2007), and are especially useful when the case is rare, unusual, revelatory or critical (Siggelkow, 2007). Some consider the evidence from multiple cases to be more compelling (Eisenhardt, 1989; Eisenhardt & Graebner, 2007; Kalnins, 2007; Yin, 2002). Eisenhardt (1989, p. 545) recommends that researchers conduct between four and ten cases, claiming that generating complex theory supported by sound empirical analysis requires at least four cases, while more than ten cases provide a volume of complex data which is difficult to manage. However, this recommendation has been strongly debated. Dyer and Wilkins (1991, p. 164) advocate that single case studies "lead researchers to see new theoretical relationships", which provide stronger insights than multiple cases. Others who support single case studies include Walsham (1995), who considers that single studies provide rich descriptions and deep understanding of particular settings; Yin (2002) who sees single case studies as legitimate and sufficient, and revelatory;

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and Pettigrew (1985) who believes single case studies are appropriate for theory building. Darke, Shankes and Broadbent (1998) conclude that single case studies are advantageous for developing explanations of phenomena.

Further, multiple case studies for management research has some drawbacks, Firstly, time and resources limitations may restrict researchers' abilities to undertake in-depth research on multiple cases (Voss, Tsikriktsis, & Frohlich, 2002). Secondly, care must be taken to select sites for their theoretical replication (Yin, 2002), rather than for expediency, which in turn requires researchers to consider carefully the nature of their topic, and the requisite characteristics of organizations to be approached to participate (Benbasat et al., 1987). As this researcher experienced, often businesses and other organizations are reluctant to participate in case study research projects (Darke et al., 1998). Finally, care must be taken to ensure the reliability and validity of the conclusions.

A potential problem with case study research is the temptation to define the research objectives too broadly. It is important to establish clear boundaries around the case study, including the breadth and depth of the study; the number of cases (Baxter & Jack, 2008); the specific sample to be studied; the activities to be studied; and the time frame (Creswell, 1994; Stake, 1995).

Case study research may have various designs. According to Stake (1995), there are three types of case study: single instrumental in which the researcher studies a particular case as an example of a wider phenomenon; collective or multiple, in which the researcher extends the single instrumental study to a set of coordinated multiple cases; and intrinsic, in which the researcher is seeking to fully understand a case, such as a particular program, person or agency. Yin (1981) also developed three classifications of case studies: exploratory, descriptive and explanatory. Exploratory cases studies are theory seeking, being directed at developing new hypotheses; they typically occur before the research questions are defined. Explanatory studies test hypotheses and seek to identify explanations about cause and effect. Yin's (1981) descriptive case study category is similar to Stake's (1995) intrinsic studies in that these studies focus on describing phenomena within their context. The case study in this research study was explanatory, as it sought to test hypotheses which were developed from the literature.

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4.6 Chapter 4 Summary

This research study has two purposes, firstly, to examine the existing organizational culture and compare it to the ideal cultural traits for sustainable organizations as identified in the sustainability literature, and secondly, to investigate the organization's commitment to sustainability and the relationship between organizational culture and sustainability commitment. In line with Yin's (1981), Creswell's (2009) and Creswell et al.'s (2003) classifications of case study research, the design elements for the case study encompassed an exploratory case, leading to analysis of a combination of phenomena which had not previously been studied. As the case involved multiple sites within a single organization, it is a collective, or multiple study, structured as a concurrent, nested mixed methods study. Thus the researcher adopted Greene et al.'s (1989) expansion and Collins et al.'s (2006) significance enhancement purposes for mixed methods, and Creswell et al.'s (2003) concurrent nested research strategy, with quantitative survey research the principal research tool, supplemented by qualitative research, both of which will be discussed in detail in Chapter 5.

CHAPTER 5 RESEARCH METHODOLOGY

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Sustainability requires different organizational cultures. Cultural values must emphasize harmonious co-existence with the natural world, view humans as part of the natural world and acknowledge the rights of nature to exist. (Shrivastava & Hart, 1995, p. 162)

5.1 Chapter 5 Overview

| Research Aims & Questions | Literature Review | Research Model | Research Questions & Method | Analysis & Outcomes | Discussion & Conclusions |

| Chapter 1 | Chapters 2 & 3 | Chapters 4 & 5 | Chapter 6 | Chapter 7 |

| Introduction | Conceptual Development & Theory | Operalization Design & Propositions | Confirmation / Disconfirmation | Discussion & Conclusions |
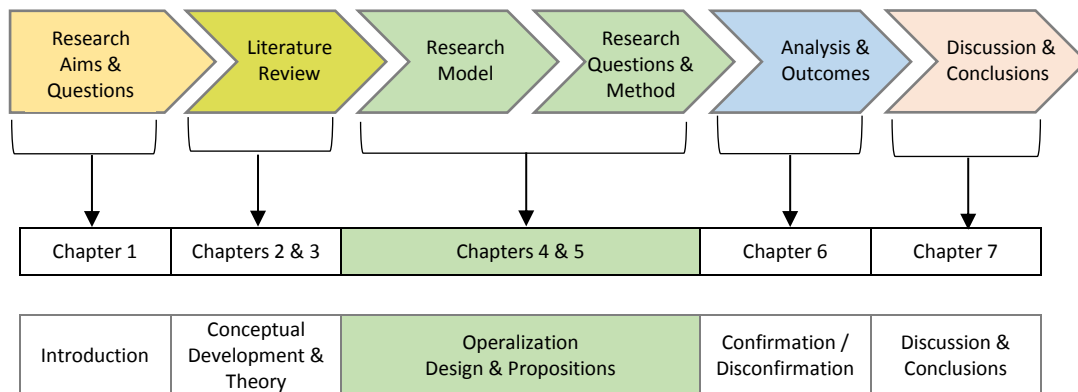
Figure 5.1 Thesis Structure

This chapter presents the specific research questions and develops the related hypotheses which were investigated and analysed in this research study. Further, the chapter describes the development, implementation, and application of the mixed methods approach to this research. It explains the development of two surveys: firstly a survey to be completed by executive managers, and intended to measure aspects of an organization's commitment to sustainability; and secondly, a strategically focused employee attitude survey that was designed to measure identified cultural constructs pertaining to organizations' commitment to sustainability. The development of survey scales which were expected to measure employee's perceptions of an organization's culture and commitment to sustainability is explained. This chapter also discusses the development of structured interview questions, the qualitative component of the research. Additionally, this chapter provides a description of the survey methods, sampling, the reliability and validity of the survey instrument, and the data collection procedures. Issues of representative and random sampling also are outlined.

5.2 Organizational Sustainability Cultural Dimensions

The aim of this research study was to investigate the relationship between organizational culture and organizational sustainability, and to understand the specific characteristics of that culture, and its contribution to organizations' commitment to embed sustainability into their businesses and their operations. It further sought to determine the existence,

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relevance and comparative importance of specific cultural dimensions in enabling organizations to achieve sustainability.

As discussed in Chapter 3, Section 3.13.1, the literature has presented 42 cultural dimensions which are related to organizational sustainability. An examination of these dimensions revealed a number of commonalities, and subsequently 18 specific dimensions related to sustainable organizations were defined (Table 3.4).

However, just as there are different understandings of organizational culture (Section 3.5), organizational culture researchers have examined organization culture from a range of perspectives and purposes (refer Table 3.3). Consequently, as discussed in Section 3.10, there are a number of different organizational culture dimensions, which, while they may have some common underlying themes, frequently are named and described differently (Jung, T. et al., 2007; Jung, T. et al., 2009; Smith, A. C. T. & Shilbury, 2004, p. 141; Van der Post et al., 1997). To add to the complexity, some named dimensions may not be accompanied by explanatory descriptions or definitions.

It therefore was important to determine whether the cultural dimensions as defined for this research project were unique, or whether they previously had been identified and applied in organizational culture research. Therefore, existing organizational culture research was analyzed, and the concomitant culture definitions were isolated and mapped against the 18 identified sustainability related organizational dimensions and their definitions. Given the diversity of underlying research purposes and of dimension names, and the sometimes variable labels, both similar and moderately similar dimensions were mapped. The resultant information is presented as Table 5.1, with the complete data provided in Appendix 5.1.

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Table 5.1 Sustainability Culture Dimensions Mapped against Previously Developed Cultural Dimensions

Cultural Dimensions	Authors' Definitions	Authors
Challenge current thinking	Trust	Herrenkohl, Judson & Heffner (1999)
	Promote inquiry and dialogue	Marsick & Watkins (2003) Yang, B. et al. (2004)
	Psychological safety	Garvin, Edmondson & Gino (2008)
Collaboration with Stakeholders	Environment	Ashkanasy et al. (2000)
	Stakeholder engagement	Black (2004, 2005)
	Collaboration/ collaborative culture/ collaborative team orientation	Jung et al. (2009)
Connectedness	Similar or moderately similar cultural dimensions not identified	
Cooperation (Internal)	Humanistic/Helpful	Cooke & Lafferty (1987) Rousseau (1990b)
	Organization Integration	Van der Post et al. (1997)
	Isolation versus collaboration/cooperation	Detert et al. (2000)
	Encourage collaboration and team learning	Marsick & Watkins (2003)
	Agreement	Denison et al. (2006)
	Coordination and integration	Denison et al. (2006)
	Team orientation	Denison et al. (2006)
Diversity	Perceived value diversity among group members	Jehn, Northcraft & Neale (1999)
	Diversity	Van der Vegt & Janssen (2003)
	Openness to Group Diversity	Hobman, Bordia & Gallois (2004)
	Openness to Visible	Hobman et al. (2004)
	Appreciation of differences	Garvin et al. (2008)
Empowerment and Inclusiveness	Empowerment	Randolph (1995)
	Self-determination	Spreitzer (1995)
	Employee Participation	Van der Post et al. (1997)
	Locus of authority	Van der Post et al. (1997)
	Empower people toward a collective vision	Marsick & Watkins (2003)
	Empowerment	Seibert, Silver & Randolph (2004)
	Empowerment	Denison et al. (2006)
Fairness/ equity	Similar or moderately similar cultural dimensions not identified	

Table 5.1 (cont.) Sustainability Culture Dimensions Mapped against Previously Developed Cultural Dimensions

Cultural Dimensions	Authors' Definitions	Authors
Innovation and creativity	Innovation/Risk taking	Gordon & Cummins (1979) Gordon & DiTomaso (1992)
	Innovativeness (OCP)	O'Reilly et al. (1988)
	Emphasis on Innovation and Change	Cowherd & Luchs (1988)
	Innovation	O'Reilly & Flatt (1989)
	Attitudes to and belief about innovation	MacKenzie (1995)
	Organizational encouragement of creativity	Amabile, Conti, Coon, Lazenby & Herron (1996)
	Disposition towards change	Van der Post et al. (1997)
	Risk taking	Herrenkohl et al. (1999)
	Innovation	Ashkanasy et al. (2000)
	Employee creativity	Zhou & George (2001)
	Innovation	Zhou & George (2001)
	Creativity & Innovation	Martins & Terblanche (2003)
	Innovation factor	Denison Consulting (2011a)
Integrity	Similar or moderately similar cultural dimensions not identified	
Knowledge sharing/ Open Communication with all Stakeholders	Information is credible and shared	Cowherd & Luchs (1988)
	Communication	Ashkanasy et al. (2000)
	Knowledge sharing	Bartol & Srivastava (2002)
	Transferring Knowledge	Politis (2003)
	Knowledge-sharing behaviour	Lin and Lee (2004)
	Sharing information freely	Sarros, Gray, Densten & Cooper (2005)
	Knowledge sharing	Yang, J.-T. (2007)
	Knowledge sharing	Garvin et al. (2008)
Learning	Organizational learning	McGill, Slocum & Lei (1992)
	Change	Herrenkohl et al. (1999)
	Create continuous learning opportunities	Marsick & Watkins (2003) Yang, B. et al. (2004)
	Learning organization	Pool (2000)
	Organizational learning	Denison et al. (2006)
	Concrete learning process	Garvin et al. (2008)
Long term perspective	Long Term Orientation	Kilmann, R.H. & Saxton (1983)
	The nature of time and time horizon	(2000)
	Time/Planning	Smith, A. C. T. & Shilbury (2004)
	Strategic Direction and Intent	Denison et al. (2006)
	Vision	Denison et al. (2006)
	Strategic direction	Ginevičiu & Vaitkūnaite (2006)
Proactive	Similar or moderately similar cultural dimensions not identified.	
Reflection	Similar or moderately similar cultural dimensions not identified	
Responsibility	Similar or moderately similar cultural dimensions not identified.	

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Table 5.1 (cont.) Sustainability Culture Dimensions Mapped against Previously Developed Cultural Dimensions

Cultural Dimensions	Authors' Definitions	Authors
Systems Thinking	Similar or moderately similar cultural dimensions not identified	
Transparency and Openness/ Trust	Trust	Cook, J. & Wall (1980)
	Trust	Mayer, Davis & Schoorman (1995)
	Openness and trust	MacKenzie, S. B. (1995)
	Trust	Rousseau, Sitkin, Burt & Camerer (1998)
	Trust-Based Governance	Zaheer, McEvil & Perrone (1998)
	Trust	McEvily, Perrone & Zaheer (2003)
	Transparency	O'Toole & Bennis (2009)
	Trust	Pirson & Malhotra (2011)
Wholism	Similar or moderately similar cultural dimensions not identified	

From this analysis, it was evident that eight of the dimensions, similar or moderately similar cultural dimensions were not been identified as cultural dimensions within the broader organizational culture literature. Seven of these, namely Connectedness, Fairness/ equity, Integrity, Proactive, Reflection, Responsibility, and Wholism were specific to understandings of organizational sustainability and/or sustainable development. A review of the literature on Systems Thinking revealed that while it is referred to in the context of organizational sustainability (e.g. Maon, Lindgreen, & Swaen, 2008 ; Senge & Carstedt, 2001), it also more frequently has been broadly applied in management and organizational behaviour literature (e.g. Checkland, 1985; Flood, 2010; Galanakis, 2006; Senge & Sterman, 1992). Thus Systems Thinking was determined to be more closely aligned with general organizational culture literature.

Therefore, it was concluded that the 18 identified cultural dimensions fall into two distinct categories: firstly, those which may apply more broadly to many organizations, and which have been categorised as General Cultural Dimensions; and secondly, those which are specific to organizational sustainability and which have been categorized as Sustainability Cultural Dimensions as illustrated in Tables 5.2 and 5.3.

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Table 5.2 General Cultural Dimensions

Cultural Dimensions	Summary Definitions
Challenge current thinking	Seeking new ideas and approaches. Questioning, challenging, disputing, and breaking away from conventional beliefs and past ways of thinking and working.
Collaboration with Stakeholders	Building relationships, strategic networks, alliances and partnerships and multi-way dialogue with internal and external stakeholders, including all sectors of society. Seeking and sharing information and knowledge to develop wider perspectives and visions for sustainability.
Cooperation (Internal)	Working cooperatively internally, coordinating together and readily resolving conflict; reducing barriers and facilitating resolution of complex and difficult sustainability challenges.
Diversity	Respecting diversity, understanding differences and encouraging participation by people of diverse backgrounds including skills, knowledge and experience, gender, race, culture or other aspects, to enable understanding the complexity of sustainability, and thinking creatively to find new solutions.
Empowerment and Inclusiveness	Empowering employees and encouraging their involvement in planning and implementing organizational sustainability activities.
Innovation and creativity	Fostering creativity, ingenuity and innovation to modify existing or develop new products, services and technologies which integrate and support the various elements of sustainability.
Knowledge sharing/ Open Communication with all Stakeholders	Seeking and sharing knowledge, information, ideas, and success stories within the organization and with stakeholders and competitors.
Learning	Cultivating curiosity, encouraging experimentation, improvisation, acquiring and transferring knowledge, tolerating mistakes, and reflecting on these.
Long term perspective	Emphasizing long-term goals which incorporate environmental, social and financial sustainability, sustainable products and services, and long-term relationships with stakeholders.
Systems Thinking	Creating an integrated systems perspective by recognising the organization operates in an open system - diverse cultures, constraints and opportunities between the internal and external.
Transparency and Openness/ Trust	Developing trust by communicating openly, honestly and consistently to all internal and external stakeholders concerning environmental, social and financial performance, and impacts on all stakeholders.

Table 5.3 Sustainability Cultural Dimensions

Cultural Dimension	Summary Definition
Connectedness	Understanding and respecting the interconnectedness and interdependence of the environment and ecology, human and societal welfare, and the economy. Recognizing that activities which damage any part of these, will impact the long term viability of organizations, nations, populations and the planet.
Fairness/ equity	Carefully managing the scale and impact of activity, and appropriately using environmental and ecological, human and social resources. Fairly distributing resources and property rights, within and between generations.
Integrity	Considering sustainability and making sustainability based decisions in strategic planning and implementation of the business.
Proactive	Self-starting. Voluntarily actively seeking opportunities and taking actions that positively impact on current and future sustainability beyond regulations and industry standards.
Reflection	Examining attitudes and values towards sustainability and encouraging openness to the changes required for sustainability.
Responsibility	Accepting responsibility for decreasing and eliminating the environmental, ecological and social impact of the entire lifecycle of products and services.
Wholism	Considering the entire product lifecycle from cradle to grave, not only the delivered product or service.

5.3 Research Questions and Hypotheses

This research study is seeking to investigate the links between an organization's commitment to sustainability and the organization's culture, and is particularly interested in the relationship between, and the comparative importance of, identified dimensions of organizational culture and organizations' level of commitment to sustainability.

5.3.1 Organizational Culture and Commitment to Sustainability

As discussed in Chapters 2 and 3 (Sections 2.11 and 3.13), there is strong support for the argument that organizational culture is a key factor in organizations achieving their sustainability objectives.

In Chapter 2 (Section 2.10) it was determined that stages models of organizational commitment to sustainability provide more specific evidence than sustainability reports about organizations' progress towards social, environmental, and economic sustainability. Further, Dunphy et al's (2007) "Phases in Developing Sustainability" six stages model, and Mirvis and Googins' (2006b) five stages of corporate citizenship models are the most comprehensive stages models. Therefore, organizations can be classified according to the sustainability stage they have reached, which, in turn, indicates how committed they are to becoming sustainable. Thus:

- Research Question 1 (R1): Is there a relationship between organizational culture and the level of organizational commitment to sustainability? If so, what is the nature of that relationship?

The identified cultural dimensions have been categorized into two groups: General Cultural Dimensions, comprised of those dimensions which may exist in organizations whether or not they are progressing towards sustainability; and Sustainability Cultural Dimensions, which are important to achieving organizational sustainability objectives.

This led to three hypotheses:

- Hypothesis 1A (H1A): An organization's culture is composed of General Culture and Sustainability Culture.
- Hypothesis H1B (H1B): An organization's General Culture is positively related to the level of its Commitment to Sustainability.
- Hypothesis H1C (H1C): An organization's Sustainability Culture is positively related to the level of its Commitment to Sustainability.

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5.3.2 Importance of Cultural Dimensions

Contingency theorists, such as Lawrence and Lorsch (1967), assert that organizational culture dimensions will be of varying importance, and the principal culture dimensions may be linked to the organization's programs. Given that this research study has identified 18 specific organizational culture dimensions as important to organizations becoming sustainable, determining whether these cultural dimensions vary in significance, and which are more important than others, will be a valuable outcome of this research. This led to the second research question and the related hypothesis:

- Research question 2 (R2): Given there are different types of organizational culture, which of the identified cultural dimensions are most important to an organization's commitment to sustainability?

- Hypothesis 2 (H2): Each identified cultural dimension positively contributes to an organization's level of Commitment to Sustainability.

5.3.3 Organizational Subcultures

As explained in Chapter 3, Section 3.7.5, organizational cultures are not necessarily consistent throughout an organization, but rather, may differ throughout an organization in the form of subcultures which have their own set of mutual norms, assumptions and values. Where these subcultures are strong/dominant, and are misaligned with the principal organizational culture, organizational sustainability programs can be less effective (Harris, L. C. & Crane, 2002; Howard-Grenville, 2006; Linnenluecke et al., 2009; Palmer, Russell, & McIntosh, 2012). Russell and MacIntosh (2011, p. 406) propose that "subcultures play an important role in creating or inhibiting organizational change for sustainability".

While many studies have found that a strong, well-integrated culture contributes to organizational effectiveness (refer Section 3.11), organizational subcultures can create cultural fragmentation, thus impeding the diffusion of sustainability consciousness, which, in turn, inhibits the adoption of a strong sustainability-oriented culture (Griffiths & Petrick, 2001; Harris, L. C. & Crane, 2002; Howard-Grenville, 2006; Linnenluecke et al., 2009; Russell & McIntosh, 2011). Bansal (2003) concluded that, for environmental action to be taken, organizational values need to be aligned with environmental issues. Harris and Crane (2002, p. 225) determined that, in organizations with a "greater ... number, size and powers of subcultures", employees have a lower awareness of sustainability. Harris and Crane (2002) also found that the geographic distribution of employees hindered the development of an environmentally aware culture. Griffiths and Petrick (2001, pp. 1573-1574) consider that

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organizational structures inhibit organizational sustainability in three main ways. Firstly, command and control style management systems limit innovation and support the status quo. Secondly, traditional organizational structures rely on a narrow group of stakeholders, thus limiting the exposure to, and influence of, those stakeholders who may otherwise encourage sustainability. Finally, in organizations in which there are distinct product lines, or geographic dispersion, information tends also to be siloed, and correspondingly, sharing of ideas and information is limited. This led to Research Question 3:

- Research Question 3 (R3): Does the presence of subcultures within an organization make a difference to the relationship between organizational culture and organizational commitment to sustainability?

Hypothesis 3, which emerged from this research question, addresses subcultures and their relationship with General Culture and Sustainability Culture:

- Hypothesis 3 (H3): The presence of subcultures changes the intensity and direction of the relationships between the General Culture (GC) and the organization's commitment to sustainability (CS), and between the Sustainability Culture (SC) and commitment to sustainability.

Section 5.9.6 of this chapter describes the specific demographic data which was selected for inclusion in the survey to identify subcultures within organizations. A set of sub-hypotheses was developed to determine, more precisely, the impact of subcultures on the relationship between culture and commitment to sustainability (refer Table 5.4).

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Table 5.4 Sub-Hypotheses Related to Hypothesis 3

Subculture		Hypotheses
Geographic Location	H3A	Geographic location is negatively related to the relationship between General Culture and the organization's Commitment to Sustainability.
	H3B	Geographic location is negatively related to the relationship between Sustainability Culture and the organization's Commitment to Sustainability.
Gender	H3C	Gender is negatively related to the relationship between General Culture and the organization's Commitment to Sustainability.
	H3D	Gender is negatively related to the relationship between Sustainability Culture and the organization's Commitment to Sustainability.
Age	H3E	Employees' Age is negatively related to the relationship between General Culture and the organization's Commitment to Sustainability.
	H3F	Employees' Age is negatively related to the relationship between Sustainability Culture and the organization's Commitment to Sustainability.
Position Level	H3G	Position Level is negatively related to the relationship between General Culture and the organization's Commitment to Sustainability.
	H3H	Position Level is negatively related to the relationship between Sustainability Culture and the organization's Commitment to Sustainability.
Type of Employment	H3I	Type of Employment is negatively related to the relationship between General Culture and the organization's Commitment to Sustainability.
	H3J	Type of Employment is negatively related to the relationship between Sustainability Culture and the organization's Commitment to Sustainability.
Years of employment	H3K	Years of employment with the organization ("Tenure") is negatively related to the relationship between General Culture and the organization's Commitment to Sustainability.
	H3L	Years of employment with the organization ("Tenure") is negatively related to the relationship between Sustainability Culture and the organization's Commitment to Sustainability.
Years in current position	H3M	Years in current position is negatively related to the relationship between General Culture and the organization's Commitment to Sustainability.
	H3N	Years in current position is negatively related to the relationship between Sustainability Culture and the organization's Commitment to Sustainability.
Education level	H3O	Education level is negatively related to the relationship between General Culture and the organization's Commitment to Sustainability.
	H3P	Education level is negatively related to the relationship between Sustainability Culture and the organization's Commitment to Sustainability.

5.4 Measuring Organizational Culture

With 18 cultural dimensions identified to be potentially necessary for achieving organizational sustainability, the research study's focus was to determine their existence, relevance and comparative importance.

As discussed in Chapter 4, researchers employ either qualitative or quantitative research methods to measure organizational culture. Since 1980, some researchers have adopted a mixed methods research approach, which combines both qualitative and quantitative methods, to provide a more comprehensive understanding of organizations' culture. Regardless of whether mixed methods, or solely quantitative methods, are used to explore

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and determine the nature and extent of specific cultural dimensions of sustainable organizations, it is essential to use a reliable and consistent survey instrument.

5.4.1 Culture Surveys

Church and Waclawski (2001, p. 4) describe an organizational culture survey as a "systematic process of data collection designed to quantitatively measure specific aspects of organizational members' experiences as they relate to work". An array of qualitative, self-report survey instruments have been designed for measuring organizational culture, with Jung, T. et al. (2009) identifying 70 instruments, of which the majority were surveys. While there is a multiplicity of diverse survey instruments for measuring organizational culture (see Appendix 5.2), there is less agreement as to whether any of these are more appropriate or outstanding (Jung, T. et al., 2009; Yiing & Ahmad, 2009). Further, given the range of cultural dimensions, and the even broader range of contexts for which they were developed, culture survey instruments that are applicable for one research study may not be effective for other studies (Jung, T. et al., 2009; Scott, Mannion, Marshall, & Davies, 2003). In their analysis of 18 different surveys, Ashkanasy, Broadfoot and Falkus (2000) highlight that established surveys have disparate underlying conceptual approaches and purposes. Some of these surveys have become well established research tools and have been applied in a wide range of culture research. Rousseau (1990a) concluded that four surveys were among the most established, namely the Organizational Culture Index, the Culture Gap Survey, the Organizational Beliefs Questionnaire, and the Corporate Culture Survey. More recently, other surveys which also have been considered foremost, and as having applicability across contexts, include Cameron and Quinn's (2006) Competing Values Framework; the Organizational Culture Profile (OCP) (Chatman, 1991; Chatman & Jehn, 1994; O'Reilly et al., 1991); Hofstede's Six Dimensional Measure of Organizational Culture (Hofstede et al., 1990); and the Denison Organizational Culture Survey (Denison et al., 2006).

Two survey instruments have been utilized in research on sustainable organizations. The Organizational Culture Inventory (OCI) (Cooke & Lafferty, 1987), an assessment tool from Human Synergistics, measures behavioural patterns as a gauge of organizational culture (Yauch & Steudel, 2003). It was used to assess progress towards organizational sustainability at Yarra Valley Water (Crittenden, Benn, & Dunphy, 2010) and Fuji Xerox (Dunphy, 2009). While the OCI is seen to be a dependable tool for measuring organizational culture (Cooke &

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Szumal, 1993; Xenikou & Furnham, 1996; Yauch & Steudel, 2003), it has shortcomings for the purposes of this current research study. In particular, the OCI measures individuals' thinking, values and behaviour, rather than their perceptions of the organizational values and, hence, of the organizational culture.

The Competing Values Framework (CVF) of organizational culture, developed by Quinn and his colleagues (Cameron & Quinn, 2006), has had broader application in sustainability research. When applied to measure organizational effectiveness, the CVF measures organization values along two dimensions: Internal versus External Focus, and Organizational Decentralization (flexibility) versus Centralization (internal order and structure). It was used by Linnenluecke et al. (2009) to determine the differences in employee awareness of an organization's sustainability practices, and by Sakai (2010) when seeking to identify the role of organizational culture in CSR. When Übius and Alas (2009), Abbett, et al. (2010), and Deng and Hu (2010) incorporated the CVF into their research, they confirmed that corporate culture is significantly correlated with CSR and corporate sustainability. Linnenluecke and Griffiths (2009) concluded the CVF is the most appropriate model for discussing the relationship between corporate sustainability and culture.

This researcher was hopeful of adopting an existing culture survey instrument for the intended research, and, with this in mind, in addition to the OCI and CVF, considered an additional 43 survey instruments.

As the CVF has been widely applied in the literature as a cultural assessment tool, particularly in the context of linking culture and organizational effectiveness (Cameron & Quinn, 2006; Hartnell, Ou, & Kinicki, 2011; Kwan & Walker, 2004; Ostroff, Kinicki, & Tamkins, 2003; Yu & Wu, 2009), and given its popularity, it was carefully considered for this research project. However, as Hartnell et al. (2011) concluded, the CVF has limited application, in that it fails to consider all the unique aspects of organizational culture or the underlying values which underpin an organization's culture. In particular, as Hartnell et al. (2011, p. 688) specify, "the narrow set of values and behaviors that the CVF measures may not fully capture the breadth of organizational culture". Further, in their analysis of organizational culture measurement tools Ashkanasy et al. (2000) concluded that typing approaches to determining organizational culture such as the CVF may lead to overly simplistic, formulaic and prescriptive interpretations of an organization's culture. As the sustainability related

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cultural dimensions to be measured and tested were highly specific, the CVF was not an appropriate tool for this research project.

A number of the survey instuments were deemed inappropriate due to their specialist industry nature, for example education, health, or the US Federal Government. A detailed comparison of the cultural types, dimensions or values purported to be assessed by the remaining surveys was conducted and compared with the identified cultural dimensions for sustainable organizations. It was concluded that, while a few surveys measure several of the identified dimensions, none of the surveys measure sufficient dimensions to be used to measure the culture of sustainable organizations (see Appendix 5.3). Further, a number of the identified dimensions were not measured by any of the surveys, with Challenge Current Thinking, Connectedness, Diversity, Honesty, Knowledge Sharing/Open Communication with all stakeholders, Proactive, Responsibility and Wholism, all being excluded from the reviewed surveys. Therefore, it was determined that a customized survey would be designed by the researcher to validate the presence of the identified cultural dimensions. The survey development is explained in Section 5.9.

5.4.2 Reliability and Validity

In designing research methods and instruments, to ensure the quality of the research data, it is important to consider reliability and validity. Reliability refers to the consistency of a measure (Bryman, 2008, p. 149). Nunnally (1967, p. 206) explained reliability as the scores on a measure being repeatable and free from random measurement error. More specifically, when discussing organizational culture surveys, Cameron and Quinn (2006, p. 153) describe reliability as "the extent to which the instrument measures culture types consistently".

There are three main influences on reliability (Bryman, 2008). Firstly, it is important that the results are stable when the measure is re-administered over time or across groups, as it measures the degree of representativeness of the indicators in the questionnaire (Bryman, 2008; Neuman, 2000). The second influence is the degree to which responses are consistent across the items of a single scale, which typically is measured using Cronbach's alpha (Bryman, 2008; Kline, 2004), and indicates the degree to which the responses to the set of items of a scale are related to each other when the responses are collected simultaneously (Cortina, 1993). Finally, inter-observer consistency is important when several observers are recording observations or categorizing data. For this research study, the first two influences are relevant. Reliability is most often measured using Cronbach's alpha, and in social

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sciences it is widely accepted that Cronbach's alpha values of 0.90 and above are excellent, between 0.80 and less 0.90 are very good, and between 0.70 and 0.80 are good (Kline, 2004). However, the size of Cronbach's alpha is closely related to the number of items in the scale, and increases with the number of items in the scale. Therefore, before rejecting scales with Cronbach alphas as low as 0.60, it is important to consider their context and particularly whether they have few items (Cortina, 1993, p. 101; Field, 2009, p. 675; Lindmeier, 2011).

Validity considers the accuracy of the instrument and, particularly, whether it measures what it was intended to measure (Bryman, 2008, p. 151; Field, 2009; Leedy & Ormrod, 2005, p. 28; Neuman, 2006). Construct validity was important to this research study; this is described as how effectively the measure actually measures the concept (Bagozzi, Yi, & Phillips, 1991). Face validity, or whether the measure actually can identify the desired concept (Bryman, 2008), and content validity, which considers the extent to which the measure represents the construct it is intended to measure, were also of import (Field, 2009; Haynes, Richard, & Kubany, 1995).

5.4.2.1 Improving reliability and validity

When designing a survey and preparing to conduct the survey, researchers need to consider how to maximize both reliability and validity.

Construct validity can be increased by clearly defining the variables to be measured, and by selecting constructs which previous researchers have validated previously (Marczyk, DeMatteo, & Festinger, 2005). As discussed in the two Literature Review chapters, and earlier in this chapter, the culture dimensions being studied have been researched in some detail, and the definitions of the dimensions drawn from previous research studies. Section 5.9 of this chapter provides a detailed discussion of the survey measures, and evidence of the reliability and validity of the selected measures.

Other potential threats to survey validity include low statistical power (Beta = β), which is closely linked to the effect size, that is, the strength of the relationship between the variables being tested (Field, 2009, p. 56). Cohen (1992) recommends an effect size of 0.8 or an 80% chance of obtaining a statistically significant relationship detecting the relationship and thus avoiding Type II errors. Generally, to increase statistical power, the sample size also must be increased (Field, 2009, p. 58; Kraemer, 1985; Verma & Goodale, 1995). The sample sizes of this research study are discussed in Sections 5.10 and 6.6.2.3.

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5.4.3 Response Scales

In 1932, Likert first proposed a summated scale for measuring survey respondent's attitudes, which was adopted for social sciences research (Ashkanasy, Wilderom, et al., 2000a; Clason & Dormody, 1994). While this first Likert response scale enabled the respondents to select from five equally appearing alternatives, with a neutral midpoint (Hinkin, 1998, p. 110): Strongly Approve, Approve, Undecided, Disapprove, and Strongly Disapprove, Likert was not wedded to this scale, and remarked that the descriptors for each of the five points may vary, and that there need not be both negative and positive response options (Likert (1932) as cited by Clason & Dormody, 1994). Likert subsequently applied his scale to organizational climate, and the most commonly used version of his scale, Strongly Disagree, Disagree, Neither Agree Nor Disagree, Agree, and Strongly Agree, was widely adopted for climate research in the 1960s and 1970s, and in the 1980s, for organizational culture research (Ashkanasy, Wilderom, et al., 2000a, p. 3).

In this study, the majority (14) of the 22 selected measurement scales (refer Section 5.9), used five point Likert or Likert-type response scales. One single item scale had a three point response scale, two scales had six point response scales, and five used seven point Likert-type response scales.

There has been a long standing debate about the most desirable level of points in a Likert-type response scale. Bendig's (1953) and Bendig & Hughes' (1953) investigations of impact of the number of response scale categories on the reliability of self-rated surveys, found that there was equal reliability for scales having three, five, seven, or nine response categories, but reliability decreased for 11 categories. In another research project, Bendig (1954) concluded that rater reliability was unvarying for items with from five to nine response categories, but less so for items with two or three categories.

Others have found that reliability, as measured by the coefficient Alpha, is independent of the number of Likert points used; it increases when Likert-type scales increase from three to five points, but the increase in reliability levels off when the scale points are increased above five (Hinkin, 1998; Jacoby & Matell, 1971; Lissitz & Green, 1975; Matell & Jacoby, 1971). Similarly, Pirson (2007) and Hayes (1998) claim that reliability levels remain constant after five scale points. Mattel and Jacoby (1972) concur with previous researchers that internal consistency, test-retest stability, concurrent validity, predictive validity, and the proportion

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of the scale, are all independent of the number of response categories provided. When Masters (1974) tested reliability for up to 22 scale items, with response categories ranging from two to seven, he found the reliability of increasing response categories was more closely linked to whether general opinion was widely divided. He also found where there was little division of options and few response categories, there was low reliability. McKelvie (1978) concluded that a five category response scale was most reliable, and increasing to nine or more response options was of no benefit, while fewer than five response options may decrease discriminative power, and hence reduce validity. There has been a great deal of research devoted to this topic, but disagreements still abound. In general, some researchers agree that at least three points should be used (Cohen, J., 1983), whereas others recommend at least five response points (Weng, 2004). While up to eight response points can be used effectively by respondents, and there is little impact on internal consistency and validity of the scale, respondents' adjacent judgement increasingly overlaps (Bass, Cascio, & O'Connor, 1974). However, research by Chang (1994) indicates that, over the years, researchers have found an increase in reliability as the number of response scale points increased, but there also was a loss in measurement consistency as indicated by a decline in correlation between the measurement scales.

Validity is increased by using Likert response scales which divide the continuum of responses into virtually equally spaced measurements (Klockars & Yamagishi, 1988, p. 85). Additionally, increasing the response scales from five to 11 point scales is unlikely to have any systematic effect on kurtosis, or skewness of the results (Dawes, 2002, 2008).

While it is most common to provide Likert response scales with a neutral mid-point (such as neither agree nor disagree), Garland (1991) found that social desirability bias may be reduced when there is no neutral midpoint in the response scales. Therefore, no changes were made to the existing six point response scales which were provided for two of the measurement scales included in the survey.

Overall, when compiling the survey, this researcher was satisfied that using the existing three, five, six and seven point Likert response scales that accompanied the selected measurement scales, would produce sufficient reliability and validity.

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5.4.3.1 Labelling Response scales

Verbally labelling the response points of response scales, explains to the respondents the meaning of each scale point. According to Krosnick (1999), survey respondents prefer the rating scales to have verbal labels. However, there are varying opinions as to whether verbally labelling each point on the response scale is required to maximize reliability and validity (Davis, W., Wellens, & DeMaio, 1996; Dunham & Davison, 1991; Krosnick, 1999, p. 544; Krosnick & Berent, 1993; Weng, 2004). For example, Churchill and Peter (1984) found no relationship between the labels of response scales and scale measure reliability. Landrum's (1999) study found no significant difference in results between scales in which each response point was labelled, and those for which only the end or anchor points were labelled, which concurred with earlier findings made by Frisbie and Brandenburg's (1979), Lam and Klockars (1982), and Dixon, Bobo and Stevick's (1984). More recently, Weng (2004) found only limited support for his hypothesis that labelling all response points improves reliability. By contrast, Krosnick and Berent (1993), and French-Lazovik and Gibson (1984) determined that verbally labelling all points on the response scales, rather than only the top and bottom points, improved the reliability of the scale measures.

Further, French-Lazovik and Gibson (1984), and Dunham and Davison (1991) concluded from their study that limiting response scale labelling to the top and bottom anchors, may lead to respondents giving more lenient ratings.

Three of the measurement scales applied a seven point anchored response scale, with anchored descriptions provided only at the bottom and top ends of the scale, while for all of the other scales, response scale descriptions were provided for each of the response scales options. After considering the varying viewpoints, this researcher was assured that using both response scale formats was unlikely to impact reliability.

Devlin, Dong and Brown (1993, p. 15) advise that, in paper surveys, respondents are apt to respond to the first relevant category they read, and, therefore, placing the most positive categories to the left, where they are read first, can result in a positive response bias. Tourangeau, Couper & Conrad (2004), identified that survey respondents expect response options to be presented in a logical order, namely from lowest to highest. Devlin et al.'s (1993) recommendations are supported by more recent research which, similarly concluded

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that placing the most positive response category to the left resulted in significantly increased favourable ratings (Hartley & Betts, 2010; Nicholls, Orr, Okubo, & Loftus, 2006).

Therefore, in this study, for all measurement scales, the response scales were placed with the least favourable rating as the first (left hand side) category, and the most favourable, as the last rating.

5.4.4 Reverse Worded Items

Within the selected measurement scales, some items were reversed; that is, they state the opposite of the intended meaning, as this is thought to minimize both acquiescent behavior (agreeing with the items irrespective of the content) (Cronbach, 1950; Krosnick, Narayan, & Smith, 1996; Weems, Onwuegbuzie, Schreiber, & Eggers, 2003), and the tendency of respondents to give a socially desirable answer (Zerbe & Paulhus, 1987). It also encourages survey respondents to pay more attention to the survey items (Barnette, 2000), rather than responding according to their general feelings about the topic of the survey (known as "response set"); and to minimize satisficing, that is, agreeing with the item to reduce their mental effort (Weems, Onwuegbuzie, Schreiber, et al., 2003).

A number of the selected scales used in the Employee Survey contained reverse worded items. Although the use of reverse worded items is common practice (Barnette, 2000; Wong, Rindfleisch, & Burroughs, 2003), there has been some debate about this practice. Established theoreticians, including Nunnally (1978), Rossi, Wright, and Anderson (1983), and Mehrens & Lehmann (1991) recommend that scales which include reverse worded items are more reliable. Others say they are included to reduce response set, acquiescence, satisficing (Cronbach, 1946, 1950; Krosnick et al., 1996; Leech, Onwuegbuzie, & O'Conner, 2011; Weems & Onwuegbuzie, 2001; Weems, Onwuegbuzie, & Lustig, 2003; Weems, Onwuegbuzie, Schreiber, et al., 2003), or giving a socially desirable answer (Zerbe & Paulhus, 1987).

However, caution should be taken when using reverse worded items as it may confound factor structures (Sweeney, C. T., Pillitteri, & Kozlowski, 1996); members of subcultural groups, such as ethnic and racial minorities, may have difficulty interpreting reverse worded items (Wong et al., 2003); and respondents may not read the items sufficiently carefully, thus scoring the item incorrectly (Pirson, 2007; Weems, Onwuegbuzie, & Lustig, 2003). This, in turn, may reduce reliability and validity (Barnette, 2000). The debate on scales containing

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both positively and reverse worded items is ongoing, as ensuring that all items are positively worded, and therefore are unidirectional, provides the potential for response set, acquiescence, and satisficing. Further, either form of wording will not prevent straight line responding (Wong et al., 2003). As discussed later in this chapter, the selected existing scales containing reverse worded items previously have demonstrated good reliability and validity. Therefore, it was decided to use the existing wording of the adopted scales, rather than reword any reverse worded items.

Barnette (2000, p. 369) does not recommend including both reverse worded items and bidirectional response scales within a survey, as it can confuse many survey respondents. Therefore, in this research study, while negatively worded items were retained, unidirectional survey response scales were used, with all response scales going from the most negative wording to the most positive wording.

In all, there were 11 negatively worded items included in the 117 item survey, and these were located in five scales (Collaboration with Stakeholders, Cooperation, Learning, Long Term Perspective, and Responsibility).

5.5 Data Collection Methods

In this study, mixed methods research was achieved by obtaining three forms of data. The major form of data collected was quantitative survey data, which was supplemented by interviews with members of the senior management team. Thirdly, a number of documents were examined, including values and culture statements, annual reports, and annual sustainability reports. These provided the researcher with background information prior to the interviews, and a point of comparison for the data analysis.

5.6 Measuring Organizational Commitment to Sustainability

Several approaches were taken to measure organizational commitment to sustainability. Firstly, a quantitative survey was designed and distributed to a small selected group of senior executives. Secondly, qualitative interviews, which included questions related to commitment to sustainability, were conducted with the above mentioned group of executives. Thirdly, specific questions were included in an employee organizational culture survey, and finally, published sustainability reports were reviewed and analysed.

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5.7 Qualitative Data

Yin (2003) identifies six main data sources for qualitative research: documents, archival resources, interviews, direct observation, participant observation, and physical artifacts. In this research study, the qualitative data was collected in two ways: firstly, through interviews with members of the senior management teams, with these interviews being the primary source of qualitative data; and secondly, to supplement the interview data, the researcher reviewed corporate and public documents, including the organization's current and previous annual and sustainability reports, values and culture statements.

Interviews are one of the most common qualitative methods used in social research (Bryman, 2008; Drever, 2003). They are a social process, which researchers use to unearth information about interviewees' experiences, understandings, and perspectives regarding the research topic (King, 2004; Kvale, 2007; Minichiello, Aroni, Timewell, & Alexander, 1995). While interviews are conversational, they are purposeful, and, when properly constructed, can provide rich empirical data, which generates thick description (Eisenhardt & Graebner, 2007; Fossey, Harvey, McDermott, & Davidson, 2002; King, 2004; Schultze & Avital, 2011).

5.7.1 Potential for Researcher Bias

Throughout the research study, researcher bias potentially may have been an issue. The researcher has been passionate about the environment and sustainability for many years. This personal interest could have caused the researcher to make biased judgements when asking interview questions, and when coding and interpreting the interview results. Researcher bias has the potential to affect the credibility of the research (Eisenhardt & Graebner, 2007; Lillis, 1999). For this reason, it is important to develop interview protocol, referred to in this dissertation as an interview guide, which may include the key questions to be asked, follow-up questions to probe for further information and detail, space for the interviewer to record the interview conversation, their impressions, and any reflective notes. In addition, the interview guide includes information about the interview location, time and date, and details about the interviewee (Creswell, 2009; King, 2004).

To avoid researcher bias and to ensure academic integrity (Miles, M. B. & Huberman, 1984; Onwuegbuzie & Leech, 2007b), the researcher worked closely with the dissertation advisors when framing the interview questions and to retain neutrality of the interview questions (Lillis, 1999). Throughout this research study, considerable effort was made to objectively

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examine and analyse the interview data, and all other data obtained during the research study.

5.7.2 Interview Guide Construction

Research interviews may be fully structured, semi-structured, or unstructured. Structured interviews do not permit the interviewer to deviate from the pre-prepared interview questions and some regard them as akin to surveys, and potentially producing quantitative data (DiCicco-Bloom & Crabtree, 2006). By contrast, semi structured interviews are more flexible: while providing recommended interview questions, and suggested probing questions to ensure in-depth coverage of the salient research topics, they also enable the researcher to obtain more information about points and ideas raised by the interviewees. Thus, semi-structured, open-ended questions are likely to generate richer insights (Eisenhardt & Graebner, 2007). Unstructured interviews are fully conversational, with little guide given by the interviewer, and the interviewees taking the lead in the conversation (Fossey et al., 2002).

A semi structured interview approach was taken for this research study. The interviews were used to gather more specific information than could be obtained in the survey. An interview guide was developed from the research questions, and concepts identified in the literature review. This guide ensured the order of the questions flowed well, provided for consistent interviews with each interviewee, and acted as a reminder to the interviewer to cover all topics (Bryman, 2008). The interview guides contained a list of open-ended questions which covered each of the areas to be discussed in the interview. For some of the questions, additional probing sub-questions were included to be used as prompts to guide the researcher to obtain more in-depth information. Given the seniority and workloads of the people to be interviewed, the interviews were planned to last for about an hour.

The interviews were designed to enable senior managers to expound upon their experiences and knowledge of the organization's commitment to sustainability, and its culture, and to provide their own insights. The interviews began with background information regarding the interviewees' personal understanding of sustainability. Probing questions identified how they developed this understanding and several questions asked about their role, and the impact of sustainability upon their role. This section of the interview was intended to build rapport between the researcher and interviewee, and to direct the interviewees' thoughts

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toward sustainability, thus paving the way for the rest of the interview. The second part of the interview sought to determine the interviewees' knowledge of the organization's commitment to sustainability, and any specific areas of sustainability focus. The third and final section of the interview examined the organization's culture, and the depth of the organization's espoused culture. This section ended with questions about three dimensions of organizational culture (Reflection, Systems Thinking, and Wholism), which, as discussed in Section 5.9, were intentionally omitted from the Employee Organizational Culture Survey. The Interview Guide is presented in Appendix 5.4.

5.7.3 Interview Process

The interviews were conducted with senior managers in the organization (General Manager or Director level), who would be expected to have a strong understanding and a broad perspective of the organizations' sustainability policies, strategy, and sustainability performance. These managers were selected by the organization after discussion with the researcher, and, to ensure a broad perspective, were selected from the major divisions of the organization.

Each interview was recorded. To avoid potential loss of data, the interview was recorded on both an iPad and iPhone. The researcher also took notes during the interviews. Each interview was transcribed by an independent third party recommended by the Macquarie University Graduate School of Management. Upon receiving each transcript, the researcher listened to the recorded interviews while reading the interview transcripts, to ensure the transcription was accurate. The signed interview consent forms, interview recordings and notes, interview transcriptions and coded interviews, were stored confidentially.

5.7.4 Document review

The company which participated in this research study (Company A) has published a number of documents which pertained to the research study, including annual reports, annual health and safety reports, annual sustainability reports, and information about the company's culture and values. A theoretical thematic analysis was conducted to identify information about the company's sustainability activities and commitment, and its culture (Boyatzis, 1998; Braun & Clarke, 2006; Clarke & Braun, 2013).

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5.8 Organizational Commitment to Sustainability Survey

The Organizational Commitment Sustainability Survey was developed from two main sources. The primary source was the 2011/2012 annual MIT Sloan/Boston Consulting Group Survey; the other source was a survey tool developed by the Boston College Center for Corporate Citizenship to assist organizations to measure their level of corporate citizenship development.

5.8.1 MIT Sloan/BCG Sustainability and Innovation Survey

Commencing in 2010, the MIT Sloan Management Review, in conjunction with the Boston Consulting Group, have conducted an annual sustainability and innovation survey of over 4,000 executives and managers, from a range of industries, 3,000 of whom work for companies in commercial sectors, and from over 113 countries (Haanaes et al., 2011; Haanaes et al., 2012; Kiron, David, Kruschwitz, Nina, Haanaes, Knut, Reeves, Martin, & Goh, Eugene, 2013a; Kiron, Kruschwitz, Rubel, Reeves, & Fuisz-Kehrbach, 2013). The MIT Sloan Management/Boston Consulting Group survey understands sustainability to be comprised of environmental, economic and societal sustainability. The survey asks respondents to consider a range of sustainability measures, including what factors their organizations include in their definitions of sustainability, the status of sustainability as a management agenda item, the organizations' current and intended commitment to sustainability, reasons for addressing sustainability, and the impact of sustainability on the amount of collaboration with stakeholders (Haanaes et al., 2012; Kiron, Kruschwitz, Haanaes, & von Streng Velken, 2012).

While some core survey measures remain in the surveys, each year several new measures are adopted to reflect the changing nature of sustainability in organizations and to address new questions of interest to the research team. As the 2011 survey (for which the results were reported early in 2012) contained a number of measures which assess how organizations define sustainability, and their current and anticipated commitment to sustainability, this survey was adopted for use in the in-depth case study. A majority of the survey measures from the MIT Sloan/BCG Survey were included in the Organizational Commitment to Sustainability Survey. Written authorization was obtained to use this survey (refer Appendix 5.5).

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5.8.2 Organizational Commitment to Sustainability Survey

The final version of the Organizational Commitment to Sustainability Survey was comprised of 18 measurement scales adopted from the 2011 MIT Sloan/BCG Sustainability and Innovation Survey. These had several different forms of response scales: four invited the respondents to select all of the applicable statements; eight invited survey participants to rank a series of statements, and select the most important, or relevant one or three items from the presented items; and five scales had Likert, or Likert type response scales which ranged from three to five. One question asked respondents to provide the year in which sustainability appeared on the company's agenda, and two of the scales also provided space for respondents to provide further information.

The Boston College Centre for Corporate Citizenship has developed a survey tool to assist organizations to determine their stage of development of corporate citizenship. This survey is based on eight dimensions of corporate citizenship, each with five levels, which, align with Mirvis and Googins' (2006a, 2006b, 2009) Stages of Corporate Citizenship Model, and, as shown in Table 2.4, align with Dunphy et al.'s Six Phases in the Development of Corporate Sustainability (Benn & Dunphy, 2004a; Benn et al., 2006; Dunphy et al., 2007; Griffiths, 2003, 2004). Eight measurement scales from this survey were incorporated into the Organizational Commitment to Sustainability Survey as Scales 29A to 29H. The response scales for the items in each measurement scale correspond with each of the five stages of corporate citizenship, for example:

Table 5.5 Measurement Scale: Corporate Citizenship Stages

29A. My company's sustainability strategy is focussed on: (Tick one)	Stage
Legal compliance	1
Preserving our reputation and license to operate	2
Traditional ROI criteria	3
In addition to traditional ROI criteria, company values are seen as a key driver for assessing risk and opportunity	4
Corporate citizenship is a part of our business model: a focus on market opportunity and creation	5

This survey also included seven demographic items: gender, age, position level, type of employment, years with the company, years in the current position, and level of education. The Organizational Commitment to Sustainability Survey is presented in Appendix 5.6.

5.9 Employee Organizational Culture Survey

Although 19 existing survey instruments included survey measurement scales which measured similar aspects to the cultural dimensions, as identified and defined in this research study (Section 3.13.1), these provided measurement scales for only ten of the final list of 18 dimensions (Appendix 5.3). Further, when examined closely, for a number of these, either the purpose of the survey or the scale measures, or the underlying definitions of the scales, were too dissimilar from the definitions of the cultural dimensions in this study to be appropriate.

As the requirement of this research study was to include only those identified organizational culture dimensions that accompany and support organizational sustainability, the researcher selected only those culture survey scales with described purposes, and item contents, which most closely matched the definitions of these cultural dimensions. The resultant data collection instrument was a composite survey questionnaire, with the selected survey items based both on the research questions and the identified culture dimensions to be measured.

The majority of culture scales used in the Employee Organizational Culture Survey were adopted directly from existing surveys. A limited number of survey items in scales selected from existing survey scales were adapted to better suit the culture construct definitions, and, for several culture dimensions, no suitable existing scales were identified in the literature. For these dimensions, scales were developed by the researcher from existing research. Three of the dimensions were more abstract; no existing scales were available, and developing survey measurement scales for these concepts was beyond the scope of this research study. As this study incorporated in depth interviews with senior management, it was determined appropriate to include these three dimensions, Reflection, Systems Thinking and Wholism, in the interview questions.

The survey development required several iterations. Comprehensiveness of the survey scales and their effective representation of the identified organizational culture dimensions, clear and unambiguous wording of the survey items for respondent comprehension (Ramus, 2003, p. 64), the number of items for each culture dimension, the impact of negatively worded items on results, reliability and validity of existing scales, the number of response options in the survey scales, and survey length, were considered in the scale and item

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selection (Church & Waclawski, 2001; Neuman, 2006). The following section of this chapter discusses the scales selected and developed, and their response scales.

5.9.1 Selected scales

The selected scales, their items and their respective reliability measures are discussed in detail below, along with their nominated response rating scales. The final survey instrument was comprised of 127 items, of which 94 items measured the independent variables: organizational culture dimensions, and the sustainability culture dimensions; and 23 items measured organizational commitment to sustainability. Additionally, there were ten demographic questions.

5.9.2 Permission to use scales

The majority of the scales included in the Employee Organizational Culture Survey have been published in journal articles or reference books and, therefore, are available for other researchers to use. Several scales under consideration for inclusion in the survey, however, either were not were not available in the public domain, or the source clearly stated that permission must be obtained to use the scales. In these instances, this researcher wrote to the authors of the scales, requesting more information about the scales, their items, and permission to use them. In each case, the requested permission was given (Appendices 5.7 and 5.8).

After careful consideration, several of these scales were determined not to be a good match to the dimensions' definitions, and hence, were not used. The scales for which permission was obtained and were used, are:

- Coordination and Integration (Denison et al., 2006)
- Organizational Learning (Denison et al., 2006)
- Innovation and Creativity (Denison Consulting, 2011a)
- Strategic Direction & Intent (Denison et al., 2006)
- Stakeholder Management (Black, 2004)
- Stakeholder Identity (Black, 2004).

5.9.3 General Organizational Culture Dimensions Scales

This section explains those scales measures which were determined to be the most appropriate for measuring each of the General Culture dimensions.

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5.9.3.1 Challenge Current Thinking

The selected measure for Challenge Current Thinking was a six item scale developed by Marsick and Watkins (2003, p. 139) titled "Promote Inquiry and Dialogue", and which they defined as, "People gain productive reasoning skills to express their views and the capacity to listen and inquire into the views of others; the culture is changed to support questioning, feedback, and experimentation". This scale has a six point response scale, anchored at the bottom and top ends of the response scale by 'Almost Never' and 'Almost Always'. Marsick and Watkins (2003) conducted this scale four times, three in the USA and again in Columbia, and obtained Cronbach alphas in the USA of 0.78, 0.87, and 0.85, and in Columbia of 0.81. However one item in Marsick and Watkins' (2002) scale: "In my organization, people spend time building trust with each other", did not align with the definition of Challenge Current Thinking and therefore, was excluded from the scale, leaving five items in the scale.

5.9.3.2 Collaboration with Stakeholders

The measures chosen for the Collaboration with Stakeholders cultural dimension were developed and tested by Leeora Black in a series of studies of several large Australian corporations, which formed her PhD research and dissertation (Black, 2004). Subsequently, these scales have been used extensively by the CSR consulting organization founded by Dr. Black, the Australian Centre for Corporate Social Responsibility (ACCSR) (Australian Centre for Corporate Social Responsibility, n.d.). The first of Black's (2004) scales, Stakeholder Identity, measures the extent to which employees see the firm as linked with its stakeholders, and is comprised of four items, with an alpha co-efficient of 0.80. The second of Black's (2004) scales used, Stakeholder Management, is composed of four items with an alpha co-efficient of 0.64, and measures the extent to which stakeholder needs are actioned in operational decisions (Black, 2005; Black & Härtel, 2005). Both scales have seven point response scales anchored at the bottom ('Strongly Disagree') and top ('Strongly Disagree'). The two scales have been proven to be significant predictors of organizations' social responsiveness with β = 0.359, and p=0.011 (Black & Cordingley, 2007).

5.9.3.3 Cooperation

To measure Cooperation, Denison's five item Coordination and Integration scale was adopted. The Denison organizational culture model is characterised by four cultural traits of organizations: Involvement, Consistency, Adaptability, and Mission, each of which are measured by three five-item scales (Denison et al., 2006, p.2), and form the 12 scale Denison

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Organizational Culture Survey (DOCS). Coordination and Intergration is one of the three scales which form the Consistency trait, which is described as "the extent to which an organization has the systems and processes in place to be well integrated, can build and sustain values within the organization, and can reach agreement on key issues that drive the organization's success" (Denison Consulting, 2009, pp 1-2). Coordination and Integration is defined by Denison (2006, p. 7) as "different functions and units of the organization are able to work together well to achieve common goals. Organizational boundaries do not interfere with getting work done"). It has a five point Likert response scale ranging from 'Strongly Disagree' to 'Strongly Agree'. By 2006, the DOCS had been tested on over 35,000 people from 160 different organizations, and was found to have a coefficient alpha of 0.78.

5.9.3.4 Diversity

In this study, as the Diversity cultural dimension is broadly defined (see Table 5.2), to ensure the best data was collected, two different scales were adopted. Firstly, Hobman , Bordia and Gallois' (2004) Openness to Group Diversity scale was used. Hobman et al.(2004) found that individuals' perceived similarity or dissimilarity with other team members affects their team involvement, cooperation between team members, their openness to seeking diverse ideas and approaches to work, and people's willingness to express their ideas, which, in turn, affects team performance. Their six item scale is comprised of three factors: Openness to Visible Diversity, which is comprised of characteristics such as age, gender, and ethnicity (alpha = 0.94); Openness to Value Diversity, which measures individual differences in work standards and performance (alpha = 0.82); and Openness to Informational Diversity, which relates to characteristics such as professional background, tenure, and work experience (alpha = 0.88) (Hobman et al., 2004). This scale was supported by a four item scale from Van der Vegt & Janssen (2003, p. 737) which measures the extent to which people believe that the members of their work group, or team, have differing perspectives, attitudes, and skills. The scale has a seven-point Likert response scale, anchored at the bottom and top with 'To a very small extent' (1) and 'To a very large extent' (7). For this scale, Van der Vegt & Janssen (2003) obtained a Cronbach's alpha of 0.81.

5.9.3.6 Empowerment and Inclusiveness

For this survey, to measure Empowerment and Inclusiveness, Marsick and Watkins' (2003) Empowerment scale was used. This six item scale, with a six point top and bottom anchored response scale (from'Almost Never' to 'Almost Always'), was drawn from Dimensions of the

Learning Organization Questionnaire (DLOQ), which has been conducted across multiple studies with a resulting Cronbach alpha of 0.84 (p. 44) and a reliability of 0.83 (Yang, B. et al., 2004, p. 48).

5.9.3.7 Innovation and Creativity

A number of the identified innovative culture measures focus on innovation, or on behaviour within work groups or teams (e.g. Anderson, N. R. & West, 1998), or they measure the potential or creative behaviour of employees (e.g. DiLiello & Houghton, 2008; Rice, 2006; Scott, Mannion, Davies, et al., 2003; Zhou & George, 2001).

Amabile et al. (1996) developed a 15 item scale to measure organizational encouragement of creativity, as one of ten scales forming a 78 item instrument called "KEYS Assessing the Climate for Creativity". This scale measures the fair judgement of ideas, reward and recognition of creative work, the flow of ideas, and a shared vision of what the organization is attempting to do . While this Likert-type five point scale had a test-retest score of 0.94 and a Cronbach alpha of 0.91, with 15 items, it would have added to the overall length of the survey. Further, it measures concepts broader than the definition of creativity used in this research study. Therefore, Denison Consulting's (2011a) five item Innovation Factor was used. This scale, is one of five additional Denison Culture Content Modules which are intended to supplement the Denison Organizational Culture Survey (DOCS), and to measure organizations "ability to generate, implement and deliver on creative ideas" (Denison Consulting, n.d., p. 1) and the role of innovation within organizations (Denison Consulting, 2011b). The response scale is a five point Likert scale ranging from 'Strongly Disagree' to 'Strongly Agree'. By December 2010, this scale had been given to over 18,000 employees of 96 organizations with a resultant Cronbach alpha of 0.95. Further, Denison Consulting's (2011a) Innovation Factor scale has internal correlations with other Denison Organizational Culture Survey (DOCS) scales which also were included in this study. In particular, there is a correlation of 0.92 with Denison's Organizational Learning scale; 0.77 with Denison's Strategic Direction and Intent scale; and 0.82 with Denison's Coordination and Integration scale (Denison Consulting, 2011a).

5.9.3.8 Knowledge Sharing/ Open Communication with all Stakeholders

Several of the scales considered for measuring Knowledge Sharing/ Open Communication with all Stakeholders were concerned with the mechanics or process of knowledge sharing

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(e.g. Lee, K. C., Lee, & Kang, 2005), or the presence and details of knowledge management systems, rather than whether knowledge was shared. Knowledge sharing can be defined as the act of transferring knowledge from one person to another, from a group to another group, or from one organization to another (Lin & Lee, 2004). In addition to the importance of knowledge sharing to organizational sustainability, knowledge sharing within, and between, organizations has a strong influence on innovation within organizations, organizational performance, and on identifying market opportunities for products (Cohen, W. M. & Levinthal, 1990; Jansen, Van den Bosch, & Volberda, 2006; Tsai, 2001).

Several cultural dimensions have been found to positively impact knowledge sharing within, and between, organizations, particularly trust and communication between employees (Al-Alawi, Al-Marzooqi, & Mohammed, 2007; Cheng, J.-H., Yeh, & Tu, 2008; Politis, 2003; Smith, A. D. & Rupp, 2002).

The scale used in the research study is comprised of five items. Four items were developed by Lin & Lee (2004), who obtained a composite reliability of 0.84. While composite reliability is seen by some researchers to be a better measure of true reliability than cooefficient alpha, others suggest that they are sufficiently similar for there to be little practical difference (Peterson & Kim, 2013, p. 197). The fifth item was adapted from Marsick & Watkins' (2003) Continuous Learning scale in the DLOQ. The item wording was changed slightly from, "In my organization, people are rewarded for learning", to "In my organization, people are rewarded for sharing knowledge", to measure organizations' receptivity to knowledge sharing. The response scale is a seven point Likert scale ranging from 'Strongly Disagree' to 'Strongly Agree'.

5.9.3.9 Learning

As with Knowledge Sharing/ Open Communication with all Stakeholders, the Learning dimension is closely linked to several of the identified cultural dimensions, particularly, innovation, and generating, sharing and obtaining knowledge (Aragón-Correa, García-Morales, & Cordón-Pozo, 2007; Marsick & Watkins, 2003; Skerlavaj, Miha et al., 2007). Learning also is related to organizations' ability to adapt to changing market conditions, and to create change, such as those changes necessitated by sustainability requirements and ambitions, as well as to organizations' performance (Fey & Denison, 2003; Gillespie et al.,

2008; Henry, 2009; Parson & Clark, 1995; Senge & Sterman, 1992; Siebenhüner & Arnold, 2007; Skerlavaj, Miha, Song, & Lee, 2010).

Learning is one of the three scales which measure the Adaptability trait, which forms part of the Denison organizational culture model. Adaptability describes an organization's ability to scan the business environment, interpret the signals, respond to the changing environment, take risks, and learn from mistakes, thereby increasing their chance for survival and growth (Denison et al., 2003; Denison et al., 2006). Denison et al.'s (2006) five item Organizational Learning scale, with a five point 'Strongly Disagree' to 'Strongly Agree' Likert response scale, was used to measure the Learning culture dimension. From a sample of 35,474, Denison et al. (2006) obtained a Cronbach alpha of 0.74.

5.9.3.10 Long Term Perspective

As Starik and Rands (1995), and Porter and Kramer (2006) clearly state, sustainable organizations develop and implement long term strategies that incorporate long term environmental and social sustainability objectives. To measure Long Term Perspective, Denison et al.'s (2006) five item Strategic Direction and Intent scale was used. This scale is one of three scales which comprise Denison et al.'s (2006) Mission cultural trait, which examines the purpose and direction underpinning an organization's goals and objectives, and its future vision (Denison et al., 2003, p. 208).

The Strategic Direction and Intent scale measures whether organizations' strategies effectively focus on the envisioned, and intended long term future. From the same sample of over 35,000, for this scale, Denison et al. (2006) obtained an alpha of 0.86. To fully encompass the definition of the Long Term Perspective, a sixth item, from Denison et al.'s (2006) Vision scale, "Short-term thinking often compromises our long-term vision", was added to the scale, which has a five point 'Strongly Disagree' to 'Strongly Agree' Likert response scale.

5.9.3.11 Transparency and Openness/ Trust

The Transparency and Openness/ Trust dimension was measured by two scales. Firstly, Pirson's (2007) three item Integrity scale was used. This scale has a five point Likert response scale ranging from 'Strongly Disagree' to 'Strongly Agree'. On analyzing the data from 2051 respondents Pirson (2007) obtained a reliability measure of alpha 0.852, a Pearson R of 0.638 - 0.68 and Kendall tau-b = 0.544 - 0.59. Subsequently, Pirson and Malhotra (2011)

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studied 1,298 responses from four organizations, and found this Integrity scale, with a Cronbach alpha of 0.85, to be a significant predictor for overall trust in stakeholder relationships.

The second scale used to measure Transparency and Openness/Trust was Rawlins' (2009) Accountability scale, which has a seven-point Likert response scale ranging from 'Strongly Disagree' to 'Strongly Agree'. When tested on over 300 cases, the Accountability scale had an alpha of 0.86. Rawlins (2009, p. 96) concluded that organizations which are transparent are also highly likely to have integrity, respect their stakeholders, and to openly communicate with their stakeholders.

5.9.4 Sustainability Culture Dimensions

Section 5.9.4 provides details about each of the scales measures which were selected to measure each of the Sustainability Culture dimensions. Importantly, in the process of deciding on a scale to measure Integrity, it was evident this single dimension required two separate measures, one focused on the environmental aspects, and the other on social integrity (see Section 5.9.4.3).

5.9.4.1 Connectedness

The Connectedness sustainability culture dimension considers the extent to which an organization understands the impacts its activities will have on the long term viability of organizations, nations, populations and the planet, and the nature of the relationship between the environment and ecology, human and societal welfare, and the economy. This highly specific culture dimension was measured using a scale developed by Turker (2009), to be one of several scales designed to measure organizations' CSR to various stakeholders, and, particularly, whether organizations use their power responsibly towards the community and the environment. The selected seven item scale measures "CSR to society, the natural environment, future generations and NGOs", and has a five point Likert response scale ranging from 'Strongly Disagree' to 'Strongly Agree'. In a study of 269 business professionals from a number of different medium and large for-profit organizations, Turker (2009) obtained a Cronbach alpha of 0.89.

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5.9.4.2 Fairness and Equity

The Fairness and Equity cultural dimension gauges whether organizations consider the need to retain environmental resources to provide for the needs of future generations, rather than fully exploit them for today's generations. Gladwin, Kennelly & Krause (1995, p. 891) define sustainable development as "inclusive, connected, equitable, prudent, and providing for secure human development". Further, they state that, "intragenerationally, current generations are obligated to ensure equitable opportunities for all of humanity, most especially the satisfaction of vital basic needs of the marginalized, poor, and most vulnerable segments of society". As no adequate existing survey measures for Fairness and Equity were identified, the researcher developed a scale from the concepts embedded in Gladwin et al.'s (1995) definition, and Dunphy et al.'s Sustainability Checklist (2007, pp. 326-334). The resultant five item scale has a five point Likert-type response scale, ranging from 'Strongly Disagree' to 'Strongly Agree'.

5.9.4.3 Integrity

After researching for scales to measure Integrity, one scale, which measured Integrity from only an environmental perspective was found, and no other suitable scales were discovered. Therefore, it was decided to use two separate scales to measure Integrity.

5.9.4.3.1 Environmental Integrity

The scale adopted to measure Environmental Integrity, was the four item Environmental Issues Integration scale developed by Judge and Douglas (1998) to measure whether organizations are incorporating environmental issues into their strategic plans, and their level of proactiveness. The scale has a five point Likert response scale ranging from 'Strongly Disagree' to 'Strongly Agree'. Analysis of 196 usable responses from corporate environmental officers of large corporations in most industries, determined this scale had a composite reliability index of 0.9.

5.9.4.3.2 Social Integrity

As the researcher was unable to identify a suitable, existing survey measure for Social Integrity, Judge and Douglas' (1998) Environmental Issues Integration scale was adapted to measure Social Integrity. Three items from this scale were used, with the word "environmental", replaced by "community and social" in each item, to reflect the requirement of this scale to measure the extent to which organizations incorporate

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community and social sustainability within their strategic plans. As for the Environmental Integrity Scale, this scale has a five point Likert response scale ranging from 'Strongly Disagree' to 'Strongly Agree'.

5.9.4.4 Proactive

The definition of the Proactive sustainability culture dimensions is that the organization is self-starting, and voluntarily actively seeks opportunities and actions that positively impact on current and future sustainability beyond regulations and industry standards (Table 5.3). The majority of identified research about proactivity in organizations has focused on individuals' proactive personalities, proactive behavior, and individual initiative (for example: (Bateman & Crant, 1993; Crant, 2000; Frese & Fay, 2001; Thompson, 2005); or on the drivers and influences that lead an organization to become environmentally and socially proactive (Darnall, Henriques, & Sadorsky, 2010; González-Benito & González-Benito, 2005; Murillo-Luna, Garcés-Ayerbe, & Rivera-Torres, 2008; Porter, M. E. & Van der Linde, 1995a, 1995b; Sangle, 2010; Sharma, Sanjay, Aragón-Correa, & Rueda-Manzanares, 2007), neither of which were sufficiently closely aligned with the definition adopted in this research study.

Consequently, the researcher developed an eight item scale based upon Dunphy et al.'s (2007) definitions and descriptions of the actions of organizations which have attained the highest level of commitment to sustainability: Stage 6 "The sustaining corporation". This developed scale has a five point Likert-type response scale ranging from 'To no extent' to 'To a very great extent'.

5.9.4.5 Responsibility

Banerjee (2002b, p. 181) developed a survey to measure corporate environmentalism, which he defined as "the organization-wide recognition of the legitimacy and importance of the biophysical environment in the formulation of organization strategy, and the integration of environmental issues into the strategic planning process.". From the literature, Banerjee (2002b, p. 182) identified two main themes. The first is corporate environmental orientation, which he described as "the notion of corporate responsibility toward the environment, the importance of recognizing the impact a firm has on the environment and the need to minimize such impact.", which "involves respecting and caring for the environment and being responsive to external stakeholders as well as being good corporate citizens". The second theme Banerjee (2002b, p. 182) identified was environmental strategy focus, which

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"reflects the degree of integration of environmental issues into the strategic planning process". From a sample of 311 returned, useable questionnaires, Banerjee's (2002b) analysis identified a four item factor which measures organizations' perceived responsibility towards the environment, and is named Organizational External Orientation. For this scale, which has a seven point Likert response scale ranging from 'Strongly Disagree' to 'Strongly Agree', Banerjee (2002b) obtained a Cronbach alpha coefficient of 0.72.

For this research study, Banerjee's (2002b) Organizational External Orientation scale was used to measure the "Responsibility" sustainability culture dimension. To ensure the scale incorporated the social sustainability aspect of the holist definition of sustainability applied to this research, a fifth item was added: "Managers do not feel a strong sense of accountability towards the community at large". This reverse worded item was drawn from Black's (2004) Sense of Responsibility scale, "Measuring organizational commitment to sustainability".

5.9.5 Organizational Commitment to Sustainability Measures

A number of alternative scales were considered for measuring the level of organizations' commitment to sustainability, and the following discussion explains the selection and design of the scale measures which ultimately were used.

5.9.5.1 Sustainability Practices and Outcomes

According to Linnenleuke at al. (2009), both organizations' cultures, and their sustainability practices, are important factors in developing employees' awareness and perceptions of sustainability. From the literature, Linnenleuke at al. (2009) identified three particular ways in which employees may become aware of their organization's sustainability activities, and constructed measures for each of these. They adopted the first, employees' knowledge of the organization's sustainability policies, from Ramus and Steger (2000). The other two were drawn from Sharma (2000): environmental issues becoming a fundamental part of an organization's identity, which Sharma (2000) labelled Environmental Issue Legitimation; and the inclusion of environmental performance measures in employees' performance measures and performance evaluations.

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5.9.5.2 Employee Knowledge of the Organization's Sustainability Policies

One means by which organizations can disseminate information about corporate sustainability concepts is publishing a corporate sustainability policy. Such a policy disseminates information about corporate sustainability concepts, promotes to its employees the organization's support of sustainability, and particularly environmental innovation, and demonstrates that they are endorsed and enacted within the organization (Ramus, 2002, 2003; Ramus & Steger, 2000). Banerjee (2001, p. 509) concluded that "dissemination of environmental information within organizations is crucial in implementing environmental strategies". Along similar lines, Ramus consistently found that clearly written, and well communicated sustainability policies significantly increase the likelihood of employee commitment to sustainability, and of their undertaking environmental initiatives (Ramus, 1998, 2002, 2003; Ramus & Steger, 2000). Ramus (2002, p. 153) strongly states that a written environmental policy is "a necessary prerequisite for sustainable development".

Writing such a policy necessarily entails some degree of introspection, and is, therefore, likely to increase employee awareness about corporate sustainability. A written sustainability policy also forms the overall framework from which other sustainability components result, such as environmental management systems, audits, assessments and reports (Gunningham & Grabosky, 1988; Linnenluecke et al., 2009; Ramus, 2002, 2003).

Ramus and Steger (2000), and Ramus (1998, 2002, 2003) emphasize the importance of an organization's sustainability policy in promoting the organization's support of sustainability, and particularly environmental innovation, to its employees. As organizations develop their sustainability policies over time, employees' knowledge of these policies is a good indicator of the organization's changing commitment to environmental sustainability. From the literature, Ramus (1998, 2002, 2003; Ramus & Steger, 2000) identified 13 different environmental policies which exist in environmentally active firms, and generated a survey measure based on these. The first item determines if employees know whether their organization publishes an environmental policy. The remaining twelve items asked for responses to statements which address specific aspects of the organization's environmental policy and related initiatives, and were designed to ascertain employee's perceptions about their organization's commitment to the published policy.

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Linnenleucke et al. (2009) agreed that the publication and communication of a sustainability policy is a fundamental foundation for establishing environmental measures, for the assessment of environmental performance, and for reporting, as well as for communicating both internally and externally that the organization is committed to acting responsibly towards the environment. They adopted Ramus' (1998, 2002, 2003) and Ramus and Steiger's (2000) 13 item scale, with one modification: given their broader focus on the holistic definition of sustainability, which incorporates financial, environmental, and social sustainability, they amended the first survey item wording from "environmental policy" to "sustainability policy". In their study, Linnenleucke et al. (2009) obtained a coefficient alpha of 0.91, while Ramus and Steger (2000) obtained an alpha of 0.81.

Similarly to Linnenleucke et al. (2009), for this research study, this 13 item scale was utilized, and, following Linnenleucke at al.'s (2009) approach, some wording was adapted to "sustainability". Additionally, for ease of respondent interpretation, in this current study, the wording of the last item in the scale was amended slightly from, "Applies the same sustainability standards at home in and overseas abroad", to read "Applies the same sustainability standards in Australia and overseas". Ramus and Steger's (2000) Likert-type response scales were used: 'Strongly Disagree', 'Partially Disagree', 'Don't Know', 'Partially Agree', and 'Strongly Agree', with the responses numbered to be consistent with the Likert-type response scales throughout the survey (1 to 5).

5.9.5.3 Environmental Legitimation

According to Dutton and Dukerich (1991, p. 518), issues in organizations are those "events, developments, and trends that an organization's members collectively recognize as having some consequence to the organization", some of which, should they have the potential to impact whether the organization may achieve its objectives, may be strategic issues (Dutton & Jackson, 1987). Should issues related to environmental or social sustainability be seen to be of consequence and, therefore, become a factor in an organization's identity, they are said to be legitimated (Greening & Gray, 1994; Sharma, Sanjay, 2000; Sharma, Sanjay, Pablo, & Vredenburg, 1999; Wood, 1991a). Sharma (2000) found that, for environmental issues to be addressed and resolved creatively, they need to be legitimated. To measure this, Sharma (2000) used a two item scale which he had adapted from Miles (1987), and which addressed whether environmental sustainability is a core identity. Linnenlueke et al. (2009) also used this scale in their study of the relationship between organizational culture and employees'

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awareness of their organization's sustainability practices, obtaining a Cronbach alpha of 0.71. A five point response scale ranging from 'Not at all' to 'To a very great extent' was applied to the Environmental Legitimation scale.

5.9.5.4 Integration of Environmental Indicators into Employee Performance Evaluation

Sharma (2000) proposed that, for an organization to become environmentally sustainable', employees activities need to be guided towards achieving environmental sustainability goals and objectives, by incorporating environmental goals in their performance objectives and providing rewards for goal achievement. The practice of encouraging behaviour which leads to environmental protection, in turn, increases an organization's commitment to sustainability. Linnenleucke et al. (2010) concurred, adding that incorporating sustainability performance measures and rewards will generate increased employee understanding of organizational sustainability.

While this researcher is in accord with Sharma (2000) and Linnenlueke et al. (2009), that it is important to measure sustainability performance, early conversations with the organization participating in this research study established that this process was not yet occurring. Therefore, rather than incorporate this scale into the survey, information about the integration of environmental indicators into employee performance objectives was obtained during the qualitative interviews with senior managers.

5.9.5.5 Knowledge of Sustainability Commitment

This researcher added another measure, Knowledge of sustainability commitment. The items for this scale were developed from Dunphy et al.'s (2007) descriptions of the behavior of organizations with a high level of commitment to sustainability, and particularly from Dunphy et al.'s (2007) Level 5 and Level 6 phases of commitment to sustainability. As the Employee Knowledge of the Organization's Sustainability Policies scale, discussed previously, was focused on environmental sustainability, the majority of items in this scale were directed at social sustainability. The resultant scale was comprised of nine items with a five point Likert response scale, which ranged from 'To no extent' up to 'To a very great extent'.

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5.9.6 Demographic data

As discussed in Section 3.7.5, an organization's culture may not be a single and unified, culture, but rather may be comprised of a group of subcultures (Boisnier & Chatman, 2002). Many different factors cause subcultures to form, including:

- individual demographics, such as age, gender, race or ethnic identity, family background, education, or social class membership (Beyer, 1981; Burrus, 1997; de Vries, 1997; Gregory, 1983; Helms & Stern, 2001; Hofstede, 1998; Jermier et al., 1991; Li & Jones, 2010; Martin, Joanne, 2002; Martin, Joanne & Frost, 2011; Martin, Joanne et al., 2004; Meyerson & Martin, 1987; Sinclair, 1993; Trice & Beyer, 1984; Van Maanen & Barley, 1984)

- an organization's structure, such as departments, divisions and hierarchical levels (Boisnier & Chatman, 2002; Jermier et al., 1991; Martin, Joanne et al., 2004; Martin, Joanne et al., 1985; Ouchi & Price, 1978; Quinn, R. E. & Rohrbaugh, 1983; Riley, 1983; Trice & Beyer, 1984, 1991; Van Maanen & Barley, 1984)

- occupation (Denison & Mishra, 1995; Jermier et al., 1991; Trice, 1993; Van Maanen & Barley, 1984, 1985)

- organizational roles, work responsibilities and projects (Gregory, 1983; Hofstede, 1998; Kleinberg, 1994; Schein, 1996a; Stevenson & Bartunek, 1996; Trice & Beyer, 1993; Van Maanen & Barley, 1984)

- employees' length of tenure with the organization (Maynard-Moody et al., 1986)

- the geographic location of business units (Boisnier & Chatman, 2002; Jermier et al., 1991; Kekale et al., 2004; Martin, Joanne et al., 2004; Quinn, R. E. & Rohrbaugh, 1983; Riley, 1983).

Including demographic questions in surveys enables analyses to identify the presence and impact of subcultures (Church & Waclawski, 2001; Wildenberg, 2006). Therefore, Part C of the survey questionnaire included demographic questions, including the site and department in which the respondents work, the respondents' age, gender, educational qualifications, position level, the nature and category of their employment, and the number of years they had worked both with the organization and in their current position. This data was important for determining the representativeness of the sample; for classifying the data (Yiing & Ahmad, 2009); for identifying differences across the organization in the respondents' variances understanding of the presence of the organizational cultural dimensions; and for measuring subgroups' understandings of the organization's commitment to sustainability (Nardi, 2003).

While some other demographic data may have been of interest, certain demographic items (such as race or ethnicity) were omitted as being potentially too intrusive to some

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respondents (Church & Waclawski, 2001). Other demographic items, like job title, also were omitted, as conceivably they may lead to identification of individual respondents. Thus, to miminize any respondents' potential apprehensions about anonymity, the demographic data categories were limited to those indicated above.

To avoid exposing the identity of individual respondents, the demographic questions were stratified into categories which respondents could check, rather than requesting specific numbers (Giles & Feild, 1978; Van Maanen & Barley, 1985; Wildenberg, 2006).

In line with best practice, the demographic questions were placed at the end of the survey (Babbie, 1990; Borg, Braun, & Baumgärtner, 2008). Placing demographic questions at the beginning of the survey may deter some respondents from commencing the survey, thus reducing the potential survey response rate (Morrel-Samuels, 2002). Specifically, Roberson and Sundstrom (1990) found that survey returns increased by eight percentage points when the demographic data was placed at the end of the survey, while Green, Murphy & Snyder (2000) found the placement of demographic items had no statistical difference on the survey response rate. Although placing demographic questions at the beginning of a survey is likely to ensure a greater response rate to these questions (Borg et al., 2008; Green et al., 2000; Teclaw, Price, & Osatuke, 2012), after weighing up the requirement to maximize responses to the survey questions themselves, against the need for a high response rate to the demographic scales to obtain sub-culture data, it was decided to place the demographic questions at the end of the survey document.

5.9.7 Survey Document

The format of the paper based survey was designed carefully, using response scale headings for each scale and colour, to ensure respondents could easily identify their preferred response to each survey item. The measures were grouped together into three areas: Organizational Culture, Sustainability, and Demographic Data. Within each section, to minimise respondent confusion, those measures with 5 point Likert response scales were grouped together, as were those with 6 and 7 point Likert scales.

The complete Employee Organizational Culture Survey document is presented in Appendix 5.9.

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5.10 Survey Sampling Design

5.10.1 Sample Size

The size of the sample to be surveyed was determined by two factors. Firstly, it was important to obtain a sufficiently large sample to provide adequate statistical power for the selected statistical analyses (Scott, Mannion, Davies, et al., 2003), with smaller sample sizes limiting, and even preventing the application of certain statistical methods (Rogelberg et al., 2003). There can be a wide variance in survey response rates (refer Section 6.6.2.3 for a more detailed discussion), and potentially, a variance in response rates according to the survey delivery method (Anseel, Lievens, Schollaert, & Choragwicka, 2010; Baruch & Holtom, 2008; Cook, C., Heath, & Thompson, 2000; Deutskens, de Ruyter, Wetzels, & Oosterveld, 2004; Dillman et al., 2009; Fricker & Schonlau, 2002). As a minimum returned, usable sample of 250 was deemed desirable for the intended statistical analysis (Hair, Black, Babin, Anderson, & Tatham, 2006), to allow for a survey non-response of at least 45% (Baruch, 1999; Baruch & Holtom, 2008), a sample population of 500, or more, was deemed necessary.

5.10.2 Sample selection

To obtain a representative sample of employees to complete the Employee Organizational Culture Survey, a purposive, non-probability sample was used (Kemper, Stringfield, & Teddlie, 2003; Teddlie & Yu, 2007). The sample was selected to be representative of the Company A's business divisions, and its employee population, so that the data collected could be generalizable across the company. After discussion with the researcher, the sites to be surveyed were nominated by Company A, with all employees at each site asked to participate in the survey, thereby encompassing the range of demographic groups at each site.

A purposive sample of the executives invited for interview was used to ensure they were selected from a range of divisions, in order to enable the researcher to obtain multiple perspectives and insights (Kemper et al., 2003; Onwuegbuzie & Leech, 2007a).

5.11 Survey Data Collection Process

Traditionally, organizational surveys have been paper based, with the completed survey either collected or mailed. With the rapid growth and increasing use of the internet over the past two decades, initially electronically mailed (e-mailed) surveys, and more recently, web-based surveys have become increasing popular with researchers (Andrews, Nonnecke, &

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Preece, 2003; Anseel et al., 2010; Couper, 2000; Fan, W. & Yan, 2010; Huang, H.-M., 2006; Porter, S. R. & Whitcomb, 2003; Truell, 2003; Wright, 2005). The more recent advent of on-line survey packages and software for survey design and administration, has accelerated this trend (Kwak & Radler, 2002). In particular, web-surveys increasingly are used as a data collection method for organizational surveys (Huang, H.-M., 2006; Kays, Gathercoal, & Buhrow, 2011).

While the underlying methodologies for both Web-based and paper based surveys are very similar, the key difference lies in the survey distribution, and the mode of data collection methods (Huang, H.-M., 2006; Ilieva, Baron, & Healey, 2002; Shih & Fan, 2008). Kaplowitz, Hadlock, and Levine (2004, p. 94) recommend that, when selecting their preferred survey distribution method(s), researchers should consider the relative strengths and equivalency of each method, and suggest survey response rates can be used to measure these.

Low survey response rates, with their corresponding non-response bias, can threaten the validity of surveys. A number of studies have explored whether the survey distribution method used impacts on survey response rates, and have variously compared survey data collection methods, including personal and telephone interviews, mailed pencil and paper surveys, electronically mailed (e-mailed) surveys, and web-based surveys (Hayslett & Wildemuth, 2004; Ilieva et al., 2002; Kays et al., 2011; Shih & Fan, 2008). Findings from these research projects vary, with some determining that there is little difference in response rates between pen and paper surveys and web-based surveys (Huang, H.-M., 2006), while others found a lower overall response rate for web-based surveys, but a higher completion rate of the individual survey items (Hayslett & Wildemuth, 2004; Ilieva et al., 2002; Kays et al., 2011; Shih & Fan, 2008). In particular, Baruch and Holtom's (2008, p. 1152) meta-analysis of 1607 empirical studies published in 17 referred academic journals in two different years, 2000 and 2005, concluded that the web-based surveys included in their study had "response rates as good as, if not better than traditional mail surveys". Huang's (2006) study which compared the results of a survey which was distributed both as a paper survey, and as a web-based survey, found no significant differences in the completion rates of closed format survey questions, or in the actual responses to the survey questions.

Fan and Zan's (2010) meta-analysis of existing survey literature determined that the survey distribution method is just one of a number of factors which impact on response rates, with

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other factors including: who is sponsoring the survey, the topic of the survey, and the time required to complete the survey. Their conclusions supported those of Sheehan (2001) who suggested pre-notification as a possible influence on response rates, but found previous studies provided contradictory evidence. Additional factors which may affect survey response rates are assuring respondents that their anonymity will be protected (Huang, H.-M., 2006); offering incentives to respondents (Baruch & Holtom, 2008); the number of follow-up contacts (Cook, C. et al., 2000; Deutskens et al., 2004; Sheehan, 2001); and the survey length (Sax, Gilmartin, & Bryant, 2003). In their meta-analysis, Baruch and Holtom (2008) found, for organizational research, incentives had little statistically significant impact on response rates. They also identified that the number of contacts, personalized contacts, and pre-notification were associated with higher response rates to e-mailed and web-based surveys, while Kaplowitz, Hadlock and Levine (2004) observed that, when pre-notification was provided for both a paper and a web-based survey, both surveys had similar response rates. Additionally, they found that when a prenotification was given, a follow up e-mail did not increase the response rates for the web-based survey. Kittleson (1997), who discovered that increasing the number of follow up reminder e-mails may not necessarily increase the response rate, and may even cause a decrease, suggested that some people may be resistant to more than one reminder, while others may be overloaded by e-mail messages.

Survey length is commonly suggested to be relevant to response rates, with some researchers cautioning against overlong surveys (Sax et al., 2003). By contrast, Cook, Heath and Thompson (2000) concur with earlier research by Heberlein and Baumgartner (1978), who found survey length was not a factor in response rates. Sheehan's (2001) analysis of 31 published studies which employed e-mail surveys, concluded that the number of questions had little impact on response rates.

For organizational research, Baruch and Holtom (2008) recommend that researchers develop a close collaborative relationship with organizational leaders, and that the support of managers will both increase employee commitment to the survey, and increase the likelihood of higher survey response rates.

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5.11.1 Survey Communication and Distribution

In line with Rogelberg and Stanton's (2007), and Roth and BeVier's (1998) recommendations, a number of steps were taken to maximise the survey response rates.

Initially, the General Manager (GM) Sustainability and Environment emailed and spoke with members of the executive team, informing them that Company A would be participating in the research, and outlining the basic steps involved (Appendix 5.10). In consultation with the researcher, the GM Sustainability and Environment selected nine sites to be surveyed, with the aim of obtaining a representative employee sample across industry sectors, a range of hierarchical levels, across three Australian states, and across city and country locations. Information about the company's participation in this research study and the Organizational Culture survey, was prepared by the researcher, and was e-mailed by the GM Sustainability and Environment to the site managers of each of the selected sites (Appendix 5.11). These e-mails were followed up by telephone calls to the site managers.

The sites to be surveyed were located in three Australian States (New South Wales, Victoria, and South Australia), and were in both the state's capital cities, and rural or remote areas. As employee access to computers, and particularly to Company A's intranet and internal e-mail system, varied by site, and by job level, the employees at Company A were given paper based surveys to complete.

To maximise survey completion, including ensuring that the survey would be distributed to each staff member, the GM Sustainability and Environment arranged for the surveys to be completed at regularly scheduled team briefings. The site managers were called to inform them that the surveys had been couriered to them. Follow up telephone calls were made to ensure the survey documents had arrived, and that the site managers had scheduled meetings at which the survey would be completed.

Each site manager was provided with a script to read to the employees, prior to their completing the survey (Appendix 5.12). This script emphasised the confidential nature of the survey responses and the importance of the data to Company A. Each survey also included an insert which stressed the confidentiality of participants' responses.

To ensure the employees could be confident that their survey responses were confidential, and would not be seen by their site managers, each survey included a pre-addressed sealable envelope, into which employees placed their completed surveys. Employees were

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given the option of placing their sealed survey envelope into a large pack for bulk return, or mailing their completed surveys directly to the researcher. The majority of surveys were returned in the bulk packs. The bulk packs, also were sealed and couriered back to the GM Sustainability and Environment, for collection by the researcher. The researcher tracked the responses, and regularly discussed the progressive response rates with the GM Sustainability and Environment. To assist with recording the completed returned surveys, and calculating the response rate by site, each returned address survey envelope was coded by site (A, B, C etc.) (Table 5.6).

Table 5.6 Company A: Site Codes

Site Code	Site	Australian State	No. surveys distributed
A	Melbourne	Victoria	5
B	Adelaide outer fringe	South Australia	75
C	Melbourne	Victoria	72
D	Sydney outer suburbs	New South Wales	100
E	Melbourne industrial suburb	Victoria	150
F	Rural city	Victoria	36
G	Sydney industrial suburb	New South Wales	60
H	Remote mining region	South Australia	200
I	Sydney outer suburbs	New South Wales	160
	All surveys		858

5.12 Informed Consent

The Chairman of the Board agreed that Company A would participate in this research study, and requested that the Chief Executive Operations Support oversee the company's participation.

The Chief Executive Operations Support provided written authorization for the research study to take place (Appendix 5.13). This person, in turn, asked the GM Sustainability and Environment to coordinate the interviews with senior executives, selection of the survey sample and the survey distribution. Subsequently, the GM Sustainability and Environment called those senior executives who were nominated to participate in the interviews.

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5.12.1 Employee Organizational Culture Survey Consent

The Employee Organizational Culture Survey distributed to the selected employees in Company A included a survey information letter, which was inserted into the survey, and included the following words:

> **Your consent:** Handing in the completed survey will be regarded as consent to use the information for research purposes. In returning the completed survey you acknowledge that you have read and understood this information. If you decide to fill in the survey, you may withdraw from further participation in the research at any time without having to give a reason and without consequence.

This letter also addressed concerns that respondents might have regarding the confidentiality of responses, data retention, and the researcher's contact information should participants have any questions (Appendix 5.14).

5.12.2 Interview Consent

At the commencement of each interview, interviewees were provided with two copies of an Interview Consent Form (Appendix 5.15). The researcher explained the purpose of the consent form and the interviewees were given time to read and sign the form. The researcher retained one copy of each signed form, and each interviewee retained a copy.

5.13 Data Confidentiality

Employee and organization confidentially was ensured throughout the research process. The completed paper surveys, and interview notes were stored in a locked cabinet in the research office at the Macquarie Graduate School of Management (MGSM). The survey and interview data analyses were conducted on a MGSM computer, which was set up to be accessed only by researcher's password and log-in, or on the researcher's home computer which had a different log-in, and a password known only to the researcher. The interview transcripts were similarly stored.

5.14 Chapter 5 Summary

Chapter 5 has presented the research design for this research study, namely a mixed methods approach, comprised of executive interviews about sustainability and the organization's culture, an Organizational Commitment to Sustainability Survey for executives, intended to measure their opinions about the organization's commitment to

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sustainability, and a comprehensive Employee Organizational Culture Survey. This three part composite survey questionnaire measured survey constructs which this study had identified from the literature as important to organizations seeking to become sustainable. It also included four measures of commitment to sustainability, and selected demographic data to be used to analyse the impact of sub groups. For both surveys, scale identification and selection was discussed, along with the sampling and survey distribution processes.

Chapter 6 presents the research questions and hypotheses to be tested, the analyses of the collected data and the results.

CHAPTER 6 ANALYSIS AND OUTCOMES

6.1 Chapter 6 Overview

| Research Aims & Questions | Literature Review | Research Model | Research Questions & Method | Analysis & Outcomes | Discussion & Conclusions |

| Chapter 1 | Chapters 2 & 3 | Chapters 4 & 5 | Chapter 6 | Chapter 7 |

| Introduction | Conceptual Development & Theory | Operalization Design & Propositions | Confirmation / Disconfirmation | Discussion & Conclusions |
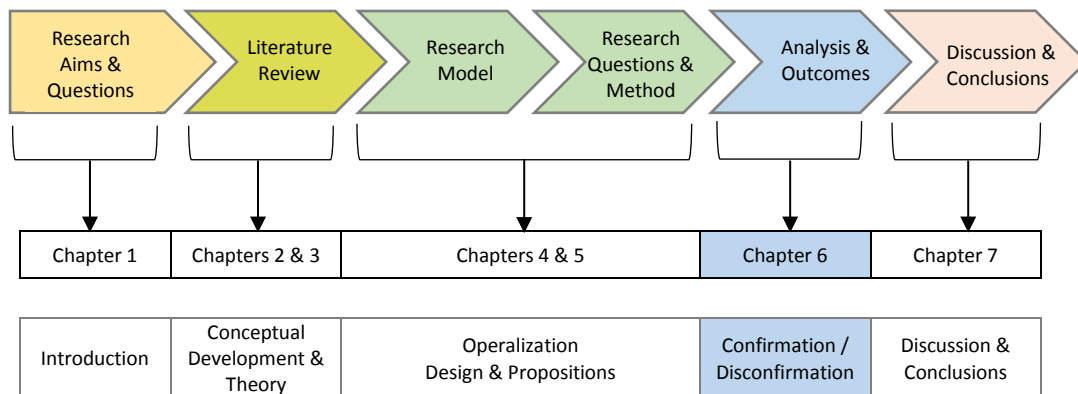
Figure 6.1 Thesis Structure

The aim of this research study was to investigate the relationship between organizational culture and organizational sustainability, and to understand the specific characteristics of that culture, and its contribution to organizations' commitment to embed sustainability into their businesses and their operations. The study sought to identify and test the key dimensions of corporate cultures purported to be important for enabling organizations' commitment to sustainability, and to examine the relationship between organizational culture and organizational commitment to sustainability.

Chapters 4 and 5 described the research methodology which was used to collect the research data. The research questions and the hypotheses were developed in Chapter 5.

In this chapter the data analyses and the results are discussed. A background to the case study organization, Company A, is provided to give the reader some context to the research study. The sample population, the preparation of the data, and the analysis and findings of the qualitative data are explained. Similarly, the preparation of the quantitative data for analysis, the demographics of the sample populations, the data analysis, and the findings of the data analysis are all presented. Descriptive statistics are presented on the results of the two surveys, along with reliability testing of the survey measures. The hypothesis testing of the Employee Organizational Culture Survey data was conducted using confirmatory factor analysis and regression analysis in SPSS AMOS Version 21**.** Finally, the overall findings are presented.

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6.2 Overview of Research Questions and Hypotheses

As specified in Chapter 5 (Section 5.3), the key research questions in this research study are:

- R1: Is there a relationship between organizational culture and the level of organizational commitment to sustainability? If so, what is the nature of that relationship?
- R2: Given there are different types of organizational culture, which of the identified cultural dimensions are most important to an organization's commitment to sustainability?
- R3: Does the presence of subcultures within an organization make a difference to the relationship between organizational culture and organizational commitment to sustainability?

These in turn lead to five main hypotheses:

- H1A: An organization's culture is composed of General Culture and Sustainability Culture.
- H1B: An organization's General Culture is positively related to the level of its commitment to sustainability.
- H1C: An organization's Sustainability Culture is positively related to the level of its commitment to sustainability.
- H2: Each identified cultural dimension positively contributes to an organization's level of commitment to sustainability.
- H3: The presence of subcultures changes the intensity and direction of the relationships between both General Culture (GC) and the organization's commitment to sustainability (CS), and between the Sustainability Culture (SC) and commitment to sustainability.

Thus, it was hypothesised that an organization's commitment to sustainability is dependent upon general culture (H1B), and on its sustainability culture (H1C). For the purposes of the data analysis, both the sustainability culture and the general culture are predictors of commitment to sustainability and, therefore, are the independent variables, while commitment to sustainability is the outcome, or dependent variable. Similarly, for H2, each cultural dimension is a predictor of commitment to sustainability, and individually are independent variables. For H3, for the purposes of the data analysis, the researcher treated subcultures as the independent variables, and the sustainability culture as the outcome, or dependent, variable (Field, 2009).

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6.3 Introduction to Company A

The studied organization was keen to improve its sustainability focus, and regarded this research study as an opportunity to learn more about the breadth and depth of sustainability understandings within their company.

Company A is a well reputed Australian publically listed corporation, and one of Australia's most successful companies. Founded in the mid-1950s, it operated as a thriving, fast growing family run company, until in 2001, it was floated on the Australian Securities Exchange. Today, with annual revenue well above $AUD3 billion (Company A, 2013), it is ranked among the top Australian companies. The following information was obtained from the qualitative interviews with senior executives, the company website, and published reports. As Company A requested anonymity, it is not possible to fully reference the company's documents used in this study.

For over ten years, the company has been increasing steadily its focus on organizational sustainability. The following discussion describes this evolution.

6.3.1 History of Sustainability at Company A

In 2000, with a history of a strong concern for the health and safety of its employees, contractors and the general public, and a determination to eliminate all injuries and incidents from all of its workplaces, Company A developed health, safety and environmental policies. The latter were created to support its goals of proactively preventing environmental pollution and harm (Company A, 2002, p. 7). In 2001, Company A developed and published an environmental handbook, and delivered related environmental training. In the ensuing Health, Safety and Environment Report (HSE) , the CEO acknowledged the need for Company A to "be more diligent in reducing environmental impact, and continually improve our work practices to deliver and ecologically sustainable business" (Company A, 2003, p. 2), and the need to protect the environment and prevent pollution (Company A, 2003, p. 3). Accordingly, the company increased the number of its environmental audits. In 2003, there was a noticeable shift in focus. While, predominately, the annual HSE report continued to be a health and safety report with a few mentions of its environmental actions, the company's 2003 Annual Report also included a section about Corporate Social Responsibility (CSR), and the expressed desire to "develop and implement best practice policy and operations in CSR" (Company A, 2004a, p. 4). An employee well-being policy was introduced, the company

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developed partnerships with university based research centres investigating pollution control and CSR, and also implemented an environmental management system. It also recognised the link between organizational culture, and health, safety and the environment, and conducted its first culture survey, "to measure and benchmark (Company A's) current health, safety and environmental culture", and to determine how best to implement further programs (Company A, 2004b, p. 13). However, the company had yet to fully develop its understanding of sustainability, and much of the thinking about sustainability was focussed on environmental sustainability (Interviewee E). This focus also was driven by the increasing Australian Commonwealth and state legislative environmental requirements that have been imposed on businesses. These include environmental impact assessments and the related environmental impact requirements, and pollution standards, which can be "a bigger issue than the technical compliance", and compliance can be quite onerous (Interviewee G).

By 2005, to publically communicate and reflect the company's shift toward broader sustainability principles, the annual HSE report was rebranded the "Sustainability Report" (Company A, 2005). This report acknowledged that the company's environmental management strategies had been largely ad hoc and reactive, and explained its intent to report in accordance with the Global Reporting Initiative (GRI) reporting guidelines, thereby enabling it to set clear environmental targets and measures. The 2005 Sustainability Report also outlined some of Company A's human resources programs, particularly those focussed on people and skill development. Company A operates in diverse locations and communities, some of them remote, and, as part of its emerging focus on social responsibility, it sought to understand its impact on local communities, and ways in which the company might benefit these communities. During 2004, the company had trialled several community programs, including establishing community groups, comprised of key local community stakeholders.

In its 2006 report, the company stated that it concurs with the 1987 Brundtland Report's definition of sustainability, namely "Meeting needs of the present without compromising the ability of future generations to meet their own needs" (Brundtland & Khalid, 1987; Company A, 2006, p. 4). During 2005, with its focus on local communities in mind, the company developed a strategy to employ local workers and subcontractors, and to measure the resulting investment in the local community. Given that a number of its sites were in areas which had a significant indigenous population, the company also developed an Indigenous Relations Strategy. This strategy was launched in 2006 (Company A, 2007, p. 19).

Following these sustainability initiatives, Company A's commitment to sustainability continued to develop. In 2007, the company implemented new values and business principles, which incorporated its economic, environmental, and social performance, and committed it to adhere to the United Nations Compact's ten universal principles promoting responsible corporate citizenship (Company A, 2007, p. 10) (Appendix 6.1). Separate annual sustainability reports continued to be published until 2011; from 2012, the sustainability report was incorporated into the Annual Report.

6.4. Qualitative Data

The first major element of the data to be discussed is the qualitative data.

6.4.1 The Interview Process

Ten interviews were conducted with Company A executives, with the interviews lasting from 45 minutes to 1 hour 25 minutes. The transcript lengths also differed; the longest transcript was 10,900 words, and the shortest was 4,238 words.

Table 6.1 Interviewees*

Interviewee Code	Transcript Length (Words)	Interviewee's position
A	5,765	Executive General Manager Resources and Energy, Australia & New Zealand
B	6,980	Group General Manager Marketing & Business Development
C	5,422	Executive Manager Strategy and Development
D	6,451	General Manager Contract Management
E	5,211	Project Director
F	10,997	General Manager Sustainability and Environment
G	6,745	Executive General Manager Engineering & Construction
H	4,500	Group General Manager Procurement
I	7,648	Group General Manager Quality & Performance Excellence - Global HSEQ
J	4,238	Chief Executive, Operations Support

*Further demographic data for the interviewees is provided in Table 6.3

To ensure a complete recording was available, the interviews were recorded using recording software installed on both an iPhone and an iPad. Some notes also were taken on printed interview guides. The interviews were downloaded onto the researcher's computer as WAV files, and then were fully transcribed by a professional transcriber. The researcher read and re-read each transcription while listening to the recordings, and made minor editing changes to ensure the transcriptions' accuracy. This enabled the researcher to identify ideas, themes and phrases that were common among the interviewees (Kvale, 2007), and provided an

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initial framework for the researcher to group the data into general categories (Creswell, 2009).

6.4.2 Coding the Interview Data

This section describes the procedures which were undertaken to analyse and code the interview data.

Coding of the interview data was an iterative process, with an editing approach being taken to analyse the data (Miles, M. B. & Huberman, 1994; Silverman, 2001). Initially, the interview data was coded according to the major themes which corresponded with the set of predetermined questions in the interview guide (refer Section 5.7.2). These, in turn, were developed from concepts identified in the literature (Miles, M. B. & Huberman, 1994). As the interviews were semi-structured, a number of other questions emerged during the discussion between the researcher and the interviewee(s). To fully understand the interview data, a second detailed review of the interviews was undertaken, to identify emerging secondary themes and patterns using the organized set of initial codes. The interview transcripts were annotated, with the notes used to develop more categories which, in turn, were coded.

A table containing the initial codes was prepared, and, as new codes emerged, these were added to the table (refer Appendix 6.2). The transcripts then were re-read to ensure all the themes were identified and grouped together (Thomas, D. R., 2006).

6.4.3 Interview Results

To preserve anonymity, in reporting the interview data, the names of the interviewees are not mentioned.

6.4.3.1 Drivers for Adopting Sustainability

It was claimed that an increasing awareness about sustainability, and notably environmental sustainability, has led the company to change its operational practices, and subsequently, to reduce its carbon footprint (Appendix 6.3), which has had the additional benefit of reducing its operating costs (Interviewee H). Company A particularly is conscious of fuel and energy consumption and efficiency. For example, an Integrated Vehicle Management System (IVMS), which records speed and distances travelled, was initially introduced as a safety measure, but quickly provided cost savings from fuel and kilometre reductions (Interviewees C, E).

While environmental sustainability was, and has continued to be a very important component of Company A's sustainability programs, with some of the executives who were interviewed claiming it's sustainability is "skewed toward the environment" (Interviewee D), employee safety and health also is integral to its operations. Although the company's interest in social sustainability, and particularly community, progressively has increased, not all of this interest has been altruistic, as is evidenced by the following quote from Company A's 2012 Annual Report (p. 28): "sustainability isn't just the right thing to do – it makes good business sense".

Some people in Company A see sustainability as integral to obtaining and renewing its business contracts; for example: "In terms of sustainability in the sense of what we do for the environment, for the communities, and the people that we work with, we have a very strong social and community engagement focus" (Interviewee C). It is evident that vested self-interest underlies the rationale for working closely with the community. For example, using local subcontractors ensures the company maintains a strong employment base in the communities and the regions in which it operates. Further, "if we understand and contribute to the communities we work in, (Company A) has a much better chance of being accepted and supported in the long term." (Company A, 2012, p. 28).

Interviewee D was very pragmatic about the motivation for social sustainability:

> I guess the social bit for me is, particularly if you say some of those remote sort of communities that we work in, …… you can actually be a fairly significant employer in a small town and you've got to make sure that you treat that with some sort of respect, (otherwise) people won't want to work for your company and won't have respect for the way that you treat your employees. Chances are everybody you've employed is either part of the town or related to somebody in the town.

This changing approach to sustainability was also discussed in interviews with senior executives with the company. For instance, Interviewee B commented that:

> …almost like ten years ago, I think, it was …'gee, we've got to write a sustainability report, what can we put in there? Oh, let's talk about safety, and let's talk about how we help the community, and people didn't really have a grasp of what should be in and what shouldn't in terms of reporting'. Now I think there's a much more all-encompassing view of sustainability and that it's many, many things, and perhaps it is

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becoming more about not just ticking a few boxes but having a model that will contribute to a more sustainable society.

Interviewee C specified that Company A considers sustainability to be important to its long term viability, and Interviewee B believed that the company's sustainability message, and being seen as a sustainable company, were an important part of portraying the right brand. While not all its key customers demand that the company can demonstrate sustainability practices, those in rural and remote communities regularly ask the company to demonstrate in business proposals and discussions, how the company participates in, and supports local communities, particularly indigenous communities (Interviewee B). Further, the company's customers include government organizations which have strong sustainability principles; being able to demonstrate similar principles is important to obtaining, and retaining this business (Interviewee C).

While these senior executives regarded sustainability as being very important to Company A, others were more skeptical. For instance, while Interviewee B believed that "The fact that that's (the annual sustainability report) been going for quite some time now shows that it's not just a fad, that it's something the company is serious about and it has longevity", he also believed "the function (sustainability) is not ever going to get mainstream attention". He continued:

> …finance and profit (are) always going to get on the agenda first, and HR issues are going to come before sustainability. There's a lot of functions jockeying for position in terms of visibility in the organisation. I think it's an absolute credit (to the GM Sustainability and Environment) that he, and people he works with, keep sustainability on the agenda and visible.

6.4.3.2 Approach to Sustainability

Company A's overarching approach to sustainability is built on three pillars: Becoming a Better Employer, Becoming a Better Neighbour and Becoming a Better Service Provider.

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Becoming a Better Employer

The company defines Becoming a Better Employer as:

> … caring for each other, keeping our people safe and managing our growth. Investing in our people creates value for them and gives us a competitive advantage. We believe that the diversity of our business and our people increases sustainability for us and for our client (Company A, 2010, p. 24).

While the company is proud of its history of looking after its employees, some believe that, since it became a publically listed company, the strong internal sense of community has started to dissipate (Interviewee B). Interviewee E stated strongly that "there's a lot of effort put into being a good employer, but I would say it's more paper focused than personality focused".

As Interviewee I remarked, much of becoming a better employer revolves around employee safety. The company "has an extremely strong workplace safety ethic that goes all the way to the very top of the organisation and always has" (Interviewee F), who continued:

> They really, really, really are focused on workplace safety, both because they believe in it at a very visceral level, but also because it's very important to our business. We do about 90 million hours of work every year, huge exposure, and we work for a lot of clients … that have very strict expectations about safety performance, and the sophistication of safety systems.

Becoming a Better Neighbour

Becoming a better neighbour is encapsulated in the company's community engagement program, which has three pillars: Relationships in the Local Communities, Community Projects and Initiatives, and Local Economy Investment. The company's strong focus on safety is an important factor here, as it extends beyond workforce safety, with safety of the broader community seen to be an important part of being a better neighbour (Interviewee B).

Becoming a Better Service Provider

For Company A, being a better service provider has underlying aspects such as "building and maintaining strong relationships with our clients", and trust, integrity and innovation, which is defined as "looking for new and better ways of doing things (Company A, 2010, p. 14).

6.4.3.3 Social Sustainability at Company A

Companies can obtain a strategic advantage from demonstrating their commitment to working with, and improving the lives of local people, particularly those who may be directly affected by the company's operations, such as those who live nearby, and any vulnerable or disadvantaged people who live in the area (Nigam, 2000). Building good relationships with local communities is particularly important to organizations which operate in less populated and remote areas, as their employees and subcontractors are likely to be drawn from the local area or region in which they operate. As the International Finance Corporation, a division of The World Bank, succinctly states: "Some companies engage in community development work because they are committed to social responsibility and community development. However, businesses should also recognize that community development makes good business sense" (Nigam, 2000, p. 2).

Companies need to earn the good will of the communities in which they operate, and to obtain this, they need to demonstrate that, in addition to benefiting the company and its shareholders, their operations also will benefit local communities. As Nigam (2000, p. 3) wrote:

> … good community relations can help raise awareness of unforseen issues or problems, avoid unnecessary conflict and hostility, create a better working environment for employees from outside the area, recruit employees from within the area, and build business links, if possible, with people and companies in the area.

Acting along the lines of the International Finance Corporation's (2000) recommendations, Company A seeks to "develop and implement projects and initiatives that benefit the many and varied communities where it operates" (Company A, 2013, p. 32). In 2011, the company's website stated that its community engagement program had three pillars:

- **Relationships in the Local Communities** - we build relationships with people living in the communities where we work. This allows us to learn and gain a better understanding about the community and ensures successful community engagement.

- **Community Projects and Initiatives -** we work in partnership with the community, individuals and groups on projects and initiatives that add value to the community and our business.

- **Local Economy Investment -** we aim to maximise opportunities for local communities to share in the success of our business. We seek to maximise employment from the local communities in which we operate and support local businesses where possible.

According to van Marrewijk (2003, p. 96), philanthropy has its origin in "acts of charity, fairness and stewardship … the aristocracy's noblesse oblige, the early 20th century paternalistic industrialists", and has evolved to contemporary organizations "sponsoring arts, sports, neighbourhood development etcetera". For many years, Company A has made generous philanthropic donations, particularly to the arts. Reflecting its broadening understanding of sustainability, more recently, the company has expanded its philanthropic activities to providing some research grants for projects focussing on environmental problems, and providing employment to local indigenous people, and school and university education opportunities for young indigenous Australians, which, in turn, will provide them with future opportunities.

Company A's focus on the community has continued. In 2012, the company wrote that its approach to engaging with the local community includes "building relationships with key community stakeholders, implementing and supporting local projects and initiatives and investing locally through employment and procurement" (Company A, 2012, p. 30). Further, it has adopted an "assessment process to determine the most effective way to engage with specific communities depending on their unique circumstances." (Company A, 2003, p. 32).

Company A's emphasis on community sustainability was discussed by a number of the interviewed senior executives, as illustrated by Interviewee C, who described the company as "an organization with a social conscience", and continued:

> we have a strong focus on utilisation of local (people), … to ensure that we maintain a strong employment base in the communities that we serve and the regions that we serve, and we do a lot in the cultural heritage space. ….we do work with local indigenous groups to manage cultural heritage issues.

However, the company continues to have an underlying business or economic motivation for its sustainability programs. For instance, "what we'd often find is that doing things like being a better neighbour or a better community member is often done off the back of individual contracts" (Interviewee C).

The company's predominant community focus is towards indigenous people. As stated in its 2010 Annual Sustainability Report (pp. 8 & 40): "Our aim is to significantly increase Indigenous employment in our Australian business and increase engagement with Indigenous communities and culture". To achieve this, the company is an active participant in Reconciliation Australia's programs, and in 2009, the company launched its inaugural Reconciliation Action Plan (RAP). Its second three year RAP, which commenced in 2012, is focussed on indigenous life-expectancy, education achievement and creating employment opportunities (Company A, 2013).

The company has an indigenous advisory board, and has programs focused on providing educational and work opportunities for indigenous people. Interviewee F believes that the company's social sustainability programs have been highly effective, "certainly in those areas of safety, women and indigenous (people) they've been pretty damn good". He indicated that the company has put significant effort into indigenous employment, including "building incentives, and connecting to people to try and help us find extra (indigenous) people" for its programs. A number of other interviewees also expressed pride in the company's indigenous programs and the results they have obtained. However, Interviewee A doubted whether the majority of employees, apart from those in remote locations with a strong indigenous population, understood, or were interested in, the scope and activities surrounding the indigenous strategy and action plan.

6.4.3.4 Employees' Awareness of Company A's Approach to Sustainability

Some from within the company view the three sustainability pillars as aspirational goals rather than being embedded and actualised. For example, senior executive Interviewee A said:

> I think the company gives reasonable attention to all three. It's probably not as embedded as it should be. There's lots of new people in the organisation… so trying to get that message – better neighbour, better service provider, better employer, probably hasn't been as overt as it needs to be.

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Interviewee I thought that the sustainability pillars were not sufficiently well communicated throughout the Company, saying that employees may occasionally hear a good news story, or be aware of annual awards. By contrast, Interviewee J believed the pillars were well communicated, but lacked sufficient currency within the organization: "It's always rated somewhere around about the seventh most important thing on everybody's top five list".

6.4.3.5 Sustainability Reporting

Sustainability increasingly is a market differentiator for organizations (Appendix 2.1), and this also is the case for Company A. For example, Interviewee I claimed:

> Sustainability can be, or our approach to it, can be a differentiator, can be an enabler to support us going in and winning new contracts, and it's just a really good lever, I think, plus not to mention the whole good corporate citizen piece.

While many companies' reports, including those published by Company A, present a picture of strong sustainability commitment, as discussed in Chapter 2, organization's sustainability reports can, among other criticisms, lack rigour, substance and real data (Hopwood, A. G., 2009; Kolk, 2003), be misleading, favourably biased (Hubbard, 2009a),and falsely positive (Banerjee, 2011; Clarkson et al., 2011; Delmas et al., 2013; Font et al., 2012; Hubbard, 2009a; O'Dwyer & Owen, 2005). Further, the data provided may not be complete, transparent, accurate or useful, and may not include details such as quantified objectives and performance against these (Adams & Evans, 2004; Adams & Larrinaga-Gonza´lez, 2007; Klassen, 2000). They also often include examples of good practice, with glossy photographs which may not typify sustainability-related activities and performance throughout the whole of the organization (Gray & Bebbington, 2005).

A thematic analysis of Company A's sustainability reports revealed similar criticisms could be levelled at them, as they are highly polished, replete with photographs, and provide impressionistic textual descriptions, rather than detailed numerical performance information. This lack of precise data was exacerbated when the Annual Sustainability Reports, which had ranged between 25 and 55 pages in length, and provided some specific details such as carbon footprint, and GRI measures and performance, were incorporated into the annual reports, and were reduced to six to ten pages.

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Interviewee B regarded Company A's annual sustainability report as important, and saw the fact these reports have been prepared and published since 2002, to be confirmation that the company is committed to sustainability for the long term.

Interviewee I was more sceptical, saying that, although the company's sustainability reports are well received, and "get good airplay with clients", this does not mean Company A is a leader in sustainability. This interviewee thought that sustainability is something the company has had to do for legal and market competitive reasons, and because there are some within the company "who would be horrified to think that we don't have a position on sustainability, be it the environmental side or otherwise".

Further to its annual sustainability reports, Company A has adopted Global Reporting Initiative's (GRI) Sustainability Reporting Framework and Sustainability Reporting Guidelines (Global Reporting Initiative, 2006). It also prepares National Greenhouse and Energy Reporting (NGER) reports, in order to meet the requirements of the National Greenhouse and Energy Reporting Act 2007. Both of these provide some structure to its sustainability reporting, although determining exactly what and how to measure, continues to be challenging (Interviewee C). According to Interviewee F, while "NGER reporting is a burden, it's a very onerous, prescriptive piece of legislation", and the reporting as "a hard thing to do", taking time to prepare effectively. He said that the emphasis was on data gathering and report generation, rather than on interpreting and using the collected data to reduce carbon generation. However, he believed it has enabled the company to "construct a really good set of carbon accounts for the company, without argument", and has provided good baseline data which has generated strong interest within the company. He observed that, as managers increasingly see the cost benefits of reducing power usage and more efficient fleet management, they are becoming more interested in producing further improvements. Other sustainability reports prepared by the company provide information to customers, to demonstrate the company is meeting contractual performance standards.

Although Company A prepares GRI reports, the researcher's thematic review of the GRI data provided in the annual sustainability reports, found it was scant. Information was provided for less than one third of the GRI categories and, for these, the GRI tables frequently referred the reader to specific pages in the sustainability report, where, most often, the information provided was broad, descriptive narrative.

This limited application of the GRI reporting framework was confirmed by Interviewee F, who said "We use it to structure our sustainability report in a fairly loose sense, but we've never pursued it in a really vigorous way." He observed also that the GRI is a good disclosure and marketing tool, which has never influenced peoples' day-to-day objectives.

Importantly, while some of the company's business contracts incorporate selected sustainability performance standards and measures, and, more recently, the company has commenced NGER and GRI reporting, neither the NGER and GRI measurement categories, nor the sustainability objectives published in annual reports, are translated into specific sustainability goals and measures for the various divisions, or for the heads of these divisions (Interviewees B, E, G, H, I). This was expressed strongly by Interviewee I, who said managers get "No, nothing, zip. That's what I mean, it's not integrated". Interviewee A said, "To be frank I think the only time the company really talks around sustainability in that context is once a year when they do their sustainability report. So all of a sudden it's got some visibility and some heightened awareness…". Similarly, Interviewee C observed that the reporting is an annual process that, once done, is shelved until the next annual report is required.

Interviewee J commented "we're not getting the value out of these reports that we need to", and, while the company's board does review sustainability, its activities, and progress against EEO and other legislative requirements, this tends to be an annual review, rather than being fully embedded performance measures. An exception was the objectives set and the regular reviews of carbon emissions generated by the company's vehicle fleet.

6.4.3.6 Responsibility for Sustainability at Company A

Control of the sustainability function and of the reporting process varies significantly across different organizations. The allocation of sustainability responsibility and the number of employees appointed to take responsibility for sustainability may reflect companies' underlying reasons for managing and reporting their sustainability activities and performance, and especially whether the reasons are commercial business reasons, ethical or moral reasons, or practical reasons (Adams & Frost, 2008).

Within Company A, a small Sustainability and Environment group drives the sustainability agenda. This centralized team was admired for its expertise and its dedication, commitment and passion for sustainability (Interviewee B). By contrast, Interviewee A believed that the

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few champions within the company driving the sustainability agenda, "probably are ignored by the masses".

6.4.3.7 Commitment to Sustainability

While the company's annual sustainability reports portray the company to be highly committed to, and involved with, sustainability, the interviews revealed a different picture.

Interviewee I was particularly critical, stating:

> One, this organisation doesn't understand what sustainability is, still doesn't really understand. I think they're getting better because there's more visibility. But two years ago if you asked people what sustainability was here, I think they'd say something like, 'oh that's to do with the greenies, isn't it?' It's this concept that it's to do with not cutting down trees. Yes, yes, it does include all of that… But it's only one slither of it.

Responding to the question, "How has the company's commitment to sustainability changed?", Interviewee F said:

> "I think it's stayed pretty flat, frankly. So it's opportunistic, hilariously enough, it's sometimes a bit reactive, so it's often client driven…., and so, while we do achieve flashes of brilliance here and there, and we achieve some real flashes of brilliance on occasion, it's far from being a consistent part of our thinking".

Interviewee G, who had worked in another industry for many years prior to joining Company A, also observed that the company was reactionary, rather than a leader in sustainability, and that its strong service and customer orientation was a major driver for its sustainability programs. He believed that "if our customers are looking for it then they will be very focused on it", and "if our customers don't ask for it, they'll probably not do it".

The company's sustainability programs were impacted by the 2008 Global Financial Crisis (GFC) and the subsequent economic turn down and difficult economic conditions. Prior to the GFC, the company's sustainability activities made it a leader among its competitors and customers (Interviewee E). As indicated by Interviewee A, "I think that people are just trying to survive in business at the moment, and there's so much uncertainty". He explained this uncertainly impacted on Company A's business, and, consequently, "the whole sustainability agenda is probably, in this company, has probably regressed". This aligns with the findings of

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the initial MIT Sloan Management Review Global Sustainability Survey, that almost 25% of surveyed organizations reduced their commitment to sustainability following the GFC (Berns et al., 2009).

Interviewee D concurred, when he said the company's sustainability programs have "been fairly static over the last few years. I can't see that we've really taken a major initiative in the sustainability arena and put it out there". He also indicted that the company's sustainability activities differ across divisions, particularly as it operates in diverse industries, and sustainability needs to suit the different business areas:

> The different businesses have actually managed to find partially their own bits and pieces of how sustainability affects their area of work. Whether it's things like at our catering or cleaning sites measuring and reducing how much detergent and things like that we're using or putting into the environment, to things in our travel policies, where we're using sophisticated in-car monitoring to make sure that we're keeping track of our fuel usage, making sure we're not going over the speed limit, and those types of things.

Interviewee G, a highly experienced corporate leader, who joined Company A six months prior to the research interviews, agreed. When asked whether sustainability has added any value to the company, Interviewee G responded, "… sustainability as a concept, as an issue, as a key differentiator, as part of our core competitive advantages, if you want, as a company, doesn't hit the radar". Interviewee H concurred, claiming that sustainability was neither widespread nor deeply ingrained in the company, and, although there were pockets of people passionate about sustainability, in general, it "takes a back seat".

6.4.3.8 Depth of Sustainability Knowledge and Understanding

In addition to annual sustainability reporting, sustainability is addressed at the annual board meeting, and shareholders meetings. The organization also communicates its sustainability activities to its employees. New employees receive a brief presentation about sustainability and the four values during their new employee induction program. More recently, a sustainability information site was established on the intranet, which provides a single point for collecting and publishing sustainability information. However, as many of the operational employees do not have company computers, they are unable to access the company's

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intranet. At these locations, the company places the annual sustainability reports in common staff areas.

When asked to describe the extent to which the organizations' sustainability ambitions, and particularly the three pillars of sustainability, were understood throughout the organization, the response was mixed. It was generally agreed that many employees would be aware of specific programs which support and develop the community, particularly the indigenous programs, and of the strong safety focus. According to Interviewee C, employees are highly likely to be aware of environmental activities, such as reducing energy consumption in buildings, and fuel use. However, many employees would be unable to articulate the pillars, the company's sustainability goals, or to link the above mentioned activities to either the broader concept of sustainability, or the three pillars. Interviewee E suggested that, while those employees working at metropolitan or regional sites are likely to understand the company's social and community activities, the majority of people in the corporate offices are far less likely to, largely because the corporate offices are far less involved in community programs. Interviewee J concluded that, while the company has done a lot of work in areas such as safety and community relations, people do not necessarily connect this with sustainability, and thought the company had not "done well at branding sustainability in a way that people connect with".

As Interviewee A stated:

> The links between those three legs of the triangle (AKA pillars) aren't well understood. I think in isolation people understand it, they get it. So the financial bit, of course, in business everyone understands that bit, right... But the other two, what some people would term the softer sides, aren't well understood in their entirety. So on the social side, you know, the area around safety, for instance, I think people would get that in the organisation, it's got tremendous prominence and profile in the company, particularly in some of the business sectors that we work in as well. That's driven by us and our clients. But some of the other things around social performance, I think there's a big disconnect. And so it might be around indigenous awareness, or it might be around local economy investment… Although that might be under financial perhaps … community engagement, those things that people will get

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snippets of, but understanding how it's part of a broader area is probably not where it should be.

Interviewee G had a similar view. He stated: "I think there's pockets in Company A who can immediately and precisely define sustainability", but claimed that, generally, there is a "very one dimensional view on what sustainability means", with an emphasis on creating a competitive advantage.

6.4.3.9 Organizational Culture

Company A's annual and sustainability reports make a number of references to its organizational culture; these are also described on the company's public website. The company particularly emphasizes its values, which it views as an important guide for its behaviours and decisions. These values also are likely to be included in business cases and proposals (Interviewee H).

In 2006 the company developed a new set of corporate values, and business principles, which were designed to guide people's behaviour and were intended to encompass its performance in three areas: economic, environmental and social (Company A, 2007, Sustainability Report 2007, p. 10) The values implemented in 2007 were:

- We lead the way
- We do what's right
- We care for each other
- We take responsibility.

In 2012, with a new CEO, the values, and the sustainability pillars were reviewed, and later that year, new values were launched. The new values which at the time of writing this dissertation, remained in place, are:

- **Integrity** - Do what's right
  - o we care for each other's well-being and safety
  - o we take personal responsibility and are accountable
  - o we are open, straight-forward and honest, and
  - o we treat everyone fairly, with respect and build trusted relationships.

- **Collaboration** - Achieve more together
  - o we believe we achieve more when we work together
  - o we partner with our clients, sharing their objectives
  - o we listen, respect and respond to different points of view, and
  - o we share knowledge, expertise and resources, and learn from each other.

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- **Challenge** - Drive to succeed
  - we embrace change and challenge the status quo
  - we are flexible, adaptable, versatile and resilient
  - we don't just react, we anticipate, show initiative and are proactive, and
  - we are passionate, energetic and have the courage to take a chance.

- **Ingenuity** - Create better ways
  - we constantly think of better ways to do things
  - we create solutions by looking at things from different angles
  - we believe that shared knowledge inspires ideas, and
  - we are curious, inventive and explore possibilities. (Company A, n.d.)

Some of the interviewees emphasized that this change in organizational values created confusion for a number of employees. The former values, which were launched in 2007, were deeply embedded, and a number of employees continued to identify with them. To illustrate:

> The first four (values), were strongly felt, resonating strongly in the company, actually could be recited by most people because most people could align to them... But the old values were spoken of, people behaved that way, people would often challenge each other around the values… So you could see sort of tangible behaviour around them (Interviewee A).

Interviewee A continued "... the new values have been built into the usual channels; you know, your induction processes, your employment letters, your communications that go out from the MD. I think all of those channels, our intranet". He believed that there was "a disconnect", in that employees do not feel that the senior people in the organisation are "leading the way", in terms of behaving and operating according to the new values.

Interviewee C agreed that many employees still held a strong sense of ownership towards the former values. He observed that the new values had yet to become embedded into the psyche of the organization, and that although the new values are incorporated into the company's performance and development review process, including assessing people's demonstrated performance, the company needed to do more to ensure that its people fully understand the values before they are assessed.

While the new values were placed on the background 'wall paper' for the company's computers, the opening webpages of the company's intranet site, and were incorporated into the annual performance review program, not all those within the company adhere to

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them. Interviewee G concurred with Interviewee C when he opined that while predominantly "they're all applied and used in different forms … they're also blatantly not complied with… I've seen clear directives in the company since I've been here to do things that I would say are in contradiction to them", and while Company A "has a lot of good people with good values, I think there's a lot of misguided interpretations of the values".

Interviewee I suggested that when the new values were introduced, although the descriptions for each of the new values incorporated aspects of the former values, a number of employees considered that the company was disrespecting its past. He gave the example: "oh you've dropped the by-line 'we care for each other' so obviously we don't care for each other anymore". This interviewee believed that it would take some time for the new values to become fully accepted, and the "tipping point' between the new values and old values had not yet been reached. He emphasised that it was important for management and executive leadership to use the new values in their day to day language, to translate them into the way they actually do things, and to "walk the talk". Interviewee I also held that the linkage between the organization's values and sustainability was not clear to most people.

The new values also were seen to be somewhat transient, and the earlier values more descriptive and more intuitive. Interviewee D stated that "people take those little mini statements and they can ascribe a value to them quite easily. The new values are a single word, slightly more esoteric", and "people out in the field, they perhaps don't understand them as well as they did understand the old values". Interviewee F presumed that "I don't think they've got any particular quibble with them, I don't think they hold them close to their heart". Interviewee D was uncertain as to whether there was any link between Company A's values and it sustainability program. As he said: "I'm going to say no, because that's the immediate thing that jumps into my mind. I guess they do, but as an outright descriptor I haven't seen it as an obvious link, no".

6.4.3.10 Comparing Company A's Values and the Organizational Sustainability Culture Dimensions

Some interviewees believed that Company A's actual culture in the organization did not align with its espoused culture. For example Interviewee G described the culture as "Paper. Paper, processes, procedures. As close to a public service organisation as you'll ever get…". He viewed the "mentality of bureaucracy and paperwork to manage things" as an achilles heel which limits the company's ability to create or innovate. His observation was that there were

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a large number of followers who accepted the status quo and, therefore, he was doubtful of the company's ability to innovate.

The following sections discuss the opinions expressed by the interviewed executives about the various cultural dimensions.

6.4.3.10.1 Challenge current thinking

In discussing Company A's ability to change, Interviewee F described introducing change as "challenging". He elaborated that a significant part of the workforce is comprised of "pretty steady, hard-working, reliable (people) – they're all the good things; unimaginative, you know, they're just salt of the earth folks … fantastic folks". He observed that they are:

> Fairly resistant to change, not completely resistant to change but they're pretty careful about change and you have to make a good case for change with them… Cautious, I think, is the right word. They're just careful folks, you know, they've seen a lot of things go wrong and so it's got to be broke before they fix it sort of thing. So first of all you've got to convince them that it's broken… But once you get them interested they're actually fantastic. So it's all about getting their noses pointed in the right direction.

Interviewee C disagreed with Interviewee F when he said that in Company A "there is a strong focus on people being asked, requested, encouraged to challenge the status quo", and the company encourages people to challenge the business planning process and the strategy. He said the company has deliberately employed people from different companies and industries, who will bring new ideas, and who will challenge the direction the organisation is taking.

6.4.3.10.2 Collaboration

Collaboration is seen as important, especially within the company. Interviewee E highlighted the company's drive to improve inter-business unit collaboration, in order to ensure stronger communication and relationships with customers, and increase sales opportunities. This, however, has been a more recent development. On joining Company A in 2009, Interviewee I found a very siloed organization with very little understanding of internal collaboration. By contrast, Interviewee E talked about the company's drive to have the various business units work together cooperatively, particularly to increase potential

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business opportunities. Interviewee J also felt that the organization encouraged collaboration, and highlighted the development of communities of practice, and centres of excellence, and the efforts to which the company goes to ensure information is sent to these centres, and is shared across the organization by these centres. He also gave examples of the company collaborating with research organizations and other companies to develop innovations. Interviewee C said the company had also established service lines within divisions, in order to link people with similar capabilities and expertise across different projects to share their ideas and recent innovations.

Related to collaboration, in 2007, the company described stakeholder engagement as being "about maintaining relationships with people or other organizations that are affected by, or those that affect our long-term business objectives, and defined its stakeholders as its clients, investors, employees, local communities, governments and suppliers" (Company A, 2007, p. 24).

The importance of customer relationships, and relationships with the local community, and particularly with the indigenous community, was stressed in some of the interviews. Interviewee B highlighted this when he said: "...we've got a value and perhaps a reputation for longer term relationships (with customers)… The culture is to build a good client relationship and have sustainable, long term relationships".

6.4.3.10.3 Diversity

Employee diversity was first mentioned in the 2010 Annual Sustainability Report, and in more detail in subsequent annual reports. In the 2012 Annual Report, several statements clearly linked diversity to improved business performance. For example:

> By attracting a diverse and technically knowledgeable workforce – we have a competitive advantage. If we have the right career opportunities and culture to retain those highly sought after specialists – then our competitive advantage becomes sustainable over the long term, and something that others will struggle to match (Company A, 2012, p. 28).

In this 2012 Report, diversity was linked to collaboration, as illustrated by the CEO's words: "Diversity of background, gender, age and ethnicity enriches perspectives, enhancing the

performance of the Board and collaboration and productivity across the Company" (Company A, 2012, p. 9).

Diversity also was associated with problem solving and innovative ideas:

> Promoting workplace diversity is another priority, and for us, it's much more than just political correctness. In a globally interconnected world, the solutions to business problems and dilemmas are increasingly complex and in some cases, counterintuitive. Gender and cultural diversity brings a much wider range of ideas and experience to those discussions (Company A, 2012, p. 28).

Further, diversity was connected with decision making, as illustrated in the 2012 Annual Report (p. 33) where it was stated: "In an increasingly complex world, an organisation that benefits from different viewpoints at senior management level, or in governance is at an advantage when making business decisions", and "in many cases, the greater diversity of input you get into making a decision, the better that decision is likely to be in outcome".

Interviewee F pointed out that the company has tried very hard to increase the proportion of women in its workforce, and has had some good successes. For example, the company has significantly increased the number of female graduates employed, and has increased indigenous employment to 4.5% of the work force.

6.4.3.10.4 Innovation

Building sustainability capability, and some of its sustainability achievements, have enabled Company A to win business opportunities. Several interviewees gave examples of customers approaching the company to partner with them to develop innovative ideas to improve their performance.

Interviewee B said that the company tries to look for "new and better ways of doing things", so that the company can "deliver great results". Interviewee C believed the company had a strong focus on ingenuity and innovation, and mentioned that the company was collaborating with several of its business partners to conduct research, and to develop ways to improve the company's products and services. However, as Interviewee I reflected, while there are pockets of innovation, any successful innovative ideas tend to get lost, and he claimed that "...nobody then takes that and considers, 'now how do we use that prototype almost as an opportunity for greater sustainability across the organisation?'" Observing that

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innovation was not well coordinated across the organization, Interviewee I declared: "We still create our own barriers, and part of it is our inability to think innovative. We say we do but I see no evidence of it. I still see what we class as innovation as 1980s". This interviewee also remarked that there was no effective platform for sharing innovative ideas and practices across the organization, and continued: "if somebody else finds out about it, fantastic, if not, that's as far as it goes".

Interviewee G, in describing Company A's, culture said of innovation:

> But I think here, as they've evolved over the years in a lot of the ways they've done business, they've created a mentality of bureaucracy and paperwork to manage things, which is actually now an Achilles heel for them. It probably at the time was a really good idea, but it's actually got to the stage now where you can't actually be creative or innovative... Being creative and innovative it's nearly like, it's too hard for people. You've got to be brave...
>
> There's a whole lot of people want you just to comply, don't actually rock the boat."

Interviewee F discerned that, while some people in the company do not specifically see some of its achievements as innovation, a number of the more "technically minded people" have "done some really fantastic work", which has increased equipment reliability, and significant energy and water efficiencies for its clients, and for the company and, hence the broader community. In so doing, the company has won innovation awards. However, he believed that many within the company regard these as interesting engineering achievements, rather than innovations associated with improving sustainability. Interviewee F went further and said: "When they just think it's really good mainstream business they're so gung ho you couldn't stop them with a steam train", but they don't see it as "a body of work as a sustainability driven enterprise". He continued, saying that while most people "don't mind being virtuous, but at some point they start to worry if it gets a bit too feel good, hippy, pinko, greeny, name your particular thing".

6.4.3.10.5.Integrity

According to Interviewee J, the executive team regularly discusses integrity and will not make business decisions which compromise on integrity, to the extent that the company will not proceed with business activities, and has withdrawn from business opportunities in

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situations where a country's or another organization's practices would compromise the company. Interviewee J attributed the company's strong relationships with its business partners and customers to its partnerships being based on "trust, integrity and valuing our own, and our clients' people".

6.4.3.10.6 Reflection

Interviewees were asked to consider whether the company's management takes time out to assess and reflect on its progress and its achievements towards sustainability and any future changes that may be needed. In response, Interviewee C indicated that this rarely occurred as, while the senior management teams and various divisions held strategic planning days, they were more focussed on short term issues rather than reflecting on sustainability. Interviewee E pointed out that the company reviews and records its sustainability activities and successes in its annual sustainability reports, while Interviewee A concluded that generally, the company does not reflect on its sustainability progress and where it needs to improve; rather, once the annual report is completed, the company "just moves on".

6.4.3.10.7 Systems Thinking

The interviewees had observed little systems thinking within the company. The question asked of the interviewees about this cultural dimension was: "Sustainability is complex, with each part impacting on other parts. When addressing sustainability issues, how does the company ensure that the entire system is considered?" Interviewee B suggested that the sustainability team may consider the links and interactions between the business and sustainability; he also thought that any systems thinking was intuitive, rather than a considered activity. Interviewee F believed that, although the company's processes and systems, such as its enterprise risk management process, provided a mechanism for systems thinking, the company's systems thinking was a conceptual attempt, rather than a conscious effort.

6.4.3.10.8 Wholism: Lifecycle management/Cradle to Grave

As Interviewee G discussed, organizations need to go much further than being technically compliant with codes and standards; rather, they have to design products and services that are sustainable from maintenance, safety, reuse and recycle perspectives. Company A was described as having a notable capability to assist some of its customers to better manage

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and extend the life of their physical assets (Interviewees B, E, and G). Interviewee E described whole-of-life asset management as a critical skill for the company, as many of their customers "expect (the company) to have tremendous understanding of asset management and how (it) can contribute to their asset management plan". He elaborated, stating that "we now have a wonderful capability in working with our clients to talk about whole of life", as "we have some very good people who are leading edge in whole of life and asset management capability", describing their skills as "top of the tree".

Others were less certain whether the company fully understood cradle to grave concepts (Interviewee B), and suggested that, while product lifecycle was relevant to its customers (Interviewee H), and, in fact was a critical skill expected by customers (Interviewee E), it was less relevant to the company's day-to-day operation (Interviewee H). Company A's 2010 Annual Sustainability Report provided one example of "cradle-to-cradle" thinking, wherein the company partnered with suppliers to plan and implement purchase, use and eventual disposal of IT equipment.

Interviewees B and C both thought that, particularly in the few years following the Global Financial Crisis (GFC) of 2008, the company had tended to be very market driven, focussed on survival, rather than on building for future growth, and not necessarily thinking much past the next reporting cycle. Interviewee B said that those people working at the company's various operational sites, tend to be focussed on delivering their work, rather than on sustaining and extending asset life through smarter planning and processes, and as not being likely to have lifecycle thinking.

6.4.3.10.9 Other core beliefs and values

Further to the espoused, published organizational values, several of the interviewed executives suggested a number of other underlying organization values, some of which were perceived to align with the company's espoused values. These are presented in Table 6.2.

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6.5 Quantitative Data: Organizational Commitment to Sustainability Survey

Each of the ten interviewed executive level managers were invited to complete a survey, which examined their opinions about Company A's commitment to sustainability. This Organizational Commitment to Sustainability Survey was designed to obtain a broader perspective of the company's commitment to sustainability. Eight of the ten surveys were completed and returned, giving a response rate of 80%. Given the small number of completed surveys, it was not feasible to conduct highly detailed statistical analyses. However, the data revealed some interesting results.

Table 6.2 Underlying Organizational Values at Company A

Underlying Values	Description	Source
Crisis management/ "Firefighting"	Business is less plan driven and more response driven. Company has notable number of expert crisis managers; described as "good "fire-fighters" who "are recognized for being able to get us out of trouble".	Interviewee B
Drive to succeed	Everyone wants to be successful. Celebrating successes when we have wins, and acknowledging losses.	Interviewee E
Ethical	Is a very ethical company.	Interviewees F, J
Family	A very strong value is a strong family culture which extends beyond the company into communities, and the people we work with. This value had its origins in its history as a family company.	Interviewees H & J
Parsimonious/ Tight Fisted	A parsimonious, tight fisted ethic, which has its origins in the low margin business in which it operates. The company is known for paying low salaries.	Interviewee F
People friendly	A people focussed culture. People are "extremely friendly and helpful". "People genuinely care for each other and are concerned about each other".	Interviewees C, E, I
Respect	A very strong value.	Interviewee J
Safety	An extremely strong workplace safety ethic that extends from the top to the bottom of the company is a long term core belief. Safety is important to the company's business and a significant focus for the senior management team.	Interviewee F
Sincerity	No description given.	Interviewee J

6.5.1 Demographic data

The Organizational Commitment to Sustainability Survey requested demographic data, including the site and department in which the respondents work, the respondents' age, gender, educational qualifications, position level, the nature/category of their employment, and, the number of years they had worked both with the organization, and in their current position (Table 6.3). Of the eight respondents one was female, the median age was 50, five were head of corporate divisions, and all but one were degree qualified, with five holding

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masters degrees or higher. For all but one respondent, sustainability was seen take some of their working time. Of these, for four respondents sustainability was 15 per cent or less or their time, for two, it was 30%, and for one, it was 100% of their time.

Table 6.3 Organizational Commitment to Sustainability Survey: Demographic Data

Gender				
Gender	**Frequency**	**Percent**	**Valid Percent**	**Cumulative Percent**
Female	1	12.5	12.5	12.5
Male	7	87.5	87.5	100.0
Total	8	100.0	100.0	

Age				
Age	**Frequency**	**Percent**	**Valid Percent**	**Cumulative Percent**
45	1	12.5	12.5	12.5
47	1	12.5	12.5	25.0
48	1	12.5	12.5	37.5
50	3	37.5	37.5	75.0
57	1	12.5	12.5	87.5
62	1	12.5	12.5	100.0
Total	8			

Position Level				
Level	**Frequency**	**Percent**	**Valid Percent**	**Cumulative Percent**
C Suite Executive	1	12.5	12.5	12.5
Division Head	5	62.5	62.5	75.0
Report to Division Head	1	12.5	12.5	87.5
Manager	1	12.5	12.5	100.0
Total	8	100.0	100.0	

Years with Company				
Years	**Frequency**	**Percent**	**Valid Percent**	**Cumulative Percent**
Less than one year	1	12.5	12.5	12.5
1 - 4 years	2	25.0	25.0	37.5
5 - 9 years	4	50.0	50.0	87.5
10 years or more	1	12.5	12.5	100.0
Total	8	100.0	100.0	

Years in Job*				
Years	**Frequency**	**Percent**	**Valid Percent**	**Cumulative Percent**
Less than one year	1	12.5	12.5	12.5
1 - 4 years	5	62.5	62.5	75.0
5 - 9 years	2	25.0	25.0	100.0
Total	8	100.0	100.0	

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Table 6.3 (cont.) Organizational Commitment to Sustainability Survey: Demographic Data

Education Level				
Level	Frequency	Percent	Valid Percent	Cumulative Percent
Some university but no degree	1	12.5	12.5	12.5
Bachelor's Degree	2	25.0	25.0	37.5
Master's Degree or Higher	5	62.5	62.5	100.0
Total	8	100.0	100.0	

% work time spent on Sustainability				
% Work time	Frequency	Percent	Valid Percent	Cumulative Percent
0	1	12.5	12.5	12.5
5	2	25.0	25.0	37.5
10	1	12.5	12.5	50
15	1	12.5	12.5	62.5
30	2	25.0	25.0	87.5
100	1	12.5	12.5	100
Total	8			

*Inconsistency between **Years with Company** and **Years in Job** may be explained by the fact some interviewees held similar roles in another organization before joining Company A.

6.5.2 Business Challenges

When asked to select from nine options, the top three business challenges facing the company over the next two years, profitability acquiring and retaining customers, and, reducing costs and increasing efficiencies, were equally ranked as the most significant business challenges (Table 6.4). Following were two more equally ranked challenges, innovating to achieve competitive differentiation, and, attracting, retaining and motivating talented people. Responding effectively to threats and opportunities of sustainability received no nominations, as did responding effectively to disruption of our business model, and Increasing operating speed and adaptability.

Table 6.4 The Primary Business Challenges over the Next Two Years

What are the primary business challenges facing your company over the next two years? (Tick your top three):		
Profitability acquiring and retaining customers		6
Reducing costs and increasing efficiencies		6
Attracting, retaining and motivating talented people		4
Innovating to achieve competitive differentiation		4
Growing revenue		3
Responding effectively to threats and opportunities of globalization		1
Responding effectively to threats and opportunities of sustainability		0
Increasing operating speed and adaptability		0
Responding effectively to disruption of our business model		0

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This demonstrates that, while Company A's annual sustainability reports purport that sustainability is important, executive managers are of the opinion that economic factors, such as profitability, acquiring and retaining customers, and cost management and efficiency, continue to be the most significant business focus. Although sustainability is of some importance to Company A. Responding effectively to threats and opportunities of sustainability was ranked well below other strategic business challenges, attracting no "votes" from the participating executives.

6.5.3 Understandings about Sustainability

Table 6.5 presents the executives' opinions whether the company included specific aspects of sustainability in its understanding of sustainability. Environmental issues were listed by all eight respondents, economic sustainability by seven, and social responsibility by six respondents. Despite many interviewees strongly emphasising safety being a key part of sustainability, it was ranked fourth in importance.

Table 6.5 Organizational Commitment to Sustainability Survey: Sustainability Factors

What factors does your company consider to be part of sustainability? (Tick all that apply)									
Environmental issues									8
Economic sustainability of the organization									7
Corporate social responsibility issues									6
Employee health and well-being									5
Safety issues									4
Increased emphasis on long-term perspective									4
Customer health and well-being									3
None of these									0

This data aligns with information obtained during the interviews. Initially, the company's sustainability focus was to fully comply with environmental law and regulations (Interviewee E). Accordingly, a significant part of the Sustainability and Environment team's responsibilities included designing and implementing systems to measure and monitor its environmental performance (Interviewee F). This has continued to be approximately half of the Sustainability and Environment team's activities. The remaining fifty per cent of the team's time is focused on encouraging and enabling the company to explore sustainability oriented solutions with its clients, which, in turn, add value to its relationships with its clients. This latter activity is less visible to the majority of the company's employees.

It also is consistent with the results of the 2013 MIT Sloan Management Review/Boston Consulting Group annual sustainability survey which found that 80% of a subsample of 1,837

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respondents (from a total 5,300 survey respondents from 118 countries), 80% indicated economic issues, 70% environmental issues, 60% social issues are significant sustainability issues (Kiron, Kruschwitz, Rubel, et al., 2013, p. 6).
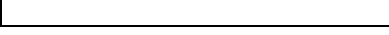
6.5.4. Drivers for adopting sustainability

Three scales measured factors that drive organizations to adopt sustainability, Firstly, drivers to change the organization's business model; secondly, sustainability strategies being seen as necessary for competitiveness; and thirdly, benefits to the organization in addressing sustainability.

6.5.4.1 Drivers for Changing Business Model

Business partners were seen to be a significant driver for Company A adopting sustainability as part of its business model (Table 6.6). This result confirms comments made during the interviews that some customers require Company A, along with their other suppliers, to be able to support their own sustainability intentions, with some requiring reports against agreed sustainability KPIs.

Table 6.6 Organizational Commitment to Sustainability Survey: Drivers for Changing Business Model

Which of the following factors have led to changes in your business model as a result of sustainability considerations? (Tick all that apply)		
Stricter requirements from partners along the value chain		6
Legislative /political pressure		6
Maintaining "license to operate"		6
Owners demands for broader value creation (i.e. more than profits)		5
Customers prefer sustainable products /services		5
Resource scarcity (e.g. increased commodity prices & price volatility)		4
Competitors increasing commitment to sustainability		2
Competing for new talent		1
Meeting demands of existing employees		1
Customers willing to pay a premium for sustainable offerings		1
None of the above		0

This result is supported by the responses to the question: "Is pursuing sustainability related strategies necessary for your company to be competitive in Australia?"), wherein six of the eight respondents agree sustainability is necessary, and the remaining two believe it will be necessary in future (see Table 6.7).

Legislative pressure, particularly that relating to environmental standards and compliance was ranked equally. As discussed in Chapter2, compliance with environmental standards

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frequently provides the initial impetus for organizations to address environmental sustainability. While legal compliance to avoid litigation may indicate that organizations are at early stages of their commitment to sustainability (Dunphy et al., 2007; Mirvis & Googins, 2006b, 2009), 35-37% of global companies continue to rank this as an important factor (Haanaes et al., 2012; Kiron et al., 2012). However, Haanaes et al. (2012, p. 10) caution that companies which adopt sustainability as a result of legislative requirements, are less likely to fully embed sustainability into their business processes, or to find that sustainability programs and activities have added to their profitability.

6.5.4.2 Sustainability and Competitiveness

75% of Company A's executives who completed the Organizational Commitment to Sustainability Survey agreed that having sustainability related strategies is necessary for the company to be competitive; the remaining 25% believe it will be necessary for future competitiveness (Table 6.7).

Table 6.7 Organizational Commitment to Sustainability Survey: Sustainability and Competitiveness

No. responses	Is pursuing sustainability related strategies necessary for your company to be competitive in Australia? (Tick one			
	No	No, but will be in the future	Yes	Do not know
6			▉	
5			▉	
4			▉	
3			▉	
2		▉	▉	
1		▉	▉	

These results compare favourably with the 2010 MIT Sloan Management Review/Boston Consulting Group results, in which 55% of executives believed sustainability is necessary to be competitive (Haanaes et al., 2011, p. 9), 67% in the 2011 survey (Haanaes et al., 2012, p. 4), and 60% in the 2012 survey (Kiron, David, Kruschwitz, Nina, Haanaes, Knut, Reeves, Martin, & Goh, Eugene 2013b, p. 16).

6.5.4.2 Benefits of Addressing Sustainability

While the impact of sustainability on overall profit was not evidenced in this survey scale, all respondents agreed that the company's sustainability program had reduced inefficiencies and waste, thereby reducing costs (Table 6.8). Results from the 2011 and 2012 MIT Sloan

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Management Review/Boston Consulting Group surveys revealed that, among respondent organizations, sustainability increasingly was generating product and services innovations (Haanaes et al., 2012, p. 5), as well as in business models and processes (Kiron, Kruschwitz, et al., 2013b).

Table 6.8 Organizational Commitment to Sustainability Survey: Sustainability Benefits

What are the greatest benefits to your company in addressing sustainability? (Tick up to three reasons)		
Reduced costs due to materials or waste efficiencies		8
Reduced costs due to energy efficiency		4
Better innovations of product/service offerings		4
Better innovation of business models and process		4
Improved brand reputation		4
Reduced risk		3
Increased competitive advantage		2
Improved perception of how well the company is managed		2
Enhanced stakeholder/ investor relations		2
Improved ability to attract and retain top talent		2
Improved regulatory compliance		1
Increased employee productivity		0
Increased margins or market share due to sustainability positioning		0
Access to new markets		0
There are no benefits		0

6.5.5 Commitment to Sustainability

Commitment to sustainability was measured by five scales: Personal Commitment to Sustainability; the presence of a clear company business case for sustainability; the status of sustainability on the top management team's agenda; and the past and future anticipated change in attention given to sustainability.

6.5.5.1 Personal Commitment to Sustainability

When asked to rate their own commitment to sustainability, the majority claimed sustainability commitment in line with their other priorities, one considered it to be a lower priority, and two people ranked their commitment to sustainability above their other personal priorities (Table 6.9).

Table 6.9 Organizational Commitment to Sustainability Survey: Personal Commitment to Sustainability

No. responses	How strong is your personal commitment to sustainability?(Tick one)			
	No commitment	**Lower than other priorities**	**In line with other priorities**	**Among my top priorities**
5			█	
4			█	
3			█	
2			█	█
1		█	█	█

6.5.5.2 Organizational Commitment to Sustainability

With all survey respondents holding senior roles within Company A, and only three of these believing that the company has a clear business case for sustainability, it may be inferred that sustainability is not core to the company's business agenda (Table 6.10).

Table 6.10 Organizational Commitment to Sustainability Survey: Existence of Business Case

No. responses	Overall, has your company developed a clear business case or proven business proposition for addressing sustainability? (Tick one)			
	No	**Unsure**	**Have tried to, but too difficult to develop**	**Yes**
4				
3		█		█
2		█	█	
1		█	█	█

This was confirmed by the responses to the question regarding the status of sustainability on top management's agenda, where six of the eight respondents said that, while sustainability was included in the company agenda for top management, it was not a core strategic consideration (Table 6.11).

Interviewee J believed that many people within the organization saw sustainability as an addition to normal business activities, rather than being fully embedded into its business. He suggested this may be a consequence of the company preparing separate business and sustainability plans, each with their own separate sets of activities. He proposed that this, in turn, made it difficult for people to understand that sustainability should be core to the way the company operates and conducts its business.

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This is reflected in the range of responses to this survey measure. With all survey respondents holding senior roles within Company A, and only three of these believing that the company has a clear business case, it may concluded that sustainability is not core to the company's business agenda. It may also be considered that Company A continues to adhere to a more traditional economic and financial model, with sustainability having a lesser role in its business strategy and associated plans.

The MIT Sloan Management Review/Boston Consulting Group surveys have shown that companies classified as sustainable are three times more likely to have a business case for sustainability (Haanaes et al., 2012, p. 8). Of all respondents to the 2012 survey, 38% had a business case (Kiron, Kruschwitz, et al., 2013b, p. 17), and, for the 2013 survey, 69% of all responding highly companies which believe sustainability is a significant issue had a business case and 90% had a sustainability strategy compared with 37% and 62 % respectively of all respondents (Kiron, Kruschwitz, Rubel, et al., 2013, p. 3). This led to the conclusion that, regarding having a business case for sustainability, Company A, itself a global organization, is, therefore, lagging behind large global companies.

6.5.5.3 Organizational Commitment to Sustainability: Sustainability Status

In the 2011 MIT Sloan Management Review/Boston Consulting Group global survey, 70% of global companies reported that sustainability is permanently on top management's agenda (Haanaes et al., 2012, p. 3). While 75% of Company A's respondents indicated that sustainability is "On the agenda permanently, but not core", the interview data indicated that sustainability tended to have an annual focus, rather than be permanently on the agenda (Table 6.11).

Table 6.11 Organizational Commitment to Sustainability Survey: Sustainability Status

No. responses	What do you believe is the status of sustainability on the agenda of your company's top management in Australia? (Tick one)				
	Never considered for the agenda	Excluded from the agenda, because viewed as a passing fad	Temporarily on the agenda, but not core	On the agenda permanently, but not core	Already a permanent fixture and core strategic consideration
6				🟩	
5				🟩	
4				🟩	
3				🟩	
2				🟩	
1			🟩	🟩	🟩

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While additional management attention has been given to sustainability over the past five years, the increase seems to have been slight, rather than significant (Table 6.12), which may reflect the lessening of Company A's focus on sustainability following the 2008 GFC. There appears to be no expectation that, at Company A, there will be a significant increase in attention given to sustainability in the future (Table 6.13), although 60% of respondents expected it to continue to increase slightly. These result are not notably below those of the MIT Sloan Management Review/Boston Consulting Group survey, where in the 2012 survey, 70% of respondents expected management attention and investment in sustainably to increase somewhat, or significantly (Kiron, Kruschwitz, et al., 2013b, p. 18), which is very similar to the 60% result in the 2010 survey (Haanaes et al., 2011).

Table 6.12 Organizational Commitment to Sustainability Survey: Change in Attention

No. responses	How much has your company's commitment to sustainability – in terms of management attention and investment - changed in the past 5 years? (Tick one)					
	Significantly decreased	Somewhat decreased	Business as usual/ No changes	Somewhat increased	Significantly increased	Do not know
5				████		
4				████		
3				████		
2				████		
1				████	████	████

Table 6.13 Organizational Commitment to Sustainability Survey: Anticipated Change in Attention

No. responses	How much do you expect your company's commitment to sustainability – in terms of management attention and investment – to change in the year ahead? (Tick one)					
	Will decrease significantly	Will decrease somewhat	Business as usual/ No changes	Will increase somewhat	Will increase significantly	Do not know
5				████		
4				████		
3			████	████		
2			████	████		
1			████	████		

6.5.6 Responsibility for Sustainability

According to Kiron et al. (2012, p. 72), the "longevity and robustness of an organization's sustainability agenda (depends) on how well sustainability is embedded in business processes". The 2011 MIT Sloan Management Review/Boston Consulting Group survey

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showed that highly sustainable companies were 62% more likely to have financial incentives for employees, and 50% more likely to have KPIs related led to sustainability (Kiron et al., 2012, p. 73), although, overall, the percent of companies establishing sustainability related KPIs is relatively low: in 2013, it was only 24% (Kiron, Kruschwitz, Rubel, et al., 2013, p. 12). Company A, by comparison had not established sustainability related KPIs or financial incentives.

Table 6.14 Organizational Commitment to Sustainability Survey: Company's Actions

Regarding sustainability in your company, does your company have:	Yes	Used to have but now embedded in our company	Used to have but no longer committed to	No but coming soon	No	Don't know
Rating	1	2	3	4	5	6
Strong CEO commitment to sustainability	4	1	1		1	1
A chief sustainability officer (CSO)	2				6	
A separate function for sustainability	7		1			
Responsible person for sustainability per business unit	1				7	
Clear communication of responsibility for sustainability	2				5	1
Separate sustainability reporting	7	1				
Sustainability reporting included as part of annual reporting	6	1			1	
Personal KPIs related to sustainability					7	1
Financial incentives linked to sustainability performance					7	1

Company A has a small centralized Sustainability and Environment team headed up by a General Manager. This team was located within the Operations Division; the head of this division also was focussed strongly on sustainability within the company. During the interviews, the GM Sustainability and Environment was described as leading most of the sustainability and environmental initiatives within the Company (Interviewees B and E), playing a critical role in preparing responses to tenders which required information about sustainability (Interviewees B & D), and being the company's expert on sustainability,

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environmental matters and safety (Interviewee E). He also was described as being extremely committed to sustainability (Interviewee B).

Some of the responses to this survey measure conflicted with the information provided during the interviews. For example, in the survey six of the eight respondents did not view the GM Sustainability and Environment to be a Chief Sustainability Officer, and one responded that there was no separate function responsible for sustainability. Although at the time the research was conducted, overall responsibility for sustainability lay with this small team, five of the eight respondents also said there was no clear communication concerning responsibility for sustainability.

6.5.7 Obstacles to Sustainability

There was a strong agreement that competing priorities, the lack of a model or framework for incorporating sustainability into business cases, difficulties gathering metrics for the sustainability impacts of the organization's operations, and difficulties quantifying intangible effects of sustainability strategies, were all significant obstacles to evaluating sustainability strategies (Table 6.15).

Table 6.15 Organizational Commitment to Sustainability Survey: Obstacles to Sustainability

How significant an obstacle is each of the following to evaluating case for sustainability-related strategies? Please circle the number which closely matches your view about the company	Not at all significant	Insignifi-cant	Neither significant nor insignifi cant	Significant	Very significant
Rating	**1**	**2**	**3**	**4**	5
Opposition from executives or influential individuals	1	4	2	1	
Difficulty quantifying intangible effects of sustainability strategies (e.g. brand reputation, employee hiring, retention and productivity)				7	1
Difficulty capturing comprehensive metrics about sustainability impact of operations			1	7	
Difficulty quantifying sustainability-related risks		2	2	4	
Lack of model/framework for incorporating sustainability in business cases				7	1
Competing priorities			1	5	2
Uncertainty about future carbon pricing		1	3	1	2

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When it comes to the difficulties associated with capturing comprehensive sustainability metrics, and quantifying the intangible effects of sustainability, Company A is aligned with other global companies. The 2013 MIT Sloan Management Review/Boston Consulting Group survey indicated that about half the companies have problems with this (Kiron, Kruschwitz, Rubel, et al., 2013, p. 5).

6.5.8 Impact of Sustainability

Sustainability's impact within organizations was measured by three different scales: the first measured whether sustainability has led to changes in organizations' business models; the second measured the impact of sustainability on profit; and the third measured the impact on collaboration with selected stakeholders.

6.5.8.1 Sustainability's Impact on Business Model

The majority of respondents agreed that Company A had a clear business case for addressing sustainability (Table 6.16). This was supported by the interview results, which indicated that sustainability related activities have has benefit such as reducing operating costs, enhancing the company's brand, enabling the company to obtain and retain business, and building a stronger employment base, especially in rural and remote areas.

Table 6.16 Organizational Commitment to Sustainability Survey: Sustainability's Impact on Business Model

No. responses	Overall, has your company developed a clear business case or proven business proposition for addressing sustainability? (Tick one)		
	No	Yes	I do not know
6		🟩	
5		🟩	
4		🟩	
3		🟩	
2		🟩	
1	🟩	🟩	🟩

6.5.8.2 Sustainability's Impact on Profitability

Half the respondents indicated sustainability had no impact on profits, one person claimed it reduced profits, and three believed it added to profit (Table 6.17). These latter responses can be related to opinions garnered during several interviews. Firstly, the company's demonstrated performance and knowledge about sustainability, and innovative approaches to sustainability, has provided a competitive advantage when bidding for work (Interviewee

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D). Further, some customers have required Company A, and its competitors, to provide information relating to sustainability in tender responses. This was illustrated by Interviewee E, who strongly stated: "there is no way we could respond successfully to our tenders, if, in fact, we didn't understand sustainability or be able to meet with clients and present on sustainability". He continued: "the fact that we can do that again and again impresses, … I think they recognize that we understand what we're talking about in that area". Further, once the work is obtained, some customers require Company A to meet sustainability KPIs, and to provide reports on performance against these KPIs.

Table 6.17 Organizational Commitment to Sustainability Survey: Sustainability's Impact on Profitability

No. responses	In general, how do you believe your company's sustainability-related action / decision have affected profitability? (Tick one)			
	Subtracting from profit	Broken even – neither adding to nor subtracting	Added to profit	Do not know
4		▓		
3		▓	▓	
2		▓	▓	
1	▓	▓	▓	

6.5.8.3 Sustainability and Collaboration

Those organizations which have a higher commitment to sustainability are more likely to develop collaborative relationships with their stakeholders, and to ensure strong collaboration within the organization, including between business units in different geographic locations (Kiron et al., 2012). The company's values adopted in 2012 emphasize collaboration with its clients, and with each other. As can be seen in Table 6.18, the majority (75%) of the survey respondents gave highest rankings to collaboration with customers, local communities (62.5%) and governments (62.5%), all of which exceed the results reported for the 2011 MIT Sloan Management Review/Boston Consulting Group's global survey (Kiron et al., 2012, p. 7). In Company A collaboration between business units (50%) and across geographic locations (37.5%), while ranked lower by Company A's executives, also compared favourably with those companies which have embraced sustainability. These results also concur with interviewees' comments about collaboration (Section 6.4.3.10.2).

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Table 6.18 Organizational Commitment to Sustainability Survey: Sustainability's Impact on Collaboration

What are the greatest benefits to your company in addressing sustainability? (Tick up to three reasons)		
Customers		6
Local communities affected by operations across the supply chain		5
Governments / Policy makers		5
Contractors		4
Internal business units across functions		4
Industry Associations		4
NGOs		4
Suppliers		3
Internal business units across geographies		3
Competitors		1
None of the above		0

6.5.9 Level of commitment to sustainability

The executives' opinions about the company's level of commitment to sustainability were measured by responses to eight scales, where the response scales aligned with Mirvis and Googins' (2006a, 2006b, 2009) five Stages of Corporate Citizenship (Table 6.19). Frequencies analyses of these results showed that, overall, 34.4 percent of respondents classified Company A at Stage 2 (Engaged), and 35.9 percent of respondents classified the company at Stage 3 (Innovative) of Mirvis and Googins' Stages of Corporate Citizenship (2006a, 2006b, 2009), which, in turn align with Dunphy et al.'s (2007) Phase 3 (Compliance), or Phase 4 (Efficiency) of Corporate Sustainability (Refer to Table 2.5).

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Table 6.19 Organizational Commitment to Sustainability Survey: Results Matched To Mirvis & Googins' Stages Of Corporate Citizenship Model & Dunphy, Griffiths & Benn's Six Phases Model

Stages of Corporate Citizenship		Stage 1 Elementary	Stage 2 Engaged	Stage 3 Innovative	Stage 4 Integrated	Stage 5 Transforming
Phases of Sustainability development	Phase 1 Rejection	Phase 2 Non Responsive-ness	Phase 3 Compliance	Phase 4 Efficiency	Phase 5 Strategic proactivity	Phase 6 Sustaining Corporation
Dimension						
Citizenship Concept		1	3	2	2	
Strategic Intent		2	2			4
Leadership			6	2		
Structure			6	1	1	
Issues Management			3	4		1
Stakeholder Relationship		2	2	1	2	1
Transparency				6	2	
Accountability			2	5		1

Adapted from (Benn & Dunphy, 2004a; Benn et al., 2006; Dunphy et al., 2007; Griffiths, 2003, 2004; Mirvis & Googins, 2006a, 2006b, 2009)

6.6 Quantitative Data: Employee Organizational Culture Survey

6.6.1 Layout of the analysis

Because the focus of this study is on employees of an organization, this section portrays the analysis of the Employee Organizational Culture Survey as follows. Data were first checked for missingness, outliers, and distribution (normality). Then a series of confirmatory factor analysis was conducted to establish the factorial structure of the constructs. Following the evidence of the factorial validity of the model, the research hypotheses were tested to address the research questions.

6.6.2 Employee Survey Data Analysis Process

As discussed in Chapter 5, a paper based survey was distributed to all participating employees. These were returned in pre-addressed packs which were coded by site, defined as location in the dataset. This enabled the researcher to accurately calculate the percentage of surveys which were returned, and to code each survey by site. The raw data for all of the returned surveys was entered into an Excel spreadsheet and was carefully checked to ensure the data was entered correctly. It was then uploaded into IBM SPSS Statistics 21 software files; SPSS Statistics 21, and SPSS AMOS 21 subsequently were used for the data analysis.

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6.6.2.1 Coding the Employee Survey

Following finalization of the scales and items to be included in the Employee Organizational Culture Survey, to ensure both the data entry and data analysis were consistent and accurate (Malhotra, Hall, Shaw & Oppenheim, 2002), a code was assigned to every measurement item and scale (refer Appendix 6.4 for more detailed code information for each item). The Employee Organizational Culture Survey contained three categories of measures: General Culture dimensions, Sustainability Culture dimensions, and Organizational Commitment to Sustainability. In all, 117 items and 22 scales measured 18 variables. The codes for each of these are provided in Table 6.20.

Table 6.20: Employee Organizational Culture Survey: Codes for Survey Scales

Code	Dimension
General Culture Dimensions	
CCT	Challenge current thinking
CWS	Collaboration with stakeholders
COO	Cooperation
DIV	Diversity (2 scales)
EMP	Empowerment and inclusiveness
INN	Innovation and creativity
KSO	Knowledge sharing/ Open communication with all Stakeholders
LEA	Learning
LTP	Long term perspective
TOT	Transparency and openness/ Trust (2 scales)
Sustainability Culture Dimensions	
CON	Connectedness
FE	Fairness/ equity
EI	Environmental Integrity
SI	Social Integrity
PRO	Proactive
RES	Responsibility
Organizational Commitment to Sustainability	
EL	Environmental Legitimation
KSP	Knowledge Of Sustainability Policies
KEP	Knowledge Of Environmental Policies
KSC	Knowledge Of Sustainability Commitment

6.6.2.2 Employee Organizational Culture Survey Reverse Worded Items

Ten of the measurement scales contained reverse worded items (one item in each of the Cooperation, and the Learning measurement scale, two items in Long Term Perspective measurement scale, three of the five items in the Responsibility scale, and three of the eight items in the Overall Collaboration with Stakeholders Scale. Rather than individually rescore each response to these items, after all of the survey data were uploaded into SPSS, the

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reverse worded items were transformed, and the new variables were used for all of the data analysis as recommended by Field (2009) and Pallant (2010).

6.6.2.3 Employee Organizational Culture Survey Response Rates

As discussed in Chapter 5, considerable effort was made to maximise the response rate to the Employee Organizational Culture Survey which was distributed to employees in Company A. As is evidenced in a number of studies, survey response rates may vary considerably. In 1999, Baruch reported an average response rate of 55.6 per cent, with a standard deviation of 19.7, while almost 10 years later, Baruch and Holtom (2008, p. 1150), analysed 490 studies involving organizational surveys published from 2000 to 2005 in 17 refereed academic journals, and determined that for studies which collected survey data from individual employees within organizations, the average response rate was 52.7 percent, with a standard deviation of 20.4. Individually delivering the surveys increased the mean response rate to 62.4 per cent, with a standard deviation of 16.9. Similarly, Anseel, Lievens, Schollaert & Choragwicka (2010) conducted a meta-analysis of 2037 published survey response rates in psychology, management, and marketing studies, from 1995 to 2008. For personally distributed surveys to non-managerial employees, they found higher response rates with a median of 69%, which concurred with Roth and BeVier's (1998) findings. As shown in Table 6.21, the overall survey response rate was 37.8 %, which is notably lower than the median 69 per cent which was identified by Roth and BeVier (1998).

Table 6.21 Employee Organizational Culture Survey: Response Rates

Site Code	No surveys distributed	No of responses	Response Rate
A	5	5	100.0
B	75	53	70.7
C	72	35	48.6
D	100	47	47.0
E	150	0	0.0
F	36	14	38.9
G	60	2	3.3
H	200	99	49.5
I	160	69	43.1
Totals	**858**	**324**	**37.8**

These response rates were impacted significantly by a zero response from Site E. Despite the Site Manager for Site E initially agreeing to participate in the survey, and a number of follow up telephone calls made by the GM Environment and Sustainability to confirm that the Site Manager was holding meetings at which the survey would be completed, no actions were

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taken at Site E. After several weeks, the GM Environment and Sustainability decided for business reasons, it was not appropriate to continue to pursue data from this site, and we agreed to proceed without it. Similar difficulties were experienced with Site G, from which only two responses were obtained, giving a response rate for Site G of only 3.3 percent. However, these two surveys were included for analytical purposes.

After the survey response rates were recalculated excluding Site E, the overall response rate was 45.8 percent.

Table 6.22 Employee Organizational Culture Survey: Adjusted Response Rates

Site Code	No surveys distributed	No of Responses	Response Rate
A	5	5	100.0
B	75	53	70.7
C	72	35	48.6
D	100	47	47.0
F	36	14	38.9
G	60	2	3.3
H	200	99	49.5
I	160	69	43.1
Totals	**708**	**324**	**45.8**

The average response rate per site was reduced considerably by the extremely small number of responses from Site G. When Site G was excluded, the average response rate per site was 49.7%.

6.6.2.4 Missing Data Analysis

Missing data frequently occurs in survey research, regardless of whether the surveys utilize Likert method response scoring scales, or other methods. Survey respondents may not complete all items within scales or may completely omit responding to whole scales, which results in missing data (Downey & King, 1998).

Missing data can cause significant data analysis problems, as the missing data reduces the statistical power, and therefore, the ability to determine relationships within the data. It may also bias parameter estimates and potentially may bias correlation coefficients (Acock, 2005; Kim & Curry, 1977; Little & Smith, 1987; Raaijmakers, 1999; Roth, 1994; Scheffer, 2002).

There are three types of item non-response, the type being determined by the pattern of missing data: Missing at Random (MAR); Missing Completely at Random (MCAR); and Not

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Missing at Random (NMAR) (Hair et al., 2006; Scheffer, 2002; Schlomer, Bauman, & Card, 2010).

For the completed surveys received from Company A, visual inspection of the data revealed no identifiable patterns in the missing data, and the missing data within each measurement scale points were randomly distributed throughout the data set (Scheffer, 2002; Schlomer et al., 2010). Similarly, the missing data points within the requested demographic data, while greater in number, were randomly distributed. Therefore, the missing data potentially could be classified as missing completely at random (MCAR).

However, ad hoc editing of missing data may produce biased and unreliable results (Schafer & Graham, 2002, p. 147). Therefore, to determine the extent and specific nature of the missing data, the data was analysed using SPSS's Missing Values Analysis process (Acock, 2005, p. 1020).

6.6.2.4.1 Extent and Type of Missing Data

Overall, for the 117 items in the survey scales, the measurement item data collected had 1.6% missing values (i.e. the surveys were 98.4% complete). Hertel (1976, p. 461), recommends that once 85% of the items have been completed, parameter estimates do not vary significantly. Thus, for the data set collected in this research, an overall 1.6% missing values would have only a very small impact on data analysis. However, the observable pattern of missing data is important (Rubin, 1976).

The Missing Value Patterns Grid shows those items for which there were some missingness. As can be seen on the variables pie chart (left hand chart) (Figure 6.2), nearly 76% of variables have some missing values. The Pattern of Missing Values Pie Chart revealed that almost 50% of respondents did not complete every item in the survey questionnaire. Further, from the Missing Value Patterns Grid it can be seen that the majority of missing data was demographic data, and particularly year of birth (age), and education level. Other survey items with a notable number of missing responses were items within the scales which measured employee's understandings of the company's commitment to sustainability, namely, two items from the Knowledge of Sustainability Commitment measurement scale:

- KSC7 Considering people and the community to be valuable in their own right.
- KSC1 Committed to the environmental viability of the planet.

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Two items from the Knowledge of Environmental Policies scale also had a higher missingness:

- KEP8 Uses life cycle analysis.
- KEP10 Systematically reduces fossil fuel use.

Further examination of the data revealed that, while the much of the missing data could be considered MCAR data, 27 cases had more than five missing scores (4.2%), and 21 of these, warranted closer investigation. Table 6.23 presents those cases for which more than 10% of the survey items had missing responses.

Table 6.23 Employee Organizational Culture Survey: >10% Missing Item Responses

Survey No.	Site	Total Items not scored	% items not scored	Includes KSC1 – KSC9	Includes KEP1 – KEP13	Comments
82	I	79	66.9	No	Yes	Delete survey
93	I	87	73.7	Yes	Yes	Delete survey
94	I	55	46.6	Yes	Yes	Delete survey
96	I	55	46.6	Yes	Yes	Delete survey
103	I	49	41.5	Yes	Yes	Delete survey
108	I	27	22.9	No	No	Delete survey - Missed 5 complete scales
209	F	36	30.5	No	No	Delete survey – Missed 6 complete scales
219	D	14	11.9	No	No	Retain survey Reasonably random distribution of missing data
252	H	92	78.0	Yes	Yes	Delete survey
279	H	55	46.6	Yes	Yes	Delete survey

As shown in the above table, nine surveys (survey numbers 82, 93, 94, 96, 103, 108, 209, 252, and 279) had a significant percentage of missing measurement item data (univariate pattern per Schafer and Graham (2002), with between 22.9% and 78% of the items unanswered, across both sections of the surveys. Responses were missing for entire scales, rather than single items within scales, which would negatively impact analyses of correlation analyses between scales. Consequently, these cases were deleted, leaving, 311 surveys for data analysis.
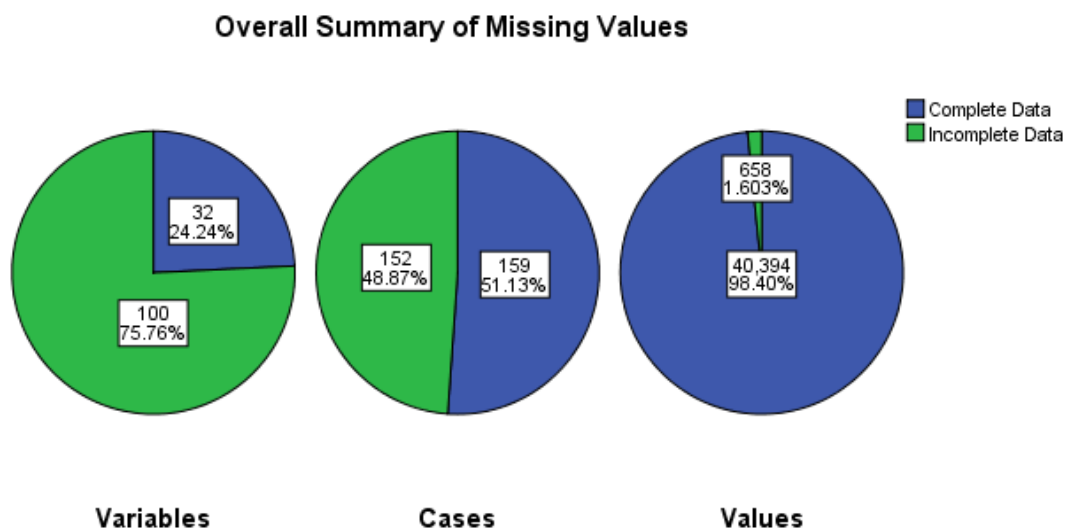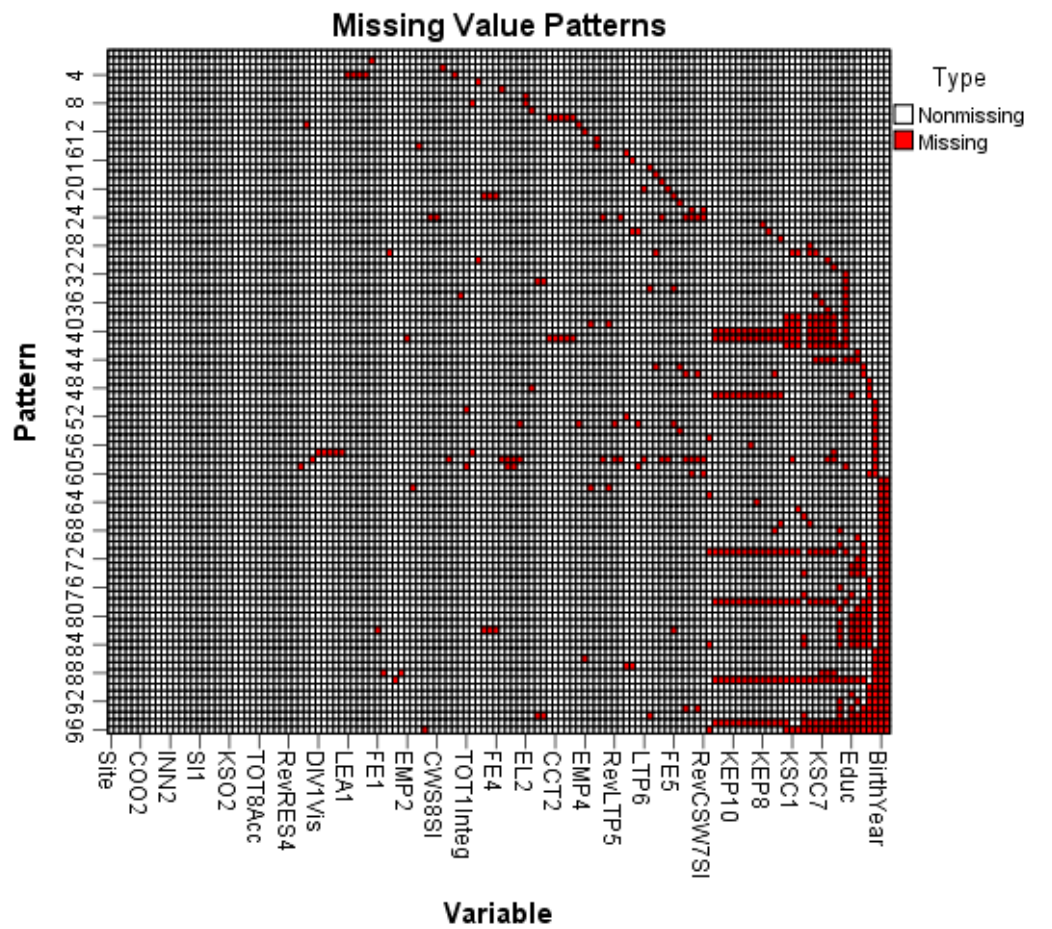
Figure 6.2 Employee Organizational Culture Survey: Pattern of Missingness

Table 6.24 reveals a second group of 12 survey respondents who failed to answer one or both of the sustainability measurement scales in the sustainability commitment section of the employee survey. Despite the fact these 12 surveys were missing between 7.6% and 22.9% of possible item responses, they were retained, as it was anticipated that this particular missing data may be "a predictor of interest" in the research project (Tabachnick & Fidell, 2007, p. 71). Within the remaining 311 surveys, there was an arbitrary pattern of random missing data (Schafer & Graham, 2002), which most often occurred when survey respondents missed one item within a scale.

Table 6.24 Employee Organizational Culture Survey: Missing Predominately Sustainability Item Responses and/or </= 5% Missing Other Data

Survey No	Site	No. Unscored Items KSC1 – KSC9 (Max 9 items)	No. Unscored Items KEP2 – KEP13 (Max 12 Items)	No. Other unscored items	Total % Unscored Items
3	A	9	0	0	7.6
50	D	9	12	2	18.6
63	I	9	12	1	19.5
67	I	9	12	0	17.8
72	I	7 (Answered KSC1 & KSC2)	12	1	10.2
84	I	9	0	3	10.2
118	C	9	0	0	7.6
151	B	9	0	0	7.6
175	B	9	0	2	9.3
177	B	9	12	0	17.8
255	H	0	12	0	10.2
271	H	9	12	6	22.9

6.6.2.4.2 Demographic Data Missingness

The heading for the demographic scales included the following wording: "The information requested below will be used for data analysis only. It will not be used to identify any particular person or group of people." Despite this, and the assurance provided to employees that "Your supervisor, manager, or company executives will NOT see your responses", of the 311 surveys retained for data analysis, the completion rate for the demographic scales was less than for the culture scales and the commitment to sustainability scales.

Of the 311 retained surveys, the level of missingness for the demographic data ranged from 4.2% for gender to 19.9% for age, with 11 respondents providing no demographic data (Tables 6.25 and 6.26).

Table 6.25 Employee Organizational Culture Survey: Missing Demographic Data

		Site	Gender	Age	JobLevel	EmplType	CoYears	JobYears	Educ
N	Valid	311	298	249	276	293	288	289	290
	Missing	0	13	62	35	18	23	22	21
	% missing	0	4.2	19.9	11.3	5.8	7.3	5.5	6.8

Table 6.26 Employee Organizational Culture Survey: Missing Demographic Data by Site and by Demographic Category

Site	A	B	C	D	F	G	H	I	Total No
Gender		2	2				2	7	13
Age		4	7	5	5		21	20	62
JobLevel	1	2	9		1		14	8	35
EmplType		2	1		2		6	7	18
CoYears		2	1	1	2		7	10	23
JobYears		4	2		2		6	8	22
Education		3	2				8	8	21
Surveys with no Demographic data provided		1	1				4	5	11

6.6.2.5 Data Transformation

In the Demographic Section of the Employee Organizational Culture Survey, employee age was collected by year of birth. This initially was converted to age, by subtracting the year of birth from the year in which the survey was completed. This, however, is a continuous variable. To enable consistent application of multigroup analysis, age was transformed into a categorical variable, using the Transformation function in SPSS.

As these age categories also could be ranked from the lowest to the highest, age also was an ordinal variable (Connolly, 2007). The selection of the age categories was based upon the work of other organizational culture researchers, including (Yiing & Ahmad, 2009) (Cummings, 2008; Helms & Stern, 2001; Sayli, Baytok, & Soybali, 2010). Further, the division of categories was in line with the standard established by the Australian Bureau of Statistics' recommendation for age categories, namely: "Subtotals of groupings, and groupings with a

range of 5 years or more, to start at numbers ending with the digits '0' or '5' and finish in numbers ending with the digits '4' or '9'" (Australian Bureau of Statistics, 1999).

The new age variable is structured as follows:

Table 6.27 Age Categories for Multigroup Analysis

Category	Age (Years)
1	< 20
2	20 - 29
3	30 - 39
4	40 - 49
5	50 - 59
6	60-- 71

6.6.2.6 Choice of Analytic Methods with Missing Data

Because of the magnitude of missing data, it was decided to run the main analysis with missing values, as any replacement or imputation would have resulted in a critical distortion of distribution, and bias in the variance (Byrne, 2010). Therefore, the full-information maximum likelihood (FIML) estimation algorithm in AMOS was employed (Enders & Bandalos, 2001). However, to go a step further in the analysis, a complete data set was created using a multiple regression imputation technique with 10 iterations in IBM SPSS 21.0 (Larsen, 2011; Schafer & Graham, 2002).

6.6.3 Detecting Outliers

Detecting outliers is an important step prior to hypothesis testing. Whether outliers should be removed or not after detection depends on their severity, and the type of the analysis being conducted. For instance, Pallant (2010, p. 187) suggests that factor analysis results can be affected by large number of outliers, and therefore, prior to conducting factor analyses, the data set should be reviewed to identify any outliers, and recommends that extreme cases should be either be removed or adjusted to less extreme values. By contrast, Hair et al. (2006, p. 76) recommend that, should outliers be removed, while the analysis outcomes may be improved, provided that the sample population is representative of the larger population the data analysis results are less able to be generalized. Having said that, the outlier detector function in IBM SPSS 21.0 was used to detect cases with outlying behaviour. As very few outliers were identified, following the suggestions of Aguinis, Gottfredson and Joo (2013), they were examined individually, and no specific concerns about the nature of their outlying behaviour was identified. In light of this observation, as the sample population was large,

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and representative of one main population, it was decided to retain outliers and proceed without their removal.

6.6.4 Normality Statistics

Using the normality test function in IBM SPSS 21.0, the data distribution was examined. First, the Kolmogrov-Smirnov test showed a p-value of greater than 0.05. Second, all values of Skewness and Kurtosis were between -1.0 and +1.0 suggesting that no deviation from normality was observed (Hair, Black, Babin, & Anderson, 2010).

6.6.5 Descriptive Analysis

After screening and examining the data, the final dataset for analysis was determined. In this section, this dataset will be described using conventional descriptive statistics.

6.6.5.1 Employee Survey Demographic Data

The Employee Organizational Culture Survey incorporated scales measuring a number of demographic variables, including the site and department in which the respondents work, the respondents' age, gender, educational qualifications, position level, the nature/category of their employment, and the number of years they had worked with the organization and in their current position. Table 6.28 provides the demographic data.

Table 6.28 Employee Organizational Culture Survey: Demographic Data

Gender	Frequency	% of Sample	Valid %	Cumulative %
Female	62	19.9	20.8	20.8
Male	236	75.9	79.2	100.0
Responses	298	95.8	100.0	
No response	13	4.2		

Age	Frequency	% of Sample	Valid %	Cumulative %
<20	0	0	0	0
20-29	42	13.5	16.9	16.9
30-39	66	21.2	26.5	43.4
40-49	67	21.5	26.9	70.3
50-59	56	18.0	22.5	92.8
60-69	18	5.8	7.2	100
Responses	249	80.1		
No Response	62	19.9		

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Table 6.28 (cont.) Employee Organizational Culture Survey: Demographic Data

Position Level	Frequency	% of Sample	Valid %	Cumulative %
Team member/ Front line employee	121	38.9	43.8	43.8
Team leader/ Supervisor	65	20.9	23.6	67.4
Professional Employee (Not a Manager)	44	14.1	15.9	83.3
Middle Management	38	12.2	13.8	97.1
Senior Management	8	2.6	2.9	100.0
Reponses	276	88.7	100.0	
No Response	35	11.3		

Employment Type	Frequency	% of sample	Valid %	Cumulative %
Full time	234	75.2	79.9	79.9
Part time	9	2.9	3.1	82.9
Permanent	12	3.9	4.1	87.0
Casual	29	9.3	9.9	96.9
Contractor/ Temporary	9	2.9	3.1	100.0
Responses	293	94.2	100.0	
No Response	18	5.8		

Years with organization	Frequency	% of Sample	Valid %	Cumulative %
Less than one year	102	32.8	35.4	35.4
1 - 4 years	92	29.6	31.9	67.4
5 - 9 years	69	22.2	24.0	91.6
10 years or more	25	8.0	8.7	100.00
Responses	288	92.6	100.0	
No response	23	7.4		

Years in Job	Frequency	% of Sample	Valid %	Cumulative %
Less than one year	89	28.3	30.4	30.4
1 - 4 years	117	36.7	39.4	69.9
5 - 9 years	54	17.4	18.7	88.6
10 years or more	29	9.3	10.0	98.6
Responses	289	92.9	100.0	
No response	22	7.1		

Educational level	Frequency	% of Sample	Valid %	Cumulative %
Some high school	18	5.8	6.2	6.2
High School Certificate	21	6.8	7.2	13.4
TAFE/ Trade/ Technical Certificate	154	49.5	53.1	66.6
Associate Degree	11	3.5	3.8	70.3
Some university but no degree	23	7.4	7.9	78.3
Bachelor's Degree	35	11.3	12.1	90.3
Post-Graduate Certificate	13	4.2	4.5	94.8
Master's Degree or Higher	15	4.8	5.2	100.0
Responses	290	93.2	100.0	
No Response	21	6.8		

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6.6.5.2 Reliability of Survey Measures

Internal consistency of items forming a scale is an essential part of statistical analysis involving multi-item scales (Streiner, 2003; Tavakol & Dennick, 2011). This consistency is measured using the reliability coefficient. To interpret reliability, Nunnally (1978) and Nunnally and Bernstein (1994) recommend that alpha coefficient values of 0.70 are sufficient for early stages of research, but that basic and applied research measures require reliability coefficients of 0.80 to 0.90. They further propose that, where important decisions are to be made with test scores, a reliability coefficient of 0.90 is the minimum, and that 0.95 or higher is desirable (Nunnally & Bernstein, 1994). Nonetheless, some claim that reliability standards are unclear with many researchers interpreting reliabilities of around of 0.60 or 0.70 as being adequate to good (Clark, L. A. & Watson, 1995). Pallant (2010, p. 97) points out that while, ideally, the Cronbach alpha should be above 0.7, it is not uncommon for scales with fewer than 10 items to have lower Cronbach alpha values, perhaps around 0.50. The reliability guidelines used for this study are shown in Table 6.29.

Table 6.29 Reliability Coefficient Ranking

	Cronbach alpha
Unacceptable	< 0.50
Poor	>0.50
Questionable	>0.60
Acceptable	>0 70
Good	> 0.80
Excellent	>0.90

Adapted from (George & Mallery, 2003)

Table 6.30 presents the reliability statistics for the 22 scale measures examined in this research study.

Coefficient alphas for twenty of the twenty two measures ranged from .70 to .96, indicating an acceptable level of internal consistency (Nunnally, 1978). As Scale C17, Knowledge of Sustainability Policies 1, is a single item scale, no Cronbach Alpha could be calculated. One scale, S15 Responsibility, had an Alpha of 0.567, which is below the acceptable level of internal consistency (Nunnally, 1978). Three of the five items in this scale were reverse worded, which may have contributed to the low internal consistency and overall low scale reliability.

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Table 6.30 Employee Organizational Culture Survey: Scale Reliability

Scale	N	No of Items	Cronbach Alpha
General Culture Dimension Scales			
G1 Challenge Current Thinking	309	5	0.915
G2 Collaboration with Stakeholders	304	8	0.847
G3 Cooperation	304	5	0.792
G4A Diversity Scale 1	309	6	0.914
G4B Diversity Scale 2	308	4	0.899
G5 Empowerment	301	6	0.904
G6 Innovation	309	5	0.887
G7 Knowledge Sharing/ Open Communication with all Stakeholders	309	5	0.887
G8 Learning	310	5	0.706
G9 Long Term Perspective	305	6	0.834
G10A Transparency and Openness/ Trust Scale 1 Integrity	309	3	0.861
G10B Transparency and Openness/ Trust Scale 2 Accountability	310	5	0.880
Sustainability Culture Dimensions Scales			
S11 Connectedness	304	7	0.893
S12 Fairness & Equity	307	5	0.872
S13A Environmental Integrity	309	4	0.854
S13B Social Integrity	309	2	0.872
S14 Proactive	311	3	0.896
S15 Responsibility	308	5	0.567
Organizational Commitment to Sustainability Scales			
C16 Environmental Legitimation	309	2	0.872
C17 Knowledge Of Sustainability Policies	N/A	N/A	N/A
C18 Knowledge of Environmental Policies	296	12	0.915
C19 Knowledge of Sustainability Commitment	281	9	0.963

Table 6.31 provides the reliability analysis of this scale, which was developed by Banerjee (2002b), to measure the respondents' perceptions of the relationships organizations have with the natural environment, and their responsibility to external stakeholders. Banerjee (2002b, p. 184) obtained a higher alpha of 0.73, and subsequently used the same items within other scales and found these new scales to be reliable (Banerjee, Iyer, & Kashyap, 2003). While this researcher added one additional item to Banerjee's (2002b) scale which also was reverse worded ("Managers do not feel a strong sense of accountability towards the community at large"), removal of this additional item would have reduced the Cronbach alpha to 0.494. Removing other individual items also would have reduced the alpha.

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Table 6.31 Employee Organizational Culture Survey: Reliability - Scale S15 Responsibility

Item	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
75. The financial well-being of this company does not depend on the state of the natural environment (Reverse worded)	17.49	10.479	0.322	0.514
76. This company believes it has a responsibility to preserve the environment	16.20	11.347	0.268	0.542
77. Environmental preservation is vital for this company	16.41	10.888	0.278	0.539
This company's responsibility to its customers, stockholders, and employees is more important than our responsibility toward environmental preservation (Reverse worded)	17.45	9.492	0.407	0.461
79. Managers do not feel a strong sense of accountability towards the community at large (Reverse worded)	17.21	10.141	0.356	0.494

The Responsibility scale was investigated further. Item 76, "This company believes it has a responsibility to preserve the environment", a positively worded item, was found to have a negative inter-item correlation. While the corrected-item total correlation was positive for all five items in the scale, for two items it was less than 0.30 ("This company believes it has a responsibility to preserve the environment" and "Environmental preservation is vital for this company"). The mean inter-item correlation statistic is 0.206, with a range of 0.565, again suggesting a low relationship between the items in the Responsibility Scale (Pallant, 2010, p. 100).

Clark and Watson (1995, p. 316) recommend that, as mean inter-item correlation is unrelated to the number of items in the measure, it is a more effective measure of reliability. Briggs and Cheek (1986, p. 115) recommend that the ideal range for mean inter-item correlation is between 0.2 and 0.4; should it be over 0.5, some items on the scale may be overly redundant, and the construct being measured too specific. An inter-item correlation below 0.1 indicates that the total item score is unlikely to represent the complexity of the items in the measure. As can be seen in Table 6.32, the majority of inter-item correlations were either below0 .2 or greater than 0.5, indicating the scale was problematic.

Additional reliability calculations were conducted on this scale, using progressive elimination of the scale items. Deleting each of the items individually also generated low mean inter-item correlation results. Higher reliability and inter-item correlations were found between

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the two positively worded items, and again, between the three reverse worded items (Table 6.33), indicating the presence of three negatively worded items in a five item scale may have led to inconsistent responses (Weems, Onwuegbuzie, & Lustig, 2003). Therefore, it was decided to delete the S15 Responsibility scale for Organization A.

Table 6.32 Employee Organizational Culture Survey: Inter-Item Correlation Matrix – Scale S15 Responsibility

Scale Item	Item 75	Item 76	Item 77	Item 78	Item 79
75. The financial well-being of this company does not depend on the state of the natural environment (Reverse worded)	1.000				
76. This company believes it has a responsibility to preserve the environment	-.046	1.000			
77. Environmental preservation is vital for this company	.117	.518	1.000		
78. This company's responsibility to its customers, stockholders, and employees is more important than our responsibility toward environmental preservation (Reverse worded)	.468	.059	.062	1.000	
79. Managers do not feel a strong sense of accountability towards the community at large (Reverse worded)	.241	.178	.065	.396	1.000

Table 6.33 Employee Organizational Culture Survey: Item -Total Statistics - Scale S15 Responsibility

Scale Item	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
75. The financial well-being of this company does not depend on the state of the natural environment (Reverse worded)	17.49	10.479	0.322	0.253	0.514
76. This company believes it has a responsibility to preserve the environment	16.20	11.347	0.268	0.312	0.542
77. Environmental preservation is vital for this company	16.41	10.888	0.278	0.293	0.539
78. This company's responsibility to its customers, stockholders, and employees is more important than our responsibility toward environmental preservation (Reverse worded)	17.45	9.492	0.407	0.305	0.461
79. Managers do not feel a strong sense of accountability towards the community at large (Reverse worded)	17.21	10.141	0.356	0.190	0.494

6.6.6 Assessing Fit of Measurement Models and Structural Model

A series of confirmatory factor analyses (CFA) were performed using IBM SPSS AMOS 21 to assess the factorial structure of the General Culture scales, the Sustainability Culture scales,

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and the Organizational Commitment to Sustainability Scales. CFA was selected for its ability to specify precise and even highly complex hypotheses (Jackson, Gillaspy Jr, & Purc-Stephenson, 2009, p. 9). As there was some missing data, the CFA method selected was Full Information Maximum Likelihood (FIML) (Enders & Bandalos, 2001; Larsen, 2011).

6.6.6.1 Selecting Fit Indices

As each scale, or measurement model, is a "simplified approximation to reality" (McDonald, R. P. & Ringo Ho, 2002, p. 71), it is important to establish how effectively each model approximated the hypothesized models. To calculate this, and particularly, the validity of the measurement models (MM), specific measures were analysed to determine the goodness of fit (GOF) of each scale to the hypothesized model. Model fit indexes typically measure the degree of fit between the theoretical model and obtained data, with results generally falling along a continuum between specified minimums and maximums (Hu & Bentler, 1998, 1999). There are a number of fit indexes, each with different characteristics and dependence on sample size, and little agreement on a single GOF test (Maruyama, 1998).

Fit indexes fall into two main groups. Firstly, absolute fit indexes directly compare the absolute fit of the specified model to the data (Barrett, 2007; Hair et al., 2006; Kenny & McCoach, 2003). The second group, residual based (or incremental) fit indexes, also known as comparative fits indexes, "measure the proportionate amount of improvement in fit when a target model is compared with a more restricted, baseline model" (Hair et al., 2006, p. 749; Hu & Bentler, 1998; Kenny & McCoach, 2003).

While there is no common agreement as to which fit indexes researchers should use, researchers are strongly advised against using a single fit index, and to apply multiple indexes with different properties (Bentler, 2007; Bollen & Long, 1993; Chen, Curran, Bollen, Kirby, & Paxton, 2008; Fan, X. & Sivo, 2005; Hair et al., 2006; Hu & Bentler, 1998, 1999; MacCallum, Browne, & Sugawara, 1996). Hair et al. (2010, p. 672) recommend using three to four fit indexes with at least one being an incremental fit index, and one an absolute fit index.

After considering the relative strengths of various GOF indexes, for the purposes of this study, the following fit indexes were used. Each of these and the rationale for their selection are discussed below:

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- Absolute Fit indexes
  - Relative Chi Square (χ2/df) (also known as CMIN/df)
  - RMSEA
- Incremental Fit indexes
  - Probability of Close Fit (PCLOSE)
  - Relative Non-Centrality Index (RNI)
  - Comparative Fit Index (CFI)
  - Incremental Fit Index (IFI)

6.6.6.1.1 Chi Squared (χ2) Statistic

χ2 is regarded as the most fundamental fit index and is one of the most commonly used (Hair et al., 2006, p. 746).

Relative chi-square, also called normal chi-square, is the ratio of χ2 divided by degrees of freedom and attempts to be less influenced by sample size and to control for model complexity. Various researchers have recommended using χ2/df as low as 2 or as high as 5 to indicate a reasonable fit (Marsh, H. W. & Hocevar, 1985). Others say that χ2/df > 2.00 indicates an inadequate fit (Byrne, 1991), and χ2/df values < 2.00 are widely considered to represent an excellent fit (Bollen, 1989; Carmines & McIver, 1981; Hu & Bentler, 1998, 1999; Marsh, H. W., Balla, & McDonald, 1988). For better fitting models, the value of χ2/df (called CMIN/df in AMOS), is close to zero (Bryant & Yardold, 1995).

6.6.6.1.2 Root Mean Square Error of Approximation (RMSEA)

RMSEA was selected as it is regarded as "one of the most informative fit indices", (Diamantopoulos & Siguaw, 2000, p. 85), takes into account both the number of samples and the complexity of the model (Byrne, 2010; Hair et al., 2006; Hooper, Coughlan, & Mullen, 2008), is "relatively independent of sample size" (Sharma, Subhash, Mukherjeeb, Kumarc, & Dillon, 2005; Widaman & Thompson, 2003, p. 18), and is free of any sampling bias (McDonald, R. P. & Ringo Ho, 2002).

The lower the RMSEA score the better the fit, with Hu and Bentler (1999, p. 26) suggesting that RMSEA should be < 0.05, but that RMSEAs between 0.05 and 0.06 are acceptable; and Chen et al. (2008, p. 465) describing ≤ 0.05 as the ''gold standard'. Hair et al. (2006, p. 753), recommend RMSEA should <0 .07, with a CFI ≥ 0.92. Browne and Cudeck (1992, p. 239; 1993, p. 134) and MacCallum et al. (1996) recommend the following guide for assessing RMSEA fit:

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Table 6.34 RMSEA Goodness of Fit Guideline

RMSEA	Fit
≤ 0.05	Close fit
> 0.05 – 0.08	Adequate Fit
>0.08 - 0 .10	Mediocre Fit

6.6.6.1.3 Probability of Close Fit (PCLOSE)

The closely related Probability of Close Fit (PCLOSE) also was selected. PCLOSE is directly related to RMSEA in that it measures the probability that RMSEA is < 0.05. Importantly, a PCLOSE value > 0.05 signifies that RMSEA value is < 0.05, and therefore it can be concluded the model is a good fit (Browne & Cudeck, 1992, 1993; Joreskog & Sorbom, 1996). Alternatively, a PCLOSE < 0.05 indicates the RMSEA is greater than > 0.05 and therefore is either an adequate or mediocre fit.

6.6.6.1.4 Relative Fit Index (RFI)

Developed to adjust for sample size, the RFI (Bollen 1986) similarly has a range between zero and 1.00, with a very good fit occurring when the RFI is close to 0.95. As the RFI strongly corrects for model complexity (Widaman & Thompson, 2003), and this research study involves complex models, it was selected as a key fit index.

6.6.6.1.5 Comparative Fit Index (CFI)

The CFI (Bentler, 1990) was selected as it is believed to be the best approximation of the population value for a single model (Kelloway, 1998), given it accounts for sample size (Byrne, 2010), and is relatively insensitive to the complexity of any model (Fan, X., Thompson, & Wang, 1999; Hair et al., 2006; Tabachnick & Fidell, 2007). Bentler (1990) originally suggested the CFI should be > 0.90, while more recently, a CFI value ≥ 0.95 is consider to represent a good model fit (Hu & Bentler, 1999), although Hair et al. (2006, p. 753) recommend a CFI > 0.92 for models with 12 to 30 variables and more than 250 samples, which is appropriate for this research study.

6.6.6.1.6 Incremental Fit Index (IFI)

The IFI was selected as it is "one of the more useful classes of fit indices" (Widaman & Thompson, 2003, p. 16). Created by Bollen (1989, 1990) as another GOF index which adjusts for sample size (Anderson, J. C. & Gerbing, 1991; Hu & Bentler, 1999; Marsh, H. W. et al.,

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1988), Similarly to other indexes, the IFI may range between 0 and 1 with values closer to or above 0.95 being preferred (Hu & Bentler, 1999).

Table 6.35 Summary of Level of Fit Criteria

GOF Indexes	Poor to Adequate Fit (sometimes permissible)	Good Fit	Very Good Fit
Absolute Fit Measures			
χ^2/df	< 5.0	< 3.0	< 2.0
RMSEA	> 0.08 - .10	> 0.05 – 0.08	≤ 0.05
PCLOSE	< 0.05		> 0.05
Incremental Fit Measures			
CFI	< 0.90	≥ 0.92 good fit	≥ 0.95
RFI	< 0.90	≥ 0.90	≥ 0.95
IFI	< 0.90	≥ 0.90	≥ 0.95

6.6.6.2 Trimming scales

The first step was to conduct a confirmatory factor analysis (CFA) for each scale in the employee survey and to test the fit of the data to the model. Two scales were excluded from the CFA calculations: C16 Environmental Legitimation contained two items, and C17 was a single item scale, which made both scales unsuitable for CFA.

For some scales, the GOF results for the initial CFA revealed that the model did not adequately fit the data. Consequently, for each of these scales, step-by step, those individual items which least fit the model were removed from these scales, and the CFA was re-run, until adequate fit was obtained (Raubenheimer, 2004). In all, to enhance the goodness of fit of the data to the measurement model, 21 items were deleted (Table 6.36).

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Table 6.36 Items Removed from Scales after CFA

Scale	Original No. of Items	Items removed	Final No. of Items
General Culture Scales			
G2 Collaboration with Stakeholders	8	CSW5SI Our company does not place a lot of emphasis on developing good stakeholder relationships (Reverse Scale) CSW6SI Managers in this company generally do not consider that the views of stakeholders should influence operational decision making (Reverse Scale) CSW7SI The way stakeholders see this company is a low priority for us (Reverse Scale)	5
G4B Diversity – Scale 2	4	To what extent do the people in your work group differ: DIV7 In their way of thinking	3
G6 Innovation and Creativity	5	INN1 People are encouraged to be creative	4
G7 Knowledge sharing/ Open Communication with all Stakeholders	5	KSO1 Employees share knowhow from work experience with each other KSO5 People are rewarded for sharing their knowledge	3
G8 Learning	5	LEA3 Lots of things "fall between the cracks" (Reverse Scale) LEA5 We make certain that the "right hand knows what the left hand is doing"	3
G9 Long Term Perspective	6	LTP5 Our strategic direction is unclear to me (Reverse Scale) LTP6 Short-term thinking often compromises our long-term vision (Reverse Scale)	4
G10B Transparency and Openness/ Trust – Scale 2	5	TOT4Acc Presents more than one side of controversial issues TOT5Acc Is forthcoming with information that might be damaging to the organization	3
Sustainability Culture Scales			
S11 Connectedness	7	CON1 Participates in activities which aim to protect and improve the quality of the natural environment CON3 Implements special programs to minimize its negative impact on the natural environment CON7 Makes investments to create a better life for future generations	4
S12 Fairness and Equity	5	FE2 Acts to maintain the biological diversity of the natural environment FE5 Actively seeks to provide for the most disadvantaged people in society	3
S13A Environmental Integrity	4	EI1 Environmental issues are explicitly considered within the company's strategic planning process	3
S14 Proactive	7	PRO2 Adopting environmental best practice	6

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Table 6.36 (cont.) Items Removed from Scales after CFA

Commitment to Sustainability Scales			
C18 Knowledge of Environmental Policies	12	KEP2 Has specific targets for sustainability performance KEP3 Publishes an annual environmental report KEP4 Uses an environmental management system KEP5 Applies environmental considerations to purchasing decisions KEP6 Provides employee sustainability training KEP7 Makes employees responsible for company sustainability performance KEP9 Has management which understands/ addresses issues of sustainable development	5
C19 Knowledge of Sustainability Commitment	9	KSC1 Committed to the environmental viability of the planet	8

Of the ten reverse worded items included in the measurement scales, after trimming only one was retained; of the 5 items in S15, Responsibility, three were reverse items, and, as explained in Section 6.6.5.2, this scale was deleted in its entirety. Of the remaining seven reverse worded items, six were deleted. Although not the subject of this research study, this raises the potential for further research and debate on the impact of reverse worded items in survey research.

Table 6.37 presents the reliability of all scales after trimming. With two exceptions, the Cronbach alphas were 'good' to 'excellent' (refer Table 6.29). However, the trimmed G8 Learning scale had a 'poor' Cronbach alpha of 0.572, and the Cooperation scale an 'acceptable' alpha of 0.792.

In light of the fact the revised scales have high internal consistency, the validity of the conceptual model involving causal relationships was examined, using fit statistics from confirmatory factor analysis (Kline, 2011). Table 6.38 shows the correlation matrix for the employee culture scales following scale trimming. As there are no correlations > 0.9, there is both convergent and discriminant validity, which implies the model can be tested (Hair et al., 2006).

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Table 6.37 Employee Organizational Culture Survey: Scale Reliability of Trimmed Scales

Scale	N	BEFORE TRIMMING		AFTER TRIMMING	
		No of Items	Cronbach Alpha	No of Items	Cronbach Alpha
General Culture Dimension Scales					
G1 Challenge Current Thinking	309	5	0.915	5	0.915
G2 Collaboration with Stakeholders	304	8	0.847	5	0.886
G3 Cooperation	304	5	0.792	5	0.792
G4A Diversity Scale 1	309	6	0.914	6	0.914
G4B Diversity Scale 2	308	4	0.899	3	0.863
G5 Empowerment	301	6	0.904	6	0.904
G6 Innovation	309	5	0.887	4.	0.916
G7 Knowledge Sharing/ Open Communication wit h all Stakeholders	309	5	0.887	3	0.849
G8 Learning	310	5	0.706	3	0.572
G9 Long Term Perspective	305	6	0.834	4	0.877
G10A Transparency and Openness/ Trust Scale 1 Integrity	309	3	0.861	3	0.861
G10B Transparency and Openness/ Trust Scale 2 Accountability	310	5	0.880	3	0.806
Sustainability Culture Dimensions Scales					
S11 Connectedness	304	7	0.893	4	0.831
S12 Fairness & Equity	307	5	0.872	3	0.826
S13A Environmental Integrity	309	4	0.854	3	0.824
S13B Social Integrity	309	2	0.872	2	0.872
S14 Proactive	311	7	0.896	6	0.938
Organizational Commitment to Sustainability Scales					
C16 Environmental Legitimation	309	2	0.872	2	0.872
C17 Knowledge Of Sustainability Policies	N/A	N/A	N/A	N/A	N/A
C18 Knowledge of Environmental Policies	296	12	0.915	10	0.919
C19 Knowledge of Sustainability Commitment	281	9	0.963	8	0.959

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Table 6.38 Inter-Item Correlation Matrix Following Scale Trimming

	G1	G2	G3	G4A	G4B	G5	G6	G7	G8	G9	G10A	G10B	S11	S12	S13A	S13B	S14	C16	C17	C18	C19
G1	1.000																				
G2	.587**	1.000																			
G3	.496**	.544**	1.000																		
G4A	.569**	.493**	.455**	1.000																	
G4B	-.018	.063	-.064	.013	1.000																
G5	.722**	.641**	.555**	.542**	.037	1.000															
G6	.609**	.577**	.628**	.468**	.029	.696**	1.000														
G7	.550**	.575**	.384**	.469**	.067	.624**	.462**	1.000													
G8	.436**	.460**	.438**	.443**	.098	.576**	.517**	.402**	1.000												
G9	.504**	.542**	.645**	.453**	.076	.562**	.615**	.437**	.421**	1.000											
G10A	.569**	.615**	.578**	.533**	.006	.619**	.567**	.479**	.491**	.546**	1.000										
G10B	.564**	.653**	.543**	.385**	.060	.616**	.514**	.538**	.471**	.548**	.553**	1.000									
S11	.439**	.478**	.482**	.357**	.007	.550**	.522**	.427**	.420**	.544**	.509**	.485**	1.000								
S12	.440**	.459**	.484**	.358**	.057	.532**	.535**	.380**	.401**	.518**	.494**	.482**	.652**	1.000							
S13A	.458**	.431**	.465**	.388**	.068	.508**	.516**	.394**	.306**	.484**	.395**	.466**	.490**	.665**	1.000						
S13B	.465**	.545**	.503**	.425**	.027	.566**	.488**	.460**	.377**	.489**	.428**	.538**	.510**	.487**	.600**	1.000					
S14	.472**	.442**	.454**	.350**	.032	.582**	.515**	.396**	.330**	.502**	.357**	.445**	.554**	.606**	.586**	.516**	1.000				
C16	.405**	.357**	.469**	.309**	.089	.523**	.495**	.349**	.341**	.471**	.291**	.443**	.536**	.557**	.568**	.539**	.672**	1.000			
C17	.439**	.484**	.482**	.328**	.080	.547**	.574**	.353**	.350**	.500**	.393**	.513**	.533**	.608**	.585**	.485**	.650**	.607**	1.000		
C19	.530**	.614**	.548**	.458**	.032	.637**	.614**	.437**	.451**	.563**	.526**	.576**	.593**	.601**	.584**	.578**	.647**	.598**	.881**	1.000	
C19	.407**	.534**	.446**	.340**	.009	.529**	.513**	.411**	.351**	.461**	.416**	.536**	.547**	.616**	.571**	.545**	.614**	.547**	.693**	.702**	1.000

**. Correlation is significant at the 0.01 level (2-tailed).

6.6.6.3 Goodness of Fit of General Culture Scales

6.6.7.3.1 G1 Challenge Current Thinking

For G1 Challenge Current Thinking, the model had $\chi 2/df$ of 2.797, p = 0.016 and the fit indexes were RMSEA = 0.760, PCLOSE = 0.150, CFI = 0.991, RFI = 0.960 and IFI = 0.991. $\chi 2/df$ indicated a good fit with the model, and RMSEA and PCLOSE suggest an adequate fit. The other three indexes are well above the recommended 0.95 cut off for a very good fit, indicating that for this scale, the model fits the data.

6.6.6.3.2 G2 Collaboration with Stakeholders

After trimming, the resulting model for G2 Collaboration with Stakeholders had five items. $\chi 2/df$ = 2.797 was satisfactory, and each of the fit indexes indicated that the model was a very good fit: RMSEA = 0.078, PCLOSE = 0.133, CFI = 0.991, RFI = 0.958 and IFI = 0.991.

6.6.6.3.3 G3 Cooperation

Similarly, G3 Cooperation was an excellent fit. At 1.007 $\chi 2/df$ was excellent, and the fit indexes likewise, with RMSEA = 0.004, PCLOSE = 0.759, CFI = 1.000, RFI = 0.966 and IFI = 1.000.

6.6.6.3.4 G4A Diversity Scale 1

This scale, was found to have poor fit. While $\chi 2/df$ = 0.687 was very good, RMSEA = 0.254, was significantly above 0.1. indicating a poor fit. The other fit indexes also were insufficient to consider this scale to be a good fit: PCLOSE = 0.000, CFI = 0.856, RFI = 0.652, and IFI = 0.857. Therefore this scale was dropped.

6.6.6.3.5 G4B Diversity Scale 2

Two scales were used to measure diversity; the second scale, G4B Diversity Scale 2 proved to be an excellent fit with $\chi 2/df$ = 0.454, RMSEA = 0.000, PCLOSE = 0.642, CFI = 1.000, RFI = 0.994 and IFI = 1.001. This scale was retained.

To determine whether it was appropriate to drop G4A and retain G4B as the sole measure for Diversity, the inter-item correlation between two scales was calculated, and it was found that G4A and G4B were strongly correlated. As there is concurrent validity between the G4A and G4B scales, it is appropriate to drop G4A and retain G4B as the sole measure for Diversity (Hair et al., 2006).

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6.6.7.3.6 G5 Empowerment

G5 Empowerment was a very good fit. χ2/df = 0.257 was in the good range, and RMSEA = 0.071 and PCLOSE = 0.144 each indicated this scale was a good fit; CFI = 0.987, RFI = 0.950 and IFI = 0.987 all signified an excellent fit.

6.6.6.3.7 G6 Innovation

With a similar fit pattern, G6 Innovation was a good fit, with χ2/df with CFI = 0.987, RFI = 0.950 and IFI = 0.987, denoting a superb fit.

6.6.7.3.8 G7 Knowledge Sharing/ Open Communication with all Stakeholders

Again, for the trimmed G7 Knowledge Sharing/Open Communication scale, the data was an excellent fit with the model; χ2/df = 1.672 was excellent, and the other fit indexes also were above the excellent fit cut offs: RMSEA = 0.047, PCLOSE = 0.335 CFI = 1.000, RFI = 0.975 and IFI = 0.998.

6.6.6.3.9 G8 Learning

By contrast, the data for G8 Learning was a very poor fit with the model, even after removing two of the five original items from the scale. χ2/df = 6.221 was above acceptable limits. RMSEA = 0.130 was above the cut-off for consideration as a poor fit, although, PCLOSE = 0.054 was acceptable. CFI = 0.942 and RFI = 0.945 both fell above the earlier acceptable cut off of 0.90, but were below the tighter cut off of 0.95. However RFI = 0.611, was well below the lowest possible cut off of 0.90. Therefore, it was decided to drop this scale.

6.6.6.3.10 G9 Long Term Perspective

After removing two items from the G9 Long Term Perspective scale, the data was an excellent fit with the model. χ2/df = 1.399 was very good, and RMSEA = 0.036, PCLOSE = 0.483, CFI = 0.999, RFI = 0.978 and IFI = 0.999 were all above the designated cut offs.

6.6.6.3.11 G10A Transparency and Openness/ Trust Scale 1: Integrity

Two scales measured Transparency and Openness/ Trust. G10A measured Integrity, and G10B measured Accountability. For G10A Transparency, Openness and Trust Scale 1 (Integrity), all measures were not satisfactory. χ2/df = 22.831RMSEA = 0.265, PCLOSE =

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0.000, CFI = 0.908, RFI = 0.715 and IFI = 0.909, which indicated the data was an inadequate fit with the model, and therefore this scale was dropped.

6.6.6.3.12 G10B Transparency and Openness/ Trust Scale 2: Accountability

The trimmed G10B Transparency and Openness/ Trust Scale 2 (Accountability), however was a good fit. While χ2/df = 6.026 and RMSEA = 0. 127 were above the accepted minimum levels, PCLOSE = 0.058 indicated a good fit, and the remaining indexes all were above the cut off for an excellent fit, with CFI = 0.989, RFI = 0.961 and IFI = 0.989.

To determine whether it was appropriate to drop G10A and retain G10B as the sole measure for Transparency and Openness/ Trust, the inter-item correlation between two scales was calculated, and it was found that G10A and G10B were strongly correlated. As there is concurrent validity between the G10A and G10B, it is appropriate to drop G10A and retain G10B as the sole measure for Transparency and Openness/ Trust (Hair et al., 2006).

6.6.6.4 Goodness of Fit of Sustainability Culture Scale
6.6.6.4.1 S11 Connectedness

After removing three of the seven original items, for S11 Connectedness the data was an adequate fit with the model. While χ2/df = 49.11 well exceeded acceptable limits, RMSEA = 0.127 was not acceptable, and RFI = 0.887 was an adequate, although a little below the lowest 0.900 cut off, PCLOSE = 0.058, CFI = 0.981, and IFI = 0.981 all indicated an excellent fit.

6.6.6.4.2 S12 Fairness and Equity

Although two items were dropped, resulting in a three item scale, the data for S12 Fairness and Equity continued to be a poor fit to the model. χ2/df = 16.3 RMSEA = 0.222, PCLOSE = 0.001 and RFI = 0.740 all indicated an unacceptable fit; while NFI = 0.957, CFI = 0.959, and IFI = 0.959 indicated a good fit. As the data for S12 Total Fairness and Equity overall was a poor fit to the model, this measurement scale was deleted.

6.6.6.4.3 S13A Environmental Integrity

After trimming one item from S13A Total Environmental Integrity, the data for this measurement scale was a good fit with the model. χ2/df = 1.806 was very good, RMSEA = 0.051 indicated a good fit, and PCLOSE = 0.335, a very good fit. The remaining indexes all approached 1.0, indicating a very good fit, with CFI = 0.998, RFI = 0.986 and IFI = 0.998.

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6.6.6.4.4 S13B Social Integrity

S13B Total Social Integrity also fit well with the model. χ2/df = 2.64 was good, RMSEA = 0.730 was adequate, although PCLOSE at 0.234 indicated a good fit. As the other critical indexes came close to 1, it was determined this scale was a good fit: CFI = 0.997, RFI = 0.986 and IFI = 0.997.

6.6.6.4.5 S14 Proactive

Overall, S14 Total Proactive was an acceptable fit. χ2/df = 4.766 was just within the poor to acceptable range; RMSEA = 0.110 was marginally above the highest suggest value of 0.10 for adequate fit; and PCLOSE = 0.001 was notably below the ideal minimum 0.05 required for adequate fit. Two fit indexes signified a very good fit: CFI = 0.978, and IFI = 0.978. RFI = 0.936 was above the 0.90 cut off for a good fit, although below the 0.95 recommended for a very good fit.

6.6.6.5. Goodness of Fit of Organizational Commitment to Sustainability Scales

CFA could be conducted for just two of the measures for Organizational Commitment to Sustainability. As C16, Environmental Legitimation had only two items, and C17 Total Knowledge of Sustainability Policies was comprised of just one item, CFA could not be undertaken for these two scales. These scales were retained for all subsequent analyses.

6.6.6.5.1 C18 Knowledge of Environmental Policies

Initially, all items in C18 Total Knowledge of Environmental Policies were retained in the CFA model. Overall, the fit of the data to the model was less than adequate: χ2/df = 6.659 was unsatisfactory, as were RMSEA = 0.135, PCLOSE = 0.000, CFI = 0.831, RFI = 0.3762 and IFI = 0.832. However, the CFA revealed that this scale had two distinct factors.

Endeavours to trim the scale further, did not improve the model fit, as all remaining items were significant. Therefore, the two factors within the scale were examined.

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Table 6.39 C18 Total Knowledge of Environmental Policies: Factor 1

Code	Scale
KEP2	Has specific targets for sustainability performance
KEP4	Uses an environmental management system
KEP3	Publishes an annual environmental report
KEP6	Provides employee sustainability training
KEP7	Makes employees responsible for company sustainability performance
KEP5	Applies environmental considerations to purchasing decisions
KEP9	Has management which understands/ addresses issues of sustainable development

For this factor, $\chi2/df$ = 6.329, RMSEA = 0.172, PCLOSE = 0.000, CFI = 0.858, RFI = 0.694 and IFI = 0.860 indicating a poor fit. The scale was trimmed, item by item, and the CFA re-run. When two items, KEP3 and KEP4 were deleted, the fit was improved slightly, with $\chi2/df$ = 6.451 remaining above the 5.0, RMSEA = 0.133, PCLOSE = 0.001, CFI = 0.958, RFI = 0.855 and IFI = 0.959. Therefore this factor was excluded from the final analysis.

Table 6.40 C18 Total Knowledge of Environmental Policies: Factor 2 after Trimming

Code	Scale
KEP8	Uses life cycle analysis
KEP10	Systematically reduces fossil fuel use
KEP11	Systematically reduces toxic chemicals use
KEP12	Systematically reduces consumption of unsustainable products
KEP13	Applies the same sustainability standards in Australia and overseas

For the second factor of C18 Total Knowledge of Environmental Policies, $\chi2/df$ = 2.678, which was good, RMSEA = 0.074 also was good, and PCLOSE = 0.172 was very good. CFI = 0.991, RFI = 0.958 and IFI = 0.991 also were an excellent fit, and Factor 2 was retained.

6.6.6.5.2 C19 Total Knowledge of Sustainability Commitment

For C19 Total Knowledge of Sustainability Commitment, $\chi2/df$ = 6.329, RMSEA = 0.131, PCLOSE = 0.000 CFI = 0.955, RFI = 0.905, and IFI = 0.955. Thus, while $\chi2/df$, RMSEA and PCLOSE were less than adequate, CFI and IFI were excellent and RFI was good. With three of the six indexes being either good or excellent, it was concluded that for this scale the data was a sufficiently good fit to the model.

In summary, five of the trimmed measurement scales were dropped due to poor fit with the data, these being:

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- G4A Diversity Scale 1
- G8 Learning
- G10A Transparency Openness/ Trust Scale 1
- S12 Fairness & Equity
- S14 Proactive
- 6.7 Testing Hypotheses.

Table 6.41 presents those scales which were retained for testing the hypotheses.

Table 6.41 Scales Retained after CFA

General Culture Dimension Scales
G1 Challenge Current Thinking
G2 Collaboration with Stakeholders
G3 Cooperation
G4B Diversity Scale 2
G5 Empowerment
G6 Innovation
G7 Knowledge Sharing/Open Communication with all Stakeholders
G9 Long Term Perspective
G10B Transparency and Openness/ Trust Scale 2 Accountability
Sustainability Culture Dimensions Scales
S11 Connectedness
S13B Social Integrity
S14 Proactive
Organizational Commitment to Sustainability Scales
C16 Environmental Legitimation
C17 Knowledge Of Sustainability Policies
C18 Knowledge of Environmental Policies
C19 Knowledge of Sustainability Commitment

Table 6.42 displays the goodness-of-fit indexes for the trimmed individual scale measures and Table 6.43 presents the means and standard deviation statistics for the trimmed scales which were retained following the goodness of fit tests. More detailed descriptive statistics for the trimmed scales are provided in Appendices 6.5 and 6.6.

Table 6.42 CFA Goodness of Fit Indexes

General Culture Scales

Scale	χ2/df	RMSEA	PCLOSE	CFI	RFI	IFI
G1 Challenge Current Thinking	2.797	0.760	0.150	0.991	0.960	0.991
G2 Collaboration with Stakeholders	2.897	0.078	0.133	0.991	0.958	0.991
G3 Cooperation	1.005	0.004	0.759	1.000	0.966	1.000
G4A Diversity Scale 1	1.687	0.245	0.000	0.856	0.652	0.857
G4B Diversity Scale 2	0.454	0.000	0.642	1.000	0.994	1.001
G5 Empowerment	2.571	0.071	0.144	0.987	0.950	0.987
G6 Innovation	2.352	0.066	0.274	0.997	0.973	0.997
G7 Knowledge Sharing/ Open Communication with all Stakeholders	1.672	0.047	0.355	1.000	0.975	0.998
G8 Learning	6.221	0.130	0.054	0.942	0.611	0.945
G9 Long Term Perspective	1.399	0.036	0.483	0.999	0.978	0.999
G10A Transparency and Openness/ Trust Scale 1	22.831	0.265	0.000	0.908	0.715	0.909
G10B Transparency and Openness/ Trust Scale 2	6.026	0.127	0.058	0.989	0.961	0.989

Sustainability Culture Scales

Scale	χ2/df	RMSEA	PCLOSE	CFI	RFI	IFI
S11 Connectedness	49.211	0.121	0.320	0.981	0.887	0.981
S12 Fairness & Equity	16.3	0.222	0.001	0.959	0.740	0.959
S13A Environmental Integrity	1.806	0.051	0.335	0.998	0.970	0.998
S13B Social Integrity	2.64	0.730	0.234	0.997	0.986	0.997
S14 Proactive	4.766	0.110	0.001	0.978	0.936	0.978

Organizational Commitment to Sustainability Scales

Scale	χ2/df	RMSEA	PCLOSE	CFI	RFI	IFI
C18 Knowledge of Environmental Policies	6.659	0.135	0.000	0.831	0.762	0.832
C18 Total Knowledge of Environmental Policies: Factor 1	6.329	0.172	0.000	0.831	0.855	0.959
C18 Total Knowledge of Environmental Policies: Factor 2	2.678	0.074	0.172	0.991	0.958	0.991
C19 Knowledge of Sustainability Commitment	6.329	0.131	0.000	0.955	0.905	0.955

Combined Scales

Scale	χ2/df	RMSEA	PCLOSE	CFI	RFI	IFI
All General Culture Scales	2.427	0.068	0.000	0.817	0.706	0.818
All Sustainability Culture Dimensions Scales	2.953	0.079	0.000	0.896	.835	0.857
All Organizational Commitment to Sustainability Scales	4.248	0.102	0.000	0.856	0.788	0.818

Table 6.43 Descriptive Statistics for Retained Scales Following Scale Trimming and Goodness of Fit Tests

	Mean	Std. Deviation	N
G1 Total Challenge Current Thinking	19.81	5.372	309
G2 Total Collaboration with Stakeholders	23.06	5.106	308
G3 Total Cooperation	17.57	3.399	304
G4B Total Diversity Scale 2	14.09	3.877	309
G5 Total Empowerment	20.96	6.272	301
G6 Total Innovation	13.75	3.219	308
G7 Total Knowledge Sharing/ Open Communication with all Stakeholders	14.61	3.284	310
G9 Total Long Term Perspective	13.85	2.896	308
G10B Total Transparency and Openness/ Trust Scale 2	12.90	3.220	310
S11 Total Connectedness	13.36	2.520	306
S13A Total Environmental Integrity	13.67	2.271	309
S13B Total Social Integrity	9.93	1.808	311
S14 Total Proactive	21.22	4.913	298
C16 Total Environmental Legitimation	6.37	1.507	309
C17 Total Knowledge of Sustainability Policies	3.11	.811	298
C18 Total Knowledge of Sustainability Commitment	28.80	6.708	281
C9 Factor 2 Total Knowledge of Environmental Policies	16.01	3.302	301

For comparative purposes Table 6.44 shows the correlation matrix for the trimmed employee culture scales remaining after the goodness of fit tests led to the dropping of some scales. Again, as there are no correlations > 0.9, there is both convergent and discriminant validity, which implies the model can be tested (Hair et al., 2006).

Table 6.44 Inter-Item Correlations for Retained Scales Following Scale Trimming and Goodness of Fit Tests

	G1	G2	G3	G4B	G5	G6	G7	G9	G10B	S11	S13A	S13B	S14	C16	C17	C18	C19 Factor 2
G1	1.000																
G2	.587**	1.000															
G3	.496**	.544**	1.000														
G4B	-.018	.063	-.064	1.000													
G5	.722**	.641**	.555**	.037	1.000												
G6	.609**	.577**	.628**	.029	.696**	1.000											
G7	.550**	.575**	.384**	.067	.624**	.462**	1.000										
G9	.504**	.542**	.645**	.076	.562**	.615**	.437**	1.000									
G10B	.564**	.653**	.543**	.060	.616**	.514**	.538**	.548**	1.000								
S11	.439**	.478**	.482**	.007	.550**	.522**	.427**	.544**	.485**	1.000							
S13A	.458**	.431**	.465**	.068	.508**	.516**	.394**	.484**	.466**	.490**	1.000						
S13B	.465**	.545**	.503**	.027	.566**	.488**	.460**	.489**	.538**	.510**	.600**	1.000					
S14	.472**	.442**	.454**	.032	.582**	.515**	.396**	.502**	.445**	.554**	.586**	.516**	1.000				
C16	.405**	.357**	.469**	.089	.523**	.495**	.349**	.471**	.443**	.536**	.568**	.539**	.672**	1.000			
C17	.439**	.484**	.482**	.080	.547**	.574**	.353**	.500**	.513**	.533**	.585**	.485**	.650**	.607**	1.000		
C18	.530**	.614**	.548**	.032	.637**	.614**	.437**	.563**	.576**	.593**	.584**	.578**	.647**	.598**	.881**	1.000	
C19 Factor 2	.300**	.409**	.375**	.003	.445**	.401**	.294**	.371**	.439**	.480**	.470**	.477**	.560**	.493**	.606**	.594**	1.000

**. Correlation is significant at the 0.01 level (2-tailed)

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6.7 Testing Hypotheses

Following the observation that the full measurement model and its sub constructs have acceptable fit, a structural model consistent with the research hypotheses, was built. To build this model, the scales were composited using their average value. This imputation technique is suitable when the structural model is very complex and some scales have big portions of missing data (Kline, 2011).

6.7.1 Testing H1A

To test H1A, two separate CFA analyses were performed. The first model was a first-order single factor model wherein both General Culture (GC) and Sustainability Culture (SC) were combined into a single group named Organizational Culture (OC), and were tested to co-vary with Commitment to Sustatinability (CS). For this model, $\chi 2/df$ = 3.284, RMSEA = 0.086, PCLOSE = 0.000, CFI = 0.891, RFI = 0.815 and IFI = 0.892. $\chi 2/df$, RMSEA and PCLOSE were a poor fit, while CFI, RFI and IFI were an adequate fit.

A second model portrayed culture as a two-factor second order model, consistent with the hypothesis; culture was considered to be composed of GC and SC. This model was run with GC and SC separately covaried with CS. The resulting fit statistics were: $\chi 2/df$ = 2.207, RMSEA = 0.07, PCLOSE = 0.000, CFI = 0.93, RFI = 0.859, and IFI = 0.932. Thus, $\chi 2/df$, RMSEA, CFI, RFI and IFI were all good fits, while PCLOSE continued to be a poor fit.

The comparison of fit statistics between these two models showed both the discrepancy between the data and the model improved when organizational culture was modelled as being comprised of two separate cultures, SC and GC (chi-square difference =[499.153-328.845]=170.308, (df1-df2 =[152-149]=3, p-value of difference is 0.00 < 0.05). Fit also improved in the second model. These statistics suggest that SC and GC are two different cultural constructs and have separate bearing on the level of CS. Thus H1A is supported.

6.7.2 Testing H1B and H1C

The results show that there is a positive strong relationship (B = 0.24, *p* < 0.05) between total organizational General Culture (TGC) and total organizational Commitment to Sustainability (TCS). Furthermore, the relationship between organizational Sustainability Culture (TSC) and Commitment to Sustainability (TCS), is also strong and positive (B = 0.62, *p* < 0.05). Taken together, both general culture and sustainability culture predict commitment to sustainability and the proposed model explains 64% of the variation in Total Commitment

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to Sustainability (Figure 6.3). Therefore, both Hypotheses H1B and H1C are strongly supported.
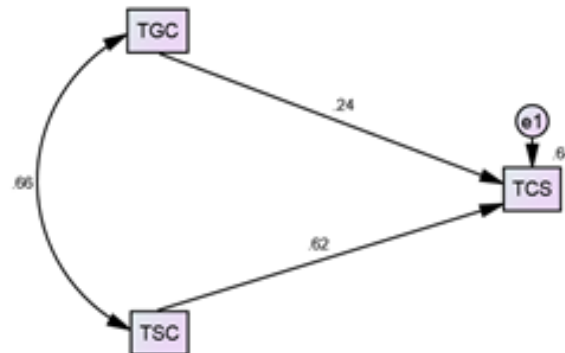
Figure 6.3 Theoretical Model

Discriminant validity is the extent to which a latent variable discriminates from other latent variables in a model and thus accounts for more variance in the observed variables associated with it than measurement errors, similar external, unmeasured influences; or other constructs (Farrell & Rudd, 2009, p. 2). To ensure that the theoretical model was sound and that the individual indicators (TGC, TSC and TCS) discriminated from each other, discriminant validity was calculated using Fornell and Larcker's (1981) test for discriminant validity. The guidelines applied for acceptable discriminant validity were as follows:

- composite reliability (CR) > 0.7
- average variance extracted (AVE) > 0.05
- discriminant validity (square root of AVE) to be greater than the correlation of the construct with all other constructs.

As can be seen in Table 6.45, CR for each indicator was greater than 0.07 and AVE was greater than 0.05 indicating there is convergent validity. In addition, the correlations between each of the three individual variables were all less than 0.85, which further substantiated convergent and discriminant validity.

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Table 6.45 Covergent and discriminant validity

	CR	AVE	TGC	TSC	TCS
			Square Root Ave		
TGC	0.930	0.573	0.757		
TSC	0.859	0.550	0.735	0.742	
TCS	0.843	0.574	0.615	0.685	0.758

To test the remaining hypotheses the structural model was reconstructed using all sub-cultural dimensions of organizational general and sustainability culture.

6.7.3 Testing H2

Multiple regression (using SPSS AMOS 21) was used to explore H2, and particularly to predict the relationships between the each of the retained trimmed measurement scales for the independent variables, firstly for general culture (GC), and secondly for sustainability culture (SC), and each of the measurement scales for the dependent variable, commitment to sustainability (CS). Anticipated results included determining the relative contribution of each of the general culture and sustainability culture scales to commitment to sustainability, and the predictive power of each of these scales (Pallant, 2010, p. 149). The output of this regression is presented in Appendix 6.7 and the relationships are discussed below, in the rest of Section 6.7.3.

6.7.3.1 Significance of General Culture Scales

6.7.3.1.1 G1 Challenge Current Thinking

There is a significant negative relationship between G1 and C18 Knowledge of Environmental Policies (B = -0.085, $P < 0.05$), and therefore G1 is related negatively to C18. There is no significant relationship between G1 and the three other Organizational Commitment to Sustainability scales: C16 Environmental Legitimation, C17 Knowledge of Sustainability Policies, or C19 Knowledge of Sustainability Commitment.

6.7.3.1.2 G2 Collaboration with Stakeholders

There is a significant negative relationship between G2 and C16 Environmental Legitimation (B = - 0.103, $P < 0.05$); thus G2 is related negatively to C16. By contrast, the relationship between G2 and C17 is significant and positive (B = 0.09, $P < 0.05$), as is the relationship between G2 and C19 (B = 0.133, $P < 0.01$), and, therefore, G2 is related positively to both C17 and C19. However, G2 had no significant relationship with C18 Knowledge of Environmental Policies.

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6.7.3.1.3 G3 Cooperation

The relationship between G3 Cooperation, and C17 Knowledge of Sustainability Policies has marginal negative significance (B = -0.131, P < 0.10), indicating G3 is related negatively to C17. G3 has no significant relationship with C16 Environmental Legitimation, C18 Knowledge of Environmental Policies, or C19 Knowledge of Sustainability Commitment.

6.7.3.1.4 G4B Diversity

There is a significant negative relationship between G4B and C18 Knowledge of Sustainability Commitment (B = -0.05, P < 0.05), and, consequently, G4B is related negatively to C18. G4B has no significant relationship with C16 Environmental Legitimation, C17 Knowledge of Sustainability Policies, or C19 Knowledge of Sustainability Commitment.

6.7.3.1.5 G5 Empowerment and Inclusiveness

G5 has no significant relationship with any of the four Commitment to Sustainability scales.

6.7.3.1.5 G6 Innovation and Creativity

The relationship between G6 and C19 Knowledge of Sustainability Commitment is significant and positive (B = 0.137, P < 0.05), so G6 is related positively to C19. This scale has no significant relationship with C16 Environmental Legitimation, C17 Knowledge of Sustainability Policies, or C18 Knowledge of Environmental Policies.

6.7.3.1.6 G7 Knowledge sharing/ Open Communication with all stakeholders

The relationship between G7 and C19 Knowledge of Sustainability Commitment is significant and negative (B = -0.081, P < 0.05), which means G7 is related negatively to C19. G7 has no significant relationship with C16 Environmental Legitimation, C17 Knowledge of Sustainability Policies, or C18 Knowledge of Environmental Policies.

6.7.3.1.8 G9 Long Term Perspective

G9 has no significant relationship with any of the Commitment to Sustainability scales.

6.7.3.1.9 G10B Transparency and Openness/ Trust

The relationship between G10B, and C19 Knowledge of Sustainability Commitment is positive and has marginal significance (B = -0.05, P < 0.10); thus G10B is related negatively to C19.

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6.7.3.2 Significance of Sustainability Culture Scales

6.7.3.2.1 S11 Connectedness

The positive relationship between S11 and C18 Knowledge of Environmental Policies is slightly significant (B = 0.117, P < 0.10), while there is a significant positive relationship between S11 and C16 Environmental Legitimation (B = 0.13, P < 0.05), and between S11 and C19 Knowledge of Sustainability Commitment (B = 0.147, P < 0.05). Thus, S11 is related positively to C16, C18 and C19. However, S11 has no significant relationship with C17 Knowledge of Sustainability Policies.

6.7.3.2.2 S12 Fairness/Equity

S12 has no significant relationship with the Commitment to Sustainability scales.

6.7.3.2.3 S13A Environmental Integrity

S13A is related positively to three Commitment to Sustainability scales: C16 Environmental Legitimation (B = 0.236, P < 0.01), C17 Knowledge of Sustainability Policies (B = 0.169, P < 0.05), and C18 Knowledge of Environmental Policies (B = 0.15, P < 0.05). However, S13A has no significant relationship with C19 Knowledge of Sustainability Commitment.

6.7.3.2.4 S13B Social Integrity

The relationship between S13B and C16 Environmental Legitimation (B = 0.125, P < 0.10), and also C19 Knowledge of Sustainability Commitment (B = 0.117, P < 0.10), is of marginal significance and positive. S13B has no significant relationship with either C17 Knowledge of Sustainability Policies, or C18 Knowledge of Environmental Policies.

6.7.3.2.5 S14 Proactive

While S14 has a significant positive relationship with three Commitment to Sustainability scales: C16 Environmental Legitimation (B = 0.465, P < 0.01), C18 Knowledge of Environmental Policies (B = 0.257; P < 0.01), and C19 Knowledge of Sustainability Commitment (B = 0.295, P < 0.01), it has no significant relationship with C17 Knowledge of Sustainability Policies.

6.7.3.2.6 S15 Responsibility

Finally, there is a significant positive relationship between S15 and C16 Environmental Legitimation (B = 0.069, P < 0.05), and no significant relationship with the other three

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Commitment to Sustainability scales: C17 Knowledge of Sustainability Policies, C18 Knowledge of Environmental Policies, and C19 Knowledge of Sustainability Commitment.

6.7.3.3 Conclusions for H2

In summary, two General Culture scales, C5 and G9, and one Sustainability Culture scale, S12, had no relationship with Commitment to Sustainability. Five scales had negative relationships with Commitment to Sustainability scales: G1 to C18 ($B = - 0.85$, $P < 0.05$); G2 to C16 ($B = -0.103$, $P < 0.05$); G3 to C17 ($B = -0.131$, $P < 0.1$); G4B to C18 ($B = -0.050$, $P < 0.05$); and G7 to C19 ($B = -0.081$, $P < 0.05$). Of the remaining retained culture scales, no single culture scale contributes to every one of the four Commitment to Sustainability scales, and, as shown in Table 6.47, more of the Sustainability Culture scales contributed to each of the Commitment to Sustainability Scales. Therefore, it can be concluded that, for Company A, while H1A, H1B and H1C are supported, H2 is not supported.

Table 6.46 Inter-Item Correlations for Retained Scales Following Scale Trimming and Goodness of Fit Tests

	G1	G2	G3	G4B	G5	G6	G7	G9	G10B	S11	S13A	S13B	S14	C16	C17	C18	C19 Factor 2
G1	1.000																
G2	.587**	1.000															
G3	.496**	.544**	1.000														
G4B	-.018	.063	-.064	1.000													
G5	.722**	.641**	.555**	.037	1.000												
G6	.609**	.577**	.628**	.029	.696**	1.000											
G7	.550**	.575**	.384**	.067	.624**	.462**	1.000										
G9	.504**	.542**	.645**	.076	.562**	.615**	.437**	1.000									
G10B	.564**	.653**	.543**	.060	.616**	.514**	.538**	.548**	1.000								
S11	.439**	.478**	.482**	.007	.550**	.522**	.427**	.544**	.485**	1.000							
S13A	.458**	.431**	.465**	.068	.508**	.516**	.394**	.484**	.466**	.490**	1.000						
S13B	.465**	.545**	.503**	.027	.566**	.488**	.460**	.489**	.538**	.510**	.600**	1.000					
S14	.472**	.442**	.454**	.032	.582**	.515**	.396**	.502**	.445**	.554**	.586**	.516**	1.000				
C16	.405**	.357**	.469**	.089	.523**	.495**	.349**	.471**	.443**	.536**	.568**	.539**	.672**	1.000			
C17	.439**	.484**	.482**	.080	.547**	.574**	.353**	.500**	.513**	.533**	.585**	.485**	.650**	.607**	1.000		
C18	.530**	.614**	.548**	.032	.637**	.614**	.437**	.563**	.576**	.593**	.584**	.578**	.647**	.598**	.881**	1.000	
C19 Factor 2	.300**	.409**	.375**	.003	.445**	.401**	.294**	.371**	.439**	.480**	.470**	.477**	.560**	.493**	.606**	.594**	1.000

**. Correlation is significant at the 0.01 level (2-tailed)

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Table 6.47 Relationships between Culture Scales and Commitment to Sustainability Scales

Scale	C16 Environmental Legitimation	C17 Knowledge of Sustainability Policies	C18 Knowledge of Environmental Policies	C19 Knowledge of Sustainability Commitment
General Culture Scales				
G1 Challenge Current Thinking	n.s.	n.s.	✓✓(-)	n.s.
G2 Collaboration with Stakeholders	✓✓(-)	✓✓(+)	n.s.	✓✓(+)
G3 Cooperation	n.s.	✓(-)	n.s.	n.s.
G4B Diversity	n.s.	n.s.	✓✓(-)	n.s.
G5 Empowerment and Inclusiveness	n.s.	n.s.	n.s.	n.s.
G6 Innovation and Creativity	n.s.	n.s.	✓✓(+)	n.s.
G7 Knowledge sharing/ Open Communication with all stakeholders	n.s.	n.s.	n.s.	✓✓(-)
G9 Long Term Perspective	n.s.	n.s.	n.s.	n.s.
G10B Transparency and Openness/ Trust	n.s.	n.s.	n.s.	✓(+)
Sustainability Culture Scales				
S11 Connectedness	✓✓(+)	n.s.	✓(+)	✓✓(+)
S13A Environmental Integrity	✓✓✓(+)	✓✓(+)	✓✓(+)	n.s.
S13B Social Integrity	✓(+)	n.s.	n.s.	✓✓✓(+)
S14 Proactive	✓✓✓(+)	n.s.	✓✓✓(+)	✓✓✓(+)
Notes: ✓✓✓ = *** p-value < 0.01; ✓✓ = ** p-value < 0.05; ✓ = * p-value < 0.10, t = p < 0.10 (+) = positive relationship; (-) = negative relationship n.s: non-significant relationship				

However, the individual Sustainability Culture dimensions have a more significant relationship with Commitment to Sustainability than the General Culture dimensions, indicating that organizations considering culture change should focus on incorporating these dimensions into their culture.

6.7.4 Testing H3: Subcultures

As discussed in Chapter 5, Section 5.9.6, for this survey, data was collected for eight subculture groups: the site and department in which the respondents work, the respondents' age, gender, educational qualifications, position level, the nature and category of their employment, and the number of years they had worked both with the organization and in their current position. Employees were required to enter their department in a text box, and there were an insufficient number of complete responses for statistical analysis. The data for all the other subculture groups was analysed.

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To determine the impact of subcultures on the relationship between each of an organization's General Culture (GC) and its Sustainability Culture (SC), and Commitment to Sustainability, the multi-group technique in SPSS AMOS 21 was used. The sub-samples were coded and the model was tested for each sub-sample (Byrne, 2010). Although multi-group analysis is sensitive to the size of sub-samples (i.e. groups), the groups with adequate size were converged and used in the analysis (Kline, 2011) and the regression weights were compared using a z-test transformation, which accounted for differences in subsample sizes, and determined the strength of the impact of subgroups on the relationships between each of General Culture (GC) and Sustainability Culture (SC), and Commitment to Sustainability (CS). A z-value +/-1.96 indicates significant difference, regardless of the differences in sample size of groups (i.e. sub-samples) (Kline, 2011).

Sixteen individual sub-hypotheses were formulated to precisely examine the impact of subcultures on the relationship between culture and commitment to sustainability (Table 5.3). Each of these was tested and the results are discussed below.

6.7.4.1 Role of Geographic Location

Although the surveys were distributed to eight of Company A's sites (Table 5.3), when multi-group analysis was conducted to determine the impact of geographic location as a subgroup on the relationship between General Culture (GC) and Sustainability Culture (SC), and Commitment to Sustainability, after running multiple iterations of the model, the results for sites H and I converged, while the results for all other 6 sites failed to converge. The results for sites H and I are presented in Appendix 6.8.

Site H is in a remote location of Australia, while Site I is located in an outer suburban area of a large Australian city. This data reveals that for the 36 relationships within General Culture, geographic location has a significant negative influence only for the relationship between G2 and C19 (z = -2.028, P < 0.05). Therefore, for all other relationships the data is consistent with H3A, and H3A is only partially supported.

For Sustainability Culture, for sites H and I, geographic location has a significant positive influence for the relationship between S11 and C16 (z = 2.641, P < 0.05). There is a significant negative influence for the relationship between S13A and C19 (z = -2.134, P < 0.01). For all other relationships, geographic location has no significant influence. Thus, H3B also is only partially supported.

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6.7.4.2 Role of Gender

When multi-group analysis was conducted to determine the impact of gender as a subgroup, for General Culture, gender had a strong significant negative influence for the relationship between G4B and C16 (z = - 2.719, P < 0.01). Other significant influences on relationships are strongly positive for G7 and C19 (z = 2.231, P < 0.05), and G10B and C16 (z = 2.41, P < 0.05) (Appendix 6.9). Consequently, as gender has no significant influence on the remaining 30 relationships, H3C is only partially supported.

For Sustainability Culture, the multi-group analysis revealed that, of the 19 relationships, gender has a significant negative influence for only two relationships: between S13A and C17 (z = -2.472; P < 0.05) and S14 and C18 (z = -2.248, P < 0.05). One relationship has very strong positive influence: that between S15 and C19 (z = 2.767, P < 0.01). Thus, H3D is partially supported.

6.7.4.3 Role of Age

Age as a subgroup had a more even distribution of members between four of the six age categories. As there were no members in the < 20 age category, and only 18 in the 60–69 category, these two categories were unsuitable for multi-group analysis. The other categories were divided into the two largest, and two smallest groups, before two separate rounds of multi-group analysis were conducted.

For General Culture, the results reveal that, for the 30-39 and 40-49 age groups, age had a negative influence on the relationships between G2 and C17 (z = -2.195, P < 0.05), and G4B and C17 (z = -2.061, P < 0.05). Age had a very significant positive influence on the relationship between G2 and C18 (z = 3.04, P < 0.01). For the 20-29 and 50-59 age groups, age had a significant negative influence on the relationship between G9 and C19 (z = 2.272, P < 0.01). There was a significant positive influence on the relationships between G5 and C19 (z = 2.135, P < 0.05). H3E, therefore, is just partially supported (Appendix 6.10).

For Sustainability Culture, for the 30 - 39 and 40 - 49 age groups, age had no significant negative influence on relationships. There was one significant positive relationship, specifically between S13B and C19 (z = 23.266, P < 0.01); and, S15 and C18 (P < 0.10). For the two other age groups, 20 - 29 and 50 - 59, age had a significant negative influence on one relationship: that between S11 and C 18 (z = -2.259, P < 0.05). The relationship between

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S13A and C18) was significant and positive (z = 2.014, P < 0.05). It can be concluded that H3F is weakly, partially supported.

6.7.4.4 Role of Position Level

As for geographic location, due to the distribution of responses across the five levels, ranging from team member/front line employee to senior management, although multiple iterations of the model were run, only the results for team members/front line employees, and team leaders/supervisors converged. The results for the other three position levels did not converge.

Examination of the General Culture multi-group analysis revealed one relationship for which position level had a significant negative influence: between G3 and C16 (z = -2.884, P < 0.01). For two other relationships, G7 and C16 (z = 2.378, P < 0.05); and, G9 and C16 (P < 0.05), position level had a significant positive influence. For Sustainability Culture, there were no significant relationships (Appendix 6.11). Thus the data partially, but slightly supports H3G, while H3F is not supported.

6.7.4.5 Role of Employment Type

Employment type describes the nature of the employment relationship with Company A, be it full-time, or part-time permanent, casual or contract employment. Multi-group analysis was conducted to determine the impact of employment as a subgroup; multiple iterations of the models were run, and while the results converged for permanent and casual employment, they did not converge for other employment categories. The analysis for General Culture identified that, for four of the 36 relationships, employment type had significant influence. This influence was negative for G5 and C16 (z = -2.707, P < 0.01) and G5 and C19 (z = -2.02, P < 0.05), while it was positive for G1 and C17 (z = 3.285, P < 0.01), and for G7 and C16 (z = 2.071, P < 0.05) (Appendix 6.12).

The analysis for Sustainability Culture identified that employment type had a significant negative influence for the relationships between S13A and C16 (z = -2.054, P < 0.05), and S13A and C19 (z = -2.9, P < 0.01), and a significant positive influence for the relationships between S13B and C16 (z = 1.779, P < 0.10), S13B and C18 (z = 2.115, P < 0.05), S13B and C19 (z = 4.739, P < 0.01) and S15 and C19 (z = 1.657, P < 0.10) (Appendix 6.12). Thus, H3I and H3J were somewhat partially supported by the data.

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6.7.4.6 Role of Tenure

This subgroup has four categories: less than one year with the company, one to four years, five to nine years, and ten or more years with the company. Multiple iterations were run when conducting the multi-group analysis and the results converged for only two categories: those employees with less than one year's tenure, and those with one to four years' tenure. For General Culture, tenure had a significant negative influence on the relationship between G10B and C16 ($z = -2.775$. $P < 0.05$), G10B and C18 ($z = -2.82$, $P < 0.05$), and G10B and C19 ($z = -2.149$, $P < 0.05$). For Sustainability Culture, tenure was shown to have a significant negative influence on the relationship between S13B and C16 ($z = -2.234$, $P < 0.05$), and a significant positive influence on that between S13A and C16 ($z = 2.369$, $P < 0.05$), and S13A and C19 ($z = 2.205$, $P < 0.05$) (Appendix 6.13). It can be concluded therefore, that the data partially, but not strongly supports H3K and H3L.

6.7.4.7 Role of Years Current Position Held

This subgroup also has four categories: less than one year, one to four years, five to nine years, and ten or more years in the position. Similarly to tenure, the results converged for only those employees with less than one year, and those with one to four years in their current position. For General Culture, the number of years in their current position had a significant negative influence on the relationships between both G9 and C19 ($z = -2.001$, $P < 0.05$), and G10B and C19 ($z = -1.994$, $P < 0.05$). There was a significant positive influence on the relationships between G2 and C19 ($z = 2.388$, $P < 0.05$), and G5 and C17 ($z = 2.517$, $P < 0.05$). For Sustainability Culture, years in the current position had a significant negative influence on the relationship between only S13B and C16 ($z = -3.164$, $P < 0.05$), while there was a significant positive influence on the relationship between S13A and C16 ($z = 2.87$, $P < 0.01$) (Appendix 6.14). Consequently, hypotheses H3M and H3N are only partially supported.

6.7.4.8 Role of Education Level

The final subgroup, education, describes the highest level of education attained by each employee, with eight levels, ranging from some high school education, to a masters degree or higher. Multi-group analysis was conducted to determine the influence of education level as a subgroup; multiple iterations of the models were run, and the results converged for

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TAFE/Trade/Technical certificate[2] and for bachelor degree qualifications, but did not converge for other education categories.

For Sustainability Culture, there were two relationships for which education level had a significant negative influence, those between G1 and C18 (z = -2.016, $P < 0.05$), and C10B and C16 (z = -2.026, $P < 0.05$). Four relationships had a significant positive relationship: G2 and C16 (z = 2.826, $P < 0.01$); G9 and C19 (z = 2.286, $P < 0.05$); G9 and C 16 (z = 1.966, $P < 0.05$); and, G10B and C18 (z = 3.073, $P < 0.01$). For Sustainability Culture, education level had a significant negative influence on the relationships between S13A and C17 (z = -2.127, $P < 0.05$) and S14 and C18 (z = -2.418, $P < 0.05$). It had a significant positive influence on the relationship between S11 and C17 (z = 2.15, $P < 0.05$) (Appendix 6.15). Thus, as for all other subculture groups, H3O and H3P were partially supported, but not greatly so.

6.7.4.9 Conclusions from Testing H3

Overall, it can be concluded that, in this study, while pre-determined demographic groups (geographic location, gender, age, position level, employment type, tenure, years in current position, and education level), had a significantly positive influence on a few of the relationships between the General Culture measurement scales, and the Commitment to Sustainability scales, and had a significantly negative influence on some other relationships, for the majority of relationships there is no significant influence. Subcultures also have a significant positive or negative influence on a small number of the relationships between the Sustainability Culture measurement scales, and the Commitment to Sustainability scales. Again, for the majority of relationships there is no influence. As Tables 6.48 and 6.49 show, the influence of subcultures on majority of relationships between the culture scales and the commitment to sustainability scales were not significant, either positively or negatively.

The sub-hypotheses were only slightly partially supported, with the exception of H3H which was not supported. Further, a small number of positive relationships also were discovered for most subculture groups. No positive relationships existed for:

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[2] Across Australia TAFE is a large multi-campus educational vocational and training organization which provides technical and skills training courses, certificate level courses, and some associate degrees.

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- Geographic location: the relationship between General Culture and the organization's Commitment to Sustainability

- Geographic location: the relationship between Sustainability Culture and the organization's Commitment to Sustainability

- Position level: the relationship between Sustainability Culture and the organization's Commitment to Sustainability

- Years of employment with the organization ("Tenure"): the relationship between General Culture and the organization's Commitment to Sustainability.

Overall, for H3, while subcultures increase the intensity of the relationship between each of General Culture, and Sustainability Culture, and the organization's Commitment to Sustainability, the affect is limited to significant relationships between small numbers of individual culture dimension and sustainability commitment measures.

Therefore, overall, in the context of the organization studied, H3 is partially supported.

Table 6.48 Sub Groups: Impact on Relationships between Culture Scales and Commitment to Sustainability Scales

General Culture Scales	Geographic Location (Sites I & H)				Gender				Age Group 1 (30-39 & 40-49)			
	C16	C17	C18	C19	C16	C17	C18	C19	C16	C17	C18	C19
G1 Challenge Current Thinking	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
G2 Collaboration with Stakeholders	n.s.	n.s.	n.s.	✓✓(-)	n.s.	n.s.	n.s.	n.s.	n.s.	✓✓(-)	✓✓✓(+)	n.s.
G3 Cooperation	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
G4B Diversity	n.s.	n.s.	n.s.	n.s.	✓✓✓(-)	n.s.	n.s.	n.s.	n.s.	✓✓(-)	n.s.	n.s.
G5 Empowerment and Inclusiveness	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
G6 Innovation and Creativity	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
G7 Knowledge sharing/ Open Communication with all Stakeholders	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	✓✓(+)	n.s.	n.s.	n.s.	n.s.
G9 Long Term Perspective	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
G10B Transparency and Openness/ Trust	n.s.	n.s.	n.s.	n.s.	✓✓(+)	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
General Culture Scales	**C16**	**C17**	**C18**	**C19**	**C16**	**C17**	**C18**	**C19**	**C16**	**C17**	**C18**	**C19**
S11 Connectedness	✓✓✓(-)	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
S13A Environmental Integrity	n.s.	n.s.	n.s.	✓✓(-)	n.s.	✓✓(-)	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
S13B Social Integrity	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	✓✓(+)
S14 Proactive	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	✓✓(-)	n.s.	n.s.	n.s.	n.s.	n.s.
S15 Responsibility	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	✓✓✓(+)	n.s.	n.s.	n.s.	n.s.

Notes: ✓✓✓ = *** p-value < 0.01; ✓✓ = ** p-value < 0.05; ✓ = * p-value < 0.10, t = p < 0.10

(+) = positive impact; (-) = negative impac

n.s: non-significant relationship t

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Table 6.48 (cont.) Sub Groups: Impact on Relationships Between Culture Scales and Commitment to Sustainability Scales

General Culture Scales	Age Group 2 (50-59 & 20-29)				Position Level (Team Member/ Front Line Employee & Team leader/ Supervisor)				Employment Type (Fulltime & Casual)			
	C16	C17	C18	C19	C16	C17	C18	C19	C16	C17	C18	C19
G1 Challenge Current Thinking	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	✓✓✓(+)	n.s.	n.s.
G2 Collaboration with Stakeholders	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
G3 Cooperation	n.s.	n.s.	n.s.	n.s.	✓✓✓(-)	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
G4B Diversity	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
G5 Empowerment and Inclusiveness	n.s.	n.s.	n.s.	✓✓(+)	n.s.	n.s.	n.s.	n.s.	✓✓✓(-)	n.s.	n.s.	✓✓(-)
G6 Innovation and Creativity	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
G7 Knowledge sharing/ Open Communication with all Stakeholders	n.s.	n.s.	n.s.	n.s.	✓✓(+)	n.s.	n.s.	n.s.	✓✓(+)	n.s.	n.s.	n.s.
G9 Long Term Perspective	✓✓(-)	n.s.	n.s.	n.s.	✓✓(+)	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
G10B Transparency and Openness/ Trust	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
General Culture Scales	**C16**	**C17**	**C18**	**C19**	**C16**	**C17**	**C18**	**C19**	**C16**	**C17**	**C18**	**C19**
S11 Connectedness	n.s.	n.s.	✓✓(-)	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
S13A Environmental Integrity	n.s.	n.s.	✓✓(+)	n.s.	n.s.	n.s.	n.s.	n.s.	✓✓(-)	n.s.	n.s.	✓✓✓(-)
S13B Social Integrity	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	✓(+)	n.s.	✓✓(+)	✓✓(+)
S14 Proactive	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
S15 Responsibility	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	✓(+)

Notes: ✓✓✓ = *** p-value < 0.01; ✓✓ = ** p-value < 0.05; ✓ = * p-value < 0.10, t = p < 0.10
(+) = positive relationship; (-) = negative relationship
n.s: non-significant relationship

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Table 6.48 (cont.) Sub Groups: Impact on Relationships between Culture Scales and Commitment to Sustainability Scales

General Culture Scales	Tenure (Less than 1 year & 1-4 years)				Years in Position (Less than 1 year & 1-4 years)				Education Level (TAFE & Bachelor)			
	C16	C17	C18	C19	C16	C17	C18	C19	C16	C17	C18	C19
G1 Challenge Current Thinking	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	✓✓(-)	n.s.
G2 Collaboration with Stakeholders	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	✓✓(+)	n.s.	✓✓✓(+)	n.s.	n.s.
G3 Cooperation	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
G4B Diversity	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
G5 Empowerment and Inclusiveness	n.s.	n.s.	n.s.	n.s.	n.s.	✓✓(+)	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
G6 Innovation and Creativity	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
G7 Knowledge sharing/ Open Communication with all stakeholders	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
G9 Long Term Perspective	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	✓✓(-)	✓✓(+)	n.s.	n.s.	✓✓(-)
G10B Transparency and Openness/Trust	✓✓✓(-)	✗	✓✓✓(-)	✓✓(-)	n.s.	n.s.	n.s.	✓✓(-)	n.s.	✓✓(-)	✓✓✓(+)	n.s.
General Culture Scales	**C16**	**C17**	**C18**	**C19**	**C16**	**C17**	**C18**	**C19**	**C16**	**C17**	**C18**	**C19**
S11 Connectedness	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	✓✓(+)	n.s.	n.s.
S13A Environmental Integrity	✓✓(+)	n.s.	n.s.	✓✓(+)	✓✓✓(+)	n.s.	n.s.	n.s.	n.s.	✓✓(-)	n.s.	n.s.
S13B Social Integrity	✓✓(-)	n.s.	n.s.	n.s.	✓✓✓(-)	n.s.	n.s.	n.s.	n.s.	n.s.	✓✓(-)	n.s.
S14 Proactive	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
S15 Responsibility	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.

Notes: ✓✓✓ = *** p-value < 0.01; ✓✓ = ** p-value < 0.05; ✓ = * p-value < 0.10, t = p < 0.10

(+) = positive relationship; (-) = negative relationship

n.s: non-significant relationship

Table 6.49 Impact of Subcultures on Relationship between Organizational Culture and Sustainability Commitment

Subculture		Hypotheses	Max possible signif. relationships	No. signif. negative relationships*	No. signif. positive relationships*
Geographic Location	H3A	Geographic location is negatively related to the relationship between General Culture and the organization's Commitment to Sustainability.	36	1	0
	H3B	Geographic location is negatively related to the relationship between Sustainability Culture and the organization's Commitment to Sustainability.	20	2	0
Gender	H3C	Gender is negatively related to the relationship between General Culture and the organization's Commitment to Sustainability.	36	1	2
	H3D	Gender is negatively related to the relationship between Sustainability Culture and the organization's Commitment to Sustainability.	20	2	1
Age	H3E	Employees' Age is negatively related to the relationship between General Culture and the organization's Commitment to Sustainability.	36	3	2
	H3F	Employees' Age is negatively related to the relationship between Sustainability Culture and the organization's Commitment to Sustainability.	20	1	2
Position Level	H3G	Position Level is negatively related to the relationship between General Culture and the organization's Commitment to Sustainability.	36	1	2
	H3H	Position Level is negatively related to the relationship between Sustainability Culture and the organization's Commitment to Sustainability.	20	0	0
Type of Employment	H3I	Type of Employment is negatively related to the relationship between General Culture and the organization's Commitment to Sustainability.	36	2	2
	H3J	Type of Employment is negatively related to the relationship between Sustainability Culture and the organization's Commitment to Sustainability.	20	2	2

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Table 6.49 (cont.) Impact of Subcultures on Relationship between Organizational Culture and Sustainability Commitment

Subculture		Hypotheses	Max possible signif. relationships	No. signif. negative relationships*	No. signif. positive relationships*
Years of employment (Tenure)	H3K	Years of employment with the organization ("Tenure") is negatively related to the relationship between General Culture and the organization's Commitment to Sustainability.	36	3	0
	H3L	Years of employment with the organization ("Tenure") is negatively related to the relationship between Sustainability Culture and the organization's Commitment to Sustainability.	20	1	2
Years in current position	H3M	Years in current position is negatively related to the relationship between General Culture and the organization's Commitment to Sustainability.	36	2	2
	H3N	Years in current position is negatively related to the relationship between Sustainability Culture and the organization's Commitment to Sustainability.	20	1	1
Education level	H3O	Education level is negatively related to the relationship between General Culture and the organization's Commitment to Sustainability.	36	3	3
	H3P	Education level is negatively related to the relationship between Sustainability Culture and the organization's Commitment to Sustainability.	20	2	1
*p-value is either <0.1 or < 0.05					

6.7.5 Common method analysis

Being a survey study, the results of the analysis of the Employee Organizational Culture Survey are subject to the bias caused by common method variance (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). The Harman's single factor analysis was used to examine the presence of this bias. The results of this test shown in Table 6.50, suggest that a single factor emerged which explains 40.6% of the variance. As this is less than 50%, common method bias does not threaten the validity of the results.

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Table 6.50 Harman Single Factor Test

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	29.614	40.567	40.567	29.614	40.567	40.567
2	4.519	6.191	46.758			
3	2.786	3.817	50.575			
4	2.591	3.549	54.124			

6.8 Chapter 6 Summary

Chapter 6 analysed and presented the results for the qualitative and quantitative components of this research study. The qualitative data obtained from interviews and thematic analyses of company documents were presented. Five hypotheses relating to the three research questions also were tested.

From the Organizational Commitment to Sustainability Survey, which was completed by eight of the interviewed executive, it was concluded that Company A's commitment to sustainability is either at Mirvis and Googins' Stage 2 (Engaged), or (Innovative) of Mirvis and Googins' Five Stages of Corporate Citizenship (2006a, 2006b), which is equivalent to Dunphy et al.'s (2007) Phase 3 (Compliance), or Phase 4 (Efficiency) of Corporate Sustainability. An outcome of the analysis of the Employee Organizational Culture Survey was that five measurement scales were proven to be a poor fit: three General Culture scales (G4A Total Diversity - Scale 1; G8 Total Learning; and G10A Transparency Openness and Trust Scale I – Integrity). Two sustainability measures also were removed. S15 Total Responsibility was not reliable, and within the scale, there was negative inter-item correlation. Finally, S12, Total Fairness and Equity was dropped due to poor fit.

In summary the results of the five hypotheses were:

- H1A: An organization's culture is composed of General Culture and Sustainability Culture.

  H1A is supported by the data.

- H1B: An organization's General Culture is positively related to the level of its commitment to sustainability.

  H1B is supported by the data.

- H1C: An organization's Sustainability Culture is positively related to the level of its commitment to sustainability.

  H1C is fully supported by the data.

- H2: Each identified cultural dimension positively contributes to an organization's level of Commitment to Sustainability.

    H2 was not supported by the data.

- H3: The presence of subcultures changes the intensity and direction of the relationships between both General Culture (GC) and the organization's commitment to sustainability (CS), and between the Sustainability Culture (SC) and commitment to sustainability.

    H3 and its related sub-hypotheses, were partially supported by the data.

Chapter 7 integrates the results of this research study. It compares and contrasts the results from the qualitative and quantitative analyses, draws conclusions from the key research findings, and, discusses their implications for current thinking. Limitations of the study and recommendations for future research also are considered.

CHAPTER 7 DISCUSSION AND CONCLUSIONS

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7.1 Chapter 7 Overview
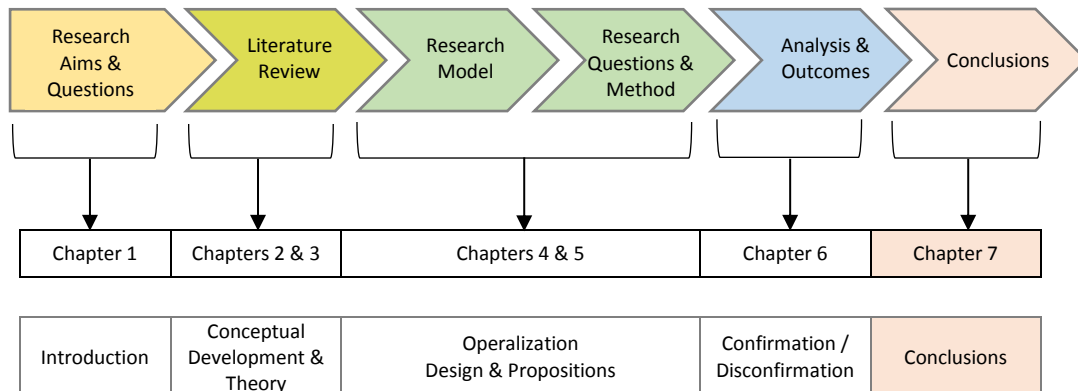
Figure 7.1 Thesis Structure

This thesis began with a desire to understand whether organizations' cultures may enable them to become more sustainable. Therefore, the aim of the research study was to determine the existence, relevance and comparative importance of organizational culture in facilitating organizations to achieve sustainability. A model of specific culture dimensions for organizations seeking to increase their commitment to sustainability was developed and tested, using a mixed methods case study in which the quantitative and qualitative research was conducted simultaneously. The primary method was two quantitative surveys, with qualitative interviews, and a thematic document analysis providing a more complete picture.

This final chapter integrates the results of this research study, and discusses the results from the qualitative and quantitative analyses. It presents conclusions from the key research findings, and discusses their implications for current thinking. Limitations of the study and recommendations for future research are presented.

7.2 Literature Overview

7.2.1 Sustainable Development

From the early 1980's, research scientists, governments and international bodies increasingly have focused on global environmental change, and the related loss of biodiversity (Stern, P. C., Young, & Druckman, 1992; Weisz et al., 2001), and elevated atmospheric carbon dioxide, which is generating increased global temperatures, warmer oceans, and changing global climate patterns (Flannery, 2010).

Increasingly, economic and industrial activity is believed to be a significant contributor to this substantial damage to the world's ecology and also to impact social structures. As the

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debate surrounding global sustainability intensifies, increasing attention is being paid to the mounting environmental and social damage and resources shortages attributed to economic development. Many fear that the deterioration of the environment, global warming, escalating population growth, resources shortages, poverty, and social inequality, will threaten the well-being and continued development of human society (e.g. Buhaug, Gleditsch, & Theisen, 2010; Dunphy et al., 2007; Gore, 1992, 2006; Starik & Kanashiro, 2013; Stern, N., 2007).

The World Commission on Environment and Development (WCED)'s definition of "sustainable development", with its focus on three areas, economic sustainability, environment/ ecological sustainability, and societal/ human sustainability, is widely known and cited: "Development that meets the needs of current generations without compromising the ability of future generations to meet their needs and aspirations" (Brundtland & Khalid, 1987, p. 43).

Subsequently, there have been many interpretations, definitions and applications of sustainable development (Frazier, 1997), with Dunphy's (2011, p. 9) definition adopted for this research study:

> Sustainability consists in actions that:
>
> - extend the socially useful life of organizations
> - enhance the planet's ability to maintain and renew the viability of the biosphere and protect all living species
> - enhance society's ability to maintain itself and to solve its major problems
> - maintain a decent level of welfare, participation and personal freedom for present and future generations of humanity.

7.2.2 Organizations and sustainability

Business can play a significant role in the development of more sustainable societies (Baumgartner, 2008, 2010) and, particularly, in reducing deteriorating environmental quality, poverty, and social inequality, and in advancing society towards sustainable development (Harris, L. C. & Crane, 2002). It is argued that organizations should be operating more sustainably (Hart, C., 1997; Hawken, 1993b), improve their ecological and environmental performance (Shrivastava, 1995b; Shrivastava & Hart, 1995), and contribute to local and global communities (Bevan & Gitsham, 2009; Cescau, 2007; Dunphy et al., 2007; Kolk & van Tulder, 2010; Preuss & Co´rdoba-Pachon, 2009). Increasingly, demands are being

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placed on organizations to better manage their environmental impact (Benn & Dunphy, 2007b).

While many companies have begun to focus on sustainability and change their operations to improve their environmental and social performance, their actual commitment to sustainability is debated (Dando & Swift, 2003; Doane, 2000; Steger et al., 2007), as, overall, their actions have not generated sufficient improvements (Espinosa & Porter, 2011).

For this study, organizational sustainability was defined holistically (Bansal, 2005; Linnenluecke et al., 2009; Russell et al., 2007), and comprised of four frameworks, such that, to become sustainable, organizations need to:

1. continue to focus on long term economic performance
2. adopt responsibility for minimising or even mitigating ecological and environmental outcomes of their activities
3. give attention to stakeholder groups, including employees and the local and global communities which they impact
4. take a holist approach in which sustainability incorporates all three of the above perspectives.

7.2.3 Sustainability and Organizational Culture

The review of organizational culture literature revealed that a number of scholars suggest that, organizations intending to adopt sustainability principles, should cultivate a clearly articulated and shared organizational culture, which is consistent with, and enables sustainable development (e.g. Avery & Bergsteiner, 2010; Baumgartner, 2008, 2009, 2012; Benn et al., 2006; Crane, 2000; Dunphy, 2011; Fernández et al., 2003; Molnar & Mulvihill, 2003; Russell & McIntosh, 2011; Shrivastava & Hart, 1995; Starik & Rands, 1995).

The organizational sustainability literature revealed particular values, attitudes, behaviours, and cultural dimensions which researchers consider important to sustainable organizations 42 different cultural dimensions related to organizational sustainability were identified, which, after examination, were reduced to 18 defined dimensions. Subsequently, these were categorised into two groups: General Cultural Dimensions, which may apply more broadly to many organizations, and Sustainability Cultural Dimensions which are specific to organizational sustainability.

7.3 Research Questions

This study sought to test these identified organizational culture dimensions, and to examine the relationship between organizational culture and organizational commitment to

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sustainability. It also aimed to identify the comparative importance of these cultural dimensions and to determine whether organizational subcultures affect these relationships.

Three research questions were developed from the literature review:

- R1: Is there a relationship between organizational culture and the level of organizational commitment to sustainability? If so, what is the nature of that relationship?
- R2: Given there are different types of organizational culture, which of the identified cultural dimensions are most important to an organization's commitment to sustainability?
- R3: Does the presence of subcultures within an organization make a difference to the relationship between organizational culture and organizational commitment to sustainability?

These research questions led to five hypotheses which were tested in this study. The conclusions from the hypotheses testing are presented in Section 7.5.

7.4 Study Methodology

A mixed methods study was applied within a major Australian owned multinational organization (Company A). This study was comprised of qualitative semi-structured interviews with executives, a thematic document analysis, a survey of sustainability commitment completed by interviewed executives, and an employee survey which measured both cultural dimensions and sustainability commitment.

The executive interviews concentrated on two areas: firstly, the interviewees' knowledge about Company A's commitment to sustainability and any specific areas of sustainability focus. Secondly it focused on the company's culture; the depth of the organization's espoused culture; the enacted culture; and incorporated questions about three dimensions of organizational culture (Reflection, Systems Thinking, and Wholism).

The analyzed documents were obtained from the company's websites, and included sustainability policy statements, information about the company's values and culture, sustainability web-pages, annual Health and Safety Reports, annual Sustainability Reports, Annual Reports, and information about the philanthropic foundation.

The Organizational Commitment to Sustainability Survey had two sections. The first was adopted from the 2011 MIT Sloan/BCG sustainability and innovation survey (Haanaes et al., 2012; Kiron et al., 2012). The second section incorporated a survey tool developed by the

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Boston College Center for Corporate Citizenship (to assist organizations to measure their level of corporate citizenship development (Mirvis & Googins, 2006a, 2009).

The Employee Organizational Culture Survey was a customised survey, with three sections. The largest section measured organizational culture; and the second section measured employees' views regarding the organization's commitment to sustainability. A third section gathered demographic data. The majority of the scales were adopted directly from existing surveys and had acceptable validity in previous studies. Four scale measures were developed from defined concepts in the literature, as no suitable existing scales were identified. Three more abstract dimensions, Reflection, Systems Thinking and Wholism, were included in the interviews with senior executives.

Thus, organizational culture was determined in three ways: via information obtained in the executive interviews, from the organization's documents, and the employee survey. The company's commitment to sustainability was determined from four sources: the organization's documents, the executive interviews, the survey of sustainability commitment completed by executives, and the employee survey.

7.5 Research Conclusions

7.5.1 Relationship between Organizational Culture and Commitment to Sustainability

The first research question (R1) asked: Is there a relationship between organizational culture and the level of organizational commitment to sustainability? If so, what is the nature of that relationship?

The literature revealed that organizational culture is closely linked to the success of environmental sustainability initiatives (Abbett et al., 2010). Benn et al. (2006), and Russell and MacIntosh (2011) drew a clear association between culture and organizational sustainability. A number of researchers have found a significant correlation between an organization's culture and the implementation of CSR (e.g. Collier & Esteban, 2007; Deng & Hu, 2010; Mirvis & Googins, 2006b, 2009; Sakai, 2010; van Marrewijk, 2003). Avery and Bergsteiner (2010) observed that organizations seeking to adopt sustainable practices require a strong, enabling and shared culture. Hoffmann (2010) emphasized that, to address climate change, organizations need to consider their cultural values. Baumgartner (2009, 2012; 2007), determined there is an important relationship between organizational culture and

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organizational sustainability. This supported others who proposed that an organization's culture is fundamental to promoting sustainability (Lacy et al., 2009; Morsing & Oswald, 2009; Rimanoczy & Pearson, 2010; Wirtenberg et al., 2007).

Hypothesis 1A proposed that an organization's culture is comprised of two different constructs, General Culture dimensions and Sustainability Culture dimensions. Testing of each construct demonstrated that each has a separate bearing on the level of organizational Commitment to Sustainability.

Two additional hypotheses were related to these constructs. Hypothesis H1B proposed that an organization's General Culture is positively related to the level of its Commitment to Sustainability. Hypothesis H1C submitted that an organization's Sustainability Culture is positively related to the level of its Commitment to Sustainability.

Testing of H1B and H1C showed a strong, positive relationship between General Culture and organizational Commitment to Sustainability, and a strong and positive relationship between organizational Sustainability Culture and Commitment to Sustainability. Together, both General Culture and Sustainability Culture predict commitment to sustainability and, in this study, were found to explain 64% of the variation in organizational Commitment to Sustainability.

With H1A, H1B and H1C all supported, this study has demonstrated that there is a relationship between organizational culture and commitment to sustainability.

This research study has contributed to the literature by identifying and validating that culture has two distinct aspects: General Cultural dimensions, comprised of those dimensions which may exist in organizations whether or not they are progressing towards sustainability; and Sustainability Cultural Dimensions. Further, with each group having a positive relationship with an organization's Commitment to Sustainability, this evidence supports previous research which concluded there is a strong association between culture and organizational commitment to sustainability.

7.5.2 Importance of Cultural Dimensions to Commitment to Sustainability

The second research question (R2) was: Given there are different types of organizational culture, which of the identified cultural dimensions are most important to an organization's commitment to sustainability?

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From the literature, initially, 42 organizational cultural dimensions related to organizational sustainability were identified, which after close examination, were reduced to a set of 18 specifically defined dimensions. In the case study, the presence of these dimensions was determined in three ways: through thematic analysis of the organization's documents, from the interviews with senior executives, and, by way of scale measures included in the employee survey.

A series of analyses were undertaken on the Employee Survey results. Firstly, prior to hypotheses testing, the measurement scales themselves were analysed. Reliability analysis identified that one of the Sustainability Culture scales, S15 Responsibility, had low internal consistency, and overall low scale reliability. As progressive trimming of items from the scale did not sufficiently increase internal consistency and overall low scale reliability, this scale was deleted from all further analyses.

Confirmatory Factor Analysis (CFA) then was conducted to test how well each of the survey measurement scales measured the defined cultural and sustainability commitment constructs. In all, 24 items were deleted from the remaining scales. Goodness of Fit (GOF) was calculated for each of the trimmed scales, and three General Culture scales did not fit the model: G4A Total Diversity, G10A Transparency, Openness and Trust Scale 1, and G8 Learning. One Sustainability Culture scale, S12 Fairness and Equity, also did not fit the model. These scales, therefore, were dropped. Finally, the 12 item C18 Knowledge of Environmental Policies did not fit the model, but, ultimately, the second order factor, comprised of five of the original 12 items, was retained.

It can be concluded, therefore, that, although the literature proposed Learning (e.g.Benn, Dunphy, & Griffiths, 2004; Edwards, M. G., 2009; Fernández et al., 2003; Smith, P. A. C. & Sharicz, 2011) Fairness and Equity (e.g. Costanza et al., 1993; Gladwin, Kennelly, et al., 1995; Mirchandi & Ikerd, 2008) and Responsibility (Mirchandi & Ikerd, 2008; Sakai, 2010; Stubbs & Cocklin, 2007, 2008b) to be important cultural dimensions for commitment to organizational sustainability, this study did not support these.

Qualitative interview data was obtained for several culture dimensions, Reflection (e.g.Dunphy et al., 2007; Edwards, M. G., 2009; Mirchandi & Ikerd, 2008; Smith, P. A. C. & Sharicz, 2011), Systems Thinking (e.g.Hind et al., 2009; Jamali, 2006; Molnar & Mulvihill, 2003; Stubbs & Cocklin, 2008a, 2008b) and Wholism (Epstein, 2008; Hart, S. L. & Dowell,

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2011; Mirchandi & Ikerd, 2008). While these were not statistically measured and analysed, the qualitative interviews revealed scant evidence of these. Similarly, there was minimal definitive evidence for Wholism.

Hypothesis 2, which was associated with R2, stated: Each identified cultural dimension positively contributes to an organization's level of commitment to sustainability. The study revealed that, of the original 18 cultural dimensions, seven made a positive contribution to organizational commitment to sustainability:

- four Sustainability Culture dimensions (Connectedness, Proactive, and Integrity (measured by two scales, Environmental Integrity, Social Integrity), and
- three General Culture dimensions (Innovation and Creativity, Collaboration with Stakeholders, and Transparency and Openness/ Trust).

The remaining dimensions made:

- neither a positive nor negative contribution (Empowerment and Inclusiveness, Long term Perspective
- a slight negative contribution (Cooperation), or
- contributed negatively (Challenge Current Thinking, Diversity, Knowledge sharing/ Open Communication with all Stakeholders).

In summary, the results of this study add to previous research, by finding that, individually, seven cultural dimensions identified from the literature, are important to an organization's sustainability commitment. Therefore, Hypothesis 2 was partially supported.

To answer research question 2, Table 7.1 presents the ranking of each cultural dimension according to their contribution to Commitment to Sustainability, from the greatest to the least contribution.

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Table 7.1 Cultural Dimensions and Relationship to Commitment to Sustainability

Rank	GC or SC*	Cultural Dimensions	Relationships	Conclusion
1	SC	Proactive	Strong positive relationships with Environmental Legitimation, Knowledge of Environmental Policies, and Knowledge of Sustainability Commitment. No relationship with Knowledge of Sustainability Policies.	Contributes to Commitment to Sustainability.
2	SC	Integrity – Environmental*	Strong positive relationship with Environmental Legitimation. Positive relationships with Knowledge of Sustainability Policies and Knowledge of Environmental Policies. No relationship with Knowledge of Sustainability Commitment.	Contributes to Commitment to Sustainability.
3	SC	Connectedness	Positive relationships with Environmental Legitimation and Knowledge of Sustainability Commitment. Weak positive relationship with Knowledge of Environmental Policies. No relationship with Knowledge of Sustainability Policies.	Contributes to Commitment to Sustainability.
4	SC	Integrity – Social*	Weak positive relationship with Environmental Legitimation. Strong positive relationship with Knowledge of Sustainability Commitment. No other relationships.	Contributes to Commitment to Sustainability.
5	GC	Innovation and Creativity	Positive relationship with Knowledge of Sustainability Commitment. No other relationships.	Contributes to Commitment to Sustainability.
6	GC	Collaboration with Stakeholders	Negative relationship with Environmental Legitimation. Positive relationship with Knowledge of Sustainability Policies and Knowledge of Sustainability Commitment. No relationship with Knowledge of Environmental Policies.	Contributes to Commitment to Sustainability.
7	GC	Transparency and Openness/ Trust	Weak positive relationship with Knowledge of Sustainability Commitment. No other relationships.	Weak contribution to Commitment to Sustainability.
8	GC	Empowerment and Inclusiveness	No relationships with Commitment to Sustainability scales.	Does not contribute to Commitment to Sustainability.
8	GC	Long term Perspective	No relationships with Commitment to Sustainability scales.	Does not contribute to Commitment to Sustainability.
10	GC	Cooperation	Weak negative relationship with Knowledge of Sustainability Policies. No other relationships.	Does not contribute to Commitment to Sustainability, and may slightly inhibit it.

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Table 7.1 (cont.) Cultural Dimensions and Relationship to Commitment to Sustainability

Rank	GC or SC*	Cultural Dimensions	Relationships	Conclusion
11	GC	Challenge current thinking	Negative relationship with Knowledge of Environmental Policies. No other relationships.	Does not contribute to Commitment to Sustainability, and may inhibit it.
11	GC	Diversity	Negative relationship with Knowledge of Environmental Policies. No other relationships.	Does not contribute to Commitment to Sustainability, and may inhibit it.
11	GC	Knowledge sharing/ Open Communication with all Stakeholders	Negative relationship with Knowledge of Sustainability Commitment. No other relationships.	Does not contribute to Commitment to Sustainability, and may inhibit it.
	SC	Fairness/ equity (scale dropped)	Scale did not fit the data. No relationships with Commitment to Sustainability scales.	Not able to statistically determine relationships.
	GC	Learning (scale dropped)	Scale did not fit the data. No relationships with Commitment to Sustainability scales.	Not able to statistically determine relationships.
	SC	Responsibility (scale dropped)	Scale had low internal consistency and reliability. Was deleted and not further analysed.	Not able to statistically determine relationships.
	SC	Reflection	Interview results provided little evidence of Reflection at Company A.	Not able to statistically determine relationships.
	SC	Systems Thinking	Interview results provided little evidence of systems thinking at Company A.	Not able to statistically determine relationships.
	SC	Wholism	Interview results provided little evidence of Reflection at Company A.	Not able to statistically determine relationships.

GC = General Cultural Dimension; SC = Sustainability Cultural Dimension
*The Integrity cultural dimension was measured by 2 Scales: Integrity - Environmental and Integrity – Social

7.5.3 Subcultures and Relationship between Organizational Culture and Organizational Commitment to Sustainability

Subcultures within organizations may impact the ease with which organizations become sustainable. Harris & Crane (2002, p. 226) identified that functional subcultures could inhibit the diffusion of an organization-wide green culture and cautioned against "conceptualizing a single, ideal-type green organizational culture". Howard-Grenville (2006, p. 68) concluded that both an organization's culture, and subcultures influence which environmental issues are addressed. Using a four quadrant culture model, Linnenluecke et al. (2009) proposed that members of different subculture groups may have varying interpretations of sustainability (economic, environmental, social, or holistic).

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The third conclusion answers R3, that is, whether the presence of subcultures within an organization make(s) a difference to the relationship between organizational culture and organizational commitment to sustainability.

While one main hypothesis emerged from R3 (The presence of subcultures changes the intensity and direction of the relationships between both General Culture (GC) and the organization's Commitment to Sustainability (CS), and between the Sustainability Culture (SC), and Commitment to Sustainability), a set of 16 individual sub-hypotheses was generated to determine, more precisely, the impact of subcultures on the relationship between culture and commitment to sustainability (Table 5.3). These 16 sub-hypotheses examined measurable subcultures about which data was obtained through the Employee Organizational Culture Survey. This data included the site at which responding employees worked, the respondents' gender, age, position level, the nature and category of their employment, the number of years they had worked both with the organization and in their current position, and their educational qualifications; for example:

- H3A: Geographic location is negatively related to the relationship between General Culture and the organization's Commitment to Sustainability.
- H3B: Geographic location is negatively related to the relationship between Sustainability Culture and the organization's Commitment to Sustainability.

Multigroup analysis was conducted to determine, for each type of subculture, the relationship between each of the culture dimensions, and each measure of sustainability commitment. The sub-hypotheses were only slightly partially supported, with the exception of H3H which was not supported. Further, a small number of positive relationships also were discovered for most subculture groups.

Overall, for H3, while subcultures increase the intensity of the relationship between each of General Culture, and Sustainability Culture, and the organization's Commitment to Sustainability, the affect is limited to significant relationships between small numbers of individual culture dimensions and sustainability commitment measures.

In summary, these results augment prior research by indicating that subcultures within an organization may make a very small difference to the relationships between organizational culture and organizational commitment to sustainability, thereby suggesting that the impact of subcultures on organizational sustainability may not be as clear as the literature has proposed.

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7.5.4 Additional Conclusions

While not the primary intent of this research study, several other findings emerged, each of which enhance current theory.

7.5.4.1 Defining and categorising the cultural dimensions

From the literature, 40 cultural traits were identified as being important for embedding sustainability mindset and practice within organizations. These ranged from simple one or two word definitions, to more complex definitions, and, most often, contextual explanations. From these 40 dimensions, a set of 18 purposely defined dimensions was constructed.

As discussed in Section 7.5.2, in this study, not all of these 18 cultural dimensions were shown to contribute to sustainability commitment. However, their identification and definition is, in itself, a contribution to the field. These can be further explored in future research.

7.5.4.2 Organizational Culture and Sustainability Commitment Measurement Tool

A further contribution of this study was the development of a valid measure for both sustainability related cultural values and commitment to organizational sustainability. Though mired in the context of a single case study, the employee survey instrument may be used and refined further, for use by research and practitioners.

7.5.4.3 Sustainability Reporting

Since 2005, Company A has published annual sustainability reports, which were analysed as part of the research study. The sustainability literature review revealed a number of concerns about organizations' sustainability reports, including questions about the completeness, transparency, veracity and usefulness of the data, and whether it meets stakeholder expectations (Adams, 2004; Aras & Crowther, 2009; Font et al., 2012; Tregidga & Milne, 2006). Reports are described as lacking substance and real data (Hopwood, A. G., 2009; Kolk, 2003), incomplete (Adams & Evans, 2004), "piecemeal" (Bouten et al., 2011, p. 202), and requiring greater rigour (Adams & Larrinaga-Gonza´lez, 2007, p. 339; Hubbard, 2009a).

More organizations are preparing and publishing sustainability reports, and there are concerns that these report contain elements of "greenwash", rather than providing evidence of measured, substantive, sustainability related activities (Adams, 2004; Dando & Swift,

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2003; Kolk, 2003). Further, preparing these reports and the information contained therein, often is seen by organizations as a fringe activity that sits outside their mainstream financial reporting activities (Hubbard, 2006). Consequently, both the sincerity of the reporting organizations, and the data they provide, increasingly is questioned (Adams, 2004; Aras & Crowther, 2009; Tregidga & Milne, 2006).

Company A's annual sustainability reports supported some of these concerns. The reports were replete with photographs and good news stories. The GRI tables in the reports provided information for less than one third of the GRI categories, and, for these, the GRI tables frequently referred the reader to specific pages in the sustainability report, where, the information provided ranged from broad, descriptive narrative, to specific details of activities such as regular community partnership meetings. As a number of the environmental and social sustainability actions were conducted in conjunction with clients and community organizations, it was difficult to determine whether the company, or its clients, initiated these. Deeper investigation revealed that several of the indigenous, and community programs highlighted in the reports were operated by not-for-profit organizations, to which donations and grants were funded from the company's separate philanthropic foundation. It was difficult to determine how much direct involvement the company, or its employees, had with these specific programs.

On the other hand, Company A's sustainability reports provide information about significant projects which the company has developed, implemented and operated in conjunction with some of its clients, and which have reduced clients' environmental pollution, water consumption and electricity usage. The company also has a significant, and growing alternative energy operation, which briefly is mentioned in several reports. The sustainability reports also provide substantiated evidence of its endeavours to increase female participation in its workforce. Its programs to mentor, hire, and train indigenous employees, and increase indigenous cultural awareness among existing employees, have been highly successful. At one of its smaller urban sites, it is seeking to provide employment to people with disabilities.

Overall, Company A's sustainability reports provided a positive image, and minimal quantifiable measures, and the marketing style presentation and colourful layout veiled what was, in some instances, paucity of detail, or year on year comparisons.

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7.6 Contribution to the Literature

As indicated in Chapter 1, this research study makes an original contribution to knowledge by integrating organizational culture theory and organizational sustainability theory to build a model of organizational culture that supports an organization's sustainability endeavours. The present research study has provided a valid theoretical framework and model for future research, and results of this study may encourage further research into the impact of organizational culture on organizations' sustainability commitment.

By developing a comprehensive survey which measures specific sustainability related cultural dimensions and the extent to which sustainability is embedded in an organization, this study has provided other researchers with an instrument for further testing and enhancing knowledge and theory concerning the relationship between organizational culture and organization sustainability. This research also has practical value for managers and organizations looking to increase their organization's sustainability commitment; accordingly, change their behaviours and operations; and develop a culture which will support this.

7.7 Limitations

The structure of this mixed methods study meets recommendations for a high quality case study (Yin, 1992). Despite these advantages, this study has a number of limitations, including potential limited generalizability due the case study being conducted with one Australian company, and lack of comparison between the case study company and other organizations with different levels of commitment to sustainability.

7.7.1 Subcultures

The demography of organizational members contributes to the development of organizational subcultures, and the eight selected demographic categories are among the most frequently measured (Church & Waclawski, 2001; Wildenberg, 2006). However, they may not represent all type of subcultures within Company A, or other organizations. Non-measured subcultures include the nature of the work undertaken, aspects of employees' personal backgrounds such as race or ethnic identity, family background or social class membership, and the culture of the community and society in which the organization is situated (Beyer, 1981; Burrus, 1997; de Vries, 1997; Gregory, 1983; Helms & Stern, 2001; Hofstede, 1998; Jermier et al., 1991; Martin, Joanne, 2002; Martin, Joanne & Frost, 2011;

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Martin, Joanne et al., 2004; Meyerson & Martin, 1987; Sinclair, 1993; Trice & Beyer, 1984; Van Maanen & Barley, 1984).

For the employee survey, demographic data was requested of all respondents. However, of the 311 surveys retained for data analysis, the level of missingness for the demographic data ranged from 4.2 % for gender, up to 19.9 % for age (Table 6.25), which may have affected the results of the subculture analyses for the age subculture category, which had more than 15% missingness (Hertel, 1976, p. 461).

7.7.2 Single Company

The results of this rich mixed method research case study are from one organization. While single case studies can provide a strong base for theory building (Yin 1994), they may have low generalizability (Creswell, 2009; Darke et al., 1998; Eisenhardt & Graebner, 2007; Ragin, 1989; Trice & Beyer, 1984; Verschuren, 2003). As this study has not been replicated in other organizations, it was not possible to undertake cross-case analysis. Comparing the findings from this study with those of other organizations, would provide confirmation, or otherwise, of the model.

7.7.3 Australian Study

The findings from this study are based on the experiences of the Australian divisions of an Australian owned corporation, which is subject to Australian environmental, employment, and other legislation. National cultures can influence an organization's values and culture (Brodbeck, Hanges, Dickson, Gupta, & Dorfman, 2004; Gelfand, Erez, & Aycan, 2007; Hofstede, 1985; Newman & Nollen, 1996; Pothukuchi, Damanpour, Choi, Chen, & Park, 2002; Schneider, S. C. & De Meyer, 1991; Testa, 2009; Trice & Beyer, 1993; Weber, Y., 2000), and may also influence the relative importance placed on environmental and social responsibility (Egri et al., 2004). Therefore, the results of this study may be different if it were replicated in another country. Further, government regulations, national economies, and national economic systems can affect organizations' practices. Therefore, when interpreting and generalizing the results of this study, the impact of national culture should be considered.

7.7.4 Single Industry and Industry Sector

The industry in which an organization operates may also impact on an organization's culture (Brodbeck et al., 2004; Chatman & Jehn, 1994; Dickson, Aditya, & Chhokar, 2000; Gordon,

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1991; Weber, Y., 2000), although the impact may not be as strong as for national culture (Cooke & Szumal, 2000). As this study was conducted in one organization in a single industry, care must be taken when extrapolating these results across industries.

7.7.5 Comparison with More or Less Sustainable Organizations

According to the sustainability literature, organizations vary considerably in their level of commitment to sustainability, and may have varying emphases on environmental and social sustainability. As the studied organization was determined to be at a particular stage of sustainability commitment, some caution may be necessary before generalizing the results to organizations which are more, or less, committed to sustainability.

7.8 Further Research

Future research can examine the robustness of this current research study and generalize it across other settings, including additional companies in the same and other industry sectors, and not for profit organizations, to determine commonalities of these cultural dimensions across organizations.

Given this research study was a single organization case study, it may be of interest to test the complete set of 18 identified cultural dimensions in different organizations, in other industries, and at different stages of commitment to sustainability to determine whether the results of this study were unique, or whether they occur consistently. Longitudinal studies of organizations may reveal changes in the impact of the cultural dimensions, as organizations progress further towards higher levels of sustainability. Since it is proposed that organizations develop their commitment to each of the three main areas of sustainability, economic, environmental, and social, at differing paces (Benn, Dunphy, & Perrott, 2011), and, as this study adopted a holistic definition of sustainability, another area for future research would be to determine the relationship between each culture dimension, and the level of commitment to each of the three areas. An additional suggested area for future research includes determining those actions which organizations take to introduce and embed these desired cultural dimensions. Finally, it would be of interest to determine whether culture change enables increased commitment to sustainability, or whether increased commitment to sustainability and the related changes in strategies, policies, and operations, drive culture change.

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7.9 Conclusion

Organizations have responded differently to increasing demands that they become more holistically sustainable and change their strategies and operations to improve their environmental and social performance. A number of researchers have suggested organizations progress though different stages of commitment to sustainability, ranging from opposing sustainability, little or no commitment to becoming more sustainable, to fully embracing sustainability, and encouraging and assisting other organizations to become more sustainable. Further, it has been presumed that organizations aspiring to become more sustainable, must adopt and embed an enabling culture. This research study sought to identify and develop a model of sustainability culture, and to examine the relationship between this organizational culture and an organization's commitment to sustainability.

The present study has provided a valid theoretical framework and model for future research. The outcomes of this research study include a clearly defined set of cultural dimensions which fall into two categories, General Culture and Sustainability Culture, each of which are related to an organization's commitment to sustainability. Individually, no single culture scale contributes to all of the measures of Commitment to Sustainability. However, individual Sustainability Culture dimensions had a more significant impact on Commitment to Sustainability than did the General Culture dimensions, indicating that organizations considering changing their culture to enable sustainability change, first should focus on incorporating these dimensions into their culture.

Finally, in this study, the impact of subcultures on the relationship between the organizational culture dimensions was found to be less significant than predicted by previous research studies.

In the final analysis, the results of the present research study may encourage further research and understanding about the impact of organizational culture on organizations' sustainability endeavours, which in turn, may provide a means for organizations increasingly to become holistically sustainable.

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APPENDICES

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Appendix 1 Ethics Approval

MACQUARIE UNIVERSITY

Faculty of Business & Economics
Human Research Ethics Sub Committee
Building E4A, Room 707
MACQUARIE UNIVERSITY NSW 2109

Phone +61 (0)2 9850 4826
Fax   +61 (0)2 9850 6140
Email yanru.ouyang@mq.edu.au

29 April 2011

Dr. Denise Jepsen
Faculty of Business and Economics
Macquarie University, NSW 2109

Reference: 5201100407(D)

Dear Dr. Denise Jepsen

FINAL APPROVAL

Title of project: *Organizational culture traits which enable organizational sustainability*

The above application was reviewed by the Faculty of Business & Economics Human Research Ethics Sub Committee. Approval of the above application is granted, **effective 29 April 2011** and you may now proceed with your research. The following personnel are authorised to conduct this research:

Denise Jepsen - Chief Investigator/Supervisor
Elizabeth More - Co-Investigator
Lenore K. Pennington - Co-Investigator

Please note the following standard requirements of approval:

1. The approval of this project is **conditional** upon your continuing compliance with the *National Statement on Ethical Conduct in Human Research (2007)*.

2. Approval will be for a period of five (5 years) subject to the provision of annual reports. **Your first progress report is due on 29 April 2012.**

If you complete the work earlier than you had planned you must submit a Final Report as soon as the work is completed. If the project has been discontinued or not commenced for any reason, you are also required to submit a Final Report on the project.

Progress Reports and Final Reports are available at the following website:
http://www.research.mq.edu.au/researchers/ethics/human_ethics/forms

3. If the project has run for more than five (5) years you cannot renew approval for the project. You will need to complete and submit a Final Report and submit a new application for the project. (The five year limit on renewal of approvals allows the Committee to fully re-review research in an environment where legislation, guidelines and requirements are continually changing, for example, new child protection and privacy laws).

4. Please notify the Committee of any amendment to the project.

5. Please notify the Committee immediately in the event of any adverse effects on participants or of any unforeseen events that might affect continued ethical acceptability of the project.

6. At all times you are responsible for the ethical conduct of your research in accordance with the guidelines established by the University. This information is available at: http://www.research.mq.edu.au/policy

Faculty of Business & Economics Human Research Ethics Sub Committee
MACQUARIE UNIVERSITY

http://www.businessandeconomics.mq.edu.au/intranet/research/ethics_approval

www.mq.edu.au

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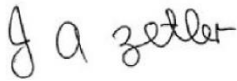
- 2 -

If you will be applying for or have applied for internal or external funding for the above project it is your responsibility to provide Macquarie University's Research Grants Officer with a copy of this letter as soon as possible. The Research Grants Officer will not inform external funding agencies that you have final approval for your project and funds will not be released until the Research Grants Officer has received a copy of this final approval letter.

Yours sincerely

_____
Julie Zetler
Chair, Faculty of Business and Economics Ethics Sub-Committee

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Appendix Chapter 2

Appendix 2.1 Why Businesses Adopt Sustainability

Category	Rationale	Authors
Competition	Competitive advantage	Bansal & Roth (2000) Fairfield, Harmon & Behson (2011) Haddock, Fraser & Tourelle (2010) Kurucz, Colbert & Wheeler (2008) Rondinelli & Berry (2000) Székely and Knirsch (2005) York (2009) Zadek, (2001)
	Competitive pressure	Rondinelli & Berry (2000) Shrivastava & Hart (1995)
Economic/ Financial	Cost savings/ reduction (economic)	Abbett, Coldham & Whisnant (2010, p. 3) Azapagic & Perdan (2000) Bansal & Roth (2000) Porter & Van der Linde (1995a, p. 126) Rondinelli & Berry (2000) Thorpe & Prakash-Mani (2003, p. 22) Weber (2008) Zadek (2001)
	Efficiency	Azapagic & Perdan (2000, p. 244) Székely & Knirsch (2005)
	International market opportunities	Shrivastava & Hart (1995, pp. 155-156)
	Long run org sustainability/ Viability of the business	Davis (1973, pp. 313-314)
	Product consistency & quality	Porter & Van der Linde (1995a)
	Profit increase	Davis (1973, p. 313) Epstein (2008, p. 28) Epstein & Roy (2003, p. 80) McDonald & Rundle-Thiele (2008, p. 170) Székely & Knirsch (2005, p. 629)
	Revenue opportunities/ increased sales	Abbett et al. (2010, p. 3) Rondinelli & Berry (2000, p. 74) Weber (2008)
	Shareholder value	Epstein & Roy (2003, p. 80)
	Waste reduction	Azapagic & Perdan (2000, p. 244) Delmas, Etzion, & Nairn-Birch (2013) Székely & Knirsch (2005, p. 629)
Employee attraction & retention	Employee Motivation & Morale	Greening & Turban (2000) Sen, Bhattacharya, & Korschun (2006, p. 164) Maignan, Ferrell, & Hult (1999) Thorpe & Prakash-Mani (2003, p. 22) Turban & Greening (1997) Weber (2008)
	Talent Attraction	Abbett et al. (2010, p. 3) Bradbury (2003, pp. 172-187) Greening & Turban (2000) Hess & Warren (2008) Rondinelli & Berry (2000) Sen et al. (2006) Turban & Greening (1997) Weber (2008)

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Appendix 2.1 (cont.) Why Businesses Adopt Sustainability

Category	Rationale	Authors
Government Regulation	Government regulation & laws	Azapagic & Perdan (2000, p. 244) Bansal & Roth (2000) Epstein (2008, p. 28) Hess & Warren (2008) Rondinelli & Berry (2000) Shrivastava & Hart (1995, p. 155) Welford (1995)
	Costs of non-compliance with government regulation & laws	Bansal & Roth (2000) Rondinelli & Berry (2000, p. 73) Thorpe & Prakash-Mani (2003, p. 22)
	Opportunity to influence future regulatory and competitive requirements	Rondinelli & Berry (2000, p. 73)
Innovation	Innovate new products (new market opportunities)	Rondinelli & Berry (2000) Székely & Knirsch (2005)
	Process & productivity improvement	Porter & Van der Linde (1995a) Rondinelli & Berry (2000) Thorpe & Prakash-Mani (2003, p. 22)
Organizational legitimacy	Legitimacy/ Permission (licence) to operate	Bansal & Roth (2000) Fairfield, Harmon & Behson (2011) Kurucz, Colbert & Wheeler (2008) Nigam (2000) Székely & Knirsch (2005) Thorpe & Prakash-Mani (2003) Zadek (2001)
Public Image/ Reputation	Public Image/ Reputation	Arendt & Brettel (2010) Davis (1973, p. 313) Esen (2013) Hess & Warren (2008) Kurucz et al. (2008) McDonald & Rundle-Thiele (2008) Minor & Morgan (2011) Rondinelli & Berry (2000) Thorpe & Prakash-Mani (2003) Weber (2008) Virvilaite & Daubaraite (2011) Zadek (2001)
Risk management	Risk reduction - due to emissions regulations addressing climate change	Abbett et al. (2010, p. 33) Rondinelli & Berry (2000, p. 74) Weber (2008)
Stakeholders	Consumer pressure/ responding to consumers	Bansal & Roth (2000) Shrivastava & Hart (1995, p. 155)
	Customer Demand	Shrivastava & Hart (1995, p. 155)
	Customer numbers & loyalty increased	Hess & Warren (2008) Rondinelli & Berry (2000, p. 74)
	Public Pressure	Hess & Warren (2008, p. 163) Shrivastava & Hart (1995, p. 155)
	Increased access to capital & investment funding	Rondinelli & Berry (2000, p. 74)
	Management initiative/personal values/"the right thing to do	Egri & Herman (2000) Lampe, Ellis, & Drummond (1991) Stubbs, & Cocklin (2008a) Wood (1991b)

Appendix 2.1 (cont.) Why Businesses Adopt Sustainability

Category	Rationale	Authors
Stakeholders (cont)	Public pressure/ Ethical imperative: nature has a right to exist for its own sake, not just for human welfare	Shrivastava & Hart (1995)
	Shareholder value	Epstein & Roy (2003, p. 80)
	Social Norms	Davis (1973, p. 314)
	Stakeholder Interest	Davis (1973, p. 315)
	Stakeholder Pressure	Epstein (2008, p. 28) Fineman (1997) Garcés-Ayerbe, Rivera-Torres, & Murillo-Luna (2012) González-Benito & González-Benito (2010) Hess & Warren (2008) Wolf (2013, 2014)
	Stakeholder relationships improved	Bhattacharya, Korschun, & Sen (2009) Sen et al. (2006)

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Appendices Chapter 3

Appendix 3.1 Representative Definitions of Organizational Culture

Year	Organizational Culture Definitions	Authors
1979	System of publicly collectively accepted meanings for a given group at a given time, which enables people to interpret situations ... comprised of symbols, language, ideology, beliefs, ritual, myths which are to some extent independent.	Pettigrew (1979, pp. 573-574)
1981	Symbols, ceremonies and myths that communicate the underlying organizational values and beliefs.	Ouchi (1981b)
1982	Way we do things around here. Comprised of values, corporate myths, heroes, symbols, rites & rituals that guide day to day.	Deal & Kennedy (1982, p. 4)
1983	Set of distinct, common understandings which guide purpose, behaviour, action, language, other symbols.	Louis (1983, p. 39)
1983	Basic assumptions, values, or ideology, artifacts (such as special jargon, stories, rituals, dress, decor) & management practices.	Martin & Siehl (1983, p. 53)
1984	Set of shared important, often unstated, beliefs values & assumptions.	Sathe (1983, p. 6)
1984	"Glue" of organization, providing identity & strength.	Schein (1984a, p. 14)
1984	Arises from a network of shared ideologies. Rites & ceremonials; networks of interacting meanings that characterize organizational cultures. Cultural forms: customary language, gestures, ritualized behaviours, artifacts, other symbols, settings. Heighten expression of shared meanings appropriate to occasion. Myths, sagas, legends, or other stories associated with occasion.	Trice & Beyer (1984, p. 64)
1985	Artifacts, perspectives, values, assumptions shared by members of an organization. Artifacts: verbal (language, stories, myths), behavioural (rituals & ceremonies), & physical (art, attire, layout, technology). Perspectives: socially shared rules & norms applied in given situations. Values: evaluations people make of situations, acts, objects, & people. Represent organization's goals, ideals, standards. Assumptions: Implied beliefs that underlie overt artifacts, perspectives, values.	Dyer (1985)
1985	Shared values and beliefs expressed through language or jargon, organization stories, rituals, ceremonies, symbols. Organization practices such as recruiting, training, reward systems.	Siehl (1985, p. 6)
1985	Fairly stable set of taken-for-granted assumptions, shared beliefs, meanings, values that form a kind of backdrop for action.	Smircich (1985, p. 58)
1985	Living, historical set of solutions & collective understandings devised by group of people to meet specific problems posed by situations they face.	Van Maanen & Barley (1985, p. 33)
1988	Broad, tacitly understood rules.	Camerer & Vepsalainen (1988, p. 115)
1988	Transmitted patterns of values, ideas, & other symbolic systems that shape behaviour.	Cooke & Rousseau (1988, p. 248)
1990	Underlying, enduring values, beliefs, principles that serve as a foundation for an organization's management system. Set of management practices & behaviours that exemplify & reinforce those basic principles.	Denison (1990, p. 2)
1990	Perceived common practices: symbols, heroes, & rituals that carry a specific meaning within organizational unit.	Hofstede et al. (1990, p. 313)

Appendix 3.1 (cont.) Representative Definitions of Organizational Culture

Year	Organizational Culture Definitions	Authors
1992	Pattern of shared, stable beliefs & values developed within a company across time.	Gordon & DiTomaso (1992, p. 784)
1992	Two levels: Visible level: behaviour patterns or style of an organization that new employees are encouraged to follow by existing employees. Deeper less visible level: Values shred by people in group that tend to persist over time, even when group membership changes.	Kotter & Heskett (1992, p. 4)
1996	Firmly implanted beliefs and values of organizational members.	Schneider et al. (1996, p. 11)
1997	System of shared meaning; prevailing background fabric of prescriptions & proscriptions for behaviour. System of beliefs, values, technology & task of organization & accepted approaches to these.	van der Post et al. (1997, p. 148)
1999	Shared motives, values, beliefs, identities, interpretations, meanings of significant events that result from common experiences of members of collectives & are transmitted across age generations. Psychological attributes. Definition applies to societies & organizations.	House, Hanges, Ruiz-Quintanilla, Dorfman, Javidan, Dickson & Gupta (1999, p. 13)
1999	Sum total of all shared, taken for granted assumptions that a group learned through its history. Residue of success. Structure & control system which generates behavioural standards.	Schein (1999, p. 21)
2001	Collective programming of mind. Distinguishes members of one group or category of people from another. Values: invisible part of culture manifested through cultural practices, consisting of symbols, heroes, and rituals.	Hofstede (2001, pp. 9-10)
2009	Accepted behavioural standards guided by a pattern of shared learned beliefs, traditions, and principles.	Ardichvili et al. (2009, p. 445)

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Appendix 3.2 Representative Differences between Organizational Climate & Organizational Culture

Year	Definitions	Authors
1985	Climate: shared perceptions Culture: shared assumptions.	Ashforth (1985)
1992	Climate: operates at levels of attitude & values only. Culture: operates on basis assumptions & attitudes.	Moran & Volkwein (1992, p. 68)
1996	Climate: situation & its link to thoughts, feelings, behaviours of organizational members. Temporal, subjective, & often subject to direct manipulation by people with power, influence. Culture: evolved context (within which a situation may be embedded). Rooted in history, collectively held, & sufficiently complex to resist many attempts at direct manipulation. Climate & Culture have generated distinct theories, methods, epistemologies & distinct findings, failings, & future agendas.	Denison (1996, p. 644)
1996	Climate: observable policies, practices, rewards. Culture: less visible beliefs, values. Firmly implanted beliefs & values of organizational members. Resides at deeper level of people's psychology than climate. Captures less conscious, more subtle psychology of workplace.	Schneider et al. (1996, p. 11)
1999	Climate: practices, procedures, rewarded behaviour, i.e. themes employees believe describe organization. Culture: assumptions, values, & philosophies concerning human nature and the role of work in life. Map(s) onto climate dimensions.	Mearns & Flin (1999, p. 7)
1999	Climate: summary perception of how organisation deals with members, environments. Develops from internal factors under managerial influence (Ostroff & Schmitt, 1993). Culture: created from broad range of internal and external influences, some of which lie beyond managerial control (Alvesson, 1991).	Wallace et al. (1999, p. 551)
2007	Climate: created when individuals in work unit, team, or organization share same perceptions of how work environment affects them as individuals. Culture: norms, expectations, & way things are done in organization.	Glisson (2007)

Appendix 3.3 Identified Cultural Dimensions for Sustainable Organizations

Dimensions	Authors
Accountability	Epstein (2008)
Building Alliances (with Stakeholders & Strategic Partners)	Benn et al. (2006) CESD Section 7.61 (2009) Hind et al. (2009) Searle (2009) Stubbs (2009) Stubbs & Cocklin (2007, 2008a, 2008b) Wolf (2013)
Challenge Current Thinking	Avery & Bergsteiner (2010) Benn et al. (2006) Fenwick (2007) Hind et al. (2009) Rodriguez et al. (2002) Wilson & Holton (2003)
Co-existence with natural world	Shrivastava & Hart (1995)
Collaboration	Abbett et al. (2010) Benn & Dunphy (2003) Benn & Dunphy (2004a) Benn et al. (2004) Benn et al. (2006) Commissioner of the Environment and Sustainable Development, Section 7.61 (1999) Champy & Nohria (1996) Eccles et al. (2012) Epstein (2008) Haanaes et al. (2012) Hart & Milstein (2003) Hind et al (2009) Jamrog et al. (2006) Mirchandi & Ikerd (2008) Molnar & Mulvihill (2003) Petts et al.(1999) Polonsky et al. (1998) Quinn & Dalton (2009) Rodriguez et al. (2002) Sakai (2010) Sharma & Kearins (2011) Sharma & Vredenburg (1998) Stubbs (2009) Stubbs & Cocklin (2007, 2008a, 2008b) Vachon & Klassen (2008) van Kleef & Roome (2007) Van Marriewijk (2004) Wirtenberg et al. (2007)
Open Communication with all Stakeholders	Abbett et al. (2010) Benn et al. (2006) Epstein (2008) Gong, Cheung, Wang & Huang (2010) Jamrog et al. (2006)
Community	Korhonen et al. (2004) Stubbs & Cocklin (2007, 2008a)

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Appendix 3.3 (cont.) Identified Cultural Dimensions for Sustainable Organizations

Dimensions	Authors
Compassion	Michandi & Ikerd (2008)
Connectedness/ Connectivity	Costanza et al. (1993) Gladwin et al. (1995) Korhonen et al. (2004) Mirchandi & Ikerd (2008) Stubbs & Cocklin (2008a) van Marrewijk (2004)
Cooperation	Adler & Kwon (2002) Bansal (2002) Benn et al. (2006) Eccles et al. (2011) Jenkins (2002) Mirchandi & Ikerd (2008) Segawa & Segal (2000) Stubbs(2009) Stubbs & Cocklin (2008a) van Marrewijk (2004)
Creativity	Searle (2009)
Diversity	Eccles et al. (2011) Hind et al. (2009) Jamrog et al. (2006) Michandi & Ikerd (2008) Stubbs (2009) Wilson & Holton (2003) Wirtenberg et al. (2007)
Employee Empowerment	Bansal (2002) Daily & Huang (2001) Daily, Bishop & Steiner (2007) Govindarajulu & Daily (2004) Hanna et al. (2000) Petts et al. (1999)
Employee Engagement	Fernández et al. (2003) Wirtenberg et al. (2007)
Fairness	Michandi & Ikerd (2008) Searle (2009) van Marrewijk (2004)
Feedback Seeking	Searle (2009)
Flexibility	Benn et al. (2006) Korhonen et al. (2004)
Honesty	Epstein (2008) Mirchandi & Ikerd (2008)
Inclusiveness	Bansal (2002) Epstein (2008) Gladwin et al. (1995) Mirchandi & Ikerd (2008) Sakai (2010) van Marrewijk (2004)
Initiative	Gladwin et al. (1995) Searle (2009)

Appendix 3.3 (cont.) Identified Cultural Dimensions for Sustainable Organizations

Dimensions	Authors
Innovation	Avery & Bergsteiner (2010)
	Benn et al. (2006)
	Commissioner of the Environment and Sustainable Development (1999)
	D'Amato & Roome (2009)
	Ramus (2001, 2003)
	Rodriguez et al. (2002)
	Sharma & Vredenburg (1998)
	Van Kleef & Roome (2007)
Integrity	Mirchandi & Ikerd (2008)
	Sakai (2010)
	Stubbs & Cocklin (2007, 2008a)
Interdependence	Mirchandi & Ikerd (2008)
Knowledge Sharing	Benn et al. (2006)
	Commissioner of the Environment and Sustainable Development (1999)
Learning	Benn & Dunphy (2004a)
	Benn et al. (2004)
	Benn et al. (2006)
	Dunphy et al. (2007)
	Edwards (2009)
	Fernández et al. (2003)
	Hart (1995)
	Jamali (2006)
	Molnar & Mulvehill (2003)
	Petts et al. (1999)
	Sakai (2010)
	Sarkis et al. (2010)
	Senge & Carstadt (2001)
	Sharma & Vredenburg (1998)
	Smith & Sharicz (2011)
	Stubbs (2009)
	Wirtenberg et al. (2007)
	Wolf (2013)
Locality	Korhonen et al. (2004)
	Stubbs (2009)
	Stubbs & Cocklin (2008a)
Long Term Perspective	Ardichvili et al. (2009)
	Eccles et al. (2011)
	Ross (2009)
	Sakai (2010)
	Searle (2009)
	Smith & Sharicz (2011)
	Stubbs & Cocklin (2008a)
	van Marrewijk (2004)
	Wand & Bansal (2012)
Loyalty	Stubbs & Cocklin (2007)
Proactivity	Benn et al. (2006)
	Epstein (2008)
	Searle (2009)
	Sharma & Vredenburg (1998)
	Stubbs (2009)

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Appendix 3.3 (cont.) Identified Cultural Dimensions for Sustainable Organizations

Dimensions	Authors
Prudence	Costanza et al. (1993) Gladwin et al. (1995) Ludwig, Hilborn & Walters (1993)
Reflection	Benn et al. (2006) Dunphy et al.(2007) Eccles et al. (2011) Edwards (2009) Griffiths et al. (2007) Mirchandi & Ikerd (2008) Smith & Sharicz (2011)
Relationship building	Mirchandi & Ikerd (2008) Stubbs (2009)
Respect	Benn et al. (2006) Eccles et al. (2011) Michandi & Ikerd (2008) van Marrewijk (2004)
Responsibility	Mirchandi & Ikerd (2008) Sakai (2010) Stubbs & Cocklin (2007, 2008b)
Stakeholder Engagement & Relations	Eccles et al. (2011) Eccles et al. (2012)
Systems Thinking	Gladwin et al. (1995) Hind et al. (2009) Jamali (2006) Mirchandi & Ikerd (2008) Molnar & Mulvihill (2003) Stubbs (2009) Stubbs & Cocklin (2008a, 2008b) Waddock (2007)
Teamwork	Abbett et al. (2010) Benn et al. (2006) Wirtenberg et al. (2007)
Transparency	Benn et al. (2006) Eccles et al. (2011) Epstein (2008) Kidder (2005) Mirchandi & Ikerd (2008) Wolf (2014)
Trust	Benn & Dunphy (2004a) Benn et al. (2006) Eccles et al. (2011) Epstein (2008) Korhonen et al. (2004) Rodriguez et al. (2002) Stubbs (2009) Stubbs & Cocklin (2007) van Marrewijk (2004)
Wholism	Epstein (2008) Hart (1995) Hart & Dowell (2011) Michandi & Ikerd (2008)
Wholism/ Stewardship	Hart (1995) Hart & Dowell (2011)

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Appendix 3.3 (cont.) Identified Cultural Dimensions for Sustainable Organizations

Dimensions	Authors
Work with Stakeholder Networks	Benn et al. (2006) Hind et al. (2009) Quinn & Dalton (2009) Rodriguez et al. (2002) Stubbs & Cocklin (2008a, 2008b)

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Appendices Chapter 5

Appendix 5.1 Sustainability Culture Dimensions Mapped against Previously Developed Cultural Dimensions

Cultural Dimensions	Summary Definitions	Authors' Definitions	Authors
Challenge current thinking	Seeking new ideas and approaches. Questioning, challenging, disputing, and breaking away from conventional beliefs and past ways of thinking and working.	*Challenge the status quo*	O'Reilly (1989)
		Trust: Employees feel comfortable disagreeing with others.	Herrenkohl et al. (1999)
		Promote inquiry and dialogue: People gain productive reasoning skills to express their views and the capacity to listen and inquire into the views of others; the culture is changed to support questioning, feedback, and experimentation.	Marsick & Watkins (2003) Yang, B. et al. (2004)
		Psychological safety: Employees feel safe disagreeing with other, asking naïve questions, & presenting minority viewpoints. Organization recognizes the value of opposing ideas.	Garvin et al. (2008)
Collaboration with Stakeholders	Building relationships, strategic networks, alliances and partnerships and multi-way dialogue with internal and external stakeholders, including all sectors of society. Seeking and sharing information and knowledge to develop wider perspectives and visions for sustainability.	*Environment:* The extent to which the organization is responsive to the needs of its clients and the extent to which it is influenced by and influences the actions of other similar organizations.	Ashkanasy et al. (2000)
		Stakeholder engagement: The involvement or participation of stakeholders in the firm's operations or the act of bringing stakeholder interests to bear on the operations of the firm, based on acceptance of a binding obligation to enact a relationship with the stakeholder.	Black (2004)

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Sustainability Culture Dimensions Mapped against Previously Developed Cultural Dimensions (cont.)

Cultural Dimensions	Summary Definitions	Authors' Definitions	Authors
Collaboration with Stakeholders (cont.)	Building relationships, strategic networks, alliances and partnerships and multi-way dialogue with internal and external stakeholders, including all sectors of society. Seeking and sharing information and knowledge to develop wider perspectives and visions for sustainability	*Stakeholder engagement:* The ability of managers know and understand the firm's stakeholders and recognise the interdependence of firm and stakeholder interests. Firms must build co-operative, mutually reinforcing relationships. This requires managers to take stakeholder needs and interests into consideration in day to day decision-making.	Black (2005)
		Collaboration/ collaborative culture/ collaborative team orientation	Jung, T. et al. (2009)
Connectedness	Understanding and respecting the interconnectedness and interdependence of the environment and ecology, human and societal welfare, and the economy. Recognizing that activities which damage any part of these, will impact the long term viability of organizations, nations, populations and the planet.	Similar or moderately similar cultural dimensions not identified.	
Cooperation (Internal)	Working cooperatively internally, coordinating together and readily resolving conflict; reducing barriers and facilitating resolution of complex and difficult sustainability challenges.	*Cooperation vs Competition*	Reynolds (1986)
		Humanistic/Helpful: Members are supportive and constructive, participative, and open to influence in their dealings with one another.	Cooke & Lafferty (1987) Rousseau (1990b)
		Internal cooperation	Calori & Sarnin (1991)
		Isolation vs collaboration/ cooperation	Denison & Mishra (1995)
		Organization Integration: The degree to which various subunits within the organization are actively encouraged to operate in a coordinated way by co-operating effectively towards the achievement of overall organizational objectives.	Van der Post et al. (1997)

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Sustainability Culture Dimensions Mapped against Previously Developed Cultural Dimensions (cont.)

Cultural Dimensions	Summary Definitions	Authors' Definitions	Authors
Cooperation (Internal) (cont.)	Working cooperatively internally, coordinating together and readily resolving conflict; reducing barriers and facilitating resolution of complex and difficult sustainability challenges.	*Isolation versus collaboration/cooperation:* Cooperation and collaboration (internal and external) are necessary for a successful organization.	Detert et al. (2000)
		Encourage collaboration and team learning: Work is designed to use groups to access different modes of thinking; groups are expected to learn together and work together; collaboration is valued by the culture and rewarded.	Marsick & Watkins (2003)
		Agreement: Members of the organization are able to reach agreement on critical issues. This includes both the underlying level of agreement and the ability to reconcile differences when they occur.	Denison et al. (2006)
		Coordination and integration: Different functions and units of the organization are able to work together well to achieve common goals. Organizational boundaries do not interfere with getting work done.	Denison et al. (2006)
		Team orientation: Value is placed on working cooperatively towards common goals for which all employees feel mutually accountable. The organization relies on team effort to get work done.	Denison et al. (2006)

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Sustainability Culture Dimensions Mapped against Previously Developed Cultural Dimensions (cont.)

Cultural Dimensions	Summary Definitions	Authors' Definitions	Authors
Diversity Diversity (cont.)	Respecting diversity, understanding differences and encouraging participation by people of diverse backgrounds including skills, knowledge and experience, gender, race, culture or other aspects, to enable understanding the complexity of sustainability, and thinking creatively to find new solutions.	*Perceived value diversity among group members:* Three types of work group diversity: social category (age & gender) diversity, value diversity, and informational diversity. Diversity associated with values, and not social category, causes the biggest problems in and has the greatest potential for enhancing both workgroup performance and morale.	Jehn et al. (1999)
	Respecting diversity, understanding differences and encouraging participation by people of diverse backgrounds including skills, knowledge and experience, gender, race, culture or other aspects, to enable understanding the complexity of sustainability, and thinking creatively to find new solutions.	*Diversity:* The extent to which people believe that the members of their work group, or team, have differing perspectives, attitudes, and skills.	Van der Vegt & Janssen (2003)
		Openness to Group Diversity: Individuals' perceived similarity or dissimilarity with other team members affects their team involvement, cooperation between team members, their openness to seeking diverse ideas and approaches to work, and people's willingness to express their ideas.	Hobman et al. (2004)
		Openness to Visible Diversity: Is comprised of characteristics such as age, gender, and ethnicity.	Hobman et al. (2004)
		Appreciation of differences: Recognising the value of competing functional outlooks and alternative worldviews.	Garvin et al. (2008)

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Sustainability Culture Dimensions Mapped against Previously Developed Cultural Dimensions (cont.)

Cultural Dimensions	Summary Definitions	Authors' Definitions	Authors
Empowerment and Inclusiveness	Empowering employees and encouraging their involvement in planning and implementing organizational sustainability activities.	*Empowerment:* Recognizing and releasing into the organization the power that people already have in their wealth of knowledge and internal motivation.	Randolph (1995)
		Self-determination: Autonomy in the initiation and continuation of work behaviours and processes; examples are making decisions about work methods, pace, and effort.	Spreitzer (1995)
		Employee Participation: The extent to which employees perceive themselves as participating in the decision-making process of the organization.	Van der Post et al. (1997)
		Locus of authority: The degree of freedom and independence that individual employees have in their jobs.	Van der Post et al. (1997)
		Empower people toward a collective vision: People are involved in setting, owning, and implementing a joint vision; responsibility is distributed close to decision making so that people are motivated to learn toward what they are held accountable to do.	Marsick & Watkins (2003)
		Empowerment: Sharing control with employees to allow decisions to be made and actions to be taken at the lowest level in the organization that is appropriate.	Seibert et al. (2004)
		Empowerment: Individuals have the authority, initiative, and ability to manage their own work. This creates a sense of ownership and responsibility towards the organization.	Denison et al. (2006)

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Sustainability Culture Dimensions Mapped against Previously Developed Cultural Dimensions (cont.)

Cultural Dimensions	Summary Definitions	Authors' Definitions	Authors
Fairness/ equity	Carefully managing the scale and impact of activity, and appropriately using environmental and ecological, human and social resources. Fairly distributing resources and property rights, within and between generations.	Similar or moderately similar cultural dimensions not identified.	
Innovation and creativity	Fostering creativity, ingenuity and innovation to modify existing or develop new products, services and technologies which integrate and support the various elements of sustainability. .	*Innovation/Risk Taking*	Gordon & Cummins (1979)
		Innovativeness (OCP) Incorporates being: innovative, open to new opportunities, risk taking, willing to experiment, and less rule oriented.	O'Reilly et al. (1988)
		Emphasis on Innovation and Change	Cowherd & Luchs (1988)
		Innovation: Creativity or the generation of a new idea; implementation or the actual introduction of the change.	O'Reilly & Flatt (1989)
		Innovation/risk taking	Gordon & DiTomaso (1992)
		Attitudes to and belief about innovation	MacKenzie, S. B. (1995)
		Disposition towards change: The degree to which employees are encouraged to be creative and innovative and to constantly search for better ways of getting the job done.	Van der Post et al. (1997)
		Risk taking: Employees willingness to take risks to improve performance and whether the organization supports or punishes risk taking.	Herrenkohl et al. (1999)
		Innovation: The organization's risk preference: the willingness of the organization to take risk and the encouragement it shows for innovation and creativity.	Ashkanasy et al. (2000)

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Sustainability Culture Dimensions Mapped against Previously Developed Cultural Dimensions (cont.)

Cultural Dimensions	Summary Definitions	Authors' Definitions	Authors
Innovation and creativity (cont.)	Fostering creativity, ingenuity and innovation to modify existing or develop new products, services and technologies which integrate and support the various elements of sustainability.	*Employee creativity:* The generation of new and potentially valuable ideas concerning new products, services, manufacturing methods, and administrative processes.	Zhou & George (2001)
		Innovation: The successful implementation of creative ideas by the organization.	Zhou & George (2001)
		Creativity & Innovation: Culture encourages innovative ways of representing problems and finding solutions; creativity is desirable; innovators are models to be emulated.	Martins & Terblanche (2003)
		Innovation factor: An organization's ability to build a sense of capability and ownership in employees, which are important to creativity.	Denison Consulting (2011a)
Integrity	Considering sustainability and making sustainability based decisions in strategic planning and implementation of the business.	Similar or moderately similar cultural dimensions not identified.	

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Sustainability Culture Dimensions Mapped against Previously Developed Cultural Dimensions (cont.)

Cultural Dimensions	Summary Definitions	Authors' Definitions	Authors
Knowledge sharing/ Open Communication with all Stakeholders	Seeking and sharing knowledge, information, ideas, and success stories within the organization and with stakeholders and competitors.	*Information is credible and shared.*	Cowherd and Luchs (1988)
		Communication: The free sharing of information among all level within the organization where possible, the direction it talks (bottom-up, top-down), and the importance of rumour in communication.	Ashkanasy et al. (2000)
		Knowledge sharing: Individuals sharing organizationally relevant information, ideas, suggestions, and expertise with one another. The knowledge shared by individuals could be explicit as well as tacit.	Bartol & Srivastava (2002)
		Transferring Knowledge: From one person to another through sharing experience, dialogue, discussion, know-how and teaching.	Politis (2003)
		Knowledge-sharing behaviour: The degree to which a company actually shares knowledge with others.	Lin & Lee (2004)
		Sharing information freely	Sarros et al. (2005)
		Knowledge sharing Openness to using external sources of information and ideas in the firm's innovation processes, and interaction among different partners.	Jantunen (2005)
		Knowledge sharing: The action in which employees diffuse relevant information to others across the organization.	Yang, J.-T. (2007)
		Knowledge sharing: Generating, collecting, interpreting and disseminating information. Knowledge is shared in systematic ways. Knowledge sharing can be internally focussed and externally oriented.	Garvin et al. (2008)

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Sustainability Culture Dimensions Mapped against Previously Developed Cultural Dimensions (cont.)

Cultural Dimensions	Summary Definitions	Authors' Definitions	Authors
Learning	Cultivating curiosity, encouraging experimentation, improvisation, acquiring and transferring knowledge, tolerating mistakes, and reflecting on these.	*Organizational learning:* The ability of an organization to gain insight and understanding from experience. It involves experimentation, observation, analysis, and a willingness to examine both successes and failures.	McGill et al. (1992)
		Change: The organization's encouraging employees to seek knowledge that improves performance, the organization's providing opportunities to learn, and confidence that failure is not punished.	Herrenkohl et al. (1999)
		Create continuous learning opportunities: Learning is designed into work so that people can learn on the job; opportunities are provided for ongoing education and growth.	Marsick & Watkins (2003) Yang, B. et al. (2004)
		Learning organization: Acquiring, improving, and transferring knowledge that improves individual learning.	Pool (2000)
		Organizational learning: The organization receives, translates, and interprets signals from the environment into opportunities for encouraging innovation, gaining knowledge, and developing capabilities.	Denison et al. (2006)
		Concrete learning process: Generating, collecting, interpreting and disseminating information.	Garvin et al. (2008)

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Sustainability Culture Dimensions Mapped against Previously Developed Cultural Dimensions (cont.)

Cultural Dimensions	Summary Definitions	Authors' Definitions	Authors
Long term perspective	Emphasizing long-term goals which incorporate environmental, social and financial sustainability, sustainable products and services, and long-term relationships with stakeholders.	*Long Term Orientation*	Kilmann, R.H. & Saxton (1983)
		Willingness not *to focus on the short term*	O'Reilly (1989)
		The nature of time and time horizon: Improvement requires a long-term orientation and a strategic approach to management.	Detert et al. (2000)
		Vision: The organization has a shared view of a desired future state. It embodies core values and captures the hearts and minds of the organization's people, while providing guidance and direction.	Denison et al. (2006)
		Strategic direction: Enterprise has a long-term strategy, plans and goals.	Ginevičiu & Vaitkūnaite (2006)
Proactive	Self-starting. Voluntarily actively seeking opportunities and taking actions that positively impact on current and future sustainability beyond regulations and industry standards.	Similar or moderately similar cultural dimensions not identified.	
Reflection	Examining attitudes and values towards sustainability and encouraging openness to the changes required for sustainability.	Similar or moderately similar cultural dimensions not identified.	
Responsibility	Accepting responsibility for decreasing and eliminating the environmental, ecological and social impact of the entire lifecycle of products and services.	Similar or moderately similar cultural dimensions not identified.	
Systems Thinking	Creating an integrated systems perspective by recognising the organization operates in an open system - diverse cultures, constraints and opportunities between the internal and external.	Similar or moderately similar cultural dimensions not identified.	

Sustainability Culture Dimensions Mapped against Previously Developed Cultural Dimensions (cont.)

Cultural Dimensions	Summary Definitions	Authors' Definitions	Authors
Transparency and Openness/ Trust	Developing trust by communicating openly, honestly and consistently to all internal and external stakeholders concerning environmental, social and financial performance, and impacts on all stakeholders.	*Trust:* The extent to which one is willing to ascribe good intentions to and have confidence in the words and actions of other people.	Cook, J. & Wall (1980)
		Trust: The willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party.	Mayer et al. (1995)
		Openness and trust	MacKenzie, S. B. (1995)
		Trust: A psychological state comprising the intention to accept vulnerability based upon positive expectations of the intentions or behaviour of another.	Rousseau et al. (1998)
		Trust-Based Governance: Expectations for the fulfilment of obligations, mutuality, flexibility, and information exchange.	Zaheer et al. (1998)
		Trust: The willingness to accept vulnerability based on positive expectations about another's intentions or behaviours.	McEvily et al. (2003)
		Transparency: The degree to which information flows freely within an organization, among managers and employees, and outward to stakeholders.	O'Toole & Bennis (2009)
		Trust: The willingness to be vulnerable to the discretionary actions of another party, has been widely recognized as a key enabler of organizational success.	Pirson & Malhotra (2011)

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Sustainability Culture Dimensions Mapped against Previously Developed Cultural Dimensions (cont.)

Cultural Dimensions	Summary Definitions	Authors' Definitions	Authors
Wholism	Considering the entire product lifecycle from cradle to grave, not only the delivered product or service.	Similar or moderately similar cultural dimensions not identified.	

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Appendix 5.2 Surveys and Measures of Organizational Culture

Year Developed	Instrument	Reference
1967	System 4 Management approach	Likert (1967).
1968	Org Climate Questionnaire	Litwin & Stringer (1968)
1968/ 1979/1983	Organizational Culture Index (OCI)	Wallach (1983)
1972	Organizational Ideology Questionnaire	Harrison (1972) Harrison (1975)
1973	Rokeach Value Survey	Rokeach (1973)
1979	Management Value Inventory	Organization Technology International (1979)
1979	Organizational Style Index	Margerison (1979)
1979	Questionnaire on the Culture of Organisations	Handy (1979)
1979	Survey of Management Climate	Gordon & Cummins (1979) Gordon & DiTomasov (1992)
1980	Norm Diagnostic Index	Allen & Dyer (1980)
1983	Corporate Culture Survey	Glaser (1983) Glaser, Zamour & Hacker (1987)
1983	Kilman-Saxton Culture Gap Survey	Kilman & Saxton (1983) Kilman et al. (1985) Saxton (1987)
1983-1989	Organizational Culture Inventory	Cooke (1989) Cooke & Rousseau (1988) Cooke & Lafferty (1987) Cooke, & Szumal (1993) Balthazard et al. (2006)
1984	Organizational Beliefs Questionnaire	Sashkin (1984) Sashkin & Fulmer (1987)
1984	Organizational Culture Survey	Harris & Moran (1984)
1986	Organizational Culture Index	Reynolds (1986)
1986	Organizational Value Congruence Scale	Enz (1986)
1988	Organizational Culture Profile (OCP)	O'Reilly III et al. (1988) O'Reilly III et al. (1991)
1989	Organizational Values Questionnaire	Woodcock & Francis (1989)
1990	Cultural Aspirations & Performance Inventories	Lessem (1990)
1990	Denison Organizational Culture Survey (DOCS)	Denison (1984) Denison (1990) Denison & Neale (1996) Denison et al. (2006) Denison & Mishra (1995)
1990	Organizational Culture Questionnaire	Hofstede (1991) Hofstede (1997) Hofstede et al. (1990) Hofstede et al. (1993)
1990	Survey of Organizational Culture	Tucker, McCoy & Evans (1990)

Appendix 5.2 (cont.) Surveys and Measures of Organizational Culture (cont.)

Year Developed	Instrument	Reference
1991-1996	Competing Values Framework	Quinn & Rohrbaugh (1983) Cameron & Freeman (1991) O'Neill & Quinn (1993) Cameron & Quinn (2006)
1991	Descriptive Profile/ Corporate Culture Index	Migliore, Conway, Martin & Stevens (1991) Meglino, Ravlin & Adkins (1989) Migliore & Martin (1994)
1991- 1992	GLOBE: Global Leadership and Organizational Behavior Effectiveness survey	House, Wright & Aditya (1997) Javidan & House (2001)
1991	Untitled: Measured relationship of values & management cultural traits, with organizational profitability	Calori & Sarnin (1991)
1991	Organizational Values & Styles Questionnaire	PA Consulting Group (1991)
1992	FOCUS Questionnaire	Vandenburghe & Piero (1999) Van Muijen et al. (1999)
1992	Untitled: Measured culture strength and organizational performance	Gordon & DiTomaso (1992)
1992	Strength of Corporate Culture	Kotter & Heskett (1992)
1993	Untitled: Measured organizational culture & organizational performance	Marcoulides & Heck (1993)
1995	Untitled: Measured relationship between organizational culture and performance	Petty et al. (1995)
1995	MacKenzie's Culture Questionnaire	Mackenzie (2008)
1996	Corporate Culture Questionnaire	Walker, Symon & Davies (1996)
1996	What Is Your Organization's Culture?	Goffee & Jones (1996)
1997	Culture Measurement Instrument	van der Post et al. (1997)
1998	Untitled: Measured relationship between organizational culture & leadership, and organizational performance	Wilderom, & Van den Berg (1998, 2000)
1999	Core Employee Opinion Questionnaire	Buckingham &Coffman (1999)
1999	FOCUS Questionnaire	Van Muijen et al. (1999)
2000	Organizational Culture Profile (OCP)	Ashkanasy, Broadfoot & Falkus (2000)

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Appendix 5.3 Cultural Dimensions of Sustainable Organizations Explored By Survey Instrument

Cultural Characteristics of Sustainable Organizations	Survey Instrument	Specific Dimensions Measured by Instrument	Authors
Collaboration with stakeholders	Organizational Culture Profile (OCP)	Collaborative team orientation	O'Reilly et al. (1988)
	Denison Organizational Culture Survey	Customer focus	Denison (1984)
	Culture Measurement Instrument	Customer Orientation	van der Post et al. (1997)
	Organizational Culture Profile (OCP)	Customer focus; working in collaboration with others	O'Reilly et al. (1988)
	Organizational Culture Index	Collaborative	Wallach (1983)
	Reynolds Instrument	External *vs.* internal emphasis	Reynolds (1986)
Cooperation	Culture Questionnaire	Cooperation	MacKenzie (2008)
	Organizational Culture Survey	Conflict**	Harris & Moran (1984)
	Culture Measurement Instrument	Conflict resolution**	van der Post et al. (1997)
	Norms Diagnostic Index	Confrontation**	Allen & Dyer (1980)
	Organizational Culture Inventory	Oppositional**	Cooke & Lafferty (1987)
	Survey of Organizational Culture	Cooperation versus competition	Tucker et al. (1990)
	Organizational Culture Index	Cooperation *vs.* competition	Reynolds (1986)
	Corporate Culture Survey	Teamwork and Conflict**	Glaser (1983)
Empowerment and Inclusiveness	Denison Organisational Culture Survey	Empowerment	Denison (1984) Denison et al. (2006)
	Culture Measurement Instrument	Employee participation	van der Post et al. (1997)
Fairness/equity	Organizational Culture Index	Equitable	Wallach (1983)

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Appendix 5.3 (cont.) Cultural Dimensions of Sustainable Organizations Explored By Survey Instrument

Cultural Characteristics of Sustainable Organizations	Survey Instrument	Specific Dimensions Measured by Instrument	Author
Innovation and creativity	Organizational Culture Profile (OCP)	Risk taking and innovation	O'Reilly et al. (1988)
	Culture Measurement Instrument	Disposition towards change	Van der Post et al. (1997)
	FOCUS Questionnaire	Innovation	Van Muijen et al. (1992)
	Culture Questionnaire	Innovation	MacKenzie (2008)
	Organizational Culture Profile (OCP)	Being innovative; a willingness to experiment; risk taking	O'Reilly et al. (1988)
	Organizational Beliefs Questionnaire	Innovating or taking risks	Sashkin (1984)
Integrity	Organizational Culture Index	Safety vs risk; stability vs innovation	Reynolds (1986)
	Questionnaire on Values and Management Practices	Integrity	Calori & Sarnin (1991)
Learning	Denison Organisational Culture Survey	Learning (organizational)	Denison (1984)
Long Term Perspective	GLOBE	Future orientation	Waldman et al.(2006)
	Culture Gap Survey	Short term vs long term focus	Kilman & Saxton (1983)
Reflection	Organizational Culture Profile	Being reflective	O'Reilly et al. (1988)
Transparency and openness/Trust	Organizational Culture Inventory	Trusting	Cooke & Lafferty (1987)
	Culture Questionnaire	Openness and Trust	MacKenzie (2008)
	Survey Instrument	Trust and credibility	Petty et al. (1995)

Adapted from Jung et al., (2007, pp. 53-63)

**Opposite dimension

Appendix 5.4 Interview Guide

Introduction:

- This interview is being conducted to obtain information for my doctoral research, in which I am seeking to identify the cultural dimensions of sustainable organizations. *Company A* has been identified as committed to acting more sustainably.
- Whatever you say will be treated as confidential and I ask that you do the same with our discussion.
- There are no right or wrong answers. We are interested in your opinion of where things are at this time.
- Interview Consent Form
- Reading for macSpeech Scribe
- Invite the interviewee to complete the Commitment to Sustainability Survey (paper version), if not mailed to them earlier.

Sustainability Questions

1. How do you, personally, understand sustainability?

2. What is the role of (your position)………………………………………………….and how does sustainability impact on your role?

3. What challenges has sustainability placed on your function?

4. *The Company* has 3 areas for sustainability (We have three pillars of sustainability that focus on working towards: becoming a better employer; becoming a better neighbour; and becoming a better service provider.)
    a. Which of these areas does the company pay most attention to?
    b. What aspects of this area does the company see as most important? Least important?
    c. How much do most people at the company know about *Company A'* 3 areas for sustainability, and the related goals and achievements?
    d. How do they get their information about sustainability?
    e. Are most people aligned with the sustainability goals?

5. In what ways has the company's commitment to sustainability – in terms of management attention and investment –changed in the past 5 years?

6. In your view, why is *Company A* committed to sustainability?
    Probing Questions:

    a. Has sustainability impacted *Company A's* image with employees/with other companies/ with the community? If so, what have been the impacts?
    b. What other affects has sustainability had?

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Interview Guide (cont.)

7. What steps has *Company A* taken to embed sustainability throughout the company?

8. Has sustainability added value to *Company A*? If so what value has been added? In which areas of the company?

9. Do most people in *Company A* care about sustainability?
   Probing Questions:

   a) How do you know?
   b) In what ways do they care?

10. *Company A* uses several frameworks to measure its sustainability activities, such as:
    - the GRI (Global Reporting Initiative's) G3 sustainability reporting framework
    - Green House Gas Foot Print definitions set by the National Greenhouse & Energy Reporting (NGER) Act for measuring the footprint of operations in Australia.
    a) Does the company use any other reporting frameworks: eg
       - *AccountAbility's AA1000 Principles*
       - *AA1000 Assurance Standard (AA1000AS (2008))*
       - *SEDEX*
       - *ISO 14064 Greenhouse Gas Reporting Standard*
    b) How do you (or people in your division) translate this information into your everyday activities? (finding out if measures are embedded)
    c) OR: Do any of these frameworks impact your everyday activities? In what way?
    d) How useful is this data for you in your job?

11. What have been the highs and lows of implementing sustainability?

Organizational Culture Questions

12. (**Organizational Learning**) What key lessons has *Company A* learned over the past 5 or so years in implementing sustainability?

13. *Company A* has published its core values on its website.
    a) Can you give me examples of how these values are demonstrated/are applied?
    b) How are these values promoted to staff?
    c) Have these core values, or philosophy changed in recent years? If so how have they changed? What lead to these changes? How easily did the changes occur?
    d) How embedded are these values? Do all parts of the company adhere to them or are there subcultures which have some different values and attitudes?
    e) Do most employees identify with these beliefs and values or philosophies? What impact do they have on the company's sustainability programs?

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Interview Guide (cont.)

14. Are there any other core beliefs, values or philosophies, written or unwritten? What are they?

15. (**Wholism:**)
    a) Does the company take a whole of life cycle approach to its operations?
    b) How far has the company progressed in achieving this?
    c) How much of the organization understands cradle to grave/lifecycle management/product stewardship? How does it impact their day to day work?

16. (**Reflection):**
    Sustainability requires considerable attitudinal and organizational change.

    a. What has and does the company do to ensure management and employees are able to adjust to these changes?
    b. Do management (and other employees) take time out to assess progress, achievements and future changes needed?

17. (**Systems Thinking**) Sustainability is complex, with each part impacting on other parts. When addressing sustainability issues, how does the company ensure that the entire system is considered?

<div align="center">**END OF INTERVIEW QUESTIONS**</div>

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Appendix 5.5 Approval to Use MIT Sloan Boston Consulting Group Survey

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from:	Taylor, Annabel <ataylor@tribune.com>
to:	"lenore.pennington@students.mq.edu.au" <lenore.pennington@students.mq.edu.au>
date:	1 March 2012 23:13
subject:	RE: Sustainability Nears A Tipping Point - Survey - MIT Sloan Management Review
mailed-by:	tribune.com

Dear Lenore,

Many thanks for your request. You may use the MIT Sloan Boston Consulting Group Survey in your research. This permission is granted on a one-time only basis, no other forms of reproduction unless otherwise requested and granted are covered by this permission agreement. There will be no copyright fee for this use.

The copyright line is

© 2012 from MIT Sloan Management Review/Massachusetts Institute of Technology.

Good luck with your PhD, and thanks for checking.

Kind regards,

Annabel

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Appendix 5.6 Organizational Commitment to Sustainability Survey

MGSM
MACQUARIE GRADUATE
SCHOOL OF MANAGEMENT

ORGANIZATIONAL SUSTAINABILITY SURVEY – COMPANY A

You have been selected to complete this survey questionnaire because you are a senior executive with line of sight to sustainability and culture. This survey should take you about 15 minutes of your time.

Confidentiality: The information collected from this survey will be confidential and only the researchers will have access to the information provided in the surveys. No individual person or organization will be identified in any reports or published results. All the information will be stored securely and after the information has been analysed and the report has been published, the survey questionnaires will be kept secure for at least five years.

Your consent: If you decide to participate, you are free to withdraw from further participation in the research at any time without having to give a reason and without consequence. Submission of the completed survey will be regarded as consent to use the information for research purposes. In returning the completed survey you acknowledge that you have read and understood the above information statement. If you have any questions please to contact Lenore Pennington on lenore.pennington@students.mq.edu.au

The ethical aspects of this study have been approved by the Macquarie University Human Research Ethics Committee. If you have any complaints or reservations about any ethical aspect of your participation in this research, you may contact the Committee through the Director, Research Ethics (telephone [02] 9850 7854, fax [02] 9850 8799, email: ethics@mq.edu.au). Any complaint you make will be treated in confidence and investigated, and you will be informed of the outcome.

DEMOGRAPHIC QUESTIONS
The information requested below will be used for data analysis only. It will not be used to identify any particular person or group of people.

1. What percentage of your work is sustainability?	

2. I am:	Female		Male		3. My year of birth is	

4. My position level is: (Tick one)	
a)	C-suite executive (e.g. CEO, CSO, COO, CFO)
b)	Division head (e.g. VP, GM)
c)	Report to Division Head
d)	Manager
e)	Technical Specialist/ Professional employee (not a manager)
f)	Other

5. My employment with the company is: (Tick all which apply)	
a.	Full Time
b.	Part time
c.	Permanent
d.	Casual
e.	Contractor/ Temporary

6. Years I have worked for this company: (Tick one)	
a.	Less than one year
b.	1 – 4 years
c.	5 – 9 years
d.	10 years or more

7. Years I have been in my current job (Tick one)	
a.	Less than one year
b.	1 – 4 years
c.	5 – 9 years
d.	10 years or more

8. My highest level of education: (Tick one)			
a.	Some high school	e.	Some university but no degree
b.	High School Graduate	f.	Bachelor's Degree
c.	TAFE/Trade/Technical certificate	g.	Post-graduate Certificate
d.	Associate Degree	h.	Master's Degree or Higher

Questions 9 & 10 are optional. Please complete them if you wish to participate in a longitudinal study to measure how organizational culture changes over time.

9. My employee number is:		10. My Department is:	

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MGSM
MACQUARIE GRADUATE
SCHOOL OF MANAGEMENT

ORGANIZATIONAL SUSTAINABILITY SURVEY QUESTIONS – COMPANY A

There are no right or wrong answers. We are interested in your opinion. Answering all of the questions is important for our research.

11. What are the primary business challenges facing your company over the next two years? (Tick your top three):	Answer
a) Innovating to achieve competitive differentiation	
b) Growing revenue	
c) Reducing costs and increasing efficiencies	
d) Profitability acquiring and retaining customers	
e) Responding effectively to disruption of our business model	
f) Increasing operating speed and adaptability	
g) Attracting, retaining and motivating talented people	
h) Responding effectively to threats and opportunities of sustainability	
i) Responding effectively to threats and opportunities of globalization	

12. What factors does your company consider to be part of sustainability? (Tick all that apply)	Answer
a) Increased emphasis on long-term perspective	
b) Economic sustainability of the organization	
c) Corporate social responsibility issues	
d) Employee health and well-being	
e) Environmental issues	
f) Customer health and well-being	
g) Safety issues	
h) None of these	
i) Please list any other factors which your organization considers to be part of sustainability:	

13. Is the term "sustainability" concrete and useful? (Tick one)	Answer
a) Yes	
b) No, but it is the best term available	
c) No, but I would suggest (please use commas to separate multiple suggestions)	

14. Which of the following factors have led to changes in your business model as a result of sustainability considerations? (Tick all that apply)	Answer
a) Resource scarcity (e.g. increased commodity prices and price volatility)	
b) Owners demands for broader value creation (i.e. more than profits)	
c) Customers willing to pay a premium for sustainable offerings	
d) Legislative /political pressure	
e) Meeting demands of existing employees	
f) Customers prefer sustainable products /services	
g) Competitors increasing commitment to sustainability	
h) Maintaining "license to operate"	
i) Stricter requirements from partners along the value chain	
j) Competing for new talent	
k) None of the above	
l) Please list any other sustainability considerations which led to changes in your company's business model	

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15. Has your company's business model changed as a result of sustainability? (Tick one)	Answer
a) Yes	
b) No	
c) I do not know	

16. Is pursuing sustainability related strategies necessary for your company to be competitive in Australia? (Tick one)	Answer
a) Yes	
b) No, but will be in the future	
c) No	
d) Do not know	

17. How much has your company's commitment to sustainability – in terms of management attention and investment - changed in the past 5 years? (Tick one)	Answer	18. How much do you expect your company's commitment to sustainability – in terms of management attention and investment – to change in the year ahead? (Tick one)	Answer
a) Significantly increased		a) Will increase significantly	
b) Somewhat increased		b) Will increase somewhat	
c) Business as usual / No changes		c) Business as usual / No changes	
d) Somewhat decreased		d) Will decrease somewhat	
e) Significantly decreased		e) Will decrease significantly	
f) Do not know		f) Do not know	

19. What do you believe is the status of sustainability on the agenda of your company's top management in Australia? (Tick one)	Answer	20. In what year did the topic of sustainability first appear on your company's management agenda?
a) Already a permanent fixture and core strategic consideration		
b) On the agenda permanently, but not core		
c) Temporarily on the agenda, but not core		
d) Excluded from the agenda, because viewed as a passing fad		
e) Never considered for the agenda		

21. In general, how do you believe your company's sustainability-related action / decision have affected profitability? (Tick one)	Answer	22. How strong is your personal commitment to sustainability? (Tick one)	Answer
a) Added to profit		a) Among my top priorities	
b) Broken even – neither adding to nor subtracting		b) In line with other priorities	
c) Subtracting from profit		c) Lower than other priorities	
d) Do not know		d) No commitment	

23. What are the greatest benefits to your company in addressing sustainability? (Tick up to three reasons)	Answer	24. Which regions do you look to as world-class in addressing sustainability? (Tick all that apply)	Answer
a) Access to new markets		a) Africa	
b) Better innovation of business models and process		b) Asia-Pacific	
c) Better innovations of product/service offerings		c) Australia/New Zealand	
d) Enhanced stakeholder/ investor relations		d) Europe	
e) Improved brand reputation		e) Middle East	
f) Improved perception of how well the company is managed		f) North America	
g) Improved regulatory compliance		g) South America	
h) Improved ability to attract and retain top talent		h) None	
i) Increased competitive advantage			
j) Increased margins or market share due to sustainability positioning			
k) Increased employee productivity			
l) Reduced costs due to energy efficiency			
m) Reduced costs due to materials or waste efficiencies			
n) Reduced risk			
o) There are no benefits			

Page **3** of **5**

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25. Regarding sustainability in your company, does your company have: (Please respond to all statements)	Yes	Used to have but now embedded in our company	Used to have but no longer committed to	No but coming soon	No	Don't know
a) Strong CEO commitment to sustainability	1	2	3	4	5	6
b) A chief sustainability officer (CSO)	1	2	3	4	5	6
c) A separate function for sustainability	1	2	3	4	5	6
d) Responsible person for sustainability per business unit	1	2	3	4	5	6
e) Clear communication of responsibility for sustainability	1	2	3	4	5	6
f) Separate sustainability reporting	1	2	3	4	5	6
g) Sustainability reporting included as part of annual reporting	1	2	3	4	5	6
h) Personal KPIs related to sustainability	1	2	3	4	5	6
i) Financial incentives linked to sustainability performance	1	2	3	4	5	6

26. How significant an obstacle is each of the following to evaluating case for sustainability-related strategies? Please circle the number which closely matches your view about the company (Please respond to all statements)	Not at all significant	Insignificant	Neither significant nor insignificant	Significant	Very significant
a) Opposition from executives or influential individuals	1	2	3	4	5
b) Difficulty quantifying intangible effects of sustainability strategies (e.g. brand reputation, employee hiring, retention and productivity)	1	2	3	4	5
c) Difficulty capturing comprehensive metrics about sustainability impact of operations	1	2	3	4	5
d) Difficulty quantifying sustainability-related risks	1	2	3	4	5
e) Lack of model/framework for incorporating sustainability in business cases	1	2	3	4	5
f) Competing priorities	1	2	3	4	5
g) Uncertainty about future carbon pricing	1	2	3	4	5

27. Overall, has your company developed a clear business case or proven business proposition for addressing sustainability? (Tick one)	Answer
a) Yes	
b) Have tried to, but too difficult to develop	
c) No	
d) Unsure	

28. Has sustainability caused your company to increase its collaboration with any of the following? (Tick all that apply)	Answer
a) NGOs	
b) Governments / Policy makers	
c) Industry Associations	
d) Competitors	
e) Customers	
f) Internal business units across geographies	
g) Internal business units across functions	
h) Suppliers	
i) Contractors	
j) Local communities affected by operations across the supply chain	
k) None of the above	

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29A. My company's sustainability strategy is focussed on: (Tick one)	Answer
a) Legal compliance	
b) Preserving our reputation and license to operate	
c) Traditional ROI criteria	
d) In addition to traditional ROI criteria, company values are seen as a key driver for assessing risk and opportunity	
e) Corporate citizenship is a part of our business model: a focus on market opportunity and creation	

29B. The focus of my company's sustainability activities is primarily: (Tick one)	Answer
a) Jobs, profit, taxes	
b) Philanthropy, Community relations, Environmental Protection	
c) Stakeholder engagement and management	
d) Triple bottom line, with equal importance assigned to economic, social and environmental factors	
e) Embedded in the corporate DNA: it is the way we define and do business	

29C. My company's approach to sustainability issues is: (Tick one)	Answer
a) Issues handled as one-offs	
b) We have programs on paper, but many are not fully implemented	
c) We have operationalized policies and programs on key issues relevant to the company	
d) We have programs along with plans, goals and performance measures on the management of issues we face	
e) Plans and actions are ahead of the curve. We anticipate and prepare for emerging issues - both risks and opportunities	

29D. How engaged are your CEO and other top company leaders with sustainability? (Tick one)	Answer
a) Out of touch	
b) Leaders are in the loop, but not driving it	
c) Leaders are on top of it	
d) Leaders are out in front, leading our industry	
e) Leaders aim to change the game of business	

29E. The extent to which sustainability is embedded in my company's structure and business operations is: (Tick one)	Answer
a) Functional heads "do their bit". Citizenship responsibility is fragmented or non-existent	
b) There are units with specific citizenship-related responsibilities, but activity is still mostly siloed	
c) Citizenship responsibility is coordinated across units	
d) There is vertical buy-in across the company and lines of business are engaged	
e) Corporate citizenship is driven by the business, and activities cut across and are owned by functions and business units	

29F. I would characterize my company's approach to its stakeholder relations as: (Tick one)	Answer
a) We generally have one-way communication with stakeholders	
b) We generally have two-way communication with stakeholders	
c) We have a relationship of mutual influence, in which stakeholders influence the business and the business influences stakeholders	
d) We have a shared agenda with stakeholders and each do our part	
e) We work together with stakeholders on important issues and learn from them as an equal partner	

29G: I would characterize my company's accountability for sustainability as? (Tick one)	Answer
a) Only that which is require for legal compliance	
b) Mostly when a high-profile issue arises	
c) In *only a few* line and staff functions	
d) In *many* functions of the business	
e) This is core to how we run the business	

29H: To what extent does your company communicate about it its financial, social and environmental performance? (Tick one)	Answer
a) Minimal disclosure	
b) Some disclosure, emphasizing good news	
c) Public reporting on sustainability-related issues	
d) Full disclosure of goals and results	
e) We seek third party assurance /verification of our reported results	

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Thank you for completing this survey. Your input is greatly appreciated.

PLEASE DO NOT SIGN THIS DOCUMENT

Please put this completed survey paper in the envelope provided, seal the envelope and return it to:
Name, Position Title, Office Address

_____

Appendix 5.7 Approval to use Denison Organizational Culture Survey

From: Ken Uehara
Sent: Wednesday, November 30, 2011 2:51 PM
To: 'lenore.pennington@students.mq.edu.au'
Subject: RE: Permission to Use the Denison Organizational Culture Survey in PhD Research

Dear Lenore,

I am the academic correspondent for Denison Consulting. Dr. Denison has forwarded your message to me.

You can use the Denison Organizational Culture Survey free of charge for research purposes. We just ask for two things: First, a returned-copy of the terms of use (see attached). Second, to help us better understand your research, a 1-page description of your project. In the proposal, please address the following questions:

1. What is your main research topic?

2. When is your project to be completed?

3. In what country and industry are you conducting the research? What is your sample?

4. Is this research part of a master's, Ph.D., or other certificate?

In addition, if you can include a brief bio of yourself it would be very helpful; we just like to get to know different researchers in the world that are using the model.

Once these two documents are received, we will send you the survey items and a data template (If you would like us to make one or two circumplexes that compare your index scores to our normative benchmark of 931 organizations. This will give you a percentile for each of the 12 indexes). Given the time it takes to create the custom circumplexes manually for researchers, we are only able to offer that we can create one or two circumplexes as a complementary service.

Also, as a resource we have a wide-array of published articles on our website that can give further background on statistical validation, literature reviews, and methodology.

http://www.denisonconsulting.com/resources.aspx

If you have any questions, feel free to e-mail me or contact me at 734-302-6085.

Thanks!

Ken Uehara

Data Manager
Research and Development
Denison Consulting743-302-6085
KUehara@DenisonCulture.com

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Terms of Use for Researchers

We are interested in supporting academic research efforts. This document is intended to explain the terms of use for a researcher to use the Denison Consulting content. These terms apply to the items, indices, traits and model for the Denison Organizational Culture Survey, the Denison Leadership Development Survey, the Culture and Leadership Change Monitors, the Denison Team 360 and all other Denison products. The terms also apply to the Denison process and all accompaniments such as the normative databases, report formats, online survey tools, content on the website and supporting feedback materials.

Our Terms of Use are:

1. All content and products as defined above are copyrighted and owned by Denison Consulting. All rights reserved.
2. With permission from Denison Consulting, researchers may use items from the survey products. The items and resulting data will be used solely for research purposes.
3. Items, other measures and data will be kept confidential and not shared with anyone outside of the research group.
4. Use of the materials must be properly acknowledged in the manuscript and any resulting publications and presentations.
5. Denison Consulting will receive a copy of any research done on the data (papers, dissertation, presentations, follow-up publications, etc.). The researchers will provide us copies of the raw data.
6. Denison Consulting will have an opportunity to review any manuscripts based on the data prior to submission for publication or presentation.
7. This agreement to share items or other materials does not require that Denison Consulting will contribute resources for data analysis, norming, report generation or processing. If any additional work is required, Denison Consulting will charge for the time in completing the project.
8. Denison Consulting reserves the right to revoke permission for use of the items or other resources at our discretion.
9. Use of the research for commercial purposes is a violation of this agreement. Commercial rights can be negotiated, but that requires a separate agreement.

To acknowledge receipt and understanding of these terms, please do one of the following.
1. Sign and date a copy of this agreement and mail or fax (734-302-4023) to Denison Consulting.
2. Send an email research@denisonconsulting.com with this original agreement attached. State in the email that you received and understand the terms.

Thank you for protecting our intellectual property and good luck with your research!

_____   _____
Signature   Date

_____

Appendix 5.8 Approval to Use Leeora Black's Psychometric Scale

from: Leeora Black <leeorablack@accsr.com.au>

to: lenore.pennington@students.mq.edu.au

date: 9 January 2012 14:54

subject: RE: request for permission to use psychometric scale

Dear Lenore

You are welcome to use the scales. I have used them a number of times since and they do work. They are the basis of our annual State of CSR in Australia review.

I think it's best if I send you a copy of my thesis so you have the workings (chapter 8). It is attached. Please cite appropriately if you decide to use any of it.

Please keep in touch about your research, which sounds most useful.

Regards

Leeora Black

Appendix 5.9 Organizational Employee Survey

MGSM
MACQUARIE GRADUATE
SCHOOL OF MANAGEMENT   **EMPLOYEE SURVEY – *THE COMPANY***

There are no right or wrong answers. We are interested in what you think. Answering all of the questions is important for our research.

Some statements may seem similar. This is to ensure we get the best overall results.

Please read each statement carefully. CIRCLE the number which closely matches your view about the company.

PART A: ORGANIZATIONAL CULTURE

In your view, this company:	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
1. Participates in activities which aim to protect and improve the quality of the natural environment	1	2	3	4	5
2. Makes investments to create a better life for future generations	1	2	3	4	5
3. Implements special programs to minimize its negative impact on the natural environment	1	2	3	4	5
4. Targets sustainable growth which considers future generations	1	2	3	4	5
5. Supports non-governmental organizations working in problematic areas	1	2	3	4	5
6. Encourages its employees to participate in voluntary activities	1	2	3	4	5
7. Makes investments to create a better life for future generations	1	2	3	4	5

In your view, in this company:	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
8. Our approach to doing business is very consistent and predictable	1	2	3	4	5
9. People from different parts of the company share a common perspective	1	2	3	4	5
10. It is easy to coordinate projects across different parts of the company	1	2	3	4	5
11. Working with someone from another part of this company is like working with someone from a different company	1	2	3	4	5
12. There is good alignment of goals across levels in this company	1	2	3	4	5

How much do you agree that this company:	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
13. Does not try to deceive	1	2	3	4	5
14. Has high moral standards	1	2	3	4	5
15. Treats its stakeholders with respect	1	2	3	4	5

Think about your work team. In your team:	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
16. Members enjoy doing jobs with people of different ethnicity, gender, and/or age	1	2	3	4	5
17. Members make an extra effort to listen to people of different ethnicity, gender, and/or age	1	2	3	4	5
18. Members make an extra effort to listen to people who hold different work values and/or motivations	1	2	3	4	5
19. Members are keen to learn from people who have different work values and/or motivations	1	2	3	4	5
20. Members enjoy doing jobs with people from different professional backgrounds and/or work experiences	1	2	3	4	5
21. Members make an extra effort to listen to people who are from different professional backgrounds and/or work experiences	1	2	3	4	5

With regard to learning at work, in this company:	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
22. We view failure as an opportunity for learning and improvement	1	2	3	4	5
23. Innovation and risk taking are encouraged and rewarded	1	2	3	4	5
24. Lots of things "fall between the cracks"	1	2	3	4	5
25. Learning is an important objective in our day-to-day work	1	2	3	4	5
26. We make certain that the "right hand knows what the left hand is doing"	1	2	3	4	5

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How much do you agree that in this company:	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
27. People are encouraged to be creative	1	2	3	4	5
28. We are able to implement new ideas	1	2	3	4	5
29. New ideas are continually evaluated and improved upon	1	2	3	4	5
30. Support for developing new ideas is readily available	1	2	3	4	5
31. Innovation is a large part of our business activities	1	2	3	4	5

How much do you agree that this company:	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
32. Recognizes it has a responsibility to care for the natural environment	1	2	3	4	5
33. Acts to maintain the biological diversity of the natural environment	1	2	3	4	5
34. Minimizes its resource use so that resources are available for future generations	1	2	3	4	5
35. Considers the impact of its operations on humankind today and in the future	1	2	3	4	5
36. Actively seeks to provide for the most disadvantaged people in society	1	2	3	4	5

How much do you agree that in this company:	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
37. There is a long-term purpose and direction	1	2	3	4	5
38. Our strategy leads other organizations to change the way they compete in the industry	1	2	3	4	5
39. There is a clear mission that gives meaning and direction to our work	1	2	3	4	5
40. There is a clear strategy for the future	1	2	3	4	5
41. Our strategic direction is unclear to me	1	2	3	4	5
42. Short-term thinking often compromises our long-term vision	1	2	3	4	5

In your opinion, in this company:	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
43. Environmental issues are explicitly considered within the company's strategic planning process	1	2	3	4	5
44. Consideration for the natural environment is addressed within the company's mission statement or statement of business principles	1	2	3	4	5
45. When environmental issues are considered within the strategic planning process, the top management team makes proactive, forward thinking decisions	1	2	3	4	5
46. Environmental personnel participate influentially in the company's strategic planning process	1	2	3	4	5

This section asks about community sustainability. Do you agree that in this company:	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
47. Community and social issues are explicitly considered within the company's strategic planning process	1	2	3	4	5
48. Consideration for community and social issues is addressed within the company's mission statement or statement of business principles	1	2	3	4	5
49. When community and social issues are considered within the strategic planning process, the top management team makes proactive, forward thinking decisions	1	2	3	4	5

With regard to the environment, to what extent is:	Not at all				To a very great extent
50. This company an environmental leader in the industry	1	2	3	4	5
51. The reduction of environmental impact of operations central to this company's identity	1	2	3	4	5

To what extent do you think this company is:	To no extent	To a little extent	To some extent	To a great extent	To a very great extent
52. Actively promoting sustainable practices to other companies and society generally	1	2	3	4	5
53. Adopting environmental best practice	1	2	3	4	5
54. Developing new products to replace its products and services which harm the environment	1	2	3	4	5
55. Redesigning its products to increase the use of recycled materials	1	2	3	4	5
56. Developing new processes to replace those which harm the environment	1	2	3	4	5
57. Conducting research to find alternatives to using natural resources	1	2	3	4	5
58. Developing new products to replace any products and services which may harm people or the community	1	2	3	4	5

In this company, how often do:	Almost Never					Almost Always
59. People give open and honest feedback to each other	1	2	3	4	5	6
60. People listen to others' views before speaking	1	2	3	4	5	6
61. People are encouraged to ask "why", regardless of rank	1	2	3	4	5	6
62. Whenever people state their view, they also ask what others think	1	2	3	4	5	6
63. People treat each other with respect	1	2	3	4	5	6

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In your view, this company:	Almost Never					Almost Always
64. Recognizes people for taking initiative	1	2	3	4	5	6
65. Gives people choices in their work assignments	1	2	3	4	5	6
66. Invites people to contribute to the organization's vision	1	2	3	4	5	6
67. Gives people control over the resources they need to accomplish their work	1	2	3	4	5	6
68. Supports employees who take calculated risks	1	2	3	4	5	6
69. Builds alignment of visions across different levels and work groups	1	2	3	4	5	6

In your experience, in this company:	Strongly Disagree	Disagree	Slightly disagree	Neither Agree nor Disagree	Slightly Agree	Agree	Strongly Agree
70. Employees share knowhow from work experience with each other	1	2	3	4	5	6	7
71. Employees share expertise from education and training methods	1	2	3	4	5	6	7
72. Employees share business knowledge obtained informally (such as news stories and gossip)	1	2	3	4	5	6	7
73. Employees share business knowledge from stakeholders (such as customers, suppliers and allies)	1	2	3	4	5	6	7
74. People are rewarded for sharing their knowledge	1	2	3	4	5	6	7

As far as you are aware:	Strongly Disagree	Disagree	Slightly disagree	Neither Agree nor Disagree	Slightly Agree	Agree	Strongly Agree
75. The financial well-being of this company does not depend on the state of the natural environment	1	2	3	4	5	6	7
76. This company believes it has a responsibility to preserve the environment	1	2	3	4	5	6	7
77. Environmental preservation is vital for this company's survival	1	2	3	4	5	6	7
78. This company's responsibility to its customers, stockholders, and employees is more important than our responsibility toward environmental preservation	1	2	3	4	5	6	7
79. Managers do not feel a strong sense of accountability towards the community at large	1	2	3	4	5	6	7

How much do you agree that this company:	Strongly Disagree	Disagree	Slightly disagree	Neither Agree nor Disagree	Slightly Agree	Agree	Strongly Agree
80. Presents more than one side of controversial issues	1	2	3	4	5	6	7
81. Is forthcoming with information that might be damaging to the organization	1	2	3	4	5	6	7
82. Is open to criticism by people like me	1	2	3	4	5	6	7
83. Freely admits when it has made mistakes	1	2	3	4	5	6	7
84. Provides information that can be compared to industry standards	1	2	3	4	5	6	7

The company's "stakeholders" include employees, investors and suppliers of capital, customers and suppliers, industry bodies, governments, the media and the communities in which it operates. In your experience:	Strongly Disagree						Strongly Agree
85. Our company's beliefs and ideals are openly discussed throughout the company	1	2	3	4	5	6	7
86. Managers in this company have genuinely respectful attitudes towards stakeholders	1	2	3	4	5	6	7
87. This company sees itself as strongly linked with its stakeholders	1	2	3	4	5	6	7
88. Management in this company tries to balance competing stakeholder needs over the long term	1	2	3	4	5	6	7
89. Our company does not place a lot of emphasis on developing good stakeholder relationships	1	2	3	4	5	6	7
90. Managers in this company generally do not consider that the views of stakeholders should influence operational decision making	1	2	3	4	5	6	7
91. The way stakeholders see this company is a low priority for us	1	2	3	4	5	6	7
92. Managers in our company consider stakeholder values when they make decisions about our response to social issues	1	2	3	4	5	6	7

To what extent do the people in your work group differ:	To a very small extent						To a very large extent
93. In their way of thinking	1	2	3	4	5	6	7
94. In their knowledge and skills	1	2	3	4	5	6	7
95. In how they view the world	1	2	3	4	5	6	7
96. In their beliefs about what is right and wrong	1	2	3	4	5	6	7

PLEASE CONTINUE ON NEXT PAGE

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PART B: SUSTAINABILITY	Disagree	Don't Know	Agree
97. This company publishes a sustainability policy	1	2	3

Regarding the environment and the community, to what extent is this company:	To no extent	To a little extent	To some extent	To a great extent	To a very great extent
98. Committed to the environmental viability of the planet	1	2	3	4	5
99. Working with the community towards achieving ecological renewal	1	2	3	4	5
100. Participating in projects which improve individual and community well-being	1	2	3	4	5
101. Committed to just, equitable social practices and individual well-being	1	2	3	4	5
102. Remedying the individual and community harm which has resulted from its operations	1	2	3	4	5
103. Considering people and the community to be valuable in their own right	1	2	3	4	5
104. Using its products and services to improve individual and community well-being	1	2	3	4	5
105. Actively promoting workplace diversity internally and to other organizations	1	2	3	4	5

How much do you agree that this company:	Strongly disagree	Partially Disagree	Don't Know	Partially Agree	Strongly Agree
106. Has specific targets for sustainability performance	1	2	3	4	5
107. Publishes an annual environmental report	1	2	3	4	5
108. Uses an environmental management system	1	2	3	4	5
109. Applies environmental considerations to purchasing decisions	1	2	3	4	5
110. Provides employee sustainability training	1	2	3	4	5
111. Makes employees responsible for company sustainability performance	1	2	3	4	5
112. Uses life cycle analysis	1	2	3	4	5
113. Has management which understands/ addresses issues of sustainable development	1	2	3	4	5
114. Systematically reduces fossil fuel use	1	2	3	4	5
115. Systematically reduces toxic chemicals use	1	2	3	4	5
116. Systematically reduces consumption of unsustainable products	1	2	3	4	5
117. Applies the same sustainability standards in Australia and overseas	1	2	3	4	5

PART C: DEMOGRAPHIC QUESTIONS
The information requested below will be used for data analysis only. It will not be used to identify any particular person or group of people.

119. I am: Female [ ]   Male [ ]   **120. My year of birth is:** [ ]

121. My position level is: (Tick one)

	a. Team member/ front line employee
	b. Team leader/ supervisor
	c. Professional employee (not a manager)
	d. Middle management
	e. Senior management

122. My employment with the company is: (Tick all which apply)

	a. Full Time
	b. Part time
	c. Permanent
	d. Casual
	e. Contractor/ Temporary

123. Years I have worked for this company: (Tick one)

	a. Less than one year
	b. 1 - 4 years
	c. 5 – 9 years
	d. 10 years or more

124. Years I have been in my current job: (Tick one)

	a. Less than one year
	b. 1 – 4 years
	c. 5 – 9 years
	d. 10 years or more

125. My highest level of education is: (Tick one)

a.	Some high school	e.	Some university but no degree
b.	High School Graduate	f.	Bachelor's Degree
c.	TAFE/Trade/Technical certificate	g.	Post-graduate Certificate
d.	Associate Degree	h.	Master's Degree or Higher

My *Company* site is:

Questions 126 and 127 are optional. To enable us to match your responses to a follow up survey, please complete the next two questions.

126. My employee number is: [ ]   **127. My Department is:** [ ]

Thank you for completing this survey. Your input is greatly appreciated.

PLEASE DO NOT SIGN THIS DOCUMENT

Please put this completed survey paper in the envelope provided, seal the envelope and return it to your site manager.

_____

Appendix 5.10 Communication e-mail to Company A Executives

E-mail sent by General Manager Sustainability and Environment

<u>Research Project: Organizational Culture Traits which Enable Organizational Sustainability</u>

Company A is participating in research conducted by Macquarie University to understand the culture of organizations which are committed to sustainability.

The research includes interviews with 10 to 12 members of senior management across the company. The survey asks questions relating to *Company A's* culture and its commitment to sustainability and sustainability activities.

You have been selected for an interview for the research study. The interview will take around an hour and will include questions about *Company A*'s sustainability activities and the company's culture. The interview will be conducted at our offices at *Address*. The researcher will take notes and will record the interviews to capture all the information. Those people interviewed also will be asked to complete a survey about sustainability. This survey will take 15 to 20 minutes to complete.

Once the research has been completed, the results and research findings will be provided to *Company A*.

Confidentiality

No one at *Company A* will see any of the collected data. Only the researchers and supervisors will have access to the raw data or completed surveys. No individual employee will be identified in any reports which result from this study. Any information discussed or provided in the survey research will be confidential.

All the information will be stored securely and after the information has been analyzed and the report has been published, the survey questionnaires will be kept secure for at least five years.

Who is conducting this research?

Lenore Pennington, Doctoral Scholar at the Macquarie Graduate School of Management, is leading the research project and her work is being supervised by Professor Elizabeth More, Dean of the Faculty of Business at the Australian Catholic University, and Dr. Denise Jepsen of Macquarie University.

Timing

We are planning to conduct the interviews in late July and August of this year.

Other questions?

For more information, please contact *XXXX*, General Manager, Sustainability and Environment, on *Phone Number*, or at <u>e-mail address</u> or Lenore Pennington at the MGSM on 0411-285-172 or at <u>lenore.pennington@students.mq.edu.au</u>

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Appendix 5.11 Communication e-mail to Company A Site Employees

E-mail sent by General Manager Sustainability and Environment

Research Project: Organizational Culture Traits which Enable Organizational Sustainability

Macquarie University is conducting research to understand the culture of organizations which are committed to sustainability. This research aims to understand whether sustainable organizations have specific cultural characteristics.

Company A has agreed to support this research by facilitating the researchers' access to our employees during business hours and at some of our sites.

In particular, employees at the following sites will participate in this research:

- (Company A sites were listed here)

The research will involve a survey which may take 15-20 minutes to complete, and a one on one interview of approximately six to ten senior managers which will take up to one to one and a half hours. Participants will be asked questions relating to *Company A's* culture and its commitment to sustainability and sustainability activities.

Your participation is voluntary, and your participation will not affect any evaluation of your work. No individual employee will be identified in any reports which result from this study. Any information discussed or provided in the survey will remain confidential between you and the researchers.

We encourage your participation, as once the research has been completed, the results and research findings will be provided to *Company A***.**

Appendix 5.12 Site Managers' Employee Survey Instructions and Script for Site Managers

Where successful people go to go further

MGSM
MACQUARIE GRADUATE
SCHOOL OF MANAGEMENT

Friday 17 August 2012

Research Project: Organizational Culture Traits which Enable Organizational Sustainability

EMPLOYEE SURVEY – THE COMPANY

GUIDE FOR SITE MANAGERS

Thank you very much for assisting with this survey on organizational culture and sustainability.

You have been given surveys for all of *Company A's* employees at your site.

The survey pack for each employee includes:

1. The survey questionnaire
2. An information page
3. A return envelope

The pack also includes very a large envelope for returning the surveys via Internal Mail to *XXXX*, General Manager Sustainability & Environment, at *ADDRESS.* Larger sites have several envelopes.

When distributing the survey, either in a group meeting or individually, please ask the employees to read the information page and then complete the survey.

On the next page is a script which you may choose to use for briefing your employees.

Please ask the employees who complete the survey to:

- Fold it in half
- Place it in the envelope provided
- Seal the envelope
- Give the sealed envelope to you.

When employees give you their completed surveys, please place them in the very large envelope(s) and send it via the *Company's* internal mail to *XXXX* within 14 days of receiving this pack.

Any employees who don't wish to give you their survey, may place two 60 cent stamps on the envelope, and mail it directly to Lenore Pennington at Macquarie University. However please encourage people to give them to you, and stress you can't see the information as it is in a sealed envelope.

If you have any questions, please call Lenore Pennington on 0411-285-172 or e-mail her at lenore.pennington.students.mq.edu.au

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Where successful people go to go further

SCRIPT FOR SITE MANAGERS

The Company is participating in a research study on organization culture and sustainability.

This is one of the divisions which has been chosen for this research project.

You are asked to complete a survey which will take around 20 minutes. The survey also asks some information about you which helps the researchers to group the results. Please make sure you fill this in.

The information you provide will be kept completely confidential and anonymous.

Please read the separate information sheet tucked inside the survey.

To answer the questions, please circle the number which best fits what you know about The Company.

Please answer all the questions. Use a black or blue pen.

We expect it will take you about 20 minutes to complete the survey. We want to know about your own experiences and understanding about the Company. Your experience may be quite different from other peoples'.

If you find it hard to deciding between two response options, choose the one that you think best describes the Company. If you are unsure about any question, please still answer it and go with your "best" answer. It is better to go through the survey fairly quickly than to spend ages trying to figure out the right answer.

When you have finished the survey:
- Fold it in half
- Place it in the envelope provided
- Seal the envelope
- Give the sealed envelope to your site manager.

NO ONE _AT THE COMPANY_ WILL SEE YOUR SURVEY PAPER, OR KNOW ANY OF YOUR OWN

ANSWERS, NOT YOUR SUPERVISOR, MANAGER, OR ANY COMPANY EXECUTIVES

PLEASE START THE SURVEY

Appendix 5.13 Company A Consent Letter

Where successful people go to go further

MGSM
MACQUARIE GRADUATE
SCHOOL OF MANAGEMENT

Research Office
Room 154, MGSM Stage 3, Building 14B
Macquarie Graduate School of Management
Macquarie University NSW 2109 Australia

15 June 2012

NAME
Chief Executive Operations Support
The Company
Address

Dear *First Name*,

Research Project: <u>Organizational Culture Traits which Enable Organizational Sustainability</u>

Follow our meeting on Thursday 14 June 2012, I am writing to seek *the Company's* approval to participate in a study of the organizational culture of sustainable organizations.

The research project is being conducted by Lenore Pennington, a candidate for a PhD in Management at the Macquarie Graduate School of Management at Macquarie University, under the supervision of Professor Elizabeth More of Australian Catholic University and Dr. Denise Jepsen of Macquarie University.

<u>**Study Goals**</u>

Research shows that an organization's culture has an important impact upon whether they achieve some or all of their sustainability objectives. The purpose of this research project is to investigate the culture of organizations which are committed to sustainability and aims to understand whether sustainable organizations have specific cultural characteristics.

<u>**Benefits of participation**</u>

The key benefit to *the Company* of participating in the study will be access to the survey data obtained from *the Company's* employees and the provision of benchmark information against which to measure future culture changes. It is expected that the survey data will identify and gaps in culture that *the Company* can then address.

The final outcome of the study will be new information about the culture characteristics required for organizations aspiring to become sustainable.

<u>**What is involved in participation?**</u>

The project involves *the Company* in the following research

1. **Review of organization policies and reports**
   Some documents, such as annual and sustainability reports are already in the public records. However to obtain sufficient information *the Company* will be asked to provide hard and soft copies of organization documents which refer to sustainability and organizational culture. These may include:
   a) Policy statements such as ethics, values and culture statements, sustainability policies and statements, and related policies such as employment policies;
   b) Sustainability reports, both internal and external.
   c) Internal web pages.
   d) In-house communications including on line communications and web pages.

Page **1** of 3

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Where successful people go to go further

MGSM
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SCHOOL OF MANAGEMENT

    e) Organizational structure information which shows where the organization assigns responsibility for sustainability.

2. **Interviews on your organization's commitment to sustainability**
   a) The researchers will interview, during working hours, around six to ten of your executive or senior managers from a range of functional areas, including the person with ultimate responsible for sustainability strategy. The final list of interview participants will be agreed in consultation with *the Company*.
   b) To prevent potential ethical issues of the researchers obtaining and having employee contact details and making direct approaches to employees, *the Company* will be asked to invite interview participants and arrange interview times on our behalf.
   c) To determine the representativeness of those people we interview the researchers will require de-identified demographic data (such as employee numbers, gender, tenure, job title, job level, division and department) for the interviewed employees.

3. **Employee survey study of organizational culture**
   a) For statistical power the researchers aim to obtain at least 200 respondents from the survey. The anticipated response rate will determine size of the sample size to be approached.
   b) To allow for stratified sampling employees will be chosen at random from higher to lower levels. Given the number of employees in *the Company* the survey can be conducted across one or two divisions, or more broadly. This will be decided upon discussion with *the Company*.
   c) The survey will take around 15 to 20 minutes to complete.

4. **Survey Distribution**
   a) The survey will be administered in either of two forms as agreed with *the Company*:
      i. By e-mail with an invitation to click on a hot link to a Qualtrics website, where the data will be collected. Qualtrics, is a third-party online survey administration company; or
      ii. Paper surveys
   b) To prevent potential ethical issues of the researchers obtaining and having employee contact details and making direct approaches to employees, *the Company* will be asked to distribute the survey on our behalf.
   c) The researchers will require de-identified demographic data (such as employee numbers, gender, tenure, job title, job level, division and department) for the employees to whom the survey was distributed, to determine the representativeness of the survey respondents.

<u>**Ethics clearance for the study**</u>

The ethical aspects of this study have been approved by the Macquarie University Ethics Review Committee (Human Research) (Ethics Reference No: 5201100407(D)). If at any time there are any concerns or complaints about any ethical aspect of *the Company's* participation in this research, you may contact the Ethics Secretariat on +61 2 9850 6848 or email: <u>ethics.secretariat@mq.edu.au</u>. Any complaint made will be treated in confidence and investigated, and *the Company* will be informed of the outcome.

<u>**Confidentiality**</u>

While interview and survey data will be collected at the individual level, the information will be aggregated and reported at the aggregate level. All individual responses from both interviews and the surveys will be treated with absolute confidentiality. No individual will be identified in any published results or reports which result from this study.

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All the information gathered in the course of this research project is confidential. At no time, now, or in the future will we require *the Company* provide to us employee names linked with employee numbers. Only the primary researchers, including research assistants and supervisors will have access to the data and information about survey participants. All the information will be stored securely, and after the information has been analyzed and the report has been published, the interview notes and recordings and survey questionnaires will be kept secure for at least five years.

Thank you again for assisting with this research. One copy of this letter signed by the researcher is yours to keep. Please sign and return the second copy in the enclosed envelop to Lenore Pennington, Room 154, MGSM Stage 3 Building 14B, Macquarie University NSW 2109.

If you have any questions, please feel free to contact either Lenore Pennington (Mob: 0411-285-172) or Dr. Denise Jepsen (Ph.: +61-2-9850 4805).

Yours sincerely,

Lenore K Pennington B.Ec. (Adel), B.Ec. Hons (Flinders), MILR (Cornell)
Doctoral Scholar
MGSM, Macquarie University
_____

I have read and understood the information above and any questions I have asked have been answered to my satisfaction. I agree that *the Company* will participate in this research, knowing that *the Company* can withdraw from further participation in the research at any time without consequence. *The Company* has been given a copy of this document to keep.

***The Company* Representative Name (in Block letters): _____**

***The Company* Representative Role (in Block letters): _____**

***The Company* Representative Signature**: _____ **Date**: _____

Researcher Name (in Block letters): LENORE PENNINGTON

Researcher Signature: _____ **Date:** _____

_____

Appendix 5.14 Employee Survey Participation and Consent Information

Where successful people go to go further

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SCHOOL OF MANAGEMENT   **EMPLOYEE SURVEY – *THE COMPANY***

Your opinion counts....

Thank you for taking the time to tell us your opinions about *the Company*.

First, turn over this sheet and read some detailed information about this research. Then do the survey.

Your supervisor, manager, or company executives will NOT see your responses.

PLEASE TURN OVER PAGE

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EMPLOYEE SURVEY – *THE COMPANY*

Research Project: <u>Organizational Culture Traits which Enable Organizational Sustainability</u>

The Company is participating in a research study which is examining the cultural factors that influence an organization's sustainability performance. The study will advance management theory and will help those companies which want to become more sustainable.

As you work in one of the divisions which t*he Company* has chosen for this research project, you have been selected to participate in the research.

What are you being asked to do? You are being asked to fill out a survey of short questions. The survey will take around 20 minutes. The survey ends with some demographic questions that will help us to analyse the data. No special knowledge is required.

How will the results be used? This research is being conducted by Lenore Pennington as part of the research for a PhD in Management. The de-identified data will be submitted for publication in scholarly journal(s) and the data may be used for future research.

How will this survey help *the Company*? *The Company* is committed to being a sustainable company. *The Company* will be given a feedback report on the survey results. This summary report will enable t*he Company* to review its culture in the light of sustainability. Individual responses to the survey will not be identified in this report.

How will the data be kept confidential? Only the university researchers will see what you have written. No individual person will be identified in any reports or published results. The survey questionnaires will be kept locked away. All of the data on computer files will be password protected.

Your consent: Handing in the completed survey will be regarded as consent to use the information for research purposes. In returning the completed survey you acknowledge that you have read and understood this information. If you decide to fill in the survey, you may withdraw from further participation in the research at any time without having to give a reason and without consequence.

Who can you talk with about this survey? The researcher, Lenore Pennington, can be contacted at 0411-285-172 or lenore.pennington@students.mq.edu.au You may also contact Dr Denise Jepsen in the Faculty of Business and Economics at Macquarie University on (02) 9850-4805 or denise.jepsen@mq.edu.au Copies of publications arising from this research will be available from Lenore Pennington at lenore.pennington@students.mq.edu.au

Ethics of this survey: The ethical aspects of this study have been approved by the Macquarie University Human Research Ethics Committee. If you have any complaints or reservations about any ethical aspect of your participation in this research, you may contact the Committee through the Director, Research Ethics (telephone: (02) 9850 7854, fax: (02) 9850 8799, or email: ethics@mq.edu.au). Any complaint you make will be treated in confidence and investigated, and you will be informed of the outcome.

PLEASE START SURVEY IN BOOKLET

Appendix 5.15 Interview Consent Form

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Research Office
Room 154, MGSM Stage 3, Building 14B
Macquarie Graduate School of Management
Macquarie University NSW 2109 Australia

INTERVIEW INFORMATION AND CONSENT FORM

Participant Copy

Research Project: <u>Organizational Culture Traits Which Enable Organizational Sustainability</u>

Thank you for assisting in this PhD research project on Organizational Culture and Organizational Sustainability.

Purpose of study: The scope of the research is to better understand what are the cultural factors that influence an organization's sustainability performance.

This research is being conducted by Lenore Pennington, a candidate for a PhD in Management at the Macquarie Graduate School of Management at Macquarie University, under the supervision of Professor Elizabeth More of Australian Catholic University and Dr. Denise Jepsen of Macquarie University. The data obtained may be used in future studies.

You have been selected for an interview for this study because you are a senior executive with line of sight to sustainability and culture. This interview will take around an hour and will .include questions about *the Company's* sustainability activities, and the organization culture. The interview will be conducted on company premises in a private facility. The researcher will take notes and make an audio recording of the interview to ensure an accurate record.

Confidentiality: The information collected from this research, and this interview, will be confidential and only the researchers will have access to information about survey participants. Only the researchers will have access to the raw data. No individual person or organization will be identified in any reports or published results. All the information will be stored securely. After the information has been analysed and the report has been published, the data will be kept secure for at least five years.

If you decide to participate, you may withdraw from further participation in the research at any time without having to give a reason and without consequence

Thank you again for your time and effort in assisting with this research. If you have any questions please feel free to contact Lenore Pennington on <u>lenore.pennington@students.mq.edu.au</u> This signed form is yours to keep.

I have read *(or have had read to me)* and understand the information above, and any questions I have asked have been answered to my satisfaction. I agree to participate in this research, knowing that I can withdraw from further participation in the research at any time without consequence. I have been given a copy of this form to keep.

Participant's Name: (in Block letters): _____

Participant's Role: (in Block letters): _____

Participant's Signature: _____Date: _____

Researcher's Name: Lenore Pennington

Researcher's Signature: _____Date: _____

The ethical aspects of this study have been approved by the Macquarie University Human Research Ethics Committee. If you have any complaints or reservations about any ethical aspect of your participation in this research, you may contact the Committee through the Director, Research Ethics (telephone [02] 9850 7854, fax [02] 9850 8799, email: ethics@mq.edu.au). Any complaint you make will be treated in confidence and investigated, and you will be informed of the outcome.

ABN 90 952 801 237 | CRICOS Provider No 00002J

www.mgsm.edu.au

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Appendices Chapter 6

Appendix 6.1 The UN Global Compact's ten principles in the areas of human rights, labour, the environment and anti-corruption

The UN Global Compact's ten principles in the areas of human rights, labour, the environment and anti-corruption enjoy universal consensus and are derived from:

- The Universal Declaration of Human Rights
- The International Labour Organization's Declaration on Fundamental Principles and Rights at Work
- The Rio Declaration on Environment and Development
- The United Nations Convention Against Corruption

The UN Global Compact asks companies to embrace, support and enact, within their sphere of influence, a set of core values in the areas of human rights, labour standards, the environment and anti-corruption:

Human Rights

Principle 1: Businesses should support and respect the protection of internationally proclaimed human rights; and

Principle 2: make sure that they are not complicit in human rights abuses.

Labour

Principle 3: Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining;

Principle 4: the elimination of all forms of forced and compulsory labour;

Principle 5: the effective abolition of child labour; and

Principle 6: the elimination of discrimination in respect of employment and occupation.

Environment

Principle 7: Businesses should support a precautionary approach to environmental challenges;

Principle 8: undertake initiatives to promote greater environmental responsibility; and

Principle 9: encourage the development and diffusion of environmentally friendly technologies.

Anti-Corruption

Principle 10: Businesses should work against corruption in all its forms, including extortion and bribery.

(United Nations Global Compact, 2014, p. 6)

Appendix 6.2 Interview Codes

Int Qu No.	Interview Guide Questions	Research Question Code	Emergent Codes
1.	How do you, personally, understand sustainability?	1.0 Personal Definition Sustainability	1.0.1 Financial/ Economic Sustainability
			1.0.2 Environmental Sustainability
			1.0.3 Social Sustainability
			1.0.4 Alignment of Financial, Social & Environmental
			1.0.5 Other
2.	What is the role of (your Position) and how does sustainability impact on your role?	2.0 Sustainability in Role	
3.	What challenges has sustainability placed on your function?	3.0 Sustainability challenges	3.0.1 Linking sustainability & strategy
4a.	The Company has 3 areas for sustainability. Which of these areas does the company pay most attention to?	4.1 Management Focus	4.1.1 Three Pillars Of Sustainability
4b.	What aspects of this area does the company see as most important? Least important?	4.2.Sustainability High Focus	
4c.	What aspects of this area does the company see as least important?	4.3 Sustainability Low Focus	
4d.	How much do most people at the Company know about *Company A*'s 3 areas for sustainability, and the related goals and achievements?	4.4 Employee Sustainability Knowledge	4.4.1 Financial 4.4.2 Environmental 4.4.3 Social
4e.	How do people get their information about sustainability?	4.5 Sustainability Communication	
4f.	Are most people aligned with the sustainability goals?	4.5 Sustainability Alignment	
5.	In what ways has the company's commitment to sustainability – in terms of management attention and investment – changed in the past 5 years?	5.0 Level of Commitment to Sustainability	5.0.1 Environmental Sustainability Actions 5.0.2 Social Sustainability Actions
6a.	In your view, why is *Company A* committed to sustainability?	6.0 Reasons for Commitment	
6b.	Has sustainability impacted *Company A's*' image with employees/with other companies/ with the community? If so, what have been the impacts?	6.1 Sustainability Image	
6c	What other affects has sustainability had?	6.2 Sustainability Effects	

Interview Codes (cont.)

Int Qu No.	Interview Guide Questions	Research Question Code	Emergent Codes
7.	What steps has *Company A* taken to embed sustainability throughout the company?	7.0 Embedding sustainability	7.0.1 Communicating Sustainability achievements
8.	Has sustainability added value to *Company A*? If so what value has been added? In which areas of the company	8.0 Sustainability Value Add	
9.	Do most people at *Company A* care about sustainability? How do you know? In what ways do they care?	9.0 Employee Interest in Sustainability	9.0.1 Employee commitment
10a	10. *Company A* uses several frameworks to measure its sustainability activities. Does The Company use any other reporting frameworks. If so which ones?	10.0 Measurement Frameworks 10.1 Other frameworks	10.0.1 Annual Sustainability Report 10.1.1 GRI reporting used selectively 10.1.2 NGER 10.1.3 Measuring and reporting for clients
10b.	How do you (or people in your division) translate this information into your everyday activities?	10.2 Measurement data application	
10c.	Do any of these frameworks impact your everyday activities? In what way?	10.3 Measurement data impact	
10d.	How useful is this data for you in your job?	10.4 Measurement data usefulness	
11.	What have been the highs and lows of implementing sustainability?	11.1 Highs 11.2 Lows	11.1.1 External Economic Conditions
12.	On organizational learning: What key lessons has *Company A* learned over the past 5 or so years in implementing sustainability?	12.0 Learning	
13a.	*Company A* has published its core values on its website	13.0 Espoused Values	13.0.1 Published values
13b.	Integrity - Do what's right	13.1 Integrity	
13c	Collaboration - Achieve more together	13.2 Collaboration	
13d	Challenge - Drive to succeed	13.3 Challenge	
13e.	Ingenuity - Create better ways	13.4 Ingenuity	
13f.	Can you give me examples of how these values are demonstrated/are applied?	13.5 Values examples	
13g.	How are these values promoted to staff?	13.6 Values communication	

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Interview Codes (cont.)

Int Qu No.	Interview Guide Questions	Research Question Code	Emergent Codes
13h.	Have these core values, or philosophy changed in recent years? If so how have they changed? What lead to these changes? How easily did the changes occur?	13.7 Changed values	
13i.	How embedded are these values? Do all parts of the company adhere to them or are there subcultures which have some different values and attitudes?	13.9 Embedded values	13.9.1 Disconnect with new values 13.9.2 New values not embedded 13.9.3 Leaders must drive values 13.9.4 Walk the talk
13j.	Do most employees identify with these beliefs and values or philosophies?	13.10 Employee Commitment to Values	
13k.	What impact do they have on company's sustainability programs?	13.11 Values/Sustainability links	
14.	Are there any other core beliefs, values or philosophies, written or unwritten? What are they?	14.0 Unwritten Values	Ethical Respect Do What's Right (note this is linked to Founding Value – we do what's right and new value: Integrity – Do what's right.) Care for Each Other Family Diversity Performance Sincerity Goal Delivery Volunteering Strong operations models Intent to live by values Stakeholders Stakeholder communication Change implementation Paper, processes, procedures Innovation Low trust Fear Doubt Status Quo Accountability
15a.	*Wholism* Does *Company A* take a whole of life cycle approach to its operations?	15.0 Cradle to Grave	15.0.1 Whole of life approach 15.0.2 No wholistic understanding
15b.	How far has *Company A* progressed in achieving this?	15.1 Cradle to Grave Progress	

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Interview Codes (cont.)

Int Qu No.	Interview Guide Questions	Research Question Code	Emergent Codes
15c.	How much of the organization understands cradle to grave/lifecycle management/product stewardship? How does it impact their day to day work?	15.2 Cradle To Grave Understanding	15.2.2 No wholistic understanding
16a.	*Reflection* Sustainability requires considerable attitudinal and organizational change. What has and does the company do to ensure management and employees are able to adjust to these changes?	16.0 Reflection	
16b.	Sustainability requires considerable attitudinal and organizational change. What has and does the company do to ensure management and employees are able to adjust to these changes? Do management (and other employees) take time out to assess progress, achievements and future changes needed?	17.0 Change for Sustainability	
17	On Systems Thinking: Sustainability is complex, with each part impacting on other parts. When addressing sustainability issues, how does the company ensure that the entire system is considered?	18.0 Systems thinking	

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Appendix 6.3 Carbon Footprint

Carbon footprinting is "an attempt to capture the full amount of greenhouse gas emissions that are directly and indirectly caused by an activity or are accumulated over the life stages of a product (Wiedmann, 2009, p. 175).

While there is no clear definition of 'carbon footprint', which has led to confusion as to what it actually is and how to measure it (Wiedmann & Minx, 2008, p. 2), there are some generally accepted definitions, including:

- "the greenhouse gases (GHGs) CO2, methane, nitrous oxide, and fluoride emitted in the production of goods and services used for final consumption and GHG emissions occurring during the consumption activities themselves" (Hertwich & Peters, 2009, p. 6414).
- "the direct and indirect greenhouse gas emissions – measured in tonnes of carbon dioxide equivalent using a 100-year horizon (Fuglestvedt et al., 2003) – required to satisfy a given consumption. This can be a product, an activity or a set of products or activities" (Minx et al., 2009, pp. 187-188).
- "The carbon footprint is a measure of the exclusive total amount of carbon dioxide emissions that is directly and indirectly caused by an activity or is accumulated over the life stages of a product" (Wiedmann & Minx, 2008, p. 4).

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Appendix 6.4 Employee Survey Scale Codes and Item Codes

G1: Challenge Current Thinking (GC) In this company, how often do:	CODE	Almost Never					Almost Always
59. People give open and honest feedback to each other	CCT1	1	2	3	4	5	6
60. People listen to others' views before speaking	CCT2	1	2	3	4	5	6
61. People are encouraged to ask "why", regardless of rank	CCT3	1	2	3	4	5	6
62. Whenever people state their view, they also ask what others think	CCT4	1	2	3	4	5	6
63. People treat each other with respect	CCT5	1	2	3	4	5	6

G2: Collaboration with Stakeholders GC: The company's "stakeholders" include employees, investors and suppliers of capital, customers and suppliers, industry bodies, governments, the media and the communities in which it operates. In your experience:	CODE	Strongly Disagree						Strongly Agree
85. Our company's beliefs and ideals are openly discussed throughout the company	CWS1SM	1	2	3	4	5	6	7
86. Managers in this company have genuinely respectful attitudes towards stakeholders	CWS2SM	1	2	3	4	5	6	7
87. This company sees itself as strongly linked with its stakeholders	CWS3SM	1	2	3	4	5	6	7
88. Management in this company tries to balance competing stakeholder needs over the long term	CWS4SM	1	2	3	4	5	6	7
89. Our company does not place a lot of emphasis on developing good stakeholder relationships REVERSE SCALE	CWS5SI	1	2	3	4	5	6	7
90. Managers in this company generally do not consider that the views of stakeholders should influence operational decision making REVERSE SCALE	CWS6SI	1	2	3	4	5	6	7
91. The way stakeholders see this company is a low priority for us REVERSE SCALE	CWS7SI	1	2	3	4	5	6	7
92. Managers in our company consider stakeholder values when they make decisions about our response to social issues	CWSSI8	1	2	3	4	5	6	7

G3: Cooperation (Internal) (GC) In your view, in this company	CODE	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
8. Our approach to doing business is very consistent and predictable	COO1	1	2	3	4	5
9. People from different parts of the company share a common perspective	COO2	1	2	3	4	5
10. It is easy to coordinate projects across different parts of the company	COO3	1	2	3	4	5
11. Working with someone from another part of this company is like working with someone from a different company REVERSE SCALE	COO4	1	2	3	4	5
12. There is good alignment of goals across levels in this company	COO5	1	2	3	4	5

G4A: Diversity GC Think about your work team. In your team:.	CODE	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
16. Members enjoy doing jobs with people of different ethnicity, gender, and/or age	DIV1Vis	1	2	3	4	5
17. Members make an extra effort to listen to people of different ethnicity, gender, and/or age	DIV2Vis	1	2	3	4	5
18. Members make an extra effort to listen to people who hold different work values and/or motivations	DIV3Value	1	2	3	4	5
19. Members are keen to learn from people who have different work values and/or motivations	DIV4Value	1	2	3	4	5
20. Members enjoy doing jobs with people from different professional backgrounds and/or work experiences	DIV5Info	1	2	3	4	5
21. Members make an extra effort to listen to people who are from different professional backgrounds and/or work experiences	DIV6Info	1	2	3	4	5

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Employee Survey Scale Codes and Item Codes (cont.)

G4B: Diversity (GC) To what extent do the people in your work group differ	CODE	To a very small extent						To a very large extent
93. In their way of thinking	DIV7	1	2	3	4	5	6	7
94. In their knowledge and skills	DIV8	1	2	3	4	5	6	7
95. In how they view the world	DIV9	1	2	3	4	5	6	7
96. In their beliefs about what is right and wrong	DIV10	1	2	3	4	5	6	7

G5: Empowerment (GC) In your view, this company:	CODE	Almost Never					Almost Always
64. Recognizes people for taking initiative	EMP1	1	2	3	4	5	6
65. Gives people choices in their work assignments	EMP2	1	2	3	4	5	6
66. Invites people to contribute to the organization's vision	EMP3	1	2	3	4	5	6
67. Gives people control over the resources they need to accomplish their work	EMP4	1	2	3	4	5	6
68. Supports employees who take calculated risks	EMP5	1	2	3	4	5	6
69. Builds alignment of visions across different levels and work groups	EMP6	1	2	3	4	5	6

G6: Innovation and Creativity (GC) How much do you agree that in this company:	CODE	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
27. People are encouraged to be creative	INN1	1	2	3	4	5
28. We are able to implement new ideas	INN2	1	2	3	4	5
29. New ideas are continually evaluated and improved upon	INN3	1	2	3	4	5
30. Support for developing new ideas is readily available	INN4	1	2	3	4	5
31. Innovation is a large part of our business activities	INN5	1	2	3	4	5

G7: Knowledge sharing/Open Communication with all stakeholders (GC) In your experience, in this company:	CODE	Strongly Disagree	Disagree	Slightly disagree	Neither Agree nor Disagree	Slightly Agree	Agree	Strongly Agree
70. Employees share knowhow from work experience with each other	KSO1	1	2	3	4	5	6	7
71. Employees share expertise from education and training methods	KSO2	1	2	3	4	5	6	7
72. Employees share business knowledge obtained informally (such as news stories and gossip)	KSO3	1	2	3	4	5	6	7
73. Employees share business knowledge from stakeholders (such as customers, suppliers and allies)	KSO4	1	2	3	4	5	6	7
74. People are rewarded for sharing their knowledge	KSO5	1	2	3	4	5	6	7

G8: Learning (GC): With regard to learning at work, in this company:	CODE	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
22. We view failure as an opportunity for learning and improvement	LEA1	1	2	3	4	5
23. Innovation and risk taking are encouraged and rewarded	LEA2	1	2	3	4	5
24. Lots of things "fall between the cracks" REVERSE SCALE	LEA3	1	2	3	4	5
25. Learning is an important objective in our day-to-day work	LEA4	1	2	3	4	5
26. We make certain that the "right hand knows what the left hand is doing"	LEA5	1	2	3	4	5

G9: Long Term Perspective (GC) How much do you agree that in this company:	CODE	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
37. There is a long-term purpose and direction	LTP1	1	2	3	4	5
38. Our strategy leads other organizations to change the way they compete in the industry	LTP2	1	2	3	4	5
39. There is a clear mission that gives meaning and direction to our work	LTP3	1	2	3	4	5
40. There is a clear strategy for the future	LTP4	1	2	3	4	5
41. Our strategic direction is unclear to me REVERSE SCALE	LTP5	1	2	3	4	5
42. Short-term thinking often compromises our long-term vision REVERSE SCALE	LTP6	1	2	3	4	5

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Employee Survey Scale Codes and Item Codes (cont.)

G10A: Transparency and Openness/Trust (GC) How much do you agree that this company:	CODE	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
13. Does not try to deceive	TOT1Integ	1	2	3	4	5
14. Has high moral standards	TOT2Integ	1	2	3	4	5
15. Treats its stakeholders with respect	TOT3Integ	1	2	3	4	5

G10B: Transparency and openness/Trust (GC) How much do you agree that this company:	CODE	Strongly Disagree	Disagree	Slightly disagree	Neither Agree nor Disagree	Slightly Agree	Agree	Strongly Agree
80. Presents more than one side of controversial issues	TOT4Acc	1	2	3	4	5	6	7
81. Is forthcoming with information that might be damaging to the organization	TOT5Acc	1	2	3	4	5	6	7
82. Is open to criticism by people like me	TOT6Acc	1	2	3	4	5	6	7
83. Freely admits when it has made mistakes	TOT7Acc	1	2	3	4	5	6	7
84. Provides information that can be compared to industry standards	TOT8Acc	1	2	3	4	5	6	7

S11: Connectedness (SC) In your view, this company :	CODE	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
1. Participates in activities which aim to protect and improve the quality of the natural environment	CON1	1	2	3	4	5
2. Makes investments to create a better life for future generations	CON2	1	2	3	4	5
3. Implements special programs to minimize its negative impact on the natural environment	CON3	1	2	3	4	5
4. Targets sustainable growth which considers future generations	CON4	1	2	3	4	5
5. Supports non-governmental organizations working in problematic areas	CON5	1	2	3	4	5
6. Encourages its employees to participate in voluntary activities	CON6	1	2	3	4	5
7. Makes investments to create a better life for future generations	CON7	1	2	3	4	5

S12: Fairness/Equity (SC) How much do you agree that this company:	CODE	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
32. Recognizes it has a responsibility to care for the natural environment	FE1	1	2	3	4	5
33. Acts to maintain the biological diversity of the natural environment	FE2	1	2	3	4	5
34. Minimizes its resource use so that resources are available for future generations	FE3	1	2	3	4	5
35. Considers the impact of its operations on humankind today and in the future	FE4	1	2	3	4	5
36. Actively seeks to provide for the most disadvantaged people in society	FE5	1	2	3	4	5

S13A: Environmental Integrity (SC) In your opinion, in this company:	CODE	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
43. Environmental issues are explicitly considered within the company's strategic planning process	EI1	1	2	3	4	5
44. Consideration for the natural environment is addressed within the company's mission statement or statement of business principles	EI2	1	2	3	4	5
45. When environmental issues are considered within the strategic planning process, the top management team makes proactive, forward thinking decisions	EI3	1	2	3	4	5
46. Environmental personnel participate influentially in the company's strategic planning process	EI4	1	2	3	4	5

S13B: Social Integrity (SC) This section asks about community sustainability. Do you agree that in this company:	CODE	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
47. Community and social issues are explicitly considered within the company's strategic planning process	SI1	1	2	3	4	5
48. Consideration for community and social issues is addressed within the company's mission statement or statement of business principles	SI2	1	2	3	4	5
49. When community and social issues are considered within the strategic planning process, the top management team makes proactive, forward thinking decisions	SI3	1	2	3	4	5

Employee Survey Scale Codes and Item Codes (cont.)

S14: Proactive (SC) To what extent do you think this company is:	CODE	To no extent	To a little extent	To some extent	To a great extent	To a very great extent
52. Actively promoting sustainable practices to other companies and society generally	PRO1	1	2	3	4	5
53. Adopting environmental best practice	PRO2	1	2	3	4	5
54. Developing new products to replace its products and services which harm the environment	PRO3	1	2	3	4	5
55. Redesigning its products to increase the use of recycled materials	PRO4	1	2	3	4	5
56. Developing new processes to replace those which harm the environment	PRO5	1	2	3	4	5
57. Conducting research to find alternatives to using natural resources	PRO6	1	2	3	4	5
58. Developing new products to replace any products and services which may harm people or the community	PRO7	1	2	3	4	5

S15: Responsibility (SC)	CODE	Strongly Disagree	Disagree	Slightly disagree	Neither Agree nor Disagree	Slightly Agree	Agree	Strongly Agree
75. The financial well-being of this company does not depend on the state of the natural environment REVERSE SCALE	RES1	1	2	3	4	5	6	7
76. This company believes it has a responsibility to preserve the environment	RES2	1	2	3	4	5	6	7
77. Environmental preservation is vital for this company's survival	RES3	1	2	3	4	5	6	7
78. This company's responsibility to its customers, stockholders, and employees is more important than our responsibility toward environmental preservation REVERSE SCALE	RES4	1	2	3	4	5	6	7
79. Managers do not feel a strong sense of accountability towards the community at large REVERSE SCALE	RES5	1	2	3	4	5	6	7

S16: Environmental Legitimation (SC) With regard to the environment, to what extent is:	CODE	Not at all				To a very great extent
50. This company an environmental leader in the industry	EL1	1	2	3	4	5
51. The reduction of environmental impact of operations central to this company's identity	EL2	1	2	3	4	5

C17: Knowledge of Sustainability Policies (CS)	CODE	Disagree	Don't Know	Agree
97. This company publishes a sustainability policy	KEP1	1	2	3

C18: Knowledge of sustainability commitment (CS) Regarding the environment and the community, to what extent is this company:	CODE	To no extent	To a little extent	To some extent	To a great extent	To a very great extent
98. Committed to the environmental viability of the planet	KSC1	1	2	3	4	5
99. Working with the community towards achieving ecological renewal	KSC2	1	2	3	4	5
100. Working with the community towards achieving ecological renewal	KSC3	1	2	3	4	5
101. Participating in projects which improve individual and community well-being	KSC4	1	2	3	4	5
102. Committed to just, equitable social practices and individual well-being	KSC5	1	2	3	4	5
103. Remedying the individual and community harm which has resulted from its operations	KSC6	1	2	3	4	5
104. Considering people and the community to be valuable in their own right	KSC7	1	2	3	4	5
105. Using its products and services to improve individual and community well-being	KSC8	1	2	3	4	5
106. Actively promoting workplace diversity internally and to other organizations	KSC9	1	2	3	4	5

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Employee Survey Scale Codes and Item Codes (cont.)

C19: Knowledge of Environmental Policies (CS) How much do you agree that this company:	CODE	Strongly disagree	Partially Disagree	Don't Know	Partially Agree	Strongly Agree
107. Has specific targets for sustainability performance	KEP2	1	2	3	4	5
108. Publishes an annual environmental report	KEP3	1	2	3	4	5
109. Uses an environmental management system	KEP4	1	2	3	4	5
110. Applies environmental considerations to purchasing decisions	KEP5	1	2	3	4	5
111. Provides employee sustainability training	KEP6	1	2	3	4	5
112. Makes employees responsible for company sustainability performance	KEP7	1	2	3	4	5
113. Uses life cycle analysis	KEP8	1	2	3	4	5
114. Has management which understands/ addresses issues of sustainable development	KEP9	1	2	3	4	5
115. Systematically reduces fossil fuel use	KEP10	1	2	3	4	5
116. Systematically reduces toxic chemicals use	KEP11	1	2	3	4	5
117. Systematically reduces consumption of unsustainable products	KEP12	1	2	3	4	5
118. Applies the same sustainability standards in Australia and overseas	KEP13	1	2	3	4	5

PART C: DEMOGRAPHIC QUESTIONS

The information requested below will be used for data analysis only. It will not be used to identify any particular person or group of people.

119. I am:	Female	DEM6A	Male	DEM6B	120. My year of birth is	DEM5

121. My position level is: (Tick one) position level

CODE	
PosLevel1	a. Team member/ front line employee
PosLevel2	b. Team leader/ supervisor
PosLevel3	c. Professional employee (not a manager)
PosLevel4	d. Middle management
PosLevel5	e. Senior management

122. My employment with the company is: (Tick all which apply)

CODE	
EmplType1	a. Full Time
EmplType2	b. Part time
EmplType3	c. Permanent
EmplType4	d. Casual
EmplType5	e. Contractor/ Temporary

123. Years I have worked for this company (Tick one)

CODE	
CoYears1	a. Less than one year
CoYears2	b. 1 – 4 years
CoYears3	c. 5 – 9 years
CoYears4	d. 10 years or more

124. Years I have been in my current job (Tick one)

CODE	
JobYears1	a. Less than one year
JobYears2	b. 1 – 4 years
JobYears3	c. 5 – 9 years
JobYears4	d. 10 years or more

125. My highest level of education (Tick one)

CODE		CODE	
Educ1	a. Some high school	Educ5	e. Some university but no degree
Educ2	b. High School Graduate	Educ6	f. Bachelor's Degree
Educ3	c. TAFE/Trade/Technical certificate	Educ7	g. Post-graduate Certificate
Educ4	d. Associate Degree	Educ8	h. Master's Degree or Higher

	CODE			CODE
126. My employee number is:	EmplNo		127. My Department is:	Dept

Appendix 6.5 Employee Survey: Descriptive Statistics Trimmed Scales

Employee Survey: Descriptive Statistics for Trimmed Survey Items, Scales and Scale Categories

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
SurveyNo	311	1	321	160.58	93.408	.001	.138	-1.204	.276
Site	311	1	9	5.84	2.776	-.255	.138	-1.638	.276
CON2	311	1	5	3.38	.730	-.567	.138	.972	.276
CON4	311	1	5	3.45	.734	-.207	.138	.747	.276
CON5	308	1	5	3.31	.695	-.165	.139	.904	.277
CON6	308	1	5	3.24	.916	-.334	.139	.013	.277
COO1	311	1	5	3.35	.886	-.560	.138	-.269	.276
COO2	311	1	5	3.27	.921	-.505	.138	-.336	.276
COO3	310	1	5	2.87	.953	-.145	.138	-.545	.276
COO4	310	1	5	3.18	.928	.000	.138	-.482	.276
COO5	306	1	5	3.25	.901	-.410	.139	-.112	.278
TOT1Integ	309	1	5	3.54	.968	-.664	.139	.236	.276
TOT2Integ	311	1	5	3.64	.901	-.611	.138	.268	.276
TOT3Integ	311	1	5	3.64	.810	-.324	.138	.231	.276
INN2	311	1	5	3.51	.872	-.618	.138	.051	.276
INN3	309	1	5	3.45	.873	-.608	.139	.007	.276
INN4	310	1	5	3.35	.938	-.479	.138	-.263	.276
INN5	311	1	5	3.43	.912	-.412	.138	.075	.276
LTP1	311	1	5	3.59	.822	-.609	.138	.232	.276
LTP2	309	1	5	3.36	.797	-.163	.139	-.026	.276
LTP3	309	1	5	3.52	.888	-.703	.139	.246	.276
LTP4	309	1	5	3.38	.873	-.287	.139	-.069	.276
EI2	310	1	5	3.55	.646	-.242	.138	.298	.276
EI3	311	1	5	3.35	.675	-.121	.138	.804	.276
EI4	310	1	5	3.33	.694	-.202	.138	.901	.276
SI1	311	1	5	3.28	.628	-.052	.138	.705	.276
SI2	311	1	5	3.35	.675	-.248	.138	.693	.276
SI3	311	1	5	3.30	.683	.035	.138	.853	.276
EL1	311	1	5	3.17	.819	-.253	.138	.432	.276
EL2	309	1	5	3.21	.787	-.263	.139	.552	.276
PRO1	309	1	5	3.08	.752	-.451	.139	.781	.276
PRO3	308	1	5	3.00	.817	-.547	.139	.384	.277
PRO4	309	1	5	2.95	.840	-.597	.139	.567	.276
PRO5	309	1	5	3.08	.805	-.529	.139	.793	.276
PRO6	308	1	5	2.91	.870	-.564	.139	.313	.277
PRO7	307	1	5	2.99	.848	-.538	.139	.616	.277
CCT1	309	1	6	3.85	1.339	-.515	.139	-.358	.276
CCT2	309	1	6	3.85	1.174	-.442	.139	-.001	.276
CCT3	309	1	6	4.00	1.325	-.604	.139	-.241	.276
CCT4	309	1	6	3.87	1.154	-.517	.139	.177	.276
CCT5	309	1	6	4.22	1.215	-.582	.139	.056	.276
EMP1	310	1	6	4.03	1.264	-.467	.138	-.423	.276
EMP2	310	1	6	3.43	1.259	-.355	.138	-.521	.276
EMP3	309	1	6	3.50	1.301	-.192	.139	-.671	.276
EMP4	309	1	6	3.45	1.363	-.243	.139	-.789	.276
EMP5	309	1	6	3.17	1.285	-.071	.139	-.755	.276
EMP6	309	1	6	3.42	1.197	-.160	.139	-.393	.276

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Employee Survey: Descriptive Statistics for Trimmed Survey Items, Scales and Scale Categories (cont.)

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
KSO4	310	1	7	4.65	1.276	-.629	.138	.314	.276
KSO5	310	1	7	4.19	1.490	-.312	.138	-.367	.276
TOT6Acc	311	1	7	4.05	1.459	-.341	.138	-.571	.276
TOT7Acc	311	1	7	4.11	1.489	-.360	.138	-.408	.276
TOT8Acc	311	1	7	4.50	1.252	-.302	.138	-.124	.276
CWS1SM	311	1	7	4.56	1.273	-.393	.138	-.050	.276
CWS2SM	311	1	7	4.75	1.238	-.442	.138	-.020	.276
CWS3SM	310	1	7	4.79	1.219	-.272	.138	-.132	.276
CWS4SM	308	1	7	4.63	1.180	-.361	.139	.378	.277
CWS8SI	310	1	7	4.33	1.270	-.278	.138	.407	.276
DIV8	311	1	7	4.90	1.418	-.485	.138	-.103	.276
DIV9	311	1	7	4.74	1.409	-.281	.138	-.257	.276
DIV10	309	1	7	4.44	1.540	-.362	.139	-.481	.276
KEP1	266	1	3	2.39	.525	.069	.149	-1.149	.298
KSC2	299	1	5	3.12	.833	-.188	.141	.585	.281
KSC3	300	1	5	3.10	.850	-.199	.141	.455	.281
KSC4	297	1	5	3.21	.888	-.138	.141	-.023	.282
KSC5	297	1	5	3.17	.870	-.217	.141	.177	.282
KSC6	290	1	5	3.18	.848	-.242	.143	.268	.285
KSC7	297	1	5	3.24	.850	-.047	.141	.034	.282
KSC8	295	1	5	3.20	.882	-.125	.142	.152	.283
KSC9	295	1	5	3.33	.894	-.198	.142	.036	.283
KEP8	303	1	5	3.24	.741	-.131	.140	1.750	.279
KEP10	304	1	5	3.07	.857	-.266	.140	.516	.279
KEP11	304	1	5	3.21	.870	-.096	.140	.454	.279
KEP12	304	1	5	3.16	.794	-.257	.140	.744	.279
KEP13	302	1	5	3.30	.686	.526	.140	1.446	.280
BirthYear	249	1945	1992	1969.96	11.475	-.082	.154	-.874	.307
Age (Years)	249	20.00	67.00	42.0442	11.47517	.082	.154	-.874	.307
PosLevel	276	1	5	2.08	1.186	.759	.147	-.614	.292
CoYears	288	1	5	2.08	1.000	.533	.144	-.638	.286
JobYears	289	1	5	2.12	1.003	.684	.143	-.208	.286
Educ	290	1	8	3.80	1.773	.846	.143	-.068	.285
RevCOO4	310	3	7	4.82	.928	.000	.138	-.482	.276
RevLEA3	310	3	7	4.67	.914	.154	.138	-.352	.276
RevLTP5	309	3	7	4.81	.968	.289	.139	-.594	.276
RevLTP6	308	3	7	4.56	.790	.183	.139	-.089	.277
RevRES1	310	1	7	3.69	1.274	.194	.138	-.072	.276
RevRES4	311	1	7	3.74	1.374	.277	.138	.113	.276
RevRES5	311	1	7	3.97	1.305	.022	.138	-.130	.276
RevCWS5SI	309	1	7	4.54	1.413	-.121	.139	-.392	.276
RevCWS6SI	307	1	7	4.28	1.374	-.066	.139	-.235	.277
RevCSW7SI	307	1	7	4.53	1.442	-.102	.139	-.452	.277
G1	309	1.00	6.00	3.9612	1.07440	-.494	.139	.009	.276
G2	308	1.00	7.00	4.6130	1.02113	-.309	.139	-.008	.277
G3	304	1.40	5.00	3.1868	.54991	-.266	.140	.321	.279
G4B	309	1.00	7.00	4.6958	1.29248	-.394	.139	-.071	.276

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Employee Survey: Descriptive Statistics for Trimmed Survey Items, Scales and Scale Categories (cont.)

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness	Kurtosis		
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
G6	308	1.00	5.00	3.4383	.80477	-.533	.139	.081	.277
G7	309	1.00	7.00	4.6073	1.13218	-.594	.139	.379	.276
G9	308	1.00	5.00	3.4635	.72395	-.513	.139	.454	.277
G10A	309	1.00	5.00	3.6084	.79332	-.525	.139	.240	.276
G10B	311	1.00	7.00	4.2186	1.24235	-.339	.138	-.169	.276
S11	306	1.00	5.00	3.3407	.62998	-.452	.139	1.227	.278
S13A	309	1.00	5.00	3.4132	.57619	-.082	.139	.517	.276
S13B	311	1.00	5.00	3.3087	.60265	-.123	.138	1.039	.276
S14	299	1.00	4.83	2.9939	.71852	-.683	.141	.692	.281
S15	310	1.33	7.00	3.8075	1.00621	.046	.138	.374	.276
C16	309	1.00	5.00	3.1845	.75375	-.330	.139	.734	.276
C17	266	1.00	3.00	2.3872	.52527	.069	.149	-1.149	.298
C18	301	1.00	5.00	3.2013	.66030	-.068	.140	.974	.280
C19	281	1.00	5.00	3.1988	.75341	-.124	.145	.417	.290
TGC	286	1.98	5.43	3.9355	.67767	-.358	.144	-.194	.287
TSC	292	1.17	4.57	3.3677	.47199	-.598	.143	1.929	.284
TCS	238	1.08	4.50	2.9794	.52478	-.127	.158	.964	.314
Valid N (listwise)	28								

Note: For reverse worded items, this table includes the descriptive statistics for both the original; items and the transformed items.

Appendix 6.6 Descriptive Statistics for Retained Scales Following Scale Trimming and Goodness of Fit Tests

		G1	G2	G3	G4A	G5	G6	G7	G9	G10 B	S11	S13A	S13B	S14	C16	C17	C18	C19 Factor 2
N	Valid	309	308	304	309	301	308	310	308	310	306	309	311	298	309	298	281	301
	Missing	2	3	7	2	10	3	1	3	1	5	2	0	13	2	13	30	10
Mean		19.81	23.06	17.57	14.09	20.96	13.75	14.61	13.85	12.90	13.36	13.67	9.93	21.22	6.37	3.11	28.80	16.01
Median		20.00	23.00	18.00	15.00	21.00	14.50	15.00	14.00	12.00	13.00	14.00	9.00	21.00	6.00	3.00	27.00	15.00
Mode		20	20	17	12	24	16	18	16	12	12	12	9	21	6	3	27	15
Std. Deviation		5.372	5.106	3.399	3.877	6.272	3.219	3.284	2.896	3.220	2.520	2.271	1.808	4.913	1.507	.811	6.708	3.302
Skewness		-.494	-.309	-.698	-.394	-.311	-.533	-.915	-.513	-.171	-.452	-.120	-.123	-.636	-.330	-.126	-.121	-.068
Std. Error of Skewness		.139	.139	.140	.139	.140	.139	.138	.139	.138	.139	.139	.138	.141	.139	.141	.145	.140
Kurtosis		.009	-.008	.435	-.071	-.532	.081	1.023	.454	-.077	1.227	.718	1.039	.715	.734	.503	.480	.974
Std. Error of Kurtosis		.276	.277	.279	.276	.280	.277	.276	.277	.276	.278	.276	.276	.281	.276	.281	.290	.280
Range		25	30	18	18	29	16	18	16	18	16	16	12	27	8	4	36	20
Minimum		5	5	7	3	6	4	3	4	3	4	4	3	7	2	1	9	5
Maximum		30	35	25	21	35	20	21	20	21	20	20	15	34	10	5	45	25

Appendix 6.7 Relationship between each Sustainability Culture scale (SC) and each Commitment to Sustainability (CS) scale

Regression Weights

			Estimate	S.E.	C.R.	P
C19	<---	G1	-.004	.037	-.107	.915
C18	<---	G1	-.085	.042	-2.047	.041
C17	<---	G1	-.034	.041	-.815	.415
C16	<---	G1	.006	.040	.145	.885
C19	<---	G2	.133	.041	3.275	.001
C18	<---	G2	.070	.045	1.537	.124
C17	<---	G2	.090	.045	1.998	.046
C16	<---	G2	-.103	.043	-2.415	.016
C19	<---	G3	-.092	.070	-1.324	.185
C18	<---	G3	.126	.078	1.616	.106
C17	<---	G3	-.131	.077	-1.705	.088
C16	<---	G3	.094	.075	1.259	.208
C19	<---	G4B	.000	.021	-.003	.998
C18	<---	G4B	-.050	.024	-2.109	.035
C17	<---	G4B	-.011	.023	-.468	.640
C16	<---	G4B	.028	.023	1.240	.215
C19	<---	G5	.074	.052	1.430	.153
C18	<---	G5	.081	.058	1.400	.162
C17	<---	G5	.036	.057	.622	.534
C16	<---	G5	.036	.052	.685	.493
C19	<---	G6	.137	.053	2.575	.010
C18	<---	G6	.020	.059	.337	.736
C17	<---	G6	.007	.059	.127	.899
C16	<---	G6	.053	.057	.936	.349
C19	<---	G7	-.081	.035	-2.283	.022
C18	<---	G7	-.009	.039	-.220	.826
C17	<---	G7	-.033	.039	-.846	.398
C16	<---	G7	.019	.038	0.417	.619
C19	<---	G9	.037	.054	.690	.490
C18	<---	G9	-.038	.060	-.629	.529
C17	<---	G9	.061	.060	1.025	.306
C16	<---	G9	.010	.058	.179	.858
C19	<---	G10B	.059	.032	1.845	.065
C18	<---	G10B	.048	.036	1.347	.178
C17	<---	G10B	.006	.036	.177	.859
C16	<---	G10B	.038	.034	1.112	.266
C19	<---	S11	.147	.060	2.446	.014
C18	<---	S11	.117	.067	1.750	.080
C17	<---	S11	.035	.066	.527	.599
C16	<---	S11	.130	.063	2.047	.041

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Regression Weights (cont.)

			Estimate	S.E.	C.R.	P
C19	<---	S13A	.083	.063	1.322	.186
C18	<---	S13A	.150	.070	2.147	.032
C17	<---	S13A	.169	.069	2.445	.014
C16	<---	S13A	.236	.067	3.511	***
C19	<---	S13B	.117	.062	1.874	.061
C18	<---	S13B	.090	.069	1.298	.194
C17	<---	S13B	.057	.069	.834	.404
C16	<---	S13B	.125	.067	1.878	.060
C19	<---	S14	.295	.052	5.728	***
C18	<---	S14	.257	.058	4.471	***
C17	<---	S14	-.004	.057	-.062	.951
C16	<---	S14	.465	.055	8.440	***
Notes: *** p-value < 0.01						

Appendix 6.8 Role of Geographic Location

Geographic Location: Relationship between General Culture and Organizational Commitment to Sustainability

			Site I		Site H		
			Estimate	P	Estimate	P	z-score
C19	<---	G1	0.052	0.640	0.050	0.505	0.010
C18	<---	G1	-0.123	0.200	-0.105	0.202	-0.144
C17	<---	G1	-0.055	0.642	-0.031	0.610	-0.177
C16	<---	G1	0.036	0.734	0.032	0.737	0.030
C19	<---	G2	-0.056	0.647	0.246	0.003	-2.028**
C18	<---	G2	0.004	0.972	0.019	0.835	-0.108
C17	<---	G2	-0.061	0.643	0.142	0.036	-1.371
C16	<---	G2	-0.073	0.541	0.140	0.187	-1.333
C19	<---	G3	0.232	0.209	0.180	0.163	0.233
C18	<---	G3	0.104	0.522	0.218	0.120	-0.533
C17	<---	G3	-0.084	0.668	0.021	0.839	-0.474
C16	<---	G3	0.048	0.791	0.203	0.213	-0.638
C19	<---	G4B	0.061	0.309	-0.020	0.650	1.089
C18	<---	G4B	0.008	0.881	-0.088	0.067	1.344
C17	<---	G4B	-0.010	0.873	0.013	0.721	-0.312
C16	<---	G4B	-0.016	0.785	0.010	0.852	-0.326
C19	<---	G5	0.110	0.430	-0.038	0.729	0.836
C18	<---	G5	-0.069	0.567	0.038	0.750	-0.632
C17	<---	G5	0.181	0.221	0.073	0.411	0.628
C16	<---	G5	0.035	0.799	0.027	0.848	0.041
C19	<---	G6	0.251	0.077	0.141	0.191	0.619
C19	<---	G7	-0.074	0.448	-0.069	0.318	-0.045
C18	<---	G6	0.039	0.750	0.181	0.123	-0.834
C17	<---	G6	0.104	0.493	-0.067	0.442	0.978
C16	<---	G6	0.106	0.440	0.135	0.325	-0.145
C18	<---	G7	0.158	0.063	0.000	0.997	1.396
C17	<---	G7	-0.102	0.331	0.004	0.947	-0.889
C16	<---	G7	0.097	0.308	0.017	0.847	0.621
C19	<---	G9	-0.057	0.717	0.255	0.040	-1.560
C18	<---	G9	-0.009	0.949	0.031	0.822	-0.205
C17	<---	G9	0.166	0.323	0.156	0.120	0.047
C16	<---	G9	0.243	0.111	0.050	0.753	0.882
C19	<---	G10b	0.276	0.010	0.089	0.150	1.501
C18	<---	G10b	0.218	0.020	0.194	0.004	0.203
C17	<---	G10b	0.120	0.296	-0.004	0.941	0.987
C16	<---	G10b	0.109	0.297	0.088	0.261	0.159
Notes: *** p-value < 0.01; ** p-value < 0.05; * p-value < 0.10							

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Geographic Location: Relationship between Sustainability Culture and Organizational Commitment to Sustainability

			Site I		Site H		
			Estimate	P	Estimate	P	z-score
C19	<---	S11	0.301	0.046	0.397	0.000	-0.544
C18	<---	S11	0.178	0.127	0.146	0.207	0.191
C17	<---	S11	0.162	0.269	0.264	0.002	-0.604
C16	<---	S11	-0.156	0.174	0.252	0.015	2.641***
C19	<---	S13A	0.360	0.019	-0.040	0.708	-2.134**
C18	<---	S13A	0.165	0.167	-0.023	0.869	1.018
C17	<---	S13A	0.264	0.072	0.114	0.287	0.830
C16	<---	S13A	0.001	0.994	0.004	0.972	-0.021
C19	<---	S13B	0.312	0.037	0.263	0.007	0.276
C18	<---	S13B	0.015	0.894	0.266	0.036	-1.467
C17	<---	S13B	0.072	0.624	0.108	0.263	-0.205
C16	<---	S13B	0.442	0.000	0.165	0.144	-1.728*
C19	<---	S14	0.230	0.132	0.488	0.000	-1.506
C18	<---	S14	0.304	0.010	0.308	0.003	-0.022
C16	<---	S14	0.479	0.000	0.618	0.000	-0.945
C19	<---	S15	-0.032	0.664	0.003	0.948	-0.402
C18	<---	S15	-0.049	0.385	-0.025	0.676	-0.288
C17	<---	S15	0.082	0.273	-0.026	0.567	1.234
C16	<---	S15	0.057	0.310	0.038	0.481	0.240
Notes: *** p-value < 0.01; ** p-value < 0.05; * p-value < 0.10							

Appendix 6.9 Role of Gender

Gender: Relationship between General Culture and Organizational Commitment to Sustainability

			Female		Male		
			Estimate	P	Estimate	P	z-score
C19	<---	G1	-0.043	0.641	-0.040	0.400	0.032
C18	<---	G1	-0.097	0.212	-0.107	0.047	-0.108
C17	<---	G1	0.049	0.615	-0.064	0.177	-1.038
C16	<---	G1	0.157	0.249	-0.058	0.271	-1.473
C19	<---	G2	0.268	0.001	0.098	0.076	-1.686*
C18	<---	G2	-0.031	0.664	0.138	0.029	1.781*
C17	<---	G2	0.148	0.096	0.036	0.517	-1.069
C16	<---	G2	-0.282	0.023	-0.013	0.838	1.946*
C19	<---	G3	0.246	0.137	-0.001	0.990	-1.321
C18	<---	G3	0.279	0.045	0.257	0.010	-0.129
C17	<---	G3	0.009	0.960	-0.078	0.367	-0.448
C16	<---	G3	0.652	0.007	0.238	0.015	-1.586
C19	<---	G4B	-0.013	0.832	-0.006	0.806	0.108
C18	<---	G4B	-0.091	0.086	-0.038	0.176	0.883
C17	<---	G4B	-0.003	0.969	-0.013	0.601	-0.144
C16	<---	G4B	0.245	0.008	-0.018	0.513	-2.719***
C19	<---	G5	0.257	0.028	0.158	0.016	-0.742
C18	<---	G5	0.280	0.005	0.197	0.008	-0.672
C17	<---	G5	0.010	0.937	0.062	0.338	0.371
C16	<---	G5	0.155	0.372	0.150	0.040	-0.025
C19	<---	G6	0.035	0.777	0.212	0.001	1.262
C19	<---	G7	-0.199	0.013	0.018	0.705	2.321**
C18	<---	G6	-0.034	0.745	0.089	0.243	0.951
C17	<---	G6	-0.163	0.211	0.082	0.219	1.674*
C16	<---	G6	0.280	0.122	0.142	0.057	-0.705
C18	<---	G7	-0.075	0.267	0.023	0.683	1.117
C17	<---	G7	-0.071	0.401	-0.007	0.883	0.655
C16	<---	G7	-0.080	0.495	0.068	0.215	1.140
C19	<---	G9	0.100	0.509	0.133	0.040	0.202
C18	<---	G9	0.156	0.220	0.014	0.850	-0.963
C17	<---	G9	0.194	0.224	0.063	0.329	-0.758
C16	<---	G9	0.322	0.146	0.103	0.158	-0.938
C19	<---	G10B	0.053	0.474	0.096	0.019	0.496
C18	<---	G10B	0.056	0.368	0.055	0.241	-0.025
C17	<---	G10B	-0.088	0.264	0.047	0.253	1.518
C16	<---	G10B	-0.177	0.106	0.109	0.017	2.41**
Notes: *** p-value < 0.01; ** p-value < 0.05; * p-value < 0.10							

Gender: Relationship between Sustainability Culture and Organizational Commitment to Sustainability

			Male		Female		
			Estimate	P	Estimate	P	z-score
C19	<---	S11	0.317	0.000	0.196	0.169	-0.770
C18	<---	S11	0.138	0.048	0.103	0.422	-0.239
C17	<---	S11	0.109	0.075	0.023	0.884	-0.514
C16	<---	S11	0.124	0.056	0.350	0.031	1.296
C19	<---	S13A	0.173	0.021	0.038	0.817	-0.751
C18	<---	S13A	0.166	0.038	0.191	0.196	0.148
C17	<---	S13A	0.281	0.000	-0.163	0.319	-2.472**
C16	<---	S13A	0.188	0.011	0.356	0.055	0.839
C19	<---	S13B	0.232	0.001	0.289	0.053	0.344
C18	<---	S13B	0.178	0.019	0.018	0.896	-1.036
C17	<---	S13B	0.045	0.514	0.363	0.033	1.736*
C16	<---	S13B	0.179	0.010	-0.047	0.783	-1.229
C19	<---	S14	0.389	0.000	0.371	0.000	-0.139
C18	<---	S14	0.368	0.000	0.101	0.310	-2.248**
C16	<---	S14	0.454	0.000	0.500	0.000	0.334
C19	<---	S15	-0.022	0.500	0.179	0.006	2.767***
C18	<---	S15	-0.034	0.318	0.017	0.778	0.747
C17	<---	S15	0.002	0.941	0.039	0.598	0.455
C16	<---	S15	0.040	0.213	0.103	0.165	0.786
Notes: *** p-value < 0.01; ** p-value < 0.05; * p-value < 0.10							

Appendix 6.10 Role of Age

Age (Group 1): Relationship between General Culture and Organizational Commitment to Sustainability

			30-39		40-49		
			Estimate	P	Estimate	P	z-score
C19	<---	G1	0.040	0.660	-0.070	0.531	-0.763
C18	<---	G1	-0.009	0.915	-0.047	0.676	-0.274
C17	<---	G1	-0.152	0.086	-0.080	0.423	0.542
C16	<---	G1	0.018	0.867	0.016	0.909	-0.012
C19	<---	G2	0.134	0.185	0.095	0.413	-0.253
C18	<---	G2	-0.119	0.183	0.327	0.005	3.04***
C17	<---	G2	0.210	0.031	-0.102	0.324	-2.195**
C16	<---	G2	-0.055	0.644	-0.097	0.500	-0.228
C19	<---	G3	0.053	0.721	0.036	0.849	-0.072
C18	<---	G3	0.420	0.001	0.288	0.127	-0.572
C17	<---	G3	-0.118	0.408	-0.066	0.691	0.237
C16	<---	G3	0.151	0.382	0.265	0.258	0.390
C19	<---	G4B	0.016	0.776	0.073	0.190	0.707
C18	<---	G4B	0.069	0.174	0.045	0.417	-0.326
C17	<---	G4B	0.055	0.322	-0.098	0.047	-2.061**
C16	<---	G4B	0.094	0.165	0.052	0.442	-0.428
C19	<---	G5	0.081	0.599	0.170	0.185	0.444
C18	<---	G5	0.153	0.265	0.086	0.504	-0.360
C17	<---	G5	0.116	0.439	-0.106	0.355	-1.176
C16	<---	G5	0.003	0.987	0.381	0.016	1.571
C19	<---	G6	0.234	0.149	0.299	0.013	0.325
C19	<---	G7	-0.086	0.295	0.009	0.918	0.783
C18	<---	G6	0.065	0.654	0.131	0.279	0.354
C17	<---	G6	0.228	0.147	0.263	0.015	0.182
C16	<---	G6	0.184	0.331	0.057	0.702	-0.526
C18	<---	G7	-0.082	0.260	0.001	0.987	0.722
C17	<---	G7	-0.117	0.142	-0.015	0.851	0.899
C16	<---	G7	0.104	0.283	-0.037	0.743	-0.952
C19	<---	G9	0.025	0.841	0.136	0.261	0.633
C18	<---	G9	0.072	0.520	-0.130	0.283	-1.226
C17	<---	G9	0.015	0.903	0.059	0.581	0.274
C16	<---	G9	0.110	0.457	0.134	0.370	0.118
C19	<---	G10B	0.093	0.196	0.047	0.612	-0.393
C18	<---	G10B	0.100	0.116	-0.075	0.417	-1.558
C17	<---	G10B	-0.023	0.737	0.103	0.214	1.168
C16	<---	G10B	0.040	0.639	0.040	0.724	0.006
Notes: *** p-value < 0.01; ** p-value < 0.05; * p-value < 0.10							

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Age (Group 2): Relationship between General Culture and Organizational Commitment to Sustainability

			20-29		50-59		
			Estimate	P	Estimate	P	z-score
C19	<---	G1	-0.149	0.140	0.091	0.216	1.92*
C18	<---	G1	-0.147	0.079	-0.166	0.205	-0.125
C17	<---	G1	0.074	0.463	-0.157	0.088	-1.691*
C16	<---	G1	-0.245	0.097	0.050	0.618	1.656*
C19	<---	G2	0.286	0.019	0.029	0.663	-1.846*
C18	<---	G2	-0.023	0.820	0.156	0.192	1.144
C17	<---	G2	-0.006	0.961	-0.017	0.842	-0.073
C16	<---	G2	0.015	0.935	-0.148	0.101	-0.813
C19	<---	G3	-0.058	0.737	-0.030	0.849	0.123
C18	<---	G3	0.209	0.146	-0.086	0.757	-0.944
C17	<---	G3	-0.022	0.898	0.072	0.710	0.362
C16	<---	G3	0.431	0.089	0.297	0.155	-0.408
C19	<---	G4B	0.021	0.830	-0.119	0.001	-1.342
C18	<---	G4B	0.038	0.640	-0.112	0.088	-1.438
C17	<---	G4B	0.095	0.329	0.016	0.721	-0.731
C16	<---	G4B	-0.146	0.307	-0.030	0.542	0.767
C19	<---	G5	0.128	0.352	0.487	0.000	2.135**
C18	<---	G5	0.314	0.006	0.636	0.000	1.560
C17	<---	G5	-0.033	0.809	0.051	0.674	0.460
C16	<---	G5	0.284	0.158	0.407	0.002	0.515
C19	<---	G6	0.037	0.791	0.059	0.556	0.128
C19	<---	G7	0.122	0.256	-0.083	0.320	-1.508
C18	<---	G6	-0.003	0.981	-0.111	0.540	-0.503
C17	<---	G6	0.035	0.801	-0.171	0.174	-1.097
C16	<---	G6	-0.002	0.994	0.295	0.029	1.207
C18	<---	G7	0.030	0.734	-0.065	0.660	-0.552
C17	<---	G7	0.201	0.060	0.091	0.379	-0.738
C16	<---	G7	0.183	0.243	-0.070	0.531	-1.315
C19	<---	G9	0.270	0.175	-0.113	0.254	-1.722*
C18	<---	G9	0.175	0.289	-0.005	0.978	-0.743
C17	<---	G9	-0.122	0.539	0.165	0.177	1.231
C16	<---	G9	0.543	0.062	-0.184	0.168	-2.272**
C19	<---	G10B	0.043	0.689	0.088	0.107	0.369
C18	<---	G10B	-0.060	0.505	0.054	0.583	0.855
C17	<---	G10B	-0.045	0.679	0.031	0.649	0.593
C16	<---	G10B	0.058	0.716	0.106	0.150	0.273
Notes: *** p-value < 0.01; ** p-value < 0.05; * p-value < 0.10							

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Age (Group 1): Relationship between Sustainability Culture and Organizational Commitment to Sustainability

			30-39		40-49		
			Estimate	P	Estimate	P	z-score
C19	<---	S11	0.408	0.002	0.283	0.018	-0.690
C18	<---	S11	0.288	0.007	0.247	0.050	-0.248
C17	<---	S11	-0.041	0.742	0.020	0.863	0.358
C16	<---	S11	0.055	0.625	0.179	0.136	0.759
C19	<---	S13A	0.231	0.155	-0.041	0.762	-1.290
C18	<---	S13A	0.314	0.015	0.152	0.278	-0.850
C17	<---	S13A	0.306	0.065	-0.041	0.756	-1.637
C16	<---	S13A	0.305	0.024	0.334	0.012	0.153
C19	<---	S13B	0.148	0.247	0.559	0.000	2.266**
C18	<---	S13B	0.062	0.545	0.035	0.794	-0.158
C17	<---	S13B	0.003	0.980	0.267	0.044	1.420
C16	<---	S13B	-0.005	0.966	0.219	0.088	1.342
C19	<---	S14	0.210	0.096	0.347	0.000	0.843
C18	<---	S14	0.136	0.181	0.355	0.001	1.476
C16	<---	S14	0.478	0.000	0.422	0.000	-0.379
C19	<---	S15	0.040	0.502	0.047	0.393	0.087
C18	<---	S15	-0.030	0.523	0.096	0.097	1.687*
C17	<---	S15	0.057	0.360	0.128	0.026	0.846
C16	<---	S15	0.148	0.003	0.022	0.697	-1.703*
Notes: *** p-value < 0.01; ** p-value < 0.05; * p-value < 0.10							

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Age (Group 2): Relationship between Sustainability Culture and Organizational Commitment to Sustainability

			50-59		20-29		
			Estimate	P	Estimate	P	z-score
C19	<---	S11	0.481	0.000	0.100	0.546	-1.807*
C18	<---	S11	0.301	0.069	-0.138	0.177	-2.259**
C17	<---	S11	0.195	0.133	-0.088	0.496	-1.543
C16	<---	S11	0.124	0.340	0.368	0.070	1.016
C19	<---	S13A	0.021	0.874	0.386	0.067	1.458
C18	<---	S13A	-0.079	0.642	0.351	0.007	2.014**
C17	<---	S13A	0.141	0.271	0.386	0.007	1.272
C16	<---	S13A	0.172	0.196	0.395	0.125	0.768
C19	<---	S13B	0.277	0.037	0.129	0.489	-0.645
C18	<---	S13B	0.418	0.013	0.068	0.556	-1.724*
C17	<---	S13B	0.101	0.435	0.236	0.104	0.696
C16	<---	S13B	0.158	0.229	-0.262	0.251	-1.593
C19	<---	S14	0.402	0.000	0.226	0.170	-0.860
C18	<---	S14	0.278	0.070	0.238	0.018	-0.217
C16	<---	S14	0.474	0.000	0.590	0.003	0.498
C19	<---	S15	-0.053	0.478	-0.042	0.609	0.102
C18	<---	S15	-0.240	0.012	-0.141	0.005	0.915
C17	<---	S15	-0.028	0.715	-0.138	0.031	-1.121
C16	<---	S15	-0.017	0.820	-0.017	0.866	0.001
Notes: *** p-value < 0.01; ** p-value < 0.05; * p-value < 0.10							

Appendix 6.11 Role of Position Level

Position Level: Relationship between General Culture and Organizational Commitment to Sustainability

			Team Member/ Front Line Employee		Team leader/ Supervisor		
			Estimate	**P**	**Estimate**	**P**	**z-score**
C19	<---	G1	-0.014	0.826	-0.142	0.238	-0.938
C18	<---	G1	-0.140	0.020	0.003	0.980	1.083
C17	<---	G1	-0.012	0.842	-0.016	0.888	-0.034
C16	<---	G1	0.014	0.844	-0.073	0.570	-0.592
C19	<---	G2	0.171	0.019	0.146	0.271	-0.170
C18	<---	G2	0.030	0.658	-0.030	0.815	-0.414
C17	<---	G2	0.078	0.252	0.119	0.355	0.277
C16	<---	G2	-0.127	0.122	0.045	0.751	1.052
C19	<---	G3	-0.041	0.745	0.201	0.293	1.057
C18	<---	G3	0.055	0.642	0.451	0.015	1.804*
C17	<---	G3	-0.103	0.381	0.113	0.546	0.977
C16	<---	G3	0.553	0.000	-0.164	0.423	-2.884***
C19	<---	G4B	-0.013	0.732	0.005	0.926	0.275
C18	<---	G4B	-0.058	0.113	-0.030	0.573	0.432
C17	<---	G4B	-0.035	0.345	0.014	0.790	0.754
C16	<---	G4B	0.109	0.013	-0.003	0.955	-1.536
C19	<---	G5	0.181	0.049	0.349	0.020	0.953
C18	<---	G5	0.207	0.016	0.078	0.598	-0.757
C17	<---	G5	0.072	0.408	-0.204	0.161	-1.629
C16	<---	G5	0.348	0.000	0.094	0.561	-1.324
C19	<---	G6	0.314	0.001	0.029	0.817	-1.787*
C19	<---	G7	-0.071	0.313	-0.022	0.829	0.388
C18	<---	G6	0.107	0.236	0.011	0.928	-0.630
C17	<---	G6	0.075	0.406	-0.015	0.902	-0.592
C16	<---	G6	0.284	0.009	-0.002	0.991	-1.647
C18	<---	G7	0.082	0.212	0.086	0.392	0.033
C17	<---	G7	-0.019	0.772	0.162	0.107	1.505
C16	<---	G7	-0.051	0.520	0.272	0.014	2.378**
C19	<---	G9	0.046	0.656	-0.041	0.781	-0.484
C18	<---	G9	0.135	0.165	0.026	0.857	-0.633
C17	<---	G9	0.190	0.051	0.099	0.488	-0.533
C16	<---	G9	-0.042	0.718	0.373	0.017	2.132**
C19	<---	G10b	0.140	0.022	0.070	0.505	-0.583
C18	<---	G10b	0.102	0.074	-0.014	0.890	-1.000
C17	<---	G10b	-0.001	0.991	-0.043	0.672	-0.363
C16	<---	G10b	-0.007	0.920	0.000	0.998	0.050
Notes: *** p-value < 0.01; ** p-value < 0.05; * p-value < 0.10							

Position Level: Relationship between Sustainability Culture and Organizational Commitment to Sustainability

			Team Member/ Front Line Employee		Team leader/ Supervisor		
			Estimate	P	Estimate	P	z-score
C19	<---	S11	0.239	0.014	0.489	0.000	1.406
C18	<---	S11	0.142	0.077	0.154	0.256	0.073
C17	<---	S11	0.157	0.050	0.078	0.588	-0.482
C16	<---	S11	0.085	0.329	0.014	0.919	-0.426
C19	<---	S13A	0.151	0.184	0.016	0.928	-0.639
C18	<---	S13A	0.106	0.259	-0.032	0.846	-0.730
C17	<---	S13A	0.142	0.132	0.097	0.586	-0.223
C16	<---	S13A	0.057	0.575	0.282	0.099	1.131
C19	<---	S13B	0.326	0.005	0.219	0.101	-0.601
C18	<---	S13B	0.061	0.525	0.351	0.004	1.875*
C17	<---	S13B	0.115	0.249	0.080	0.533	-0.215
C16	<---	S13B	0.240	0.020	0.021	0.867	-1.333
C19	<---	S14	0.438	0.000	0.197	0.094	-1.530
C18	<---	S14	0.422	0.000	0.152	0.158	-1.951*
C16	<---	S14	0.747	0.000	0.569	0.000	-1.216
C19	<---	S15	0.031	0.544	-0.031	0.610	-0.779
C18	<---	S15	-0.078	0.062	-0.112	0.047	-0.489
C17	<---	S15	-0.046	0.302	0.099	0.117	1.876*
C16	<---	S15	0.009	0.841	0.090	0.130	1.082
Notes: *** p-value < 0.01; ** p-value < 0.05; * p-value < 0.10							

Appendix 6.12 Role of Employment Type

Employment Type: Relationship between General Culture and Organizational Commitment to Sustainability

			Fulltime		Casual		
			Estimate	P	Estimate	P	z-score
C19	<---	G1	-0.014	0.780	0.179	0.247	1.188
C18	<---	G1	-0.113	0.043	0.093	0.575	1.177
C17	<---	G1	-0.063	0.234	0.259	0.002	3.285***
C16	<---	G1	-0.014	0.821	0.060	0.754	0.367
C19	<---	G2	0.159	0.001	-0.070	0.785	-0.883
C18	<---	G2	0.154	0.006	-0.006	0.982	-0.575
C17	<---	G2	0.063	0.227	-0.074	0.589	-0.938
C16	<---	G2	-0.080	0.193	-0.428	0.174	-1.084
C19	<---	G3	0.063	0.436	0.085	0.790	0.066
C18	<---	G3	0.285	0.002	-0.381	0.265	-1.88*
C17	<---	G3	-0.117	0.177	-0.095	0.576	0.116
C16	<---	G3	0.190	0.064	0.752	0.057	1.377
C19	<---	G4B	0.003	0.909	0.009	0.892	0.083
C18	<---	G4B	-0.061	0.039	0.013	0.856	0.974
C17	<---	G4B	-0.022	0.429	0.046	0.180	1.540
C16	<---	G4B	0.021	0.525	-0.013	0.871	-0.390
C19	<---	G5	0.259	0.000	-0.136	0.462	-2.02**
C18	<---	G5	0.201	0.007	-0.006	0.975	-0.982
C17	<---	G5	0.031	0.660	-0.162	0.101	-1.594
C16	<---	G5	0.277	0.000	-0.377	0.097	-2.707***
C19	<---	G6	0.113	0.089	0.261	0.160	0.750
C19	<---	G7	-0.060	0.162	0.173	0.426	1.053
C18	<---	G6	0.075	0.326	0.159	0.424	0.395
C17	<---	G6	0.085	0.236	0.163	0.100	0.637
C16	<---	G6	0.083	0.323	0.082	0.722	-0.006
C18	<---	G7	0.010	0.846	-0.090	0.699	-0.419
C17	<---	G7	0.005	0.916	0.157	0.177	1.215
C16	<---	G7	0.003	0.962	0.570	0.034	2.071**
C19	<---	G9	0.110	0.079	0.531	0.085	1.339
C18	<---	G9	0.050	0.488	0.482	0.143	1.283
C17	<---	G9	0.024	0.723	0.259	0.115	1.325
C16	<---	G9	0.193	0.015	-0.456	0.231	-1.668*
C19	<---	G10B	0.034	0.396	0.032	0.811	-0.009
C18	<---	G10B	0.003	0.950	0.297	0.040	1.939*
C17	<---	G10B	0.024	0.574	-0.129	0.074	-1.824*
C16	<---	G10B	0.072	0.147	0.329	0.049	1.469
Notes: *** p-value < 0.01; ** p-value < 0.05; * p-value < 0.10							

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Employment Type: Relationship between Sustainability Culture and Organizational Commitment to Sustainability

			Full time		Casual		
			Estimate	P	Estimate	P	z-score
C19	<---	S11	0.308	0.000	0.183	0.240	-0.738
C18	<---	S11	0.150	0.036	-0.021	0.926	-0.723
C17	<---	S11	0.048	0.486	0.131	0.299	0.579
C16	<---	S11	0.153	0.025	-0.116	0.590	-1.193
C19	<---	S13A	0.206	0.005	-0.306	0.056	-2.9***
C18	<---	S13A	0.190	0.015	0.037	0.875	-0.628
C17	<---	S13A	0.188	0.012	0.147	0.324	-0.244
C16	<---	S13A	0.340	0.000	-0.140	0.528	-2.054**
C19	<---	S13B	0.219	0.002	1.287	0.000	4.739***
C18	<---	S13B	0.153	0.038	0.828	0.008	2.115**
C17	<---	S13B	0.067	0.362	0.314	0.075	1.292
C16	<---	S13B	0.072	0.305	0.613	0.038	1.779*
C19	<---	S14	0.307	0.000	0.360	0.029	0.299
C18	<---	S14	0.290	0.000	0.252	0.292	-0.154
C16	<---	S14	0.439	0.000	0.735	0.001	1.266
C19	<---	S15	0.032	0.315	0.237	0.047	1.657*
C18	<---	S15	-0.022	0.510	0.215	0.212	1.352
C17	<---	S15	0.032	0.356	0.100	0.347	0.610
C16	<---	S15	0.065	0.044	0.194	0.238	0.767
Notes: *** p-value < 0.01; ** p-value < 0.05; * p-value < 0.10							

Appendix 6.13 Role of Tenure

Tenure: Relationship between General Culture and Organizational Commitment to Sustainability

			Less than 1 year		1-4 years		
			Estimate	P	Estimate	P	z-score
C19	<---	G1	-0.008	0.914	-0.108	0.107	-0.991
C18	<---	G1	-0.029	0.739	-0.177	0.005	-1.378
C17	<---	G1	0.063	0.374	-0.031	0.621	-0.992
C16	<---	G1	-0.038	0.699	-0.025	0.762	0.106
C19	<---	G2	0.045	0.574	0.247	0.001	1.838*
C18	<---	G2	0.114	0.215	0.092	0.193	-0.187
C17	<---	G2	0.053	0.469	0.034	0.634	-0.185
C16	<---	G2	-0.005	0.965	0.016	0.861	0.149
C19	<---	G3	-0.058	0.624	0.129	0.346	1.034
C18	<---	G3	0.185	0.175	0.460	0.000	1.474
C17	<---	G3	-0.140	0.203	-0.137	0.289	0.018
C16	<---	G3	0.456	0.003	0.339	0.042	-0.512
C19	<---	G4B	0.011	0.789	-0.036	0.357	-0.836
C18	<---	G4B	-0.020	0.672	-0.042	0.256	-0.368
C17	<---	G4B	0.002	0.962	-0.081	0.028	-1.578
C16	<---	G4B	0.025	0.629	-0.022	0.651	-0.662
C19	<---	G5	0.087	0.372	0.208	0.067	0.811
C18	<---	G5	0.115	0.309	0.236	0.026	0.777
C17	<---	G5	-0.065	0.478	0.109	0.309	1.235
C16	<---	G5	0.155	0.226	0.200	0.150	0.237
C19	<---	G6	0.276	0.002	0.256	0.044	-0.127
C19	<---	G7	-0.033	0.612	-0.036	0.633	-0.023
C18	<---	G6	0.134	0.197	0.063	0.597	-0.453
C17	<---	G6	0.095	0.256	0.160	0.183	0.445
C16	<---	G6	0.085	0.468	0.075	0.629	-0.052
C18	<---	G7	-0.113	0.139	0.036	0.609	1.437
C17	<---	G7	0.043	0.482	-0.092	0.194	-1.442
C16	<---	G7	0.015	0.858	0.043	0.635	0.223
C19	<---	G9	0.286	0.006	0.067	0.547	-1.432
C18	<---	G9	0.144	0.233	-0.031	0.764	-1.100
C17	<---	G9	0.086	0.375	0.144	0.174	0.401
C16	<---	G9	0.093	0.496	0.051	0.707	-0.216
C19	<---	G10B	0.148	0.017	-0.044	0.493	-2.149**
C18	<---	G10B	0.170	0.018	-0.094	0.116	-2.82***
C17	<---	G10B	0.062	0.286	-0.060	0.322	-1.453
C16	<---	G10B	0.182	0.025	-0.132	0.093	-2.775***
Notes: *** p-value < 0.01; ** p-value < 0.05; * p-value < 0.10							

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Tenure: Relationship between Sustainability Culture and Organizational Commitment to Sustainability

			Less than 1 year		1-4 years		
			Estimate	P	Estimate	P	z-score
C19	<---	S11	0.299	0.002	0.132	0.217	-1.155
C18	<---	S11	0.145	0.189	0.045	0.628	-0.690
C17	<---	S11	0.085	0.328	-0.080	0.394	-1.291
C16	<---	S11	0.274	0.008	0.134	0.164	-0.997
C19	<---	S13A	-0.029	0.804	0.340	0.004	2.205**
C18	<---	S13A	0.096	0.481	0.218	0.035	0.715
C17	<---	S13A	0.068	0.531	0.337	0.002	1.77*
C16	<---	S13A	0.060	0.632	0.452	0.000	2.369**
C19	<---	S13B	0.361	0.000	0.236	0.054	-0.772
C18	<---	S13B	0.134	0.264	0.228	0.032	0.584
C17	<---	S13B	0.140	0.166	0.185	0.088	0.302
C16	<---	S13B	0.321	0.004	-0.030	0.787	-2.234**
C19	<---	S14	0.464	0.000	0.369	0.000	-0.705
C18	<---	S14	0.338	0.001	0.286	0.000	-0.389
C16	<---	S14	0.501	0.000	0.362	0.000	-1.065
C19	<---	S15	0.043	0.416	0.008	0.878	-0.468
C18	<---	S15	-0.045	0.454	-0.041	0.370	0.053
C17	<---	S15	0.059	0.252	-0.041	0.398	-1.414
C16	<---	S15	0.048	0.393	0.074	0.117	0.356
Notes: *** p-value < 0.01; ** p-value < 0.05; * p-value < 0.10							

Appendix 6.14 Role of Years Current Position Held

Years in Current Position: Relationship between General Culture and Organizational Commitment to Sustainability

			Less than 1 year N=88		1-4 years N=114		
			Estimate	P	Estimate	P	z-score
C19	<---	G1	-0.111	0.218	-0.100	0.101	0.101
C18	<---	G1	-0.012	0.909	-0.172	0.005	-1.265
C17	<---	G1	0.003	0.971	-0.100	0.087	-1.050
C16	<---	G1	0.046	0.678	-0.027	0.714	-0.549
C19	<---	G2	-0.064	0.523	0.226	0.001	2.388**
C18	<---	G2	0.064	0.600	0.187	0.007	0.873
C17	<---	G2	0.046	0.595	0.005	0.942	-0.378
C16	<---	G2	-0.026	0.830	-0.006	0.948	0.139
C19	<---	G3	-0.065	0.632	0.093	0.439	0.871
C18	<---	G3	0.277	0.094	0.312	0.010	0.169
C17	<---	G3	-0.182	0.124	-0.049	0.674	0.800
C16	<---	G3	0.403	0.015	0.226	0.127	-0.797
C19	<---	G4B	0.020	0.667	0.000	0.994	-0.344
C18	<---	G4B	-0.030	0.599	-0.018	0.616	0.173
C17	<---	G4B	-0.010	0.799	0.006	0.871	0.299
C16	<---	G4B	0.090	0.118	0.001	0.989	-1.228
C19	<---	G5	0.078	0.502	0.352	0.000	1.822*
C18	<---	G5	0.102	0.478	0.209	0.029	0.615
C17	<---	G5	-0.046	0.656	0.251	0.006	2.157**
C16	<---	G5	0.080	0.582	0.191	0.100	0.594
C19	<---	G6	0.286	0.008	0.083	0.392	-1.412
C19	<---	G7	0.034	0.647	-0.061	0.357	-0.957
C18	<---	G6	0.081	0.538	-0.004	0.966	-0.518
C17	<---	G6	0.114	0.222	-0.056	0.554	-1.281
C16	<---	G6	0.025	0.852	0.081	0.498	0.316
C18	<---	G7	-0.033	0.715	0.074	0.270	0.952
C17	<---	G7	0.029	0.651	0.028	0.669	-0.018
C16	<---	G7	0.130	0.151	0.005	0.949	-1.024
C19	<---	G9	0.407	0.000	0.100	0.282	-2.001**
C18	<---	G9	0.043	0.771	-0.020	0.836	-0.357
C17	<---	G9	0.125	0.239	0.008	0.930	-0.838
C16	<---	G9	0.122	0.414	0.106	0.355	-0.083
C19	<---	G10B	0.160	0.027	-0.023	0.684	-1.994**
C18	<---	G10B	0.075	0.395	-0.029	0.612	-0.990
C17	<---	G10B	0.063	0.316	0.033	0.547	-0.366
C16	<---	G10B	0.097	0.277	-0.055	0.423	-1.351
Notes: *** p-value < 0.01; ** p-value < 0.05; * p-value < 0.10							

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Years in Current Position: Relationship between Sustainability Culture and Organizational Commitment to Sustainability

			Less than 1 year N=88		One to four years N=114		
			Estimate	P	Estimate	P	z-score
C19	<---	S11	0.324	0.003	0.222	0.028	-0.685
C18	<---	S11	0.075	0.557	0.102	0.264	0.176
C17	<---	S11	0.097	0.307	0.009	0.921	-0.671
C16	<---	S11	0.338	0.002	0.156	0.072	-1.305
C19	<---	S13A	-0.094	0.476	0.195	0.079	1.679*
C18	<---	S13A	-0.041	0.790	0.217	0.031	1.401
C17	<---	S13A	0.042	0.720	0.302	0.003	1.68*
C16	<---	S13A	0.014	0.918	0.481	0.000	2.87***
C19	<---	S13B	0.418	0.000	0.223	0.028	-1.276
C18	<---	S13B	0.190	0.154	0.203	0.027	0.077
C17	<---	S13B	0.173	0.109	0.151	0.103	-0.154
C16	<---	S13B	0.309	0.007	-0.146	0.094	-3.164***
C19	<---	S14	0.443	0.000	0.419	0.000	-0.183
C18	<---	S14	0.329	0.004	0.273	0.000	-0.402
C16	<---	S14	0.462	0.000	0.441	0.000	-0.175
C19	<---	S15	0.015	0.803	0.059	0.229	0.549
C18	<---	S15	-0.072	0.322	0.021	0.639	1.090
C17	<---	S15	0.060	0.309	0.004	0.932	-0.752
C16	<---	S15	0.034	0.581	0.069	0.099	0.469
Notes: *** p-value < 0.01; ** p-value < 0.05; * p-value < 0.10							

Appendix 6.15 Role of Education Level

Education Level: Relationship between General Culture and Organizational Commitment to Sustainability

			TAFE		Bachelor		
			Estimate	P	Estimate	P	z-score
C19	<---	G1	-0.074	0.221	-0.053	0.706	0.140
C18	<---	G1	0.019	0.772	-0.334	0.039	-2.016**
C17	<---	G1	-0.079	0.178	-0.216	0.110	-0.928
C16	<---	G1	-0.009	0.890	0.141	0.407	0.822
C19	<---	G2	0.083	0.192	0.309	0.012	1.638
C18	<---	G2	0.077	0.278	0.241	0.091	1.033
C17	<---	G2	-0.040	0.518	0.338	0.004	2.826***
C16	<---	G2	0.066	0.359	0.044	0.769	-0.132
C19	<---	G3	0.174	0.138	-0.073	0.666	-1.196
C18	<---	G3	0.320	0.014	0.206	0.299	-0.484
C17	<---	G3	-0.089	0.433	-0.094	0.567	-0.027
C16	<---	G3	0.520	0.000	0.210	0.312	-1.256
C19	<---	G4B	-0.027	0.383	-0.014	0.802	0.194
C18	<---	G4B	-0.079	0.023	-0.061	0.361	0.233
C17	<---	G4B	-0.013	0.660	-0.038	0.502	-0.382
C16	<---	G4B	0.016	0.642	0.004	0.957	-0.159
C19	<---	G5	0.196	0.016	0.203	0.178	0.044
C18	<---	G5	0.203	0.024	0.094	0.592	-0.552
C17	<---	G5	0.039	0.619	0.101	0.491	0.369
C16	<---	G5	0.136	0.140	0.260	0.158	0.604
C19	<---	G6	0.196	0.025	-0.039	0.837	-1.129
C19	<---	G7	-0.042	0.443	0.015	0.885	0.486
C18	<---	G6	0.115	0.240	0.035	0.875	-0.333
C17	<---	G6	0.078	0.358	0.027	0.882	-0.254
C16	<---	G6	0.166	0.095	-0.065	0.778	-0.918
C18	<---	G7	-0.036	0.559	0.080	0.512	0.849
C17	<---	G7	0.085	0.109	-0.064	0.526	-1.308
C16	<---	G7	0.099	0.108	-0.044	0.731	-1.012
C19	<---	G9	0.043	0.638	0.455	0.002	2.386**
C18	<---	G9	0.061	0.546	0.038	0.825	-0.117
C17	<---	G9	0.114	0.195	0.292	0.040	1.063
C16	<---	G9	-0.161	0.117	0.245	0.172	1.966**
C19	<---	G10b	0.095	0.092	0.032	0.720	-0.597
C18	<---	G10b	-0.092	0.144	0.282	0.007	3.073***
C17	<---	G10b	0.043	0.429	-0.165	0.058	-2.026**
C16	<---	G10b	0.006	0.929	0.010	0.924	0.037
Notes: *** p-value < 0.01; ** p-value < 0.05; * p-value < 0.10							

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Education Level: Relationship between Sustainability Culture and Organizational Commitment to Sustainability

			TAFE		Bachelor		
			Estimate	P	Estimate	P	z-score
C19	<---	S11	0.284	0.000	0.478	0.001	1.157
C18	<---	S11	0.099	0.212	0.226	0.207	0.647
C17	<---	S11	0.097	0.165	0.459	0.003	2.154**
C16	<---	S11	0.100	0.162	0.313	0.031	1.315
C19	<---	S13a	0.171	0.095	-0.047	0.801	-1.027
C18	<---	S13a	0.173	0.104	0.217	0.329	0.178
C17	<---	S13a	0.207	0.028	-0.222	0.213	-2.127**
C16	<---	S13a	0.174	0.070	0.023	0.897	-0.737
C19	<---	S13b	0.157	0.092	0.409	0.013	1.327
C18	<---	S13b	0.136	0.160	0.256	0.197	0.545
C17	<---	S13b	0.070	0.417	0.294	0.088	1.164
C16	<---	S13b	0.270	0.002	0.066	0.680	-1.114
C19	<---	S14	0.415	0.000	0.296	0.003	-0.898
C18	<---	S14	0.409	0.000	0.047	0.693	-2.418**
C16	<---	S14	0.471	0.000	0.445	0.000	-0.205
C19	<---	S15	-0.022	0.620	-0.003	0.964	0.219
C18	<---	S15	-0.017	0.708	0.101	0.242	1.210
C17	<---	S15	-0.064	0.132	0.002	0.978	0.757
C16	<---	S15	0.042	0.301	0.007	0.916	-0.431
Notes: *** p-value < 0.01; ** p-value < 0.05; * p-value < 0.10							

Appendix 6.16 Hypotheses 1A & 1B Multi-Group Analysis Results

			Male		Female		
			Estimate	P	Estimate	P	z-score
TCS	<---	TGC	0.212	0.000	0.139	0.016	-0.931
TCS	<---	TSC	0.630	0.000	0.688	0.000	0.533
Notes: *** p-value < 0.01; ** p-value < 0.05; * p-value < 0.10							

			Site I		Site H		
			Estimate	P	Estimate	P	z-score
TCS	<---	TGC	0.149	0.073	0.109	0.140	-0.359
TCS	<---	TSC	0.673	0.000	0.746	0.000	0.388
Notes: *** p-value < 0.01; ** p-value < 0.05; * p-value < 0.10							

			Less than 1 year		1-4 years		
			Estimate	P	Estimate	P	z-score
TCS	<---	TGC	0.293	0.000	0.115	0.099	-1.767*
TCS	<---	TSC	0.605	0.000	0.661	0.000	0.412
Notes: *** p-value < 0.01; ** p-value < 0.05; * p-value < 0.10							

			Team leader		Front line		
			Estimate	P	Estimate	P	z-score
TCS	<---	TGC	0.214	0.056	0.222	0.000	-0.065
TCS	<---	TSC	0.453	0.000	0.667	0.000	-1.277
Notes: *** p-value < 0.01; ** p-value < 0.05; * p-value < 0.10							