Managers' sustainable development perceptions and practices: An investigation in the Australian building and construction sector

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Abstract

This thesis addresses a research gap in the areas of managerial perception and practice of sustainable development (hereafter SD) in the context of the Australian building and construction industry. The management literature has highlighted the importance of more in-depth inquiries into industry-specific contexts to advance management knowledge and contribute to academic theory (Barnett, 2007; Costa & Menichini, 2013). Over the last decade industry practice for a sustainable built environment has increased managers' skills and capabilities. This occurred on predominantly individual project or business basis rather than as industry wide approach. With the increasing economic, environmental and social impact of building and construction activities that are globally evident, there is now a growing need for this sector to develop a deeper understanding of sustainable development perceptions and practices (Chang et al., 2018; Pearce, 2008; Revell & Blackburn, 2007).

The academic literature offers theoretical constructs that resonate with the culture of the building and construction industry, as well as knowledge and skills transfer from research to industry practice. This research applies stakeholder management theory as the primary theoretical lens, with a consideration of corporate social responsibility (CSR) and sustainable development (SD) frameworks. These support the investigation of the research questions: How is sustainable development understood and perceived by managers in the construction industry? How are stakeholder relationships developed and managed in the construction industry? How do construction industry-specific contexts shape sustainable development management? Utilising a qualitative methodology with a case study design, this study collected and analysed data from in-depth interviews with twenty seven business directors, project managers and site managers across three small and medium-sized Australian

construction businesses. The iterative and reflective qualitative data analysis identified five key themes, which connect the perceptions and practices of all managers interviewed across a management life-cycle spectrum not identified before.

This research found that construction managers have distinct SD values, which are expressed through their own experiences and expertise engaging with diverse stakeholders to deliver project outcomes. These perceptions and practices, whilst individually constructed over time and with experience, are grounded in common industry values and include a clear concern for the long-term sustainability and futures of their stakeholder communities locally and the construction industry professionally. This qualitative and in-depth research analysis – which has not been undertaken in the Australian construction sector before- was able to capture the shift that has taken place from the traditional linear stakeholder management models based around the entity of the firm to the multi-dimensional stakeholder relationship networks actively facilitated by managers in industry practice.

The thesis asserts that these findings have critical implications for advancing stakeholder management theory and sustainable development in industry-specific contexts. In addition, these findings offer a practice-focused contribution to the construction industry and propose increased educational emphasis on: firstly, making SD management more explicit; and secondly, supporting managers in their knowledge and skills development to navigate the complex contexts of their professional roles.

Table of Contents

0.1 List of Figures and Tables

0.2 Table of Abbreviations

Table of Abbreviations	
ABS	Australian Bureau of Statistics.
ABCB	Australian Building Codes Board
ASBEC	Australian Sustainable Built Environment Council
CSR	Corporate Social Responsibility
GBCA	Green Building Council of Australia
GDP	Gross Domestic Product
GRI	Global Reporting Initiative
KPMG	Klynveld Peat Marwick Goerdeler
MDG	Millennium Development Goals
NSESD	National Strategy for Ecologically Sustainable Development
PWC	Price Waterhouse Cooper
SD	Sustainable Development
SDG	Sustainable Development Goals
SME	Small and Medium Enterprises
TBL	Triple Bottom Line
UNGC	United Nations Global Compact
WBCSD	World Business Council for Sustainable Development
WCED	World Commission for Sustainable Development
WEF	World Economic Forum

0.3 List of Publications

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Little did I realise, when I immigrated from Germany to Australia at the age of 21, on my own and with only adequate English, that I would be the first in my family to attempt University education and go on to have a fulfilling professional career in the construction industry, as only very few women did in the 1990s.

Families are an essential part of anyone's personal achievements. This thesis therefore is dedicated to my parents, Günter and Elke Ruge, as well as my grandmothers Mariechen Ruge and Luise Thode, whose love, guidance and encouragement have shaped my values and commitment to contribute to the communities I share and support.

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1.0 Thesis Overview

1.1 Research context and knowledge gap

Sustainable development in management has received increasing attention in academic research, where the importance of the concept and its perceptions in emerging corporate management theory has been highlighted (Giddings, Hopwood, & O'Brien, 2002; Gladwin, Kennelly, & Krause, 1995; Hopwood, Mellor, & O'Brien, 2005; Kolk, 2016; Orlitzky, Schmidt, & Rynes, 2003; Waddock & Graves, 1997). SD, in addition to its initial environmental focus has also expanded over time to encompass economic and social aspects. This is reflected in the Millennium Development Goals (MDGs) which were adopted by the United Nations (UN) and its member countries between 2000 and 2015 to reduce poverty, hunger, disease, gender inequality, and environmental degradation. The clear goals and measurable targets set out by the MDGs, whilst not achieved in their entirety were successful in that they garnered policy and public investment with global, national and local community impact (Sachs, 2012). More recently, the MDGs were replaced by expanded Sustainable Development Goals (SDGs) adopted by the UN member countries in 2015 (United Nations, 2016). Whilst maintaining measurable international and national goals and targets, the SDGs also include industry sectors and acknowledge the connections and impacts of SDGs across biophysical, social and economic systems (Le Blanc, 2015). Led by the UN, the adoption in 2015 by member countries of the seventeen sustainable development goals (SDGs), which are being implemented in many countries, industry sectors and initiatives. The aim is to advance global sustainable development (hereafter referred to as SD) practice and firms' long-term performance (Costanza, Fioramonti, & Kubiszewski, 2016; Sachs, 2012; Sneddon, Howarth,

& Norgaard, 2006; Springett, 2003). The initial definition of SD by the World Commission on Environment and Development (WCED) as 'meeting the needs of the present without compromising the ability of future generations to meet their own needs' (WCED, 1987, p. 43), although critiqued by many as being too broad and generic (Daly, 1990; Daly, Cobb Jr, & Cobb, 1994; Hueting, 1990; Sneddon et al., 2006) has retained its prominence and application in theory and practice.

In the construction/building sector internationally, sustainable development has been identified as the 'great challenge of the 21st century' (Sachs & Warner, 1999) and an opportunity to '…improve social, economic and environmental conditions for present and future generations' (Ortiz, Castells, & Sonnemann, 2009, p. 29). Yet, to date sustainable development in management of building and construction businesses in Australia has not been addressed with sufficient depth or detail. Recent research has identified several barriers that are hindering construction businesses in the adoption and integration of SD practices both within Australia and internationally (Barthorpe, 2010; Huang & Hsu, 2011; Hwang & Tan, 2012; Parkin, Sommer, & Uren, 2003; Sev, 2009). The international literature notes the increasing gap and growing need to develop a better understanding of sustainable development in management, as well as its practice and performance (Du Plessis, 2002; Matar, Georgy, & Ibrahim, 2008; Vollenbroek, 2002). The management literature has also highlighted the importance of more in-depth inquiries in industry-specific contexts to advance management knowledge and contribute to academic theory (Barnett, 2007; Costa & Menichini, 2013). With the increasing economic, environmental and social impact of building and construction activities that are becoming evident globally, there is now a growing need for this sector to develop a deeper understanding of sustainable development perceptions and practices (Chang et al., 2018; Pearce, 2008; Revell & Blackburn, 2007). This research addresses this gap through

a scholarly investigation. It makes a new contribution to management theory and aims to subsequently inform building and construction management practice and continuing professional education.

The longer term sustainable development impacts of construction industry sectors are increasing in nationally and globally. Worldwide today, more than 40% of total energy use is linked to buildings which, in addition, produce one third of greenhouse gas emissions during their entire life cycle (Pérez-Lombard, Ortiz, & Pout, 2008; Uihlein & Eder, 2010). In Australia, almost a quarter (23 per cent) of Australia's total greenhouse gas emissions is the result of energy demand of buildings (ASBEC, 2008; Mitchell, 2010; Wang, Chen, & Ren, 2010). These SD aspects are now becoming measurable and informing legislation, financing and customer awareness and the construction sector in Australia has increasingly over the last decade developed and adopted corporate sustainability practices and reporting tools (GBCA, 2016; KPMG, 2015a).

This research shifts the focus from corporate and industry reporting and outputs, to what is arguably the critical area the managers' actual values and perceptions which shape business decisions and practice. To date, research into sustainability values of construction managers has been undertaken in the United States of America (Ahn & Pearce, 2007; Chong et al., 2009), South Korea (Son, Kim, Chong, & Chou, 2011), the UK (Carter & Fortune, 2007; Revell & Blackburn, 2007), South Africa (Aigbavboa, Ohiomah, & Zwane, 2017), Brazil (da Gama, Vieira, & Coutinho, 2014), Middle Eastern countries (Al-Saleh & Taleb, 2010; Majdalani, Ajam, & Mezher, 2006; Taheriattar & Farzanehrafat, 2014), Singapore (B. C. L. Yin, Laing, Leon, & Mabon, 2018) and China (Chang et al., 2018). To date, however, similar research has not been undertaken in Australia.

The work done by Kolk (2016) confirms a lack of research in mainstream international management literature that addresses both CSR and SD, despite the rising interest that emerged during the 1990s (Kolk, 2016). Other research investigations also identified a range of gaps along the current boundaries between CSR theory and practice, where knowledge is transferred to action (Cash et al., 2003; Quazi, 2003; Quazi & O'Brien, 2000). In particular, Salzmann et al. (Salzmann et al., 2005) observed that the theoretical development of CSR is hindered by a lack of understanding of managers' thinking and how business cases are built, primarily due to a lack of 'descriptive research in this area' (p. 27).

A particular gap in our knowledge is the lack of investigations into how individual construction managers, who as business directors, project managers and site managers, engage with their stakeholders in order to deliver sustainable development outcomes for the business, clients and the wider community. The predominantly quantitative studies of the building and construction sectors internationally to date have identified a number of shortcomings in terms of sustainable development and discrepancies between perception and practice. These studies, however, have not questioned, or been able to investigate in detail the 'front end' values and beliefs held by managers in industry (Beheiry, Wai Kiong, & Haas, 2006; Chong et al., 2009; Hörisch, Freeman, & Schaltegger, 2014; Jones, Yongwei, & Goodrum, 2010; Schaltegger, Lüdeke-Freund, & Hansen, 2012).

To address this gap in the extant literature, this research adopts a qualitative research methodology with a reflective and industry insider, or emic, research perspective (Simon, 2011) to undertake an in-depth inquiry into management practices in the Australian building

and construction industry. This methodological approach and perspective allowed the investigation of the following three key research questions:

1. How is sustainable development understood and perceived in the construction industry?
2. How are stakeholder relationships developed and managed in the construction industry?
3. How do construction industry-specific contexts shape sustainable development management?

1.2 Theory development

Utilising stakeholder management theory (Donaldson & Preston, 1995; Freeman, 1984; Freeman, Harrison, & Wicks, 2007) as the primary theoretical lens, this research investigates how business directors, project managers and on-site managers engage with sustainable development in their perceptions, practice and performance. The initial theoretical models devised by Freeman (Freeman, 1984; Wheeler, Colbert, & Freeman, 2003) describe 'stakeholder management' as a process of identification and linear engagement between a business and a particular stakeholder representative or group, for example, client, consumer, financier or customer. In the mid-1980s when stakeholder management emerged as a corporate management activity and strategic approach, it also ushered in a broader shift away from the primacy of the shareholder and profit maximising role of the firm as advocated in the post-war era of economic growth in northern Europe, the UK and the United States (Friedman, 1970; Solow, 1974).

However, a major limitation of Freeman's theoretical conceptualisation emerged in the first decade after its inception and is one that persists to this day: stakeholder management theory is based on an abstracted and static conceptual model, which perpetuates the utilitarian role of

the firm at its centre seemingly controlling its stakeholders (Frooman, 1999; Key, 1999). More recently, researchers have increasingly focused on investigating and redefining the boundaries of the firm and further broadening management thinking within increasingly complex and global and technological contexts (Orts & Strudler, 2002; Sternberg, 1997). The current academic management literature has developed a number of theoretical constructs which resonate with the culture of the building and construction industry, including 'value creation' and 'shared value' (Porter & Kramer, 2006; Strand, Freeman, & Hockerts, 2015; Wheeler et al., 2003). In relation to Corporate Social Responsibility (hereafter referred to as CSR) theory and practice the identification of knowledge gaps and skills transfer are also of relevance to the construction sector (Cash et al., 2003; Quazi, 2003).

This research identifies some of the critical sub-strata of shifting stakeholder interactions across the management of design, approval, construction and operating life cycle for projects and processes within Australian building and construction businesses. Research findings include identification of industry-specific beliefs and values which are informing stakeholder engagement and CSR positioning. This in turn contributes to how businesses, based on underlying beliefs and values, continually adapt and respond to complex legal, financial, environmental, social and ethical contexts. The findings from the building and construction industry in this research, however, demonstrate a highly dynamic, continually changing, shifting and often uncontrolled or 'messy' engagement in a complex network of multiple stakeholder relationships influencing each other. The shift from Freeman's static stakeholder management concept to the dynamic and multi-dimensional relationships between stakeholders experienced by construction managers is a new theoretical proposition developed through this research. This research provides new empirical evidence and confirms critiques on the limitations of Freeman's model as largely one-directional from the firm's vantage point

(Frooman,1999) and thereby continuing the firm's as primarily profit-seeking enterprise (Key, 1999).

1.3 Methodology and research design

In order to address the research questions, a qualitative research methodology and design has been developed (Andrade, 2009; Eisenhardt, 1989; Welch, Piekkari, Plakoyiannaki, & Paavilainen-Mäntymäki, 2011). The research is set out as an interpretivist inquiry from a social-constructivist epistemological position. The research is based on the premise that there is no objective reality or truth but that meaning is socially constructed individually, within communities and across cultures (Crabtree & Miller, 1999; Seale, 1999; Weick, 1979). Throughout the inquiry the researcher engaged in reflective practice and as an emic researcher with personal experience in the Australian building and construction industry (Alvesson, Hardy, & Harley, 2008; Le Gallais, 2008; Schwandt, 2005).

The research design included the following:

- Purposive and theoretical sampling from three SME businesses as selected case studies to capture the 'spectrum of practice' (Etikan, Musa, & Alkassim, 2016; Tongco, 2007).
- Conducting twenty seven in-depth personal, semi-structured interviews with nine business directors, nine project managers and nine on-site managers (Andrade, 2009).
- Analysis of corporate documents, industry reports, field notes and personal observations (Sinkovics & Ghauri, 2008).
- Inductive and interpretive research process linked to subsequent deductive and theory-driven iterations which informed the themes, patterns and meanings from within the data collected for this study (Miles & Huberman, 1984; Sinkovics & Alfoldi, 2012).

The qualitative research methodology and detailed case study design, bounded in location, time and context and linked with the researcher's emic understanding, enabled deeper insights and new theoretical knowledge to be developed (Hyde, 2000; Tsang, 2013).

1.4 Research findings and contribution to theory

The research findings advance stakeholder management theory. Firstly, the central and strategic focus of stakeholder management theory was confirmed and the importance of stakeholders for construction managers extended. In the construction sector stakeholder groups are diverse and vary in role and impact from project to project and their importance and influence within a project varies over time. Stakeholder management is therefore critical, dynamic and of high strategic importance for each construction manager and the business.

Secondly, the research identified a shift in the stakeholder management focus from the 'firm' as a central and static actor to the 'facilitating manager' who is actively involved in stakeholder relationships management. In small to medium businesses of the Australian construction industry, the individual construction managers take on the central position of facilitating stakeholder management for each project. The manager's values and practices to make this happen are shaped by established industry beliefs and values. These have not been formalised or regulated by the firm or business, but rather reflect recurring phases and stages of the manager's experience and the continual adaptation to individual contexts and issues. In this context and in terms of classical stakeholder management theory, the firm is moved into the background as underlying legal corporate entity responsible for operational processes and corporate governance.

Thirdly, stakeholder engagement was conceptually revised and expanded from static individual roles to managing dynamic stakeholder relationships. In the Australian construction industry context, individual stakeholders and groups vary in their role, engagement level and impacts. This results in a dynamic and continual interaction of stakeholders and the firm's manager facilitating the interactions across a newly identified spectrum of stakeholder management activities for sustainable development outcomes

The managers interviewed for this research identified that, whilst they were tasked to oversee, lead and manage all project activities, they were also central to stakeholder management and facilitating interactions within the network of stakeholders. In general, the key responsibilities of managers in the construction industry are to design, contract, build and deliver the agreed outcomes that comply with the clients', governments' and communities' expectations. Also, their job involves supporting the following: managing budgets, government approval, safety, quality and timeliness to ensure professional and corporate expectations and the longer term reputation and sustainability of the industry. This extensive scope highlights the inherent complexity of managing stakeholder relationships. The managers expressed how they engage in inter-stakeholder issues, facilitating conflict resolution, collaboration and consensus and overall being themselves an active partner in the wider stakeholder relationship network during all construction project stages.

This proposed shift in perspective for managers and management opens up further discourse on roles and responsibilities towards sustainable development as well as the continued expansion of skills, values and capabilities of future managers engaging across local and global stakeholder networks. In relation to stakeholder management and SD, this research found that construction managers pro-actively facilitate the dynamic stakeholder networks across the

spectrum of construction activities they are engaging in. These findings have critical implications for advancing management theory towards the dynamic multi-dimensional context in which managers interact with diverse stakeholders to support SD management processes. This seeks to extend and shift the current theoretical basis focusing on businesses as predominantly static and reactive in their perspectives and decision-making in relation to stakeholder management theory.

1.5 Originality and future research opportunities

This research has provided a unique opportunity to access previously not available detailed insights and views from experienced managers working in the Australian building and construction industry. Analysing this information through a qualitative and consciously reflective insider perspective was critical in approaching and developing an understanding of the research question and subsequently developing a new perspective and extension of stakeholder management theory as complex and multi-dimensional relationships with individual managers' values and beliefs shaping perception, practice and performance of sustainable development in this important industry sector. Findings from this research provide new evidence and opportunities to advance management theory and further expand the dynamic dimensions for application in practice. Future research could involve applying these findings to other industry sectors, which also involve diverse stakeholders and complex project contexts. With increasing internationalisation and globalisation of markets and services, the number of smaller businesses and the importance of individual managers' engagement and impact across their stakeholder networks is expected to increase further. This research therefore can also support research internationalisation of management services and stakeholder management throughout local, national and global service networks.

2.0 Thesis Introduction and Context

2.1 Introduction to the topic

Sustainable development (SD) has become an increasingly critical concept in management, bringing together environmental, social and economic aspects of theory, and has been influential in changing practice. In its essence, SD means making decisions and taking actions that meet the aspirations of the current generation without compromising the ability of future generations (WCED, 1987). More recently, this internationally accepted definition coined by the United Nations World Commission on Environment and Development has been expanded to more clearly refer to the global life-support systems required to be maintained for sustainable development (Griggs et al., 2013).

Long-term sustainability outcomes are emerging as important considerations for key stakeholders such as clients, consumers, communities and governments. SD encourages a shift towards longer term thinking and decision-making and a focus on how businesses engage sustainably and responsibly to design, develop and deliver these outcomes (Azcárate, Carrasco, & Fernández, 2011; Gladwin, Kennelly, & Krause, 1995; Rees & Roseland, 1998; Springett, 2003). Over recent decades, and reflecting the range of stakeholder interests, the conceptualisations of SD have shaped global policy and research, national government and industry regulations, as well as finding application in local and business specific contexts such as building and construction projects. In this respect, the approach to SD taken by management within a firm becomes a critical defining factor in shaping the way businesses (and broader industry sectors) respond to increasing stakeholder demands for sustainability.

This thesis examines how SD is understood and reflected by managers in Australian building and construction businesses in terms of perceptions and actions. Building and construction is

an important part of the Australian economy, contributing to increased employment and business opportunities as well as being a significant contributor to Gross Domestic Product (GDP). Decisions made at each stage of the construction project by stakeholders in conjunction with construction managers' input have potentially significant environmental impacts. These may relate to unsustainable material selection, inefficient layout of design or choice of energy supply and operation of a building's heating and cooling systems. These and many other aspects lead to longer term environmental emissions, financial costs and liabilities as well as a range of positive or negative outcomes for the building's occupants and the wider social community. As a result, the perceptions and practices of the construction industry provide an important area for management study with economic, environmental and long-lasting social impacts.

As outlined in subsequent chapters, there are research and knowledge gaps in relation to the industry sector in Australia and industry managers' sustainability perceptions and practices in particular. This chapter introduces the broader context and boundaries for this thesis. It describes the topic of sustainable development in management, the construction industry and the research gap, which has shaped the development of the detailed research investigation that follows.

The evolution of sustainable development thinking

Building and construction is inextricably and historically linked to the use of natural resources, whether this is the use of forestry products, minerals and water in the primary construction of buildings or in the industrial production of building materials. Du Pisani (2006, p.85) notes that the modern terminology of 'sustainability' and 'sustainable' was included for the first time in the *Oxford English Dictionary* during the second half of the 20th century However, the

equivalent terms in French (durabilite´ and durable), German (Nachhaltigkeit, literally meaning 'lastingness', and nachhaltig) and Dutch (duurzaamheid and duurzaam) have been used in the agriculture and forestry industries, which have directly supplied the construction sector with materials since the early 18th century (Du Pisani, 2006; van Zon & Kuipers, 2002). Von Carlowitz and von Rohr (1732) pointed out in their works, for example, the value of a longer term perspective of the sustainable use ('nachhaltende Nutzung') of forest resources in order to maintain a balance between harvesting old trees and replanting new trees to replace them (Von Carlowitz & von Rohr, 1732).

In these early conceptions, it is likely that the impact of resource use was considered in practical terms, such as observing that it was necessary to transport timber resources over longer distances since the wooded areas near settlements began to suffer deforestation. By the end of the 18th century, however, concerns of unsustainable resource management began to be connected to the concept of growth, for example, as noted by Malthus in his 1798 *Essay on the principle of population as it affects the future improvement of society* (Malthus, 1986; Seidl & Tisdell, 1999). Fifty years later, John Stuart Mill (Mill, 1848) described what he coined the 'stationary state', which was not striving for continued human improvement but a balancing of population and capital. He foresaw the limits to growth: 'I sincerely hope, for the sake of posterity', he wrote, that the world's population 'will be content to be stationary, long before necessity compels them to it' (Mill, 1848, pp. 452-454). By the end of the 19th century the extraction of natural resources for a range of purposes, including the construction and expansion of urban areas, factories, infrastructure and shipbuilding, was being expressed as exploitation and 'reckless destruction of the stored-up products of nature' that would impact environment and society in the future (cited by Clarke and York, 2007, p.225).

Despite the observations of these early thinkers, the approach of development through ongoing growth, irrespective of longer term impacts, continued and expanded at a much faster pace in the post-World War 2 industrial boom, especially during the 1950s and 1960s. At that time in Western Europe, North America and Australia, government and industry sentiments were heavily influenced by the economists of the neoclassical and orthodox school of thought, supporting shareholder corporate interests and return on investment as key deliverables and measures of growth and progress (Friedman, 1970; Schumpeter, 1934; Solow, 1974). These broader outlooks and focus on economic growth and business profitability at that time would have filtered through businesses and included the construction sectors. To this day, builders and construction managers aim to deliver 'as ordered, on time and on budget', a value mantra that continues to be instilled in today's managers (Matar et al., 2008; Myers, 2005; Parkin, Sommer, & Uren, 2003; Petrovic-Lazarevic, 2010).

While there was a growing awareness in the 1960s and 1970s of sustainability problems related to resource consumption and environmental pollution, it was generally assumed that if one resource ran out, another one would be found and that new technologies and human innovation would contribute to solutions solving the problems. However, the oil crisis and economic recession in the mid-1970s constituted a major turning point in the recognition by Western countries of the immediate impact of shortages in resources – and indeed their finite nature - which had previously been assumed to be unlimited. A paradigm shift of thinking in the mid-1970s was led by the group of economists and scientists calling themselves the 'Club of Rome', who published *The Limits to Growth* (Meadows, Meadows, & Randers, 1972) with the warning that the continued exploitation of the Earth's limited resources would lead to a catastrophe impacting on all of us. The members of the 'Club of Rome' challenged the predominant neo-classical economic view that the interaction of the competitive market

economy would be able to manage issues of over-exploitation and pollution. At this time, already the limitations of economic modelling focused on production and consumption were criticised and the importance of sustainable economics and sustainable development linking economic and environmental management emerged (Daly, 1973 and 1993; Redclift, 1992).

Development of the SD as conceptual framework

It is in this broader historical and emerging industry context for sustainable development, that the 1987 Brundtland report *Our Common Future* was launched by the World Commission on Environment and Development of the United Nations (WCED, 1987). This important report reflected the emerging global agenda, acceptance of SD and presented a widely accepted definition of SD as development that 'seeks to meet the needs and aspirations of the present without compromising the ability to meet those of the future' (WCED, 1987, p. 49). At that point in time, the focus of SD was deliberately broad, aiming to capture 'what' SD is, rather than assigning the who or how to, in order to establish a common basis acceptable for international agreement and further development of nations and societies. Over time, certain UN definitions and agreements have found their way into national policy and strategy documents. For example, the Australian Government's (Australian Government, 1992) *National Strategy for Ecologically Sustainable Development* (NSESD) released in 1992 uses the following definition:

> *Using, conserving and enhancing the community's resources so that ecological processes, on which life depends, are maintained, and the total quality of life, now and in the future, can be increased.*

A more recent conceptualization of SD was proposed in 2013 when Griggs together with 9 other eminent international researchers (Griggs et al., 2013) published in the journal *Nature* a

renewed definition for Sustainable Development. This definition, which acknowledges and advances the Brundtland wording, defines SD as 'development that meets the needs of the present while safeguarding Earth's life-support system, on which the welfare of current and future generations depends' (Griggs et al., 2013, p. 306). SD, in addition to its initial environmental focus has also expanded over time to encompass economic and social aspects. This is reflected in the Millennium Development Goals (MDGs) which were adopted by the UN and its members countries between 2000 and 2015 to reduce poverty, hunger, disease, gender inequality, and environmental degradation.

The clear goals and measurable targets set out by the MDGs, whilst not achieved in their entirety were successful in that they garnered policy and public investment and support globally, nationally and with local community impact (Sachs, 2012). More recently the MDGs were replaced by expanded Sustainable Development Goals (SDGs) adopted by the UN member countries in 2015 (United Nations, 2016). Whilst maintaining measurable international and national goals and targets, the SDGs also include industry sectors and acknowledge the connections and impacts of SDGs across biophysical, social and economic systems (Le Blanc, 2015). Other international standards that encourage voluntary corporate sustainability practice and reporting to stakeholders include UN Global Compact (UNGC, 2018), ISO 14000 and Industry Sector Reporting (GRI, 2008).

Development of SD for corporate governance and value

By the time SD was formally defined and developed in the literature in the 1980s and 1990s, CSR had already been firmly established in the management literature since the 1950s. A key definition was provided by Bowen & Johnson (1953, p. 6) who considered CSR as '… an obligation to pursue policies to make decisions and to follow lines of action which are

compatible with the objectives and values of society' (Bowen & Johnson, 1953; Rahman, 2011). The work of Mills (Mills, 1959), which very much pre-dated shareholder and stakeholder theory, had already formulated the essential role and threats to underlying values for management and managers: '... what are the major issues... in our time? We must ask what are the values that we cherished and are threatened and what values are cherished and supported' (p.11). Similarly, the notion of the 'businessman's social responsibility' had been noted by Elbing in 1970, at the height of the post-war economic boom and years ahead of the formal development of corporate social responsibility as a strategic framework for businesses (Elbing, 1970, pp. 83-84):

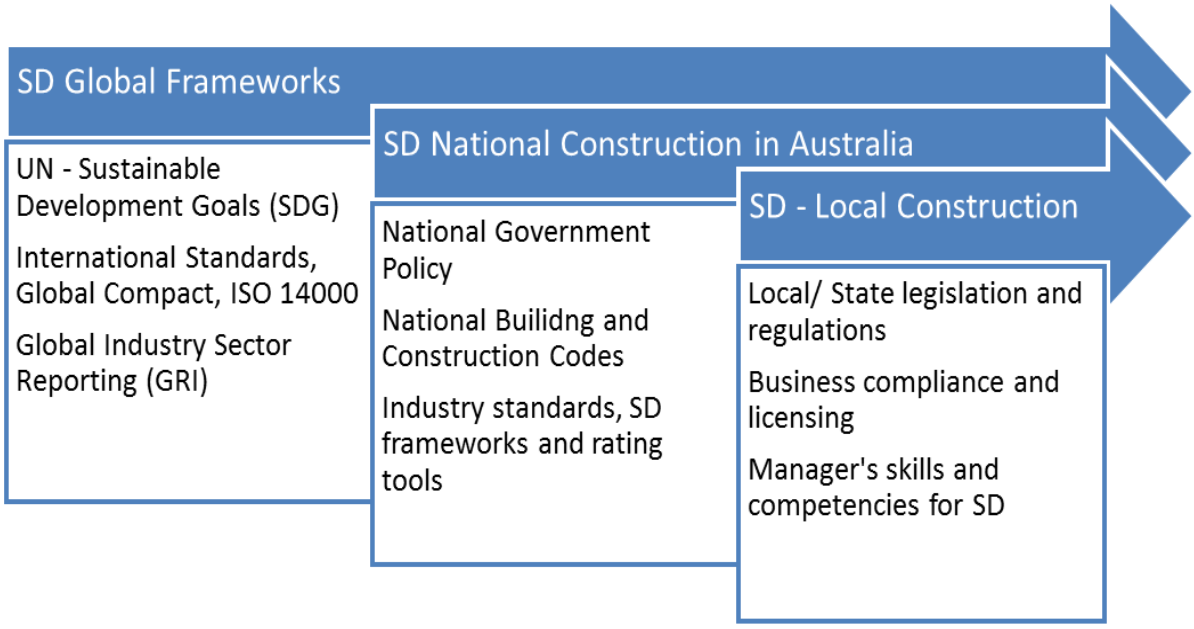
> *The only realistic answer which can be given to that question is that the businessman, functioning as a social man in a social system, is in fact responsible for all of his social actions…. When it is clear that his role and function are inescapably social as well as economic, it is clear that there is no limit to the extent to which he is responsible for his actual social actions in the firm and in his business society*.

The terminology concerning the idea of 'social responsibility' as something that businesses and managers should strive to achieve when considering their stakeholders and society, became more refined during the 1960s (McGuire, 1963). In particular Carroll in the 1970s worked on this concept, through his four components or 'Pyramid of CSR', addressing the economic, legal, ethical and discretionary responsibilities and expectations of stakeholders (Carroll, 1979). Proponents of SD and CSR are also critical of the profit-focused works by Friedman and others (Friedman, 1970; Solow, 1974) and instead see CSR as tying society and business together with the aim of fulfilling stakeholders' expectations (Carroll, 1991; Cochran & Wood, 1984).

At the Earth Summit of 1992, environmental and corporate interests in relation to SD started to converge (Cochran & Wood, 1984; Drucker, 1984; Redclift, 2005; Ulhøi, 1995) and from the mid-1990s the focus of corporate management began to shift towards internalising sustainable development as a central part of corporate governance (Bebbington, 2001; Payne, 2001; Pedersen, 2010; Quazi & Richardson, 2012; Schwartz & Carroll, 2008). Since then, sustainable development has increasingly become manifest as a corporate value framework through international, national and local policies, and through these obligations and incentives, has emerged as a business practice. Particularly important in the context of the construction industry, are the project-based managers who engage in stakeholder management to deliver economic, environmental and social outcomes and actively contribute to corporate social responsibility (CSR) values and outcomes for the business.

The growth in global frameworks and their reach into corporate and national spheres is illustrated in Figure 1 below. This figure indicates the currently existing key SD policy and industry frameworks linking global to local practice. It provides the broader industry context for the research framework and research contributions (Figure 7). The extension of these frameworks into the Australian construction industry is also highlighted to demonstrate the broader sustainable development context that the sector operates within.

Figure 1. Sustainable development: global, national and local contexts



As discussed in the following section, the construction sector is a significant and relevant field through which the incorporation of SD into management can be examined. Not only does the sector have a significant environmental, social and economic footprint, but managers in the sector are actively involved in decision-making and processes that encapsulate SD dimensions. Critically examining and understanding the SD perceptions and practices of construction managers at the firm level will provide deeper insights and extend our knowledge of what is happening in this field. The application of stakeholder management theory in connection to CSR and SD frameworks provides the lens for the theoretical analysis and contribution made by this thesis.

2.2 Introduction to the construction industry: global to local SD dimensions

There is a growing awareness of the economic, environmental and broader societal impacts of the building and construction sector on long-term national and global outcomes. The World Economic Forum (WEF) in its 2016 research report on the global construction industry (WEF, 2016) emphasised the industry's long-term impact on communities worldwide. The WEF report highlights that the sector drives employment and economic growth across many other industry sectors through its supply of infrastructure and buildings. Due to its high value and high impact role, the construction sector 'provides solutions to address social, climate and energy challenges' (WEF, 2016, p. 9).

Construction is a central element of economic growth nationally and globally. Furthermore, this sector is a significant employer providing opportunities for wealth creation and poverty reduction in many countries. On average, building and construction sectors contribute around 6% of their country's GDP (WEF, 2016). Overall, the global construction industry is estimated to be worth US$7.2 trillion. Recent industry reports estimate that the sector will grow a further 67% and will reach US$12 trillion by 2020. Seven countries - China, the US, India, Indonesia, Canada, Australia and Russia - will account for two-thirds of growth in global construction in the coming years. By 2030 the construction sector is expected to grow by an additional 85% or US$15.5 trillion worldwide, with three countries, namely China, the US and India leading the way and accounting for 57% of all global growth (Global Construction Perspectives and Oxford Economics, 2015).

From the mid- to late 1990s research into the construction industry acknowledges that it has been responsible for increasing environmental degradation (Dixon & Parmenter, 1993; Gardner, 1989; Kibert, Sendzimir, & Guy, 2000; Nieto & Durbin, 1995; Ulhøi, 1995). For

example, globally, the construction and operation of buildings accounts for the utilisation of around 40% of the planet's raw materials and over 30% of greenhouse gas emissions produced (Hacker, De Saulles, Minson, & Holmes, 2008; Hill & Bowen, 1997; Taheriattar & Farzanehrafat, 2014; Tan, Shen, & Yao, 2011). In the European Union, the energy consumption of buildings is around 37% of primary energy consumption and expected to grow as the population also increases (Pérez-Lombard et al., 2008; Uihlein & Eder, 2010).

In Australia, almost a quarter (23%) of Australia's total greenhouse gas emissions results from energy demand in the building sector (ASBEC, 2008; WEF, 2016; Mitchell, 2010; Wang et al., 2010). The construction industry is a significant part and contributor to the Australian economy. In 2015 for example, it accounted for A$182.5 billion or 8.1% of national GDP, higher than the global average of 6%. This exceeded other Australian industry sectors such as mining (A$140 billion), health (A$107 billion) and retail ($75 billion) (ABS, 2016; Australian Parliamentary Library, 2016; Department of Industry, 2015). By 2015, over one million people were working in the Australian construction industry, which equates to around 8% of the total working population, and over 345,000 businesses operated in the sector. This is the largest number of businesses and highest number of small to medium enterprises for any industry in Australia (ABS, 2016). By 30 June 2017, two years later, this increase had continued to 371,599 businesses recorded by the Australian Bureau of Statistics (ABS, 2018).

These figures highlight the importance of the Australian construction industry to the national economy in general, and the significant role that small and medium businesses (SMEs) and their managers play in this sector. In the extant literature on SD and management the emphasis is on measuring and reporting economic and environmental quantities of expenditure, cost, emissions or waste. This thesis seeks to shift the focus instead to the 'front-end' inputs of

management values, perceptions and decisions made for SD outcomes. As outlined in the next chapter there is a distinct paucity in the extent literature and management practice on how SD perceptions and values are developed and applied in the construction industry.

The development of sustainability frameworks for construction

The increasing recognition in the 1990s that the construction industry was damaging the natural environment, led to the search for industry-based sustainability frameworks (Hill & Bowen, 1997; Kaatz, Root, Bowen, & Hill, 2006; Ofori, 1998). Hill and Bowen led the field and developed four key attributes for sustainable development in construction: social, economic, biophysical and technical (Hill & Bowen, 1997, p. 226). Social, economic and environmental criteria, as well as technical performance aspects subsequently found their way into industry practice, for example in the 'Green Buildings' concept and sustainable construction and development (Zuo & Zhao, 2014).

In 2003 the first 'Green Star' sustainability ratings for buildings were launched by the Green Building Council of Australia (GBCA), an industry peak body supporting sustainable development in the property and construction sector (Zuo & Zhao, 2014). Since then, the development of procedural frameworks and sustainability ratings has been accepted and adopted as a mechanism to demonstrate integration of SD in management decision-making and construction project delivery to clients as well as communities (Chernev & Blair, 2015; Lichtenstein, Drumwright, & Braig, 2004). From the early 2000s businesses became more confident in developing their own corporate values, skills and responsibilities to SD standards for their clients and customers and industry more broadly (Chernev & Blair, 2015; Hall & Purchase, 2006; Majdalani et al., 2006).

In Australia, the SD framework for the construction sector draws on a combination of voluntary ratings and aspects of the national construction code. There is no explicit definition for sustainable development in the sector, but it does, however, refer back to and build on the internationally accepted definition from the Brundtland report for sustainable development. This is as follows: '… that meets the needs of the present without compromising the ability of future generations to meet their own needs' (WCED, 1987, p.43). For example, the GBCA has adopted the Brundtland definition in its corporate statements and highlights the need for the property industry to balance environmental, social and economic issues for the future (GBCA, 2016).

At a practical level, sustainability benchmarks have been established through mandatory regulation in the National Construction Code (ABCB, 2013) and voluntary certification, for example through the Green Star certification system and ratings accredited by the Green Building Council of Australia (GBCA, 2016). Minimum standards and specific requirements for certain buildings classes, location or specific contexts are regulated by Australian state and federal governments (ABCB, 2013). The minimum compliance standards align with areas of legislation such as work health and safety and non-compliance, which may affect business registration, renewal of business licenses and transfer to other jurisdictions (Briggs & McCabe, 2012; Moodley, Smith, & Preece, 2008; Toner & Coates, 2006). Reflecting growing demand for more sustainable approaches, industry expectations are that new building developments in future will meet or exceed minimum legislated sustainability standards and in addition provide voluntary or higher ranked sustainability certifications. Doing so will confirm to clients, markets and communities that improved environmental, economic and community outcomes are achieved (PWC, 2014; Zuo & Zhao, 2014).

The stakeholder management lens for sustainable development

In order to contribute to the theoretical discourse in stakeholder management today, it is important to understand the historical context and the subsequent development and theoretical conceptualisations, which have shaped the current discourse on the above issues. The pioneering stakeholder model developed by Freeman (1984) defined a stakeholder as 'any group or individual who can affect or is affected by the achievement of an organization's objectives' (p. 46). At that point, stakeholders were defined as either 'direct and indirect' stakeholders, based on their impact on the firm or impact of the firm on the stakeholder. This was advanced a few years later to the still common usage today in relation to 'primary and secondary stakeholders' (Wood, 1991). Freeman's first model presented in 1984 depicts seven stakeholders, including 'shareholders' located around the firm as central focus of stakeholder management (see Figure2). This placed the profit-seeking shareholder as one of many stakeholders of the firm, rather than as the sole stakeholder under the approach of Friedman and Solow (Friedman, 1970; Solow, 1974). Freeman subsequently expanded his model to group stakeholders as internal and external, as shown in Figure 3 below. However, importantly, the original hub and spoke model assumptions of the central role of the firm in stakeholder management theory were reaffirmed.

Figure 2. Initial Stakeholder Model (adapted from Freeman, 1984)

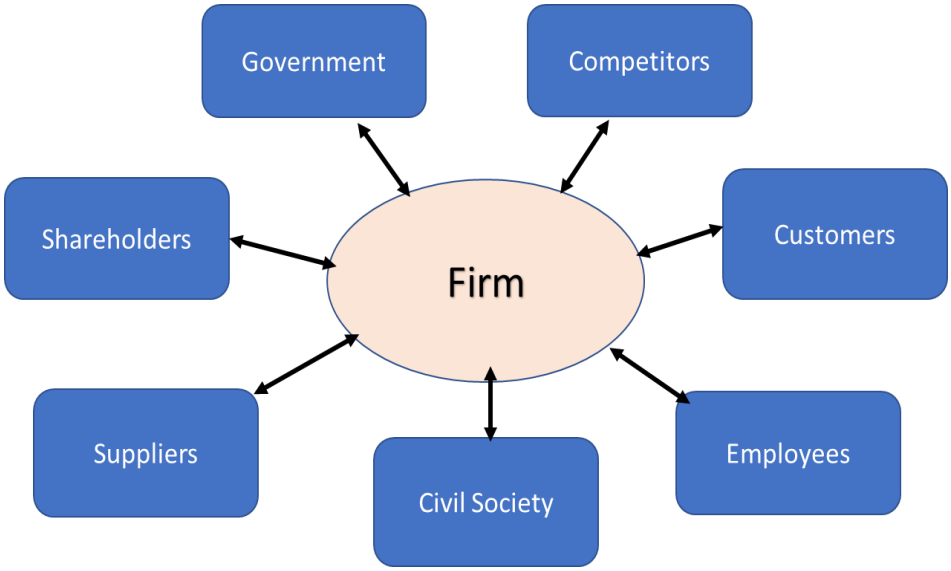
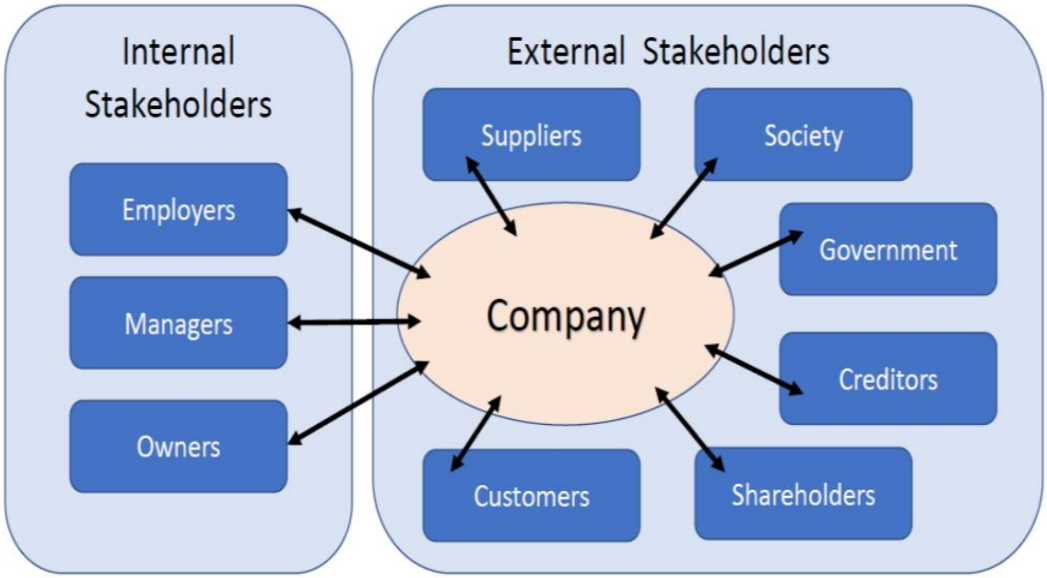


Figure 3. Internal and external stakeholder groups
(adapted from Freeman, 2003)



Freeman also suggested for businesses to undertake a value analysis as part of their stakeholder identification to better understand impacts and risks between the business and its stakeholders.

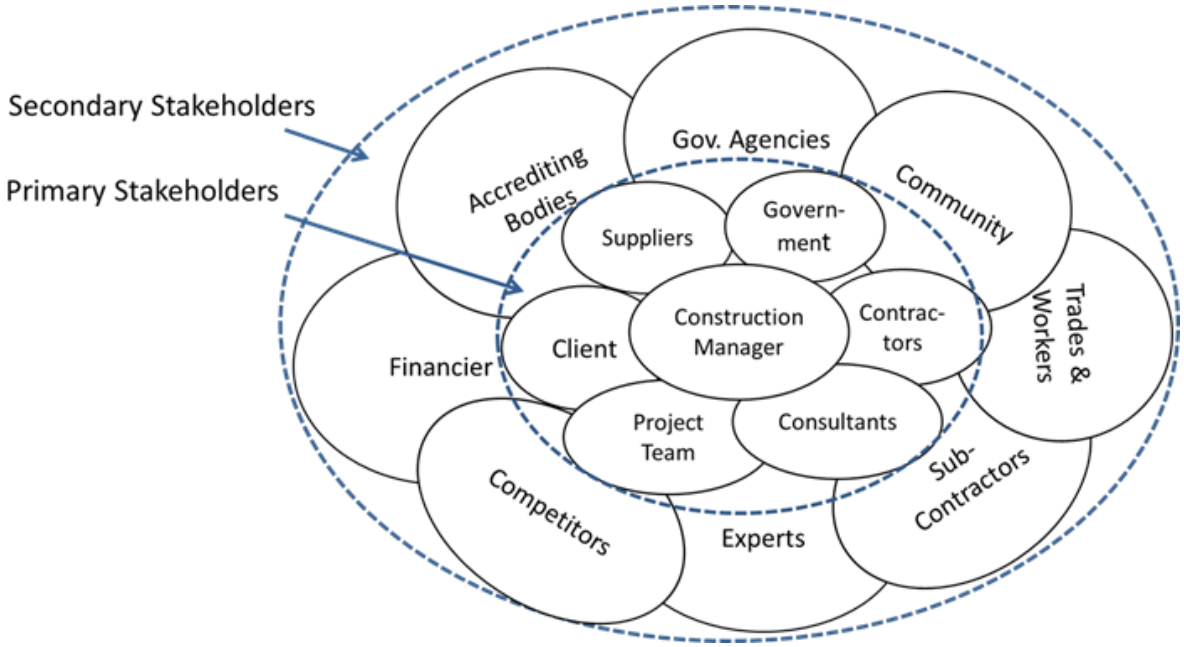
In do this, a firm should know ‘what it stands for’ (Freeman, 1984, p. 83). This new and compelling clarity around a corporate value proposition was intended to further assure managerial confidence. In the theoretical context, this statement opened new research questions over the next decade on the ‘how and why’ of stakeholder relationships and the underlying basis for engagement and management decision-making. Since then stakeholder management has become an accepted corporate approach to actively engage with stakeholders of the firm to better interpret and predict the firm’s behaviour and performance (Brenner & Cochran, 1991; Cochran & Wood, 1984; Donaldson & Preston, 1995; Hosseini & Brenner, 1992; Wood, 1991). Stakeholder management theory has also been introduced and shaped research in fields including philosophy, sociology, psychology and geography (Elbing, 1970; Etzioni, 1975; Shepard, Shepard, Wimbush, & Stephens, 1995; Wood, 1991).

It is becoming increasingly important for businesses to achieve a shift towards sustainable development and CSR to remain competitive in an economy where sustainability is emerging as a significant factor in consumer decision-making (Amran, Nejati, Quazi, & Periasamy, 2015; Barnett, 2007; Barthorpe, 2010; Bebbington, Larrinaga, & Moneva, 2008; Benn, Dunphy, & Griffiths, 2006; Brammer, Millington, & Rayton, 2007). In this regard, CSR theories and models have developed as an important approach to help businesses and other organisations incorporate a greater stakeholder perspective in their operations and demonstrate what is termed ‘business value’ (Garriga & Melé, 2004; Wheeler et al., 2003).

The construction industry in Australia is highly reliant on, and therefore closely engaged with, its key stakeholders. Following Freeman, these stakeholders can be internal to the business, as well as external in its broader group of local clients, interest groups, government, contractors and competitors, as well as suppliers of skills, materials and products for the increasingly

international management processes (Kurucz, Colbert & Wheeler, 2008; Wheeler et al., 2003). A further way of differentiating stakeholders is whether they are primary or secondary stakeholders depending on their roles. Figure 4 below provides a simplified overview of the key stakeholder groups, who typically inform, influence and shape the management context and decisions in the Australian building and construction industry.

Figure 4. Construction management key stakeholder groups



Primary stakeholders are those that inform and directly influence the construction management process and facilitate or constrain the construction manager's activities. For example, the client or project team's expectations impact on construction outcomes, suppliers impact on available materials or technical constraints and Government as legislative authority is setting legal boundaries, standards of construction quality as well as building codes and approval. Another group of stakeholders are also important, as secondary stakeholders, in that they also inform and influence construction management decision making, but less frequently or at specific project stages. For example, the community is often deeply involved at the early design stages

to find out about the impact of the project. Government agencies, are here specific approving authorities and experts that are involved for example for environmental safety, infrastructure planning, fire and emergency services. Accrediting bodies in the construction industry are not government agencies, but rather industry peak bodies such as the Master Builders of Australia or the Australian Institute of Building. The Construction manager or the business is usually a member of one or several peek bodies, which may provide professional network, contractual advice and educational events.

Construction industry stakeholders are important from an SD perspective since every building and physical asset such as roads, power plants, in-ground supply services, etc., has a distinct environmental footprint (Ortiz, Castells, & Sonnemann, 2009). In terms of life cycle analysis and potential impact on environment and community, this footprint is determined through a complex sequence of project management processes and decisions informed by an even more complex network of stakeholder and communities, locally and globally. Consequently, the initial concept design decisions developed by a construction or design management team, are added to during the design and construction management process. Each decision made as the building and construction process advances, has a direct and lasting impact on the building's economic, environmental and social, including human health, comfort and safety and long-term community who will be using or living in that built environment (Pearce, 2003, 2006).

Construction projects usually extend over several years for individual projects and can extend over a decade with clients that engage in long-term and large-scale building construction or urban development (Dainty, Moore, & Murray, 2007; Fryer, Egbu, Ellis, & Gorse, 2004). These processes start with feasibility planning and design, including environmental legislation and planning approvals, material pricing and procurement of skills and services (Emmitt,

2018). With the commencement of the physical construction process, stakeholder management steps up to another level of complexity and the daily dynamics of decision-making are directly impacted by, and impact upon, cost, risk, SD, safety and quality amongst others. Following completion and handover, stakeholder management shifts to tenancy and longer term operational management of buildings and assets for many decades, including maintenance management and eventually a redevelopment process of part or all of the building, its services and the site and surroundings it is built on (Parkin et al., 2003). What is important here to note is the extensive scope of stakeholder engagement, in terms of management involvement, as well as the adaptation over time in relation to changes in cost, risk, demand and impact on and by the direct or indirect stakeholders and communities, locally and globally (Chong et al., 2009).

Management research indicates that business managers, especially in locally based SMEs with close networks to their local communities, clients and suppliers, have moved away from the profit-seeking neo-liberal management model that developed during the late 1970s and became widespread in the 1980s in Europe and the US (Emmitt, 2016; Friedman, 1970, 2009; Son et al., 2011). The expanded view of incorporating shareholders' profit motivation and at the same time addressing and possibly achieving improved environmental and social outcomes over the long-term has been widely adopted since the 1990s. The arrival of the triple bottom line concept and increasing government regulation and requirements has helped to shift industry views and practice towards a 'managing for stakeholder' approach (Freeman et al., 2007; Heikkurinen & Bonnedahl, 2013).

Freeman, in collaboration with other authors over the last decade further adapted and refined his theory in response to advancing research and critique from areas of philosophy, ethics as

well as the social sciences (Mansell, 2015; Orts & Strudler, 2002; Phillips, 2003). Most recently his work provides a reconsideration of sustainability in stakeholder management, which has opened up the theoretical and conceptual dialogue between sustainability interests and stakeholder roles. (Hörisch et al., 2014) stated that: 'In this context, it is essential to note that the unit of analysis for stakeholder theory is not the company itself but the relationships between an organization and its stakeholders' (p. 329). Here Höerisch et al. (2014, p.330) emphasise that the focus is not on stakeholder management but instead 'managing stakeholder relationships' and 'mutual sustainability interests'. This has previously been raised by Phillips (Phillips, 2003), who argued that stakeholders are very different and hence the engagement varies depending on circumstances, relationships and context.

In the Australian building and construction industry a critical role of business and project managers is the need to engage, interact with and manage a complex, diverse and interconnected group of stakeholders. These stakeholder management activities directly shape project processes and decisions and are particularly important in the context of incorporating SD approaches.

2.3 The research scope and discourse

The Global Construction 2030 report forecasts that construction industry outputs will grow by 85% to $15.5 trillion dollars worldwide (Global Construction Perspectives and Oxford Economics, 2015). This growth will significantly increase the impact and opportunities for sustainable development management across construction sectors and services. Yet, there are concerns as to whether building and construction managers are ready to lead from the 'front end' and manage the day-to-day complexities of facilitating sustainable development outcomes. Previous large-scale quantitative studies identified that construction and

engineering managers have fragmented sustainable development beliefs and values. This is in itself not surprising, considering the diversity of roles, backgrounds and lack of education for sustainable development in the construction industry to date. The interpretation of 'fragmentation' in previous studies will be reviewed and investigated in more detail in subsequent chapters as it in fact forms an important aspect of the re-interpretation and formulation of new findings discussed at later stages of this thesis, including implications for the theoretical context.

Small and medium construction businesses predominantly construct buildings and assets to sell or hand back to clients, financiers and customers (Dahlsrud, 2008; Lindgreen, Swaen, Maon, & Rahbek Pedersen, 2009; Matar et al., 2008). In the context of Australian building and construction sector, businesses are predominantly small to medium-sized enterprises (ABS, 2018). Brown, De Jong & Lessidrenska (2009, p.96) found in his research on global reporting initiatives that '…smaller enterprises find the [GRI] guidelines too complicated and demanding…As a result, small companies do not report…'. Business managers in general do not have the training or in-house expertise to develop SD or CSR strategies, data collection, analysis and reporting. Further, many do not have the scope and time to engage in formal training or reporting beyond minimum legislated standards or contractual conditions (WEF, 2016; KPMG, 2015a, 2015b; Murray & Dainty, 2013). Consequently, construction businesses and the industry sector overall have been slow adopters of corporate sustainability practice and reporting.

Research by Porter and Kramer (2006) revealed that businesses found it difficult to formulate and express their corporate values and decision-making processes. Furthermore, businesses are experiencing difficulties in integrating corporate social responsibility (CSR) and

sustainable practices into their planning and policies (Hopwood et al., 2005; Springett, 2003). Porter and Kramer (2006) argue that adoption of CSR practices, their integration with business strategy, and their mainstreaming in the day-to-day business agenda should not be done in a generic way. Rather, it should be pursued

> *in the way most appropriate to each firm's strategy…the prevailing approaches to CSR are so fragmented and so disconnected from business and strategy as to obscure many of the greatest opportunities for companies to benefit society* (pp. 78, 80).

This observation suggests there is an emerging knowledge gap in corporate perceptions as to what is good for business in the long-term and how corporate practices can be directed towards that end (Garriga & Melé, 2004; Quazi & O'Brien, 2000). The business case for CSR has been established in academic research (Carroll & Shabana, 2010; Schaltegger et al., 2012) and industry-based surveys of business sustainability reporting (ACSI, 2018), which argue that failure by businesses to not better align with stakeholder values, reduces the corporate profitability and productivity (Berger, Cunningham, & Drurmuright, 2007; Porter & Kramer, 2006; Quazi & Richardson, 2012). From the perspective of individual organisations, challenges remain in instilling such broader perspectives into day-to-day operational matters and bridging the gap between theory and practice.

Several researchers have identified important gaps in our understanding of how sustainable development impacts on perception, practice and performance in the management of businesses. In particular, Salzmann, Ionescu-Somers, & Steger, 2005) observed that the theoretical development of CSR is hindered by a lack of understanding of managers' thinking and how business cases are built, primarily due to a lack of 'descriptive research in this area' (Salzmann et al., 2005). Garriga and Melé (2004) discovered that changes in business values

and objectives are not reflected in business decision-making and that corporate values and decision-making appear to be fragmented. Barnett (2007), Kurucz et al., (2008), and Porter and Kramer (2002) have all identifed that the detailed capture of stakeholder relationships requires more in-depth investigations into corporate contexts. This is especially the case with reference to changing attitudes about what constitutes responsible and sustainable behaviour.

Turning to the construction sector, Son et al., (2011, p. 338) have observed that:

> *Even though the constructor's role has been researched in various ways, the constructor's awareness of and preparedness for sustainability, which is inevitably needed to successfully deliver a sustainable project, has not been the focus of previous studies*.

The above observation by Son (Son et al., 2011) highlights further the importance of investigating and contributing to current academic literature on better understanding how sustainable development informs and shapes the perceptions, practices and performance in management of building and construction businesses. In particular, how business managers engage with very diverse groups of stakeholders which may have conflicting economic, environmental and community-based expectations at varying stages of the complex building and construction management process. This research contributes to the academic debate by improving the understanding of the where the connections and application of management theories to SD management practice (Cash et al., 2003; Quazi, 2003; Quazi & O'Brien, 2000).

Researcher motivation and methodology

Being open and reflective about being an insider or an emic research position has been an important and integral part of this research journey. Chapter 4 outlines in detail the development of the qualitative research methodology and design, which supports the

investigation of the research questions. It also captures the researcher's own awareness and appreciation of the opportunities and constraints posed by being an industry insider (emic) researcher. The insider position of the researcher, who has worked in the building and construction industry for more than two decades, has made possible access to senior industry managers and directors. It led to twenty seven personal and in-depth interviews on sustainable development in management being conducted. Such a research had not previously been undertaken in Australia and the general thematic findings in themselves will offer new insights into the current context of the increasingly important building and construction industry sector in Australia. The findings will also be of significance to international cross-sector management by way of contributions to knowledge.

The researcher's attitude of reflexivity includes a commitment to consciously and systematically engage in the process of knowledge construction. According to Le Gallais (2008, p. 146) 'The insider researcher has, as a member of the "in-group", access to its past and present histories. Such shared experiences engender a sense of sameness leading to the awareness of a group or collective identity'. This meant that the researcher had to continually reflect on engaging and informing the process of knowledge construction through personal insights into industry policy and practice.

The researcher is a higher education researcher, focusing on learning and teaching and has worked as an industry professional with over two decades of management experience in the construction industry. Sharing professional experiences within the same industry made it possible to understand, appreciate and more deeply reflect on the detailed descriptions, wordings used and connections made by the interviewees. In addition, being experienced in reflective practice allowed the researcher to progress through the iterative cycles of review,

reflection, interpretation and construction of meaning (Kennelly et al., 2013; Ruge & McCormack, 2017; Schonell et al., 2016). This reflexive and reductive process is further outlined in Chapter 5, where the iterative inductive and deductive methodology applied to the data analysis and development of findings is described in detail.

2.4 Chapter summary

This chapter outlined the research context and critical aspects which have shaped the subsequent research methodology, research design and development of new findings. Firstly, the concept of sustainable development and its growing expression in international agreements and then in corporate governance was explained. Secondly, the building and construction industry was then discussed to provide an international and national context for the importance and impact of SD. Thirdly, the economic, environmental and long-term social and community impacts were highlighted and linked to the current context of sustainable development in academic and industry practice. Here the theoretical grounding for sustainable development in management and its close links to stakeholder management theory and corporate social responsibility were established. Fourthly, the central role of stakeholder management in all aspects and stages of building and construction decision-making processes by managers was identified. This was found to be closely linked to the current knowledge gap in the management literature on how sustainable development is understood and enacted by building and construction managers and their businesses. Fifthly and finally, the researcher's insider position and understanding of the construction industry was explained. The social constructivist researcher position was addressed in the context of a reflexive approach and development of a qualitative research methodology, design and verification process.

3.0 Theoretical Context

3.1 Introduction

The previous chapter provided the initial context and an introduction to the important linkages between sustainable development, stakeholder management and corporate social responsibility for business management in the construction industry. This chapter expands in more detail the academic context by utilising three distinct lenses to investigate the academic literature to clarify and confirm the research gap and the potential for new contributions. These three lenses relate to: (i) research focus; (ii) theoretical perspectives; and (iii) methodological review of the recent literature across the chosen fields. The multi-lens approach provided a grounding for the subsequent development of the research methodology and design detailed in the next chapter which was inspired by Cooper's taxonomy for literature reviews and meta-analysis (Cooper, Hedges, & Valentine, 2009; Cooper, 1988).

The first section of this chapter sets out the theoretical focus and discusses points of critical review on the research topic and the identified theoretical fields that this thesis is seeking to make. A range of seminal and recent research papers on the topics of sustainable development, corporate management and the construction industry was reviewed to set out the literature landscape and develop some deeper insights into arguments within and between the fields of SD and management research. The second section outlines the broader theoretical context, in terms of several related theoretical paradigms and perspectives. Their key conceptual elements, strengths or constraints in regard to this research are explored and highlighted. This leads to the identification of several core issues within and across the fields of current knowledge and practice, the objective being to develop the key research areas and current

knowledge gap in terms of 'how' sustainable development in management of construction business is currently understood. The third section combines the insights gained through this tri-lensed review of research focus, theoretical perspectives and proposes the key research questions for this thesis. The fourth and final section reviews recent literature about the construction sector from the perspective of quantitative versus qualitative methodology and design.

3.2 Research focus

Management theories have notably changed over the last 50 years with the last two decades witnessing increasing incorporation of sustainable development into theory and practice for business management. The following section maps the rise of sustainable development alongside the predominant management theories. Based on the importance in the construction industry of managing the diversity and complexity of stakeholders in varying contexts, a key focus is placed on stakeholder management theory and its gradual broadening and move towards SD in business management. This is further expanded in the next section, when additional management theories are placed in context with stakeholder management theory as well as the important discourse on CSR frameworks and their connection to SD in industry and management contexts.

Management theories and sustainable development

During the post-World War II and pre-Brundtland era of the 1960s and 1970s, Western Europe, the US, Canada and Australia were enjoying economic growth through capitalist development principles guided by a mix of free market and centralising policies. The focus for businesses was on continuous growth and increase of profits for shareholders, which was the proclaimed *raison d'etre* for corporations and various multinationals. This doctrine of profit

maximisation was advocated by the classical economic view of Milton Friedman and his contemporary Robert Solow (Friedman, 1970; Solow, 1974). Friedman argued that 'there is one and only one social responsibility of business – to use its resources and engage in activities designed to increase its profits so long as it stays within the rules of the game, which is to say, engages in open and free competition without deception or fraud' (Friedman, 1970, p. 6).

In the late 1970s and early 1980s, this single economic management focus and basis for the theory of the firm was increasingly questioned by other theorists. This coincided with increasing public concern over environmental pollution, downturns in most Western economies, the oil crisis of 1979 following the Iranian Revolution, and growing poverty in the developing world blamed on the failure of Western-style economic policies. At that time management academics and researchers like Carroll and Drucker proposed an alternative perspective to the classical economic view (Carroll, 1979, 1991; Drucker, 1984, 1988). Drucker was able to expand and differentiate the understanding of financial profit beyond bottom line financial outcomes. However, his main focus remains on the business itself as per the classical shareholder position. This contention has been expanded in the last decade calling on businesses to assume a role beyond profit making, with responsibility to society (Carroll & Shabana, 2010; Garrida and Mele, 2004) and introducing the importance of corporate social responsibility for business performance and creation of 'business value' (Al-Saleh & Taleb, 2010; Garriga & Melé, 2004; Pearce, 2003; Wheeler et al., 2003).

Theories and practices for sustainable development in management have continued to evolve since the 1970s, initially this occurred separately, but since the late 1980s and early 1990s there has been a convergence of discourse on a number of key areas. In the academic literature the first explicit link which had a notable subsequent impact on the discourse of SD and

conceptualisation of management theory was made by Elkington, who in the early 1990s developed the 'triple bottom line' concept for businesses to consider economic and environmental and social/community aspects in their decision-making (Elkington, 1994, 1998). The work by Elkington, Redclift (1992, 2005) and many others from the mid-1990s positioned sustainable development as an important corporate responsibility indicator which recognised the future needs of changing business contexts, policies and diverse stakeholders' expectations. This was especially the case in sustainable and responsible management (Azcárate et al., 2011; Gladwin et al., 1995; Rees & Roseland, 1998; Springett, 2003).

During the early 1990s corporate business representatives also started to engage actively in the developing discourse of SD in business management and practice. The Business Council for Sustainable Development (based in Geneva) and the International Chamber of Commerce (based in Paris) representing the views of over 100 international companies formalised their position in the document titled *Changing Course: A global business perspective on development and the environment* (Schmidheiny, 1992). This publication helped to conceptualise the phases through which corporate involvement in the environment had passed: the growing popular mood in the 1970s to prevention pollution, measures to encourage self-regulation and decentralise national economies and promote free market policies in the 1980s, and a concern to incorporate sustainability into business practices in the 1990s (Murphy & Bendell, 1997).

The period between the 1990s and the United Nations Conference on Sustainable Development 2012 (Biermann, 2012; Sachs, 2012) reflected changing perceptions and was described by Redclift (Redclift, 1992) as a convergence of academic, political and industry discourse on sustainable development as important aspects for governments, businesses and

societies (Benn et al., 2006; WBSD, 2005; Wagner & Schaltegger, 2003). The World Business Council for Sustainable Development (WBCSD, 1999, 2000) supported this as a 'Pro Business and Pro SD' agenda, describing sustainable development in the early 2000s as an approach that (WBCSD, 2000, p. 2):

> *requires the integration of social, environmental, and economic considerations to make balanced judgements for the long term*" [and] "*the continuing commitment by business to behave ethically and contribute to economic development while improving the quality of life of the workforce and their families as well as the local community and society at large*.

Redclift (2005) outlines the expansion of the term sustainable development from an initial environmental focus to a number of 'distinct discourses on sustainability', including the growing engagement in the social aspects and questioning of the then dominant neo-liberal economic perspectives (Redclift, 2005, p.212). This proposition of common underlying values for sustainable development can be conceptualised as the basis for plurality across sectors offering further linkages and multi-faceted interpretations for corporate management practice (Giddings et al., 2002).

Whilst these expanding trends and deepening debates have continued internationally, so has the growing concern around the misappropriation and justification of 'sustainable development' for economic growth and 'development of business interests' and thereby expanding the primary economic corporate objectives at the cost of lowered environmental and social outcomes (Springett, 2003). World Business Council for Sustainable Development (WBCSD) representatives have also published their works presenting case studies for business and economies to expand the liberalisation of the markets as the basis for growth in economic,

environmental and social outcomes (Holliday, Schmidheiny, & Watts, 2002). Other dissenting views argue that openness of the initial Brundtland definition and lack of legislation for SD has resulted in justifying the term 'sustainable growth' for continued economic benefit of multinationals (Daly, 1993; Hopwood et al., 2005; Rees & Roseland, 1998).

Sneddon et al., (2006, p.255) summarised the state of the debate by referring back to the starting point provided by the definition from the Brundtland report in 1989 and its value and meaning after nearly 20 years. Sneddon et al., (2006) noted in particular that the Brundtland report:

- *is a 'historical marker',*
- *supported the emergence of 'the environment' as a critically important facet of international governance.*
- *led to recognition on the part of national governments (both North and South), and practitioners of 'development' at every scale, that ecological, economic and equity questions are deeply interconnected, and that*
- *Our Common Future (recognizing finite global resources) firmly established SD as a component of international development thinking and practice.*

Advancing this discourse further have been the studies by Meadowcroft (Meadowcroft, 2007) and Okoye (Okoye, 2009), who state that SD has been and will remain a contested concept, but at the same time provides an important 'normative point of reference' for development and policy-making. Meadowcroft compares SD to other conceptual terms such as democracy or justice and argues for the conceptual importance of SD to 'frame and focus debate, while being open to constant interrogation and re-interpretation' (2007, p. 300).

Over the last decade sustainable development has been firmly embedded across a wide range of global and national policies frameworks (McNeill & Wilhite, 2014; Sneddon et al., 2006). It can therefore be expected that the impact of sustainable development on decision-making in the government, private and community sectors will continue to increase. The United Nations' international commitment to seventeen Sustainable Development Goals (SDGs) and adoption of the 2030 Agenda for Sustainable Development, the Global Compact and the Global Reporting Initiative highlighted the continually growing scope and engagement in sustainable development internationally (Costanza et al., 2016; Griggs et al., 2013; Le Blanc, 2015; Sachs, 2012).

3.3 Theoretical perspectives

CSR and SD as value proposition

Over fifty decades ago, McGuire (1963, p. 144) argued: 'The idea of social responsibilities supposes that the corporation has not only economic and legal obligations, but also certain responsibilities to society which extend beyond these obligations'. Carroll later expanded on McGuire's definition of CSR to include four categories of responsibilities: economic, legal, ethical and discretionary/philanthropic (Carroll, 1979, 1991). These 'responsibilities' are the expectations placed on the corporation by corporate stakeholders and society as a whole. By identifying and distinguishing the ethical and discretionary/philanthropic categories, Carroll explicitly spelled out what McGuire (McGuire, 1963) referred to as the responsibilities that extend beyond the economic and legal responsibilities. Carroll then made the notion of CSR more precise when he contended that the economic and legal responsibilities are 'required', the ethical responsibilities are 'expected', and the discretionary/philanthropic responsibilities are 'desired'. By doing so, he made a distinction between the traditional and new

responsibilities of the corporation. Alternatively, the new responsibilities of the corporation which are embodied in the ethical and discretionary/philanthropic responsibilities reflect the new, broader, social contract between business and society. Thus, Carroll's perspectives on CSR set the stage for a change in society's expectations of businesses where it was demanded that they go beyond short-term profit-making.

Carroll's research during the same period advanced the argument at the time, and his model, as depicted in Figure 4 below, was one of the first CSR frameworks. It became known as Carroll's CSR pyramid (Carroll, 1979, 1991). As a framework, it proposes four areas or levels of 'total corporate social responsibility' that businesses should seek to engage in. In addition to the underlying economic responsibility of running a profitable business, legal, ethical and discretionary or philanthropic responsibilities are also integral to business CSR.

Figure 5. CSR pyramid (adapted from Carroll, 1991)

Carroll revised the economic responsibility of business 'to produce goods and services that society desires and to sell them at a profit' (Carroll 1979, p. 500). While Carroll notes that businesses take on the role of providing for societies' needs as well as making economic profits to sustain the business financially, his model remains business-centric without explicit recognition of the influence of industry-specific contexts. The profit principles of 'acceptable profits' versus 'profit maximisation' is debated (Carroll,1991, p. 41) and Barnett (2007) argues that the principle of maximising shareholder wealth is, in itself not in the interest of shareholders. He contends the then controversial, but now widely accepted position that excessive financial performance leads to a decreasing ability of the company to influence its stakeholders (Barnett, 2007, p. 808).

At about the same time, various studies by others (Orlitzky et al., 2003; Porter & Kramer, 2006; Sharma & Ruud, 2003) advanced the theoretical discourse on the 'business case' for improving economic as well as environmental, social or reputational outcomes through CSR and SD business practices. This is a substantive shift from the early 1980s, which were dominated by the economic rationalist world view, such as the theory of the firm and the resource-based theories, and which began to be increasingly criticised as too narrow. In particular, the approach of defining competitive advantage through predominantly the economic or profit performance of the business was questioned (Carroll, 1979; Cochran & Wood, 1984; Kraaijenbrink, Spender, & Groen, 2010; Orlitzky et al., 2003; Payne, 2001). The multi-level approach of Carroll's CSR pyramid illustrates how legal, ethical and philanthropic responsibilities are built on the underlying economic profitability of a business. In terms of the research for this thesis, Carroll's pyramid appears static and raises further questions in terms of where and how the industry-specific context would shape economic, legal, ethical and philanthropic decision-making (Kolk & van Tulder, 2010; Murray & Dainty, 2013).

Stakeholder management theory, SD and CSR

At that point in time the stakeholder approach proposed by Freeman (Freeman, 1984; Freeman et al., 2007) was considered to be an improvement on the other classical doctrine of CSR and was soon established as stakeholder management theory. Its aim was to present an alternative to the economic and profit orientated shareholder theories advocated by Friedman and Solow. Freeman's consideration of stakeholder interests and 'how' these are affected by the corporate business interests and decision-making was a significant shift towards stakeholder-based management theory and practice at that point. It not only expanded corporate decision-making beyond the single bottom line of economic gain to shareholders, but considered a range of internal and external stakeholder interests as the business' responsibility and accountability. With the advances being made in understanding stakeholder perspectives and incorporating the interests of suppliers, customers, communities, employers and financiers, corporate responsibilities also started to shift and expand to a broader horizon (Carroll, 1991; Donaldson & Preston, 1995; Wheeler et al., 2003). At this stage, the focus on economic performance remained but social and environmental contexts became increasingly important considerations when business decisions had to be made.

Initially Frooman (1999, p.191) criticised original stakeholder theory as a static conceptual model in its assumptions relating to the firm's stakeholder relationships:

> *…as a map in which the firm is the hub of a wheel and stakeholders are at the ends of spokes around the wheel…. in this hub-and-spoke conceptualization, relationships are dyadic, independent of one another, viewed largely from the firm's vantage point, and defined in terms of actor attribute*.

Critiques have been developing in the literature for some time on this point from a theoretical perspective. For example Key has argued in her research (Key, 1999), that the Freeman model and theory do not go far enough and continue to perpetuate the firm as a profit-seeking enterprise. Key (1999, p. 321) states that stakeholder management theory:

> *…does not provide an adequate theoretical basis for explaining firm behavior or the behavior of individual actors (internally or externally). He (Freeman) correctly suggests that the economic model no longer accurately describes firm behavior but fails to provide an alternative beyond the conceptualization of the firm as a ``resource conversion entity'' impacted by and impacting internal and external actors.*

Key criticises the continuing focus on the firm retained and possibly strengthened by the stakeholder management theory. However, credit should be given to Freeman in that the explicit inclusion of stakeholder interests and views in management decision making extends the previous economic focus to awareness for social, environmental and broader community interests. Stakeholder theory established a legitimate basis to expand corporate decision-making and this provided from the late 1990s a link to the concept of the triple bottom line or TBL as coined by Elkington (Elkington, 1998, 2004).

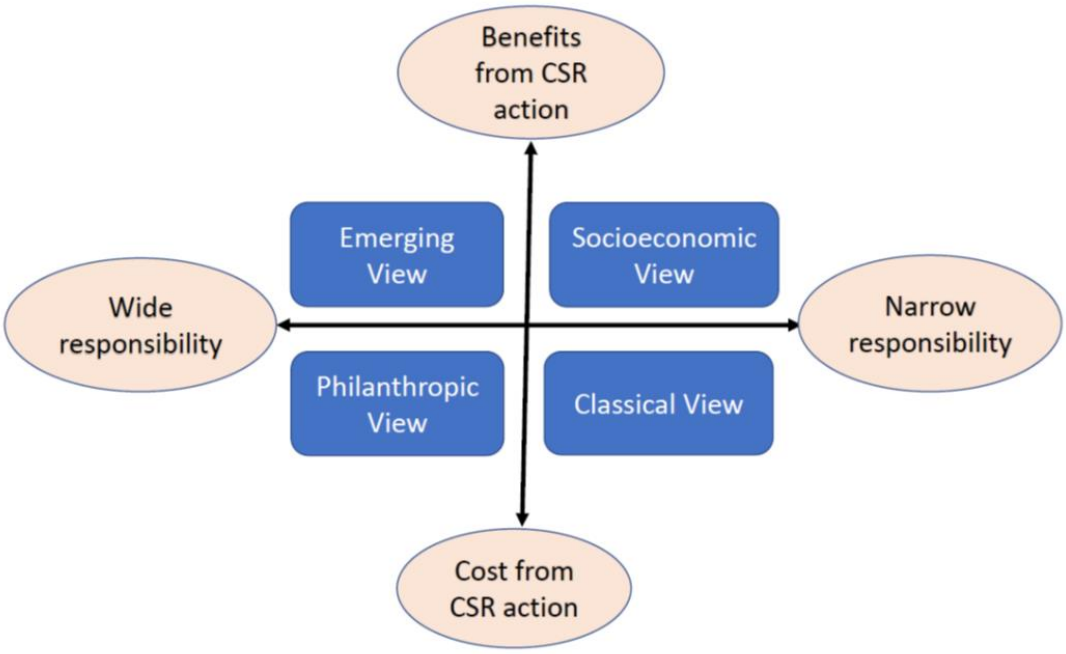
The TBL approach calls for organisations to address and balance economic, environmental and social outcomes in their processes and decision-making. The argument that corporations' responsibilities need to address at least three areas in their business practices to survive in the dynamic and very competitive business environment relates also to how construction businesses operate: economic responsibility, to remain profitable, social responsibility to

remain socially viable, and environmental responsibility to remain environmentally responsive.

From the 1990s stakeholder theory as well as CSR frameworks continued to build common ground and the research discourse started to converge, contributing to business management and corporate theory and practice (Mathur, Price, & Austin, 2008; Welford, Chan, & Man, 2008; Wheeler et al., 2003). Freeman in conjunction with co-authors addressed the importance and influence of sustainable development in relation to stakeholder and business management in several recent publications (Hörisch et al., 2014; Strand et al., 2015; Wheeler et al., 2003). These outline the importance and influence of sustainable development in relation to stakeholder theory and business management. The authors propose that sustainable development does add 'a long-term perspective to the debate can also be explained by its common ties to strategic management' (Hörisch et al, 2014, p. 332). With this evaluation, Freeman also makes a clear connection to the definitions of sustainable development and its emphasis on providing for current and future needs across stakeholders.

The advancement of CSR frameworks and their tailored application to modern corporate practice was continued in the early 2000s through the work by Australian CSR researchers Quazi and O'Brien. They developed a two-dimensional model of corporate social responsibility (Quazi & O'Brien, 2000), as shown in Figure 6 below.

Figure 6. Two-dimensional model of CSR
(adapted from Quazi & O'Brien , 2000)



This CSR framework can be utilised as a strategic management tool by researchers and corporate management practitioners alike. The major advantage of this model is its ability to analyse and better position corporate business plans and actions regarding CSR decisions across four distinct quadrants.

This two-dimensional model of CSR can be used to map the position of the company according to the two axes of where it positions itself in terms of seeing CSR responsibility and whether it sees CSR action as a cost or a business benefit. Along the axis of CSR responsibility, a firm positioned at the narrow responsibility end would see its focus as primarily on economic considerations. Within this, firms which nonetheless recognise some benefits from CSR actions would be categorised as having a socio-economic viewpoint. Other firms occupying a narrow responsibility position and who see CSR actions as costs would be categorised as

having a classical viewpoint. Conversely, firms that occupy a position at the wide responsibility end might take a position that some CSR actions would fulfil an appropriate level of philanthropic obligations while other firms would identify CSR actions as being positively aligned with the firm's objectives and actions.

After three decades of theoretical consideration and advances in methodologies, reporting on sustainable development and CSR is gradually converging. Although there are industry- and sector-specific variations, the trend demonstrates overall enhanced corporate opportunities (Chen & Bouvain, 2009). This assessment is an important finding and reflects that from the 2000s CSR theories and models have established a much closer alignment between business management research and corporate management values and practices. The importance of corporate governance and 'value-adding' through non-financial aspects of organisations' operations are now recognisable (Garriga & Melé, 2004; Porter & Kramer, 2006; Quazi & O'Brien, 2000).

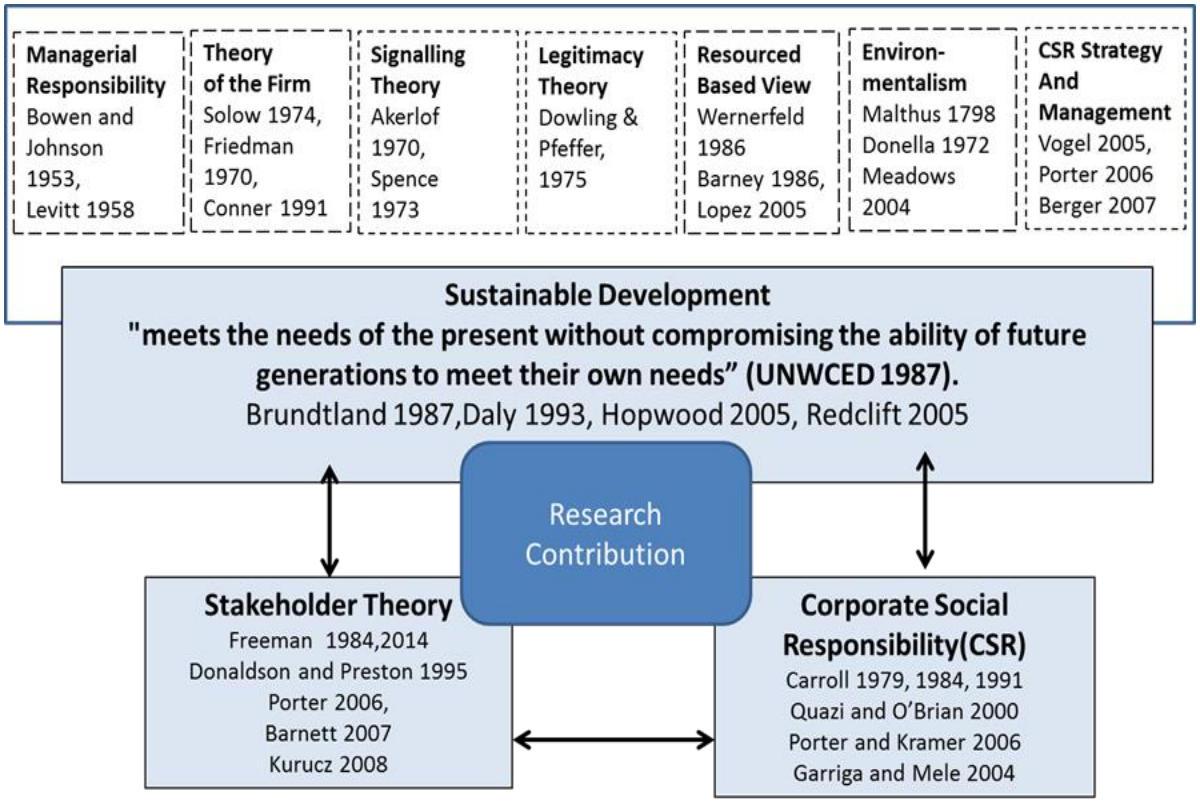
3.4 Identified knowledge gap and research questions

The work done by Kolk (2016) confirms a lack of research in mainstream international management literature that addresses CSR and SD, despite the rising interest that emerged during the 1990s (Kolk, 2016). Other research investigations also identified a range of gaps along the current boundaries between CSR theory and practice, where knowledge is transferred to action (Cash et al., 2003; Quazi, 2003; Quazi & O'Brien, 2000). In particular, Salzmann et al. (Salzmann et al., 2005) observed that the theoretical development of CSR is hindered by a lack of understanding of managers' thinking and how business cases are built, primarily due to a lack of 'descriptive research in this area' (p. 27).

The failure by businesses to not better align with stakeholder values, Porter and Kramer argue, leads to reducing the productivity of CSR initiatives (Porter & Kramer, 2006). The authors assert, 'the prevailing approaches to CSR are so fragmented and so disconnected from business and strategy as to obscure many of the greatest opportunities for companies to benefit society' (Porter & Kramer 2006, p. 80). The adoption of CSR practices, their integration with firm strategy, and their mainstreaming in the day-to-day business agenda should not be done in a generic manner. Rather, it should be pursued 'in the way most appropriate to each firm's strategy' (Porter & Kramer 2006, p. 78). From the perspective of individual organisations, challenges remain in instilling such broader perspectives into day-to-day operations and bridging the gap between theory and practice. Furthermore, research has found that the changes in business values and objectives are not reflected in business decision-making and that corporate values, and what businesses decide to do, appear fragmented (Barnett, 2007; Freeman, 1984; Kurucz et al., 2008; Porter & Kramer, 2006). More generally, Starik and Marcus (2000) have noted that there is a need to continue reviewing and examining traditional management theories to advance their application to support managers of firms in the context of environmental challenges.

These insights from the literature highlight: firstly, the 'how' and 'why' of sustainable development and corporate management of stakeholders is important to understand; and secondly, businesses can benefit from in-depth inquiry and analysis at the current boundaries of knowledge from stakeholder management theory to SD and CSR frameworks and practices. Figure 7 below illustrates the theoretical context for this thesis and the range of theoretical contributions linking SD, stakeholder management concepts and CSR frameworks.

Figure 7. Research context and areas of contribution



The following key research questions have been developed in order to achieve the expected research contribution of this thesis:

1. How is sustainable development understood and perceived in the construction industry?

2. How are stakeholder relationships developed and managed in the construction industry?

3. How do construction industry-specific contexts shape sustainable development management?

To address these research questions, a detailed review of the literature and methodological approaches was undertaken and is outlined in Chapter 4 below. Outcomes from this investigation showed a qualitative research methodology and design as the most appropriate strategy for collecting and analysing the required data. Qualitative methodologies are particularly suited for in-depth interviews and data analysis targeting to uncover new information and develop new insights into existing contexts.

3.5 Methodological investigation

This PhD research contributes to theory and practice of sustainable development, stakeholder management theory and CSR practices by examining Australian construction industry managers' perceptions and practices. To date an in-depth investigation in this context has rarely been undertaken. This research gap has been noted in the literature (Bevan & Yung, 2015; Murray & Dainty, 2013). To better understand the current research context and develop an appropriate research methodology and design, an additional literature review on quantitative and qualitative research on building and construction in relation to sustainable development and management was undertaken. This arose out of the concerns in the literature on research methodology, stating that inconsistent development of research questions and subsequent lack of alignment of research methodology poses a serious risk to the validity of the research process, analysis and findings (Cheung & Rensvold, 1999; Riordan & Vandenberg, 1994; Schaffer & Riordan, 2003). Relevant research studies were reviewed in terms of their key findings, in particular to identify relevant issues which might have an impact on industry-wide corporate development. During this process, it became clear that there are a number of distinct findings grouped around quantitative and qualitative research undertaken over the last decade. This section therefore provides tabulated literature overviews of the quantitative and the qualitative research designs. Key issues identified are summarised and then discussed in more detail below.

A diverse range of national and international studies utilising a quantitative research methodology have been undertaken to date (see Table 1 below). The majority of quantitative research studies reviewed the focus on larger-scale random samples across industry-wide sectors such as engineering businesses, industry professionals or a diverse range of contractors and suppliers (Chong et al., 2009; Jones et al., 2010; Smith, & Sharicz, 2011).

Data collection mechanisms for these studies (see Table 3 summary below) included surveys and questionnaires or analysis of publicly available panel data. The findings clearly identified across larger and diverse samples variations in terms of understanding sustainability, environment health and safety, variations and gaps between sustainability perceptions and corporate practices (Abidin, 2010; Jones et al., 2010; Petrovic-Lazarevic, 2008). However, the quantitative research methodology and the design and analysis applied by the studies examined are limited in providing more detailed insights or differentiations for these findings. It appears that the research design of large-scale and random sampling across a wide range of industry stakeholders limits the ability to develop more detailed findings and explanations. The strength, however, of these large samples lies in capturing insights into the extent, diversity and range of issues faced by businesses and industry sectors.

There are two major shortcomings identified in the methodology literature on quantitative research studies (Dixon-Woods, Shaw, Agarwal, & Smith, 2004; Guba & Lincoln, 1994; Yang, Wang, & Su, 2006). The emphasis on larger-scale and numerical outputs and results, can result in a narrowing of the analysis process and create generalised indicators and common denominators. Whilst these studies often seek to quantify impacts, measurable through indicators, they are not well suited to capture the 'forces at play', and how these are, or are not, influencing corporate values and in turn informing business practice and decision-making. From the findings of these studies it appears in terms of the knowledge gaps identified above, that the larger-scale quantitative studies and industry surveys investigating sustainable development and CSR have been comparatively less effective in developing deeper or detailed insights into the 'how and why' of management perception and practice within businesses (Al-Sari, Al-Khatib, Avraamides, & Fatta-Kassinos, 2012; Chong et al., 2009; Jones et al., 2010).

Table 1. CSR and sustainability related literature in the construction sector based on quantitative research

Construction sector literature based on quantitative research methodology		
Author (Year)	Research method and design	Research findings
(Jones, Comfort, & Hillier, 2006)	Web-based search of 37 UK listed company in terms of CSR and sustainable development reporting and used key word and content analysis to identify areas of sustainability engagement.	This research found considerable variation across issues such as: environment, health and safety, human resources, sustainable development, supply chain management, customers and communities and governance and ethics.
(Petrovic-Lazarevic, 2008)	CSR was examined through 85 interviews conducted with members of boards of directors, suppliers, employees, customers and community representatives of 17 large corporations.	Results showed lack of corporate governance across: working environment, occupational health and safety, relationships with suppliers and commitment to local community protection and engagement.
(Holton, Glass, & Price, 2008)	Analysis based on available company reports to identify business/industry sector lessons.	Sector sustainability strategies can help business sectors. Six lessons have been identified to improve sustainability strategy.
(Chong et al., 2009)	Survey of 200 US industry professionals using quantitative analysis.	Identified wide range of responses and 'confusion' about perception and understanding of sustainability & sustainable construction.
(Jones et al., 2010)	Random sample and content analysis of 300 annual reports of companies listed in US Engineering News Record to identify sustainability related concepts in engineering and construction.	Corporate vision includes environmental, economic and community responsibility for business reporting. But many companies in the US engineering and construction industry apply the concept of sustainability differently to their corporate policies.
(Abidin, 2010)	38 surveys of Developers in Kuala Lumpur/ Malaysia analysed via SPSS to investigate sustainability awareness.	Research identifies main gap between sustainability understanding and practice.
(Son et al., 2011)	Large scale email survey questionnaire with 158 responses from US and Korean constructors to capture awareness and preparedness for sustainable construction.	The results indicate that construc-tors have higher level of sustainability awareness and are prepared for increased input at an

		earlier stage of construction and design phases.
(Al-Sari et al., 2012)	Research study collected 83 structured questionnaire from construction contractors to quantify construction waste generation and local contractors' waste management attitudes.	Findings showed that smaller contractors were more conscious of environmental waste management impacts. Without regulatory framework, the voluntary attitudes and behaviors among the local contractors appear mostly driven by direct economic considerations.
(Lai, Zhang, Duffield, & Aye, 2013)	The quantitative research applied a risk based Cost Benefit Analysis model for economic appraisal to assist in decision-making. The construction process for two desalination plants in Australia was analysed. The model has an economic focus, incorporating implications of environmental and social factors.	Further additions to the model are suggested: risk metrics that takes into account the asymmetric behaviour of investors to risk, utilising better statistical forecasting techniques, social and environmental factors, and studying the effects of discount rate on risk economic appraisals.
(Aigbavboa et al., 2017)	Quantitative methodology analysing response of 40 surveys from random distribution to South African construction professionals on challenges to adoption of sustainable construction practices.	Findings confirm assumption of additional cost to building projects, followed by limited understanding and education of the longer term benefits of sustainable construction.
(Chang et al., 2018)	Online random survey conducted in China collating 265 responses from varying size of companies and construction professionals seeking link between sustainability awareness and company performance	Likert scale analysis identified 29 'critical sustainability aspects' across economic, environmental, social concerns. Sample variations and a weak relationship between firm size and sustainability attitude were identified but not further explored.

Turning now to the qualitative studies reviewed, the research designs of these analyses were based on smaller and targeted samples for interviews, business case studies, industry focus groups or practice focused frameworks and sought to investigate industry-specific phenomena or corporate contexts (Ashe et al., 2003; Khalfan, 2006; Mathur et al., 2008; Pinkse & Dommisse, 2009). Across the qualitative studies, the findings extended beyond the identification of the issue or gap, and provided deeper insights in terms of barriers or

connections, conditions and other linkages that may explain the 'how' and 'why' of certain phenomena investigated (Atkinson, 2008; Khalfan, 2006; Pearce, 2008; Revell & Blackburn, 2007). Key advantages of qualitative and smaller sample but in-depth interviews are highlighted in the literature as being better suited to capture detailed changes in industry-specific contexts (Ghauri, 2004; Sinkovics & Ghauri, 2008). Furthermore, they are able to generate more holistic views and insights into management values and practices (De Ruyter & Scholl, 1998; Gephart, 2004; Welch et al., 2011).

Table 2. CSR and sustainability related literature in the construction sector based on qualitative research

Construction sector literature based on qualitative research methodology		
Author (Year)	Research method and design	Research findings
(Ball, 2002)	Conceptual discussion of links/gaps for ISO 14000 & eco-labelling	Research identified that Eco-labelling and ISO 14000 are important, but as management tool are only 'reactive', unless linked to a corporate sustainability culture.
(Ashe et al., 2003)	Qualitative review of international requirements versus existing BCA Codes in Australia, involving industry stakeholder workshops.	Nine recommendations for the Australian Building Codes Board in 2003 note firstly: 'to provide a definition of sustainability agreed upon in the context of building construction'.
(Khalfan, 2006)	Interviews, fieldwork & data analysis are combined to a new framework of Sustainability Management Activity Zone' (SMAZ) which links to an existing Construction Process Protocol.	The paper argues that the key for successful use of SMAZ within the industry is the awareness about sustainable development among design and construction staff and operatives, knowing the importance of different activities and sub-activities.
(Revell & Blackburn, 2007)	40 interviews with SME business owners across the UK construction industry to identify perceived risks and benefit of improving environmental performance.	Findings confirm low awareness of sustainability issues and impacts. Resistance to environmental performance due to perceived lack of cost versus benefits outcomes and potential higher economic risk.

(Mathur et al., 2008)	Stakeholder theories applied to the construction industry via a strategic, ethical and social learning perspectives, where diverse stakeholders share a common forum and create a shared vision.	Stakeholder engagement processes, if designed integral to the project and its assessment, can deliver outcomes ranging from the 'capture of different forms of knowledge' to 'social learning'.
(Pearce, 2008)	Using a detailed case study project to test assessment of system development for holistic organisational appraisal.	Linkage between sustainability, knowledge management and holistic assessment was established.
(Atkinson, 2008)	This 'capital approach' focuses on understanding the means available to society to generate future wellbeing or opportunities; namely its resources or resource base, the amount of saving over and above the value of assets.	Research identified that 'sustainability' and 'sustainable development' clearly convey different meanings to different people. Identified concerns relates to, how future well-being is linked to building and asset decision making.
(Pinkse & Dommisse, 2009)	Qualitative case study of 4 Dutch builders.	Research finds gap between communicating sustainability to clients and market demand.
(Klotz & Horman, 2010)	Vogel's counterfactual methodology is applied to two sustainability projects in the US. Methodology basis is designed for complexity of variables and large number of stakeholders.	Findings support that counterfactual analysis is valuable when applied to help *develop* theories (Weber 1996), and that the counterfactual analysis research method is suitable for studying sustainable project delivery processes.
(Brennan & Cotgrave, 2014)	Explorative, qualitative study using three focus groups was of construction professionals in UK	Despite a lack of action, many in industry support sustainability and actively attempt to engage in sustainable practices but a number of barriers preclude successful implementation.
(Bevan & Yung, 2015)	Quantitative and qualitative company level data from 28 Australian small to medium sized construction enterprises were collected using an in-depth questionnaire.	Small to medium-sized enterprises (SMEs) incorporate some aspects of CSR into their business activities even though they do not refer to the practices as CSR, as none of them have a formal CSR policy in place.

Overall, the qualitative research findings from prior international studies identify a range of management practices as well as detailed insights into 'how and why' of business processes

and stakeholders may be influencing SD and CSR perceptions and practices. The findings for industry perceptions and critical issues affecting business management decisions have discovered that business values and corporate objectives are continually adapting to a changing business landscape so that more responsible and sustainable behaviour is elicited (Barnett, 2007; Brammer et al., 2007; Kurucz et al., 2008).

3.6 Chapter summary

The first section of this chapter set out the theoretical focus and aspects of critical review on the research topic and the identified theoretical fields that will be explored in this thesis. A range of seminal and recent research papers on the topics of sustainable development, corporate management and the construction industry was reviewed. The second section outlined the broader theoretical context, in terms of a number of related theoretical paradigms and perspectives. Their key conceptual elements, strengths or constraints were explored and highlighted. This lead to the identification of several core issues within and across the fields of current knowledge and practice to develop the key research areas and current knowledge gap in terms of 'how' sustainable development in construction business management is currently understood. The third section combined the insights gained through this tri-lensed review of research focus, theoretical perspectives and proposed the key research questions for this thesis. The final section reviewed recent literature on the building and construction sector from the perspective of quantitative versus qualitative methodology and design.

4.0 Research Methodology and Design

4.1 Introduction

The previous chapter identified the knowledge gaps in the academic and industry literature which led to the key research questions. This process identified further the current lack of in-depth research and theoretical exploration of 'how' and 'in which ways' sustainable development is understood by managers in the Australian building and construction industry. The previous chapter concluded with the identification of a qualitative research methodology and design to address the research questions for this thesis. This chapter describes the development of the research methodology and contextually bounded case study design. This includes, firstly, the development of a qualitative methodology that aligns with the philosophical and reflective position for the emic researcher (Dubois & Gadde, 2002; Scotland, 2012; Strauss & Corbin, 1990). Secondly, the detailed research design for this qualitative inquiry is set out in terms of the case study method, its bounded contextuality and the purposive interview sampling undertaken. Thirdly, the ethical human research framework and process of data collection is outlined and shows how it supports the research methodology and leads to the analysis and development of findings in the subsequent chapter.

4.2 Development of a qualitative research methodology

The analysis of the literature on the potential research methodology in the previous chapter identified several parameters that favour qualitative methodology and design for the investigation of business and industry context-specific research (Anderson, 1983; Welch et al., 2011; Yang et al., 2006; Yin, 2003). Exploratory research and qualitative methodologies are suited in particular to capturing multi-dimensional phenomena and providing a clearer and

holistic view of the context (De Ruyter & Scholl, 1998; Morse, 1994). Qualitative research studies were also found to have the ability to reveal deeper insights through interpretation and reveal the 'complex world of lived experience from the point of view of those who live it' (Schwandt, 1994, p. 221). Sykes argues that a more flexible and creative research design and methodology can find identify various meanings beyond the set of numbers without requiring large samples (Sykes, 1990) and is suited to investigate complex and dynamic contexts (Ghauri, 2004; Sinkovics & Alfoldi, 2012).

To successfully develop and conduct a qualitative research investigation, the literature emphasises the importance of the researcher's personal engagement in order to gain access to the data, intensive time commitment for data collection and iterative investigations and analysis of the transcribed interviews. Following calls by researchers for more extensive use of qualitative research as a valuable source of knowledge generation and dissemination (De Ruyter & Scholl, 1998; Ghauri, 2004; Sinkovics & Alfoldi, 2012), the adoption of qualitative methodologies in international business research is now gradually growing (Sinkovics & Ghauri, 2008; Welch et al., 2011; Yang et al., 2006).

An important deciding factor is that the selected research methodology and design will help in answering specific research questions and subsequently support the verifiable and transparent development of findings and theoretical contributions for future research and practice. A process of review and reflecting on these aspects confirmed, as outlined in Chapter 3, that a qualitative research methodology was most suited to capture and illuminate the dynamics and complexities related to this inquiry (Andrade, 2009; Eisenhardt, 1989; Gerring, 2004, 2006; Tsang, 2013; Welch et al., 2011).

In order to develop the research methodology and design in detail, a further review focussing on quantitative and qualitative methodologies and designs was undertaken. This arose out of the concerns raised in the literature regarding inconsistent development and alignment of research questions to the appropriate methodology chosen (Cheung & Rensvold, 1999; Riordan & Vandenberg, 1994; Schaffer & Riordan, 2003). This relates not only to the selection of a quantitative or qualitative methodology but also to the subsequent research design decisions to ensure validity of the research process, its analysis and development of theoretical findings.

With these markers for caution in mind, a methodological review was undertaken of international journal articles that examined the construction industry, management and sustainability issues. These articles were identified as being based on either quantitative or qualitative methodologies. The review, discussed in detail in the previous chapter, showed that the quantitative research studies captured predominantly larger-scale and random samples broadly across industry sectors such as engineering businesses, industry professionals or surveys across a diverse range of construction contractors and suppliers (Chong et al., 2009; Jones et al., 2010; Smith et al., 2011).

Data collection methods used in the quantitative studies included electronic surveys and questionnaires or analysis of publicly available data sources. The findings across larger and diverse samples clearly identify that there are variations in terms of understanding sustainability, environment health and safety, as well as variations and gaps between sustainability perceptions and corporate practices in the engineering and construction industries (Abidin, 2010; Al-Sari et al., 2012; Jones, Reid, & Gilbert, 2008; Petrovic-Lazarevic, 2008). However, the research methodology and analysis applied by these studies

were not able to provide more detailed insights or differentiations for these findings that would provide answers to the research questions of this study.

Similarly, and more broadly across the business and management literature, Yang et al. (Yang et al., 2006) analysed 1296 articles published between 1992 and 2003 in leading international business journals, and compared data source, sample size, country and sampling techniques. This extensive comparison of predominantly quantitative journal articles found, that 60.3% used mailed questionnaire and surveys, 60.9% of the studies used a one-country sample, 32.7% of the studies were based on sample frames provided by third parties, and the median sample size was 180 with an average response rate of 40.1% (Yang et al., 2006). This analysis further confirms the potential for variability across large and diverse samples which reach across broad industry or geographical contexts as well as diverse cross-sector and sub-sector understandings. This aligns with the literature findings for quantitative studies on sustainability, where variations and gaps between sustainability perceptions and corporate practices were found and could not be further explained (Abidin, 2010; Al-Sari et al., 2012; Jones et al., 2008; Petrovic-Lazarevic, 2008).

Taken together, these quantitative research studies, despite large samples of data collected predominantly via electronic surveys, generally offer limited insights into the research questions for this study. This confirms that the research design of large-scale and random sampling across a wide range of industry stakeholders limits the ability to develop a basis for in-depth findings on qualitative issues and questions. Whilst the quantitative studies have been able to tackle the ‘what are the issues’ questions at an industry level well, the ‘why’ and ‘how’ questions remain unanswered.

An analysis was conducted of international research papers that employed a qualitative research methodology and focused on the construction industry, management and sustainability issues. This literature review identified the use of a range of research designs and applications, including interviews, business case studies, industry focus groups, practice focused frameworks, to investigate an industry-specific phenomenon or corporate context (Ashe et al., 2003; Khalfan, 2006; Mathur et al., 2008; Pinkse & Dommisse, 2009). Across these qualitative studies, the findings extended beyond the identification of the issue or gap, and provided additional deeper insights into the barriers or connections, conditions and other linkages that may explain the 'how' and 'why' of the phenomena being investigated (Atkinson, 2008; Khalfan, 2006; Pearce, 2008; Revell & Blackburn, 2007). The authors noted the advantages of smaller samples and in-depth interviews as better suited to capture detailed insights into the globalising and rapidly changing industry-specific contexts (Ghauri, 2004; Sinkovics & Ghauri, 2008) and to support more holistic views and insights into management values and practices (De Ruyter & Scholl, 1998; Gephart, 2004; Welch et al., 2011).

These methodological reviews and comparisons provided further evidence and insights into the qualitative methodological approach, utilising a small but purposive sampling technique within a clearly bounded industry case study setting. Doing so would provide a strong methodological basis to investigate the posed research questions (Bryman, 2015; Eisenhardt & Graebner, 2007; Strauss & Corbin, 1990). The important research questions remain to date unanswered for the construction industry:

1. How is sustainable development understood and perceived in the construction industry?
2. How are stakeholder relationships developed and managed in the construction industry?
3. How do construction industry-specific contexts shape sustainable development management?

4.3 Researcher's position: epistemological, ontological and reflexivity

From a structural and procedural perspective, the linkage from a qualitative research methodology to detailed method and design for data collection and analysis shapes the research process and consequently its validity (Bryman, 2015; Bryman & Bell, 2011; Buchanan & Bryman, 2007; Strauss & Corbin, 1994). To ensure research validity for all stages of the investigation, it is important for the researcher to engage, reflect and understand one's own position in relation to the most appropriate research methodology and design (Dubois & Gibbert, 2010; Schaffer & Riordan, 2003; Scotland, 2012). This relates to the researcher's positioning as emic, or 'insider' researcher to the Australian construction industry and its context. This encompasses not only the personal ontological and epistemological positions outlined below, but also the researcher's own skill and level of reflexivity at each stage of the investigation. Throughout this and subsequent chapters, this will be referred to as 'reflective insider perspective', which is an intrinsic part of the research process and has shaped the design, data collection, analysis and development of findings and original contributions (Alvesson et al., 2008; D'Cruz, Gillingham, & Melendez, 2007; Welch et al., 2011; Yang et al., 2006).

Epistemological perspective

> *Knowledge is being socially constructed; the environment which managers respond to is determined by previous experience, not by observable 'objective' facts* (Weick, 1979)

Epistemology is the study of knowledge and understanding as to how an individual or community constructs new knowledge and interprets the 'relationship between the knower or

would-be knower and what can be known' (Guba & Lincoln, 1994, p.108). Montague's (1962) influential description captures epistemology as 'the extent to which the things and qualities of the world are dependent upon their being related as objects to a knower or subject' (Cited by Marr, Gupta, Pike, & Roos, 2003, p.771). In our personal world view, there is no one absolute truth or objective reality. We continually construct meaning and create knowledge in close connection with the social world around us. Through our many daily interactions we constantly interpret, evaluate, assign and re-assign new meaning to the many dimensions of realities that we are experiencing. There is no one or true objective reality for us all but rather, meaning is socially constructed by us individually, as communities and across cultures (Crabtree & Miller, 1999; Seale, 1999). The researcher's epistemological position is therefore not that of an objectivist or positivist, but rather an interpretivist employing a social constructivist perspective (Bryman & Bell, 2011).

This epistemological perspective allows us to conceptualise that experiences, knowledge and beliefs shape what we know, how we interpret this knowing and then construct meaning through this. From this follows the understanding that the individual social construction of knowledge and meaning also impacts on making decisions in research and organisational contexts (Guba & Lincoln, 1994; Hage, 1999). As a constructivist, my epistemological viewpoint on knowledge and knowing is that we as individuals and as cultural and corporate communities continually interpret, construct and re-construct reality through the multitude of experiences, views and perspectives we apply to meaning making every day. These socially constructed meanings are closely linked to and relative to the contexts they are experienced within (Corbin & Strauss, 1990). This contextually constructed position of shaping understanding, values and decisions is referred to in more detail in the following chapters as it provides a particular perspective for this research and its new findings.

Ontological perspective

In line with my epistemological perspective as a social constructivist, it is believed that the social world around us has no fixed or objective reality, but that we interpret the reality as we perceive and experience it as individuals, and as parts of social groups, communities and cultures. Through this process of interpretation, we construct our own reality and contribute to the perceived social reality around us. The constructivist approach defines one as a researcher and educator and it is believed that values and beliefs are based on the social and cultural experiences and practices we are exposed to. This is important, as it follows that our everyday perceptions and practices are also constructed through the way we interact, operate and make decisions in a variety of environments. This applies to personal contexts as well as community and corporate contexts, such as the construction industry, which the researcher has worked in for more than 20 years through varying roles and contexts in Australia and internationally.

The researcher is intrigued by and acutely aware of the individual contexts that learners and professionals encounter through their education and continuing professional development in the construction industry internationally. The construction of perceptions of beliefs and values within specific contexts became a major theme as this research unfolded and continues to illuminate unique social and multi-dimensionality contextualities. The research by Garcia and Quek (Garcia & Quek, 1997) contributed a valuable insight into this research positioning and further strengthens the qualitative research methodology and its linkage to the researcher's own positioning. They wrote as follows (Garcia & Quek, 1997, p. 459):

> *Using qualitative methods implies that more attention should be paid not only to multiple narratives that give voice to and allow the construction of multiple worlds, but also to the role of the researcher, of his understanding, insights, experiences,*

> *interpretations, etc. A good researcher will be one who can bring such subjectivity to the fore, backed with quality arguments rather than just a display of statistical exactness, precision or confidence*.

The qualitative study approach for this research makes a targeted and detailed investigation of the influences, perspectives and dynamics at play between stakeholders in complex contexts. The individual contexts and constructs developed between people and within businesses are fascinating and critical to daily decision-making mechanisms. This applies to personal contexts and interactions in construction management situations as well as larger stakeholder groups or external communities who are shaping the management context and how and why decisions are made. The qualitative research approach developed here seeks to capture the perspectives and dynamics at play between construction managers and the range of stakeholders they work with (Andrade, 2009; Barrett & Walsham, 2004; Buchanan & Bryman, 2007; Cavana, Delahaye, & Sekaran, 2001).

Researcher reflexivity

Before commencing the analysis, it was important to reflect on the research paradigms that the researcher's beliefs most closely relate to. Acknowledging the researcher's research paradigm and the interrelated epistemological and ontological viewpoints, is important for framing the subsequent decisions regarding research methodology and design as carried out here. The researcher conceptualises research paradigms as her philosophical points of reference. This allows the researcher to position herself in the fields of knowledge and in relation to other researchers. Thus, the researcher's personal experience in the building and construction sector enabled her to look at the sector more closely. The researcher's decades-long close association with the industry helped deepen and broaden her understanding of the sector as well as the

issues affecting the clients and the wider community. In this way, the thesis provides a unique case in which research experience and personal experience are combined to make new contributions to knowledge.

The academic literature has expanded much since Kuhn developed the concept of research paradigms (Kuhn, 1970), which provided the opportunity to develop and expand beyond the predominant paradigm of positivist scientific research (Collis & Hussey, 2003). Positivism was developed in the 18th and 19th centuries by theorists including Comte, Mill and Durkheim and it focused on measuring the 'real world' with the researcher taking a separate and objective stance. The arrival of qualitative research methodologies offered new opportunities to investigate the 'how' and 'why' of contexts, cultures and conditions, rather than the 'what' or 'how much' of the quantitative and scientific methodologies. Guba and Lincoln's (Guba & Lincoln, 1994) influential work of describing the distinct but at that time 'competing paradigms in qualitative research' has encouraged researchers to position and assert their own roles, taking a subjective and emic role in the interpretation and construction of knowledge and meaning in social research.

Collis and Hussey (2003) conceptualised the 'continuum of paradigms', which locates the positivist or objectivist position at one end and then moves towards an increasing interpretivist position, which is increasingly informed by social interaction and subjective meaning making. Along this spectrum Guba and Lincoln refer to the key paradigms as Positivism, Post-Positivism, Critical Theory and Constructivism (Guba & Lincoln, 1994). Hardy and Clegg subsequently labelled these four main paradigms as Normative (Scientific), Interpretive, Critical and Post-Modern (Hardy & Clegg, 1997). The other currently most prominent 'non positivist' paradigms employed closely linked to qualitative research are constructivism,

participatory paradigm and critical theory (Mantzoukas, 2008). Within these paradigms more detailed approaches such as social constructivism, hermeneutics and others have been developed (Easterby-Smith, Thorpe, & Jackson, 2012). Table 3 below summarises the alignment of research paradigm with selected methodology and design of the research method for data collection.

Table 3 – Research paradigm, methodology and design

Research Methodology	
Ontological and Epistemological Perspective	Interpretivist with social constructivist lens
Researcher's Reflective Perspective	Insider (emic) researcher with industry expertise
Research Methodology	Qualitative in-depth investigation

Research Method and Design	
Case Study Design	3 small/medium construction businesses
Ethical approval and data collection	27 in-depth anonymous interviews (recorded, semi-structured, conversational)
Data sampling	Purposive and theoretical sampling (experienced Directors, Project and Site Managers)

The researcher seeks to be a reflective practitioner and remain alert to how the researcher reviews, reflects, interprets and constructs meaning. This attitude of reflexivity includes a commitment to consciously and systematically engage in the process of knowledge construction. Thus the researcher is informing this process in management of building and construction, as an educator in the same field and as the industry professional (Ruge & McCormack, 2017; Schonell et al., 2016).

Being open and reflective about the researcher's insider or emic research position, is an important aspect of this qualitative study. As well, the insider position has allowed the researcher to conduct personal interviews with construction professionals, which has not been undertaken to date in Australia. As stated previously, the researcher's personal and professional experiences in the industry, allows her to understand, appreciate and more deeply reflect on the detailed descriptions, wordings used and connections made through perceptions and practices.

Very early in the twentieth century, Dewey (1920, cited by Schwandt, 2005, p. 181) stated the importance of the researcher's reflective position and reflexive attitude:

> *First, reflective thinking involves a state of doubt, hesitation, perplexity, mental difficulty, in which thinking originates. Secondly, it involves an act of searching, or investigation directed toward bringing to light further facts which serve to corroborate or to nullify the suggested belief.*

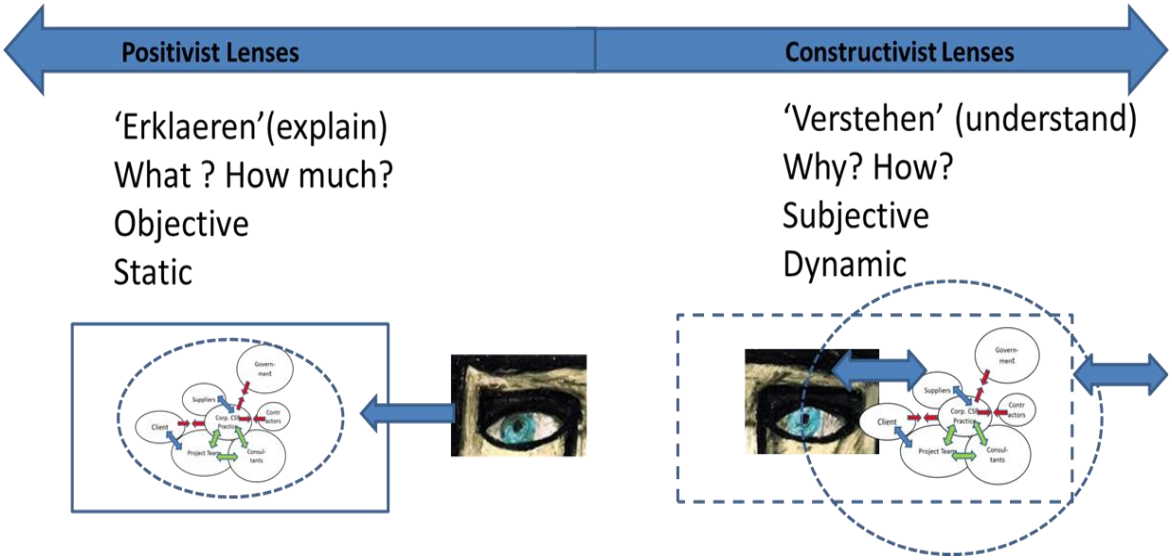
Research insider reflexivity discussed by Le Gallais (Le Gallais, 2008) is insightful, as she maps her personal journey as researcher, describing the development stages and increasing capacity to reflect and resulting reflexivity (La Gallais, 2008, p. 146) :

> *The insider researcher has, as a member of the 'in-group', access to its past and present histories. Such shared experiences engender a sense of sameness leading to the awareness of a group or collective identity. This enables group members to set the boundaries of the way they live and work. Furthermore, our habitus also impacts upon our responses to situations in that we attempt to 'fit' them into the taken for granted ways of doing and thinking within our 'familiar' milieu.*

Through further reflection, the researcher was prompted to think more deeply about the opportunities and risks presented to me as a qualitative 'insider' researcher. Researcher reflexivity is part of and enhances the qualitative methodology and its consistent application for each stage of this investigation (Alvesson et al., 2008; Bowen, 2009; Mason, 2010; Woolgar, 1988). It also brings with it a responsibility to work with a consistent commitment and maintain this attitude and reflexivity for all project stages.

The reflective practice research approach for this thesis supports the quest for new insights into the construction industry's cultural, on-site technical and communal languages as well as corporate practice and management expressions. Acknowledgement of the researcher's reflective role and overall reflexivity throughout all research processes is therefore an integral part of the research methodology and is referenced at several points in this thesis.

Figure 8. Shifting research lenses to investigate sustainable development in management



4.4 Case study research design and sampling decisions

> *Case studies can be used to accomplish various aims: to provide description, test theory or generate theory* (Eisenhardt, 1989, p.535)

This section outlines the development of the detailed case study design and sampling decisions. The starting point here is again around the research questions, which are designed to capture in-depth descriptions and rich data for analysis and the development of theoretical findings (Eisenhardt, 1989; Eisenhardt & Graebner, 2007; Shaw, 1999; Yin, 1981). A case study research design, within a broader qualitative research methodology is discussed in the literature as able to investigate 'how and 'why' research questions (Andrade, 2009; Eisenhardt, 1989; Stake, 1995; Yin, 1981). It can also be designed for in-depth analysis within a certain context, such as this study on the perceptions, practices and performance of building professionals in Australia's construction industry. Defining the scope of a case study requires further consideration, as it can relate to one specific or outstanding single case study scenario, several individual cases with smaller samples, a field observations context, such as ethnographic or participant observation or an investigation of a specific process or phenomenon (Gerring, 2004; Yin, 1981, 2003).

This present case study research relates to two of the above definitional aspects: investigation of a specific process or phenomenon, in this case sustainable development in management. In addition, the methodological research has led to the decision to collect in-depth qualitative data through interviews of construction industry professionals across a small sample of businesses with similar contexts of location, time and type of business operation (Bryman, 2015; Creswell, 2013; Patton & Appelbaum, 2003). For this investigation, the contextual setting of the construction industry is an important component and therefore an integral part of the research design. Research participants' responses and descriptions about their own as

well as industry perceptions, practices and performance are informed by a complex physical, social and cultural context (Merriam, 2009). The investigation of these descriptions through those lenses is an important aspect of the contextual and theoretical analysis for the research questions posed (Randall & Gibson, 1990).

As further emphasised by Welch et al., (2011), the typology of the case study provides for causal explanation and contextualisation and, in terms of theorising, offers not only inductive theory-building, but also interpretive sense-making and contextualised explanation (Welch et al., 2011). The case study for this research was therefore located in one Australian city, where the head office of each of the three businesses investigated is situated and where all in-depth interviews were conducted. In addition, the case study was also bounded in a time and industry context. The qualitative research methodology, epistemological and ontological settings discussed earlier provided the broader framework for answering the research questions. To gather primary data from a range of individuals within their own professional and business settings, a number of detailed research design decisions were made to establish a contextually bounded case study across three businesses with a purposive sample of twenty seven in-depth interviews.

A purposive sample relates to the selection of interviewees who are expected to have expert or detailed knowledge and experiences about the subject of inquiry. Here it refers to experienced construction managers who have extensive industry and management expertise, including sustainable development practice. The collected interview data was analysed through an iterative inductive and deductive coding and thematic analysis process. In conjunction with several self-reflective iterations of meaning making by the researcher, a deeper understanding of the research context and emerging responses to the research questions

could be developed. Through this process, engaging in varying levels and depth of analysis, a number of patterns and themes were identified and made the subsequent theoretical analysis possible (Patton & Appelbaum, 2003; Pope, Ziebland, & Mays, 2000). Relevant advice to the case study development for this research is offered by Yin (1981, p.102),

> *The most common multiple-case design analogous to these small-n experimental designs is a direct replication design. For such a design, the use of three or four cases has been found sufficient; once a phenomenon has been shown to occur in all cases, the concluding step is to develop a general explanation or synthesis across the cases.*

The initial selection of Australian construction businesses was undertaken via a desktop search from a national industry membership body. This was further narrowed to businesses that on their corporate website demonstrated a commitment and interest in sustainable development. As well, the businesses needed to be based in Australia, and have a building and construction focus, rather than property development, design, real estate or engineering. This process reduced the sample size from around 70 to 20. This pre-selection ensured that the staff working in the business had exposure to and experiences in relation to the topic being researched. Although companies were not pre-selected according to size, turnover or location, however, each business had to be actively engaged in sustainable development.

The data collection period was planned to involve four businesses, but was revised to involve three businesses with a larger sample. For all three businesses, nine interviews were conducted, with three directors, three project managers and three site managers, respectively. This resulted in a total of twenty seven in-depth interviews. The decision on which directors, project and site managers eventually participated in the study was left with the businesses and not

predetermined by the researcher (Gerring, 2004, 2006). All interviewees participated on an individual and voluntary basis, as outlined below.

A research project and ethics description with an invitation to participate anonymously in the research was issued to each business and forwarded internally to staff. Interested staff who had the relevant roles personally contacted the researcher and interviews were then scheduled to suit the interviewee at their on-site offices. This ensured a degree of separation within a purposive sample and maintained the comparable contextual framing across the data set, with a strong 'in situ' focus of gaining personal access to a range of individual professionals working in the Australian building and construction industry (Miles & Huberman, 1984; Sinkovics & Alfoldi, 2012).

Sampling for qualitative studies is an important issue, especially the research design consideration. As stated by Mintzberg (1979, p.585)

> *No matter how small our sample or what our interest, we have always tried to go into organizations with a well-defined focus to collect specific kinds of data systematically*.

The overall sample sizes for qualitative studies are usually much smaller than in quantitative studies, since the purpose is not to seek frequency but rather detailed descriptions and meanings from individual interviewees (Bryman & Bell, 2011; Buchanan & Bryman, 2007). In fact, when there are more numbers there is a risk of losing depth or detail due to obtaining too much or unmanageable amounts of data (Crouch & McKenzie, 2006; Ritchie, Lewis Nicholls, & Ormston, 2013; Ritchie & Lewis, 2003). For qualitative research studies, there appears to be no agreement or prescriptive technique on specific sample size or when the level of saturation has been reached. Saturation can also be described as 'data adequacy' or when

through additional data or information collection no significant new insights or findings are being made (Fusch & Ness, 2015; Morse, 1995). There is in fact a level of critique on the concept of saturation as inappropriate for qualitative analysis (Bowen, 2009) and instead refer to it as a conceptual point of reference. One study conducted over a decade ago by Guest et al (2006) specifically investigated this issue by undertaking over 60 in-depth interviews seeking to monitor levels of saturation in relation to identification of key themes. They found that saturation occurred within the first twelve interviews and basic meta themes were already identified after 6 interviews (Guest, Bunce, & Johnson, 2006).

This case study investigation on sustainable development perceptions and practices in the construction industry was further defined through the purposive sampling of interviewees. These were all experienced management professionals from small to medium-sized businesses in a comparable industry working context. The purposive selection supports a smaller sample to obtain responses to the research questions. The literature further recommends a sample size large enough to capture a potential broader scope and varying insights across the range of management roles, to allow for any levels of variations and re-occurrence to identify a degree of saturation (Charmaz, 2008; Corbin & Strauss, 1990; Crouch & McKenzie, 2006; Morse, 1994). Guest, Bunce and Johnson (2006, p. 59) suggest that 'although the idea of saturation is helpful at the conceptual level, it provides little practical guidance for estimating sample sizes for robust research prior to data collection'. In this case, the researcher's position as an industry insider with a good understanding of the topic, context and culture as depicted in the literature, further justified supporting a smaller sample size selection (Jette, Grover, & Keck, 2003).

As outlined in the subsequent data analysis and findings chapters, the key themes were made explicit to a high degree in all interviews and a smaller sample could have been sufficient to

identify these on their own. However, the ability to also compare across the management roles of directors, project managers and site managers proved very valuable. It helped to identify a number of sub-themes that provided deeper insights and strengthened key findings across the breadth of management roles in businesses.

Only a few authors in the field of qualitative methodology commit to a correct sample size or a sufficiently narrow range. In ethnography and ethnoscience most studies undertook 30–50 interviews (Bernard, 2012; Morse, 1994). More applicable here were studies aiming to develop grounded theory, which Creswell (1998) found used 20 to 30 interviews. For a phenomenological study investigating a specific aspect or topic 5 to 25 are recommended (Creswell, 2013; Crouch & McKenzie, 2006) with other authors suggesting at least 6 (Morse, 1994). More broadly across qualitative methodologies, Bertaux (1981) and Guest et al. (2006) recommend a minimum sample of 15 (Bertaux, 1981; Guest et al., 2006). Kuzel (1992) on the other hand bases his recommendation of a smaller sample size such as 6 to 8 interviews, where there is a homogeneous sample or specificity of research objectives. He further argues for a sample of 12 to 20 when the researcher is seeking for non-conforming evidence and to capture more varied views on a specific topic.

Based on these findings, the selected sample of twenty seven semi-structured interviews conducted with nine business directors, nine project managers and nine on-site managers sits well in the realm of grounded theory and phenomenological studies, and with three more subsets of nine directors, nine managers and nine site managers, allows detailed investigations to confirm or question specific issues and cultural understandings that these building and construction professionals may have (Barbour, 2001; Etikan et al., 2016; Tongco, 2007).

In addition to this positioning of the case study, the detailed design includes a number of cross-sectional elements, which were developed through purposive and theoretically motivated sampling (Bryman, 2015; Strauss & Corbin, 1990). Firstly, the same number of interviews was conducted in each business with three directors or senior business managers, three project managers responsible for site management, and three site managers responsible for day-to-day construction activities. This stratified purposive sampling provides an opportunity to investigate the topic and answer the specific research questions, specifically the specific roles and responsibilities of people working in the industry (Baxter & Jack, 2008; Miles & Huberman, 1984; Sinkovics & Alfoldi, 2012). It provides new opportunities not just across all samples, but for additional potentially deeper and more detailed cross-sectional analysis into individual roles within and across businesses.

The case study approach therefore contributes on three levels. Firstly, the individual's perceptions and practices when working on projects and businesses could be captured. Secondly, it enabled the collation of in-depth descriptions on how the individual manager engages with stakeholders through project and business activities. Thirdly, it provided for the opportunity of potential new insights and findings to have a provide a valid and reliable basis for further development across the construction industry contexts nationally or potentially internationally (Gerring, 2004, 2006). According to Eisenhardt (1989, p. 534):

> *Yin (1981), has described the design of case study research. He has defined the case study as a research strategy, developed a typology of case study designs, and described the replication logic which is essential to multiple case analysis. His approach also stresses bringing the concerns of validity and reliability in experimental research design to the design of case study research.*

Developing inductive thematic and theoretical findings from case study research has been established through extensive empirical and academic work (Glaser & Strauss, 1967; Miles & Huberman, 1984; Yin, 1981). More recently, case studies are being increasingly utilised as a research tool to refine, validate, enhance or indeed disprove existing theories (Eisenhardt, 1989; Welch et al., 2011). In terms of its theoretical impact, the aim of this case study design is two-fold: firstly, to allow for an inductive investigation that can identify thematic, contextual as well as theoretical themes; and secondly, in a subsequent deductive and comparative process contribute to existing theories and frameworks. This combines the inductive qualitative methodology with an additional deductive component of testing patterns and ideas against existing theory and concepts in the literature (Hyde, 2000). Further work by Tsang has balanced out the discussion and re-established the responsibility for each individual case study design to reflect the research focus and ensure its own validity and rigour (Tsang, 2013). The qualitative research methodology and design as well as the researcher's emic or 'insider' perspective in relation to the Australian construction industry enhance the investigative descriptions from within the cultural views, values and management's thinking patterns in this setting (Schaffer & Riordan, 2003).

4.5 Ethical research approach and interview process

The detailed research description, including all processes for data collection were submitted to the Human Research Ethics Committee (HREC) at the University of Canberra, and it was subsequently approved (Approval 4-37, see Appendix 1). The ethical research approach is integral to the research methodology and detailed research design. For this study, the ethical considerations with reference to the data collection through face-to-face in-depth interviews have been particularly considered. The ethical research considerations confirmed that a semi-formal and conversational interview format was suitable for all proposed interviews.

Following a prepared interview structure (see Appendix 5), each interviewee was asked to respond to the same key questions. In addition, follow-up prompts and additional sub-questions allowed the interviewee to expand on an example mentioned and to capture more detailed descriptions and valuable personal insights. This strategy ensured a consistent interview approach, yet at the same time made it possible to expand into more detail where possible.

The review of the potential ethical risks and implications has also shaped the practical processes of conducting the interviews in a consistent manner. Care was taken to ensure that each interview took place under similar conditions and in a comfortable and safe setting for the interviewee. When interviewees were asked where they would feel comfortable to conduct the interview, they chose either their own on-site offices or a meeting room in the business head office. Due to the limited availability of each interviewee on-site, the interviews were mainly conducted within a one-hour period, a very common meeting timeframe on construction sites. All interviewees signed the consent form to be interviewed and agreed for their discussion being recorded for transcription purposes. All interviewees were comfortable and appeared relaxed and very open in their responses and conversations and responded to all questions. It was reconfirmed that names and identities would be removed during the research process and that personal information and descriptions treated anonymously. This process of setting venue and interview contexts was consistently applied for all interviews.

The planning of this data collection also included reviewing a number of potential ethical risks and how these would be addressed. These are listed in Table 4 below and further highlight the detailed research design preparation before the twenty seven interviews were conducted.

Table 4. Addressing potential ethical risks and conduct for data collection

Potential ethical risk	Considerations to address ethical risk
'Recruitment and contact with participants'	1. Initial desktop internet search has been undertaken to identity potential companies for detailed case study research. 2. No direct contact with companies will be made until ethical approval has been received and relevant project and approval letters are completed. 3. As part of the Human Research Ethics Committee application the following documents are prepared for approval: - Invitation to participate in research letter - Project description letter - Interviewee participation/ consent letters 4. From responses and proposed availability received, three companies in a comparable context have been selected.
'Agreement by interviewees to participant freely'	1. Prior to each interview clearly explain research project, scope and confidential interview process to participants. 2. Explain that participation is not related to employment performance and access has been given by company for research purposes only. 3. Request for written approval of voluntary participation and audio recording for transcription. 3. Communicate that participation is voluntary and that interview can be concluded any time, if the participant feels uncomfortable. 4. Confirm that research data is de-identified and data is safely managed and stored with the University of Canberra.
'Strategies to reduce risk of discomfort or harm for participants'	In addition to the above: 5. Explain the role of the researcher, how interviews are conducted/ recorded and encouraging the interviewee to

	freely express any discomfort about any questions or process. 6. Ensure that the place of interview is comfortable, possibly located outside company offices or in a private company meeting, or somewhere away from usual workplace area. 7. Researcher has the relevant construction knowledge and skills that relate to technical, cultural and corporate aspects pertinent to the construction industry. 8. Researcher has previously conducted HREC-approved semi-structured interviews and is very aware of the process and problems that may occur.
'Strategies to reduce risk to researcher'	In addition to the above: 9. Ensure that interviews are taking place away from active on-site construction work. 10. Comply with any site safety instructions and company procedures, if required. 11. Advise and confirm with company contact the pre-approved interview times, dates and venues.

The detailed interview questions, as well as additional prompts or follow-up questions are included in the Appendices. Interviews were conducted in a conversational and semi-structured manner, and they consisted of five sections: introductory questions, followed by individual sections about perceptions, practices and performance of sustainable development and concluding questions.

4.6 Chapter summary

This chapter on research methodology and design and the reflective learning journey comprises a core part of the research study. It discussed and confirmed the suitability of the

qualitative methodology to investigate the key research questions. This reaffirmed the targeted in-depth investigation of the 'how' and 'why' questions that were identified. From this starting point, the researcher's ontological, epistemological worldviews and personal position as a social constructivist were explored within the spectrum of predominant research paradigms (Bryman & Bell, 2011; Creswell, 2013; Guba & Lincoln, 1994). It was also argued that as a constructivist continually interpreting understanding in knowledge, the researcher's own reflexivity and consciousness about the research process and practice itself constituted an important component of the qualitative research study.

The second half of the chapter explored the current literature and research practices, for the purposes of developing a detailed research design. It was argued that the case study design within a bounded industry context across three businesses, was well suited to investigate the views on sustainable development perception, practice and practice amongst construction managers. Specifically, purposive sampling of twenty seven interviews with nine directors, nine project managers and nine site managers was shown to be appropriate and at the same time allow adequate numbers for subset groupings with potential new insights into and across managers' specific roles or contextual industry issues. The chapter concluded with a description of the ethical human research proposal and the processes of ensuring research integrity, safety for the researcher and interviewees and overall professional and consistent conduct throughout all the stages of the interview data collection, management and subsequent analysis have been addressed. In addition, this chapter set out the parameters for the detailed data analysis and development of findings outlined in the next chapter.

5.0 Data Analysis and Development of Findings

5.1 Introduction

The previous chapter outlined the detailed development of the qualitative methodology and detailed design for the collection of data to assure validity of the process and ability to appropriately answer the research questions (Bryman, 2015; Bryman & Bell, 2011; Buchanan & Bryman, 2007; Strauss & Corbin, 1994). This chapter outlines the process of data analysis, as a continuation of this qualitative research process. This chapter starts with a description of the inductive and deductive analysis sequences and the researcher's own iterative self-reflective cycles of analysis in that process. This is followed by an elaboration of the approach for research validity and its criteria. The remainder of the chapter is dedicated to developing the key thematic findings related to the managers' perceptions of sustainable development. This forms the basis for what is discussed in Chapters 6 and 7, which respectively focus on the discussion of these findings for SD practice and their contribution to academic theory.

5.2 Process for data analysis

> *The process of building theory from case study research is a strikingly iterative one While an investigator may focus on one part of the process at a time, the process itself involves constant iteration backward and forward between steps* (Glaser & Strauss, 1967).

Iterative and reflexive approach

The data analysis approach was designed and undertaken as an iterative process of inductive and deductive reviews of the interview data and was applied from the initial open coding stage to the development of identified text pattern, sub-themes and key themes (Cho & Lee, 2014;

De Ruyter & Scholl, 1998; Elo & Kyngäs, 2008; Sinkovics & Alfoldi, 2012). This linking of inductive and deductive analysis is discussed in the literature for qualitative methodology and interview analysis in particular (Elo & Kyngäs, 2008; Fereday & Muir-Cochrane, 2006). Timmermans and Tavory (2012) for example argue for the benefits of linking inductive and deductive inquiries, in the form of an 'abductive approach', as being particularly suited to combining content and contextual interpretations of research findings and theory development (Timmermans & Tavory, 2012). Each stage of the qualitative data analysis for this research forms part of the continuing process of verification and validity for the subsequent findings (Guba & Lincoln, 1994; Morse, 1994). The additional and continuing thread throughout the data analysis has been the researcher's reflective stance, conscious of interpreting the contextual language used by the construction managers. This provided an additional layer of reflection on the 'meaning making' (Schwandt, 2005; Tsang, 2013; Weick, Sutcliffe, & Obstfeld, 2005).

Inductive analysis is particularly suited for questions lacking prior investigations or where fragmented or inconclusive findings were reported (Elo & Kyngäs, 2008). This is important, as earlier research into SD perceptions in the construction industry, as discussed in Chapter 3 above, indeed had not been able to interpret findings beyond the noted variability and diversity of individual experiences. The aim of the inductive text analysis process is to go beyond previous variations and fragmentations and retain an open-minded approach throughout whilst investigating specific phenomena (Tsang, 2013; Welch et al., 2011). Overall, inductive analysis seeks to 'draw out' themes through iterative reading and re-reading of the data, the objective being to identify initial contextual categories and broad thematic areas as well as differences (Rice & Ezzy, 1999; Thomas, 2006). The inductive approach aims at each subsequent iteration to uncover to additional layers of understanding and in interpreting to

avoid reducing to common denominators, but rather appreciate the diversity and complexity of initial findings. As the inductive iterative readings of the same texts progress, the interpretations move gradually from the specific individual statement to deeper understandings of the content and context described or discussed by the interviewees. This is done so that particular instances can be connected or combined into a bigger picture or general statement (Chinn & Kramer, 1991; Daly, Kellehear, Gliksman, & Daly, 1997).

Following the inductive questioning and open coding process, a subsequent deductive inquiry of the data and the inductive findings was conducted. This puts the texts and the initial readings in context to the current interpretations in literature and theories, such as stakeholder management theory and SD definitions and frameworks (Hsieh & Shannon, 2005; Kyngas & Vanhanen, 1999; Sandelowski, 1995). The deductive analysis process aims to move from general findings in relation to current knowledge to specific recommendations for theory and practice. The strength of this process lies in the ability to retest new findings against existing understanding, concepts and models (Crabtree & Miller, 1999; Hyde, 2000).

To map and verify the iterative data analysis process and support the management of large amounts of interview data, an overarching analysis framework and recording of the individual process was established. The literature emphasises the importance of constructing a framework for analysis that acknowledges the researcher's position in the interplay between data and theory-based understandings (Bryman, 2015; Buchanan & Bryman, 2007; Dubois & Gibbert, 2010). This is shown in the reflective cycles linked to each inductive and deductive cycle as well as occasional and longer term reflexivity across the analysis process. This demonstrates the researcher's own reflective practice, which has become an important aspect of academic practice. As stated previously, the researcher has developed her reflective practice-based

methodology through her learning and teaching in higher education and has developed a distinct pedagogy that combined theory and practice in a 'constructive, explicit and reflective' learning experience for students (Ruge & McCormack, 2017).

However, less addressed in the literature is the question of how and when the knowledge of pre-existing theory enters the qualitative analysis process and how that process of theory building is captured by the researcher (Andersen & Kragh, 2010; Bedeian, 2004). According to Andersen and Kragh (2010, p. 50):

> *Rather than refraining from theoretical predispositions, qualitative researchers should embrace and understand how they interact in their sense-making efforts during theory-building*.

More detailed insights were developed by Dubois and Gilbert, who distilled from several current approaches that theory development from case studies can be facilitated through an analysis framework. It is one that is both 'tight and emergent' and therefore aligns and extends into practice the ontological and epistemological position and beliefs of the researcher (Dubois & Gibbert, 2010).

This resonates with and has influenced the framework for this study, which has a clear sequential structure of inductive, deductive and reflective analysis but allows continuing sense-making and developing of understanding of the contexts, that construction managers engage and interact with. The researcher actively and consciously engaged in the iterative inductive and deductive foci to investigate the data through itself and in its unique industry context and management setting (inductive) as well as in context of the pre-existing knowledge of theory and practice (deductive). What is often ignored in research analysis frameworks, is

the researcher's own reflexivity and acknowledging that sense-making is effected through the emic or insider lens. The researcher through her more than twenty years of construction management expertise brings a detailed appreciation of the construction manager's technical language, professional practice and complexity of contextual settings described in the interviews. The application of the data analysis framework in research practice resulted in the following sequential process of analysis outlined in Table 5 below.

Table 5. Iterative and reflective process for data analysis

Process of data analysis for the identification of key themes		
Sequential analysis	Data processing	Qualitative thematic development
1st reading/ inductive	Open Coding of all interviews	Identify responses related to SD perception/practice/ performance. Analyse broader text passage within interviews (initial broad / open thematic coding).
2nd reading / inductive and reflective	All interviews	Within responses of 1st reading highlight wording, phrases, terminology that interviewees expresses and as key components or define of SD in Building and Construction Industry (thematic colour with added highlighting).
3rd reading / deductive	Interviews grouped in roles (DIR/PM/SM)	Compilation of 2nd reading quotes by roles. Identification of initial common as well as distinct themes with reference to literature.
4th reading / deductive and reflective	All interviews	Compilation of all 2nd reading quotes across all interviews. Identification of initial common as well as distinct themes with reference to literature.
5th reading/ inductive. reflective	All interviews and for individual roles	From initial themes of 3rd and 4th reading, identify first pattern in relation to perception /practice/performance of sustainable development for roles and overall .
6th reading/ deductive and verification across previous iterations	All interviews and for individual roles	From first pattern in 5th reading, deduct research findings for key areas of perception, practice and performance and identify higher level linkages to theory and practice.

Iterative reflective practices for data analysis

> *Learning takes place in the interplay between search and discovery. We are convinced that learning in the research society as a whole would be improved if more of the processes of how we have learned were revealed to the reader* (Dubois & Gadde, 2002, p. 560).

During the initial phase of the interview analysis the researcher's focus was on the first inductive analysis stage and open coding of the data. This involved the reading and re-reading of interviews, gradually establishing broad categories through the specific individual comments and descriptions made by the interviewees. This was applied to each individual interview in order to then capture the initial codes arising, leading to categories and patterns. Glaser's work on conceptualising and theorising from qualitative data (Glaser, 2002) captures this as:

> *… The pattern is named by constantly trying to fit words to it to best capture its imaginary meaning. This constant fitting leads to a best fit name of a pattern, a category or a property of a category. Validity is achieved, after much fitting of words, when the chosen one best represents the pattern* (Glaser, 2002, p. 24).

As an 'insider' to the Australian building and construction industry, prior to working in the university sector as an educator and researcher, this enabled the researcher to undertake in-depth personal interviews with construction professionals on SD in management. This has not been undertaken in Australia before on this important research topic. Prior research has focused not on managers' perceptions and practices but rather on the 'outputs' of SD as the physical buildings and their operations; for example the building's environmental ratings, level of emissions, quantities of energy, water and material consumption. These figures and

industry reports on buildings' environmental performance data, has become extensive and very detailed, including live monitoring and recording. Accordingly, yet seemingly unnoticed, the gap in understanding 'how' the input in terms of managers' SD values, perceptions and practices which are largely determining the quantitative reported building outputs, has widened. As this investigation grew in depth, this rare and important opportunity to capture the detailed insights and experiences of twenty seven Australian building and construction managers, nine business directors, nine project managers and nine on-site managers, was also a significant learning opportunity for the researcher to reflect, revisit and review her own understandings.

During the data analysis stages, the conscious inclusion of a personal reflective cycle between and following the inductive and deductive sequences allowed to question balance, bias and recognise that in this process the researcher was actively constructing and re-constructing knowledge and understanding. This reflective practice leads to the development of a researcher's own reflexivity (Schaffer & Riordan, 2003). It was captured by Le Gallais as she mapped her own personal journey as a researcher, describing the development stages and increasing capacity to reflect and resulting reflexivity (Le Gallais, 2008, p.146):

> *The insider researcher has, as a member of the 'in-group', access to its past and present histories. Such shared experiences engender a sense of sameness leading to the awareness of a group or collective identity. This enables group members to set the boundaries of the way they live and work.*

In this iterative process of data analysis, the researcher would from a reflective mode of investigation turn next to a deductive mindset, by reviewing themes related to how managers with their stakeholders to encourage SD decision-making. The subsequent deductive phase

involves reviewing and reassessing the same data considering the current literature and theoretical positions. This overall iterative process is an intrinsic aspect of the continuing verification of the findings, from initial codes and themes to subsequent key themes and patterns, which in further iterative reviews then reach a level of findings that are able to contribute new knowledge and theoretical understanding of the topic. As further described by Strauss and Corbin (Strauss & Corbin, 1994, 380)

> *there is built into this style of extensive interrelated data collection and theoretical analysis an explicit mandate to strive towards verification…..this is done throughout the course of the research study*.

Undertaking a number of iterative reviews across these highly personal and contextually informed experiences made it possible to develop a number of themes and pattern in relation to the perceptions, practices and performance that are the subject of the research questions. As noted by Mintzberg (1979, p.587)

> *While systematic data create the foundation for our theories, it is the anecdotal data that enable us to do the building. Theory building seems to require rich description, the richness that comes from anecdote. We uncover all kinds of relationships in our hard data, but it is only through the use of this soft data that we are able to explain them.*

Being able to identify the 'soft data', as it is referred to by Mintzberg (Mintzberg, 1979) is an important part of the in-depth data investigation process. In this process, the researcher's conscious positioning as a reflexive researcher with an insider perspective is adding a further dimension to the inductive and deductive interpretation processes (Alvesson et al., 2008; Hardy, 2001; Hardy & Clegg, 1997). In the process of data analysis therefore it has been recorded as an additional cycle of analysis and interpretation.

5.3 Research validity

> *Reliability, validity, generalisability and objectivity are fundamental concerns for quantitative researchers. Some researchers argue that these dimensions are not applicable to qualitative research and a qualitative researcher's tool chest should be geared towards trustworthiness and encompass issues such as credibility, dependability, transferability and confirmability* (Sinkovics & Ghauri, 2008, p. 689).

The statement Sinkovics and Ghauri above captures the extensive discourse in the academic literature on the many characteristics identified as defining and ensuring qualitative research validity (McGrath & Brinberg, 1983; Miles & Huberman, 1984; Seale, 1999; Sinkovics & Alfoldi, 2012; Sykes, 1990). In recent years the equal importance of qualitative and quantitative research methodologies as toolsets for academic inquiry is no longer questioned. What has, however, shifted into focus is that the detailed qualitative research method and design must be validated to assure that reliable outcomes for further empirical and theoretical investigations are achieved (McGrath & Brinberg, 1983; Yang et al., 2006). This means that there can be one or several characteristics that are best suited to address and ensure the validity of the research process and findings in relation to the specific questions, context or phenomena being investigated.

In recent years the literature has established criteria to support the 'trustworthiness' of qualitative research methodology, design and analysis. These criteria vary depending on the detailed inquiry and may include transferability, dependability, confirmability, and authenticity (Guba & Lincoln, 1994; Sinkovics & Alfoldi, 2012), as well as sensitivity to context, commitment and rigour, transparency and coherence, impact and importance (Yardley, 2000). However, these criteria are notably different to the criteria more usually

applied to quantitative research, which focus on objectivity, validity of measurement and size or detail of sample (Guba & Lincoln, 1994; Rolfe, 2006).

Schaffer and Riordan (2003) have argued for more emphasis on the connections from the development of the qualitative research questions, the alignment of the research contexts, and the validation of the research method and design. Jointly these aspects propose a 'good practice' qualitative approach for such issues as emic or etic perspectives, appropriate treatment of culture and data management (Elo et al., 2014; Schaffer & Riordan, 2003). For this research, the specific characteristics of dependability, confirmability and authenticity were drawn from the literature and identified as defining and ensuring qualitative 'good practice' relevant to this research inquiry and its potential future impact (McGrath & Brinberg, 1983; Miles & Huberman, 1984; Rolfe, 2006; Seale, 1999; Sinkovics & Alfoldi, 2012; Sykes, 1990).

Table 6. Research validity criteria: dependability, confirmability and authenticity

Dependability	Dependability has informed the research approach, procedure and process. This means that as set out in this chapter and throughout this study, there is a clear and 'auditable' research trail setting out how this research was developed, designed and conducted (Guba & Lincoln, 1994).
Confirmability	Confirmability, as set out by Geertz (1973) and Charmaz (2008), reflects that the aim of in depth research is to capture the 'thick descriptions' of the social and cultural contexts and phenomena investigated through particular research lenses. It is therefore not critical in terms of confirmability that findings are truths, but rather offer new insights and new knowledge from unique contexts, which enhance understandings in similar or other contexts and may be transferred and inform future contexts.

Authenticity	Authenticity is of personal importance to the emic researcher. The aim is to 'work and live' close to the actual research context and data, remain fair, honest and authentic at each stage of the investigation (Bryman & Bell, 2011; Guba & Lincoln, 1994). The researcher strives to maintain a consistent attitude, integrity and professional conduct whilst undertaking research in the field, as well as during the theoretical analysis and development of findings.

5.4 Sustainable development perceptions: key themes

Through the iterative process of reflective, inductive and deductive data analysis outlined above, five key themes emerged from the interviews concerning the perceptions of sustainable development. These are:

Theme 1: SD integration at early design and project stages

Theme 2: Ongoing conflicts between shorter term financial and longer term SD goals

Theme 3: Focus on environmentally sustainable business and project processes

Theme 4: Taking on a long-term SD perspective for building and construction practice

Theme 5: SD perceptions shaping the future of businesses, industry and society

These five themes were expressed with varying degrees of emphasis in all the interviews with directors, project managers and site managers. Whilst they appear distinct in themselves, they each arose out of these respondents' expressions of values and practices constructed through diverse industry experiences and contexts over time. Through the project and professional experiences each interviewee has had over many years, general and specific aspects of SD were expressed in various ways and examples throughout the interview.

After several iterative cycles of data analysis, as described above, when no further new patterns were identified, the raw findings on SD perceptions could be combined and refined to several distinct themes. Each theme was expressed by at least one or more director, project manager and site manager. Some themes were more strongly expressed by project managers, such as cost-value resolution around SD, which is one of their key responsibilities. Yet none of the themes was expressed by one group only. This is significant and indicates interviewees, in addition to personal, professional and corporate perceptions being articulated, also have a level of common appreciation of SD perception that may relate to building and construction industry perceptions or their corporate roles. This is further investigated in the discussion of findings in Chapter 6.

Theme 1: SD integration at early design and project stages

This theme captures the increasing awareness that commitment for sustainable development needs to be embedded in the early project and design development stages, in order to engage all stakeholders, facilitate execution across all stages and support targeted long-term outcomes. The most common process is for the client or investor to meet with the architect and builders to discuss, develop and then contractually agree on the scope and delivery of the project. This includes sustainable development intentions, specific initiatives, budget and priorities for construction delivery, long-term operational as well as other SD targets.

The following statements by directors, project managers and two site managers respectively represent their beliefs in more detail. The highlighted wordings and phrases reflect the inductive identification of a common pattern and drawing out the common theme on sustainable development perception:

(*SD)… starts at very early stages with the developer or the builder*. *..(at) the designing stage of a development where it's critical ….almost a pre-requisite, I guess, for the designers to say, look, we want to achieve a good environmental status*. (PM1/ Theme 1)

(SD is…) *consideration being given to the impact that a project or a task is going to have on the environment that we live in….a thought process that is considered right from, I guess, the very inception … and when an idea is being developed*. (D5 / Theme 1)

I suppose personally how I connect to (SD)…is probably cost saving, energy efficiency in the future of the building industry but not to take away from design. (SM8/ Theme I)

I think sustainable development for me is the changing of the design to make our buildings more energy efficient and be less damaging to the environment … and better to people's health, I suppose as well, is an important part of it. (SM6/ Theme 1)

Theme 2: Ongoing conflicts between shorter term financial and longer term SD goals

This is a strong theme identified by both project managers and directors as being particularly important to how they perceive and practice SD. As outlined in research done in other industry sectors the tensions between the cost and the value-add of sustainable development plays out across all project stages and processes for making decisions. New insights provided here are the detailed wordings of perceptions highlighting 'how' these building and construction professionals are aware and actively involved in developing, communicating and negotiating longer term SD benefits against short-term client and budget constraints. The highlighted wordings reflect the coding of multi-dimensional perceptions and values and how these conflicts collide in the project decision-making processes:

(SD is) ...obviously managing cost, financially good outcomes for the business, and that will perform well in the current conditions but also moving forward into the future and therefore provide a benefit, not only to the people that are purchasing that product but just longer term… look at it holistically and say, "Righto, well if I'm going to build this building, how long is going to be around

for and if I put in this product, is that going to improve its performance." (PM2/ Theme 2)

..two parts: There's the building component and then the whole of life component… two are grouped together but really they are entirely separate cost benefit arguments when it comes to developing a project, and the two are often looked at the same time but in reality they probably should be separated to make those decisions relating to whole of life costings, because decisions are often made at the start of a project based purely on a financial sense and looked at in a very short timeframe. (PM5 / Theme 2)

(SD is)…..More of a theoretical opportunity that always gets crushed by cost. Everybody has these sustainable ideas but when it comes down to value management and the client's budget there's always less than what the initial concept is. It's one of the things that suffers badly. …I think the definition of sustainability and what people are expecting is quite fluffy and prone to misinterpretation or different levels of interpretation… whereas in fact it (SD) should be everybody's property. (PM7 / Theme 2)

Sustainability can be seen in a number of different ways.. it needs to be financially sustainable but it also needs to be environmentally sustainable. … contributing to the environmental sustainability will in the long run have economic benefits. (D2 / Theme 2*)*

Sustainable development, I think there are probably simple things that can be done, rather than what a lot of people perceive as concepts, designs and things…. I think the desire for positive outcomes is always there - you have to put the dollars into making sure that the organisations and companies survive, you know before you can sometimes have the nice to haves sort of things as well. (D7 / Theme 2)

Theme 3: Focus on environmentally sustainable business and project processes

In addition to Themes 1 and 2, which relate to SD in corporate processes and practices with stakeholders, this theme is specifically about the physical materiality of the building construction. Managers made very clear connections between the on-site building practice, which they oversee, to the resultant environmental actions and impacts:

…encourage to build buildings and developments that are man made and promote…renewable or sustainable energy source. But also to provide things that aren't detrimental to the environment. (PM 8 / Theme 3)

Look to be honest, I don't know a lot about it … from personal experience, which is not much, so all I can tell you that we…recycle our builder's rubbish which I think helps with sustainable building...we're building units at the moment so we try and build them energy efficient. I'm not going to say it's not important to me. (SM1 / Theme 3)

It's pretty broad, I'd say as anything from the building materials you use, through to the inputs used to run the building…. So it's a matter of designing buildings so that their environmental footprint is minimised… with the ideal goal of having energy neutral or positive generating facilities. (D6 / Theme 3)

The most effective and efficient use of limited resources to provide lasting benefits to the environment and to the built form….How we do things in a different way to essentially eliminate waste and re-work, and the best use of our resources. (D1 / Theme 3)

Theme 4: Taking on a long-term SD perspective for building and construction practice

This is a surprisingly strong theme that appeared in the interviews with directors, project managers and site managers. It expresses a clear sense of appreciation of their own management outcomes as physical built environment, for the life of the building and the community that will be utilising and operating it:

(SD is)…the broader context of the buildability and also the environment you're working in… sustainable' is something that's going to be around for a while or last, is the way I see it. Everything's got a life and you're trying to keep something that'll remain in place throughout the time. Buildings do have lives, they're going to last – and they also outdo themselves, their lives as well, so the environment's always changing as well. (PM9 / Theme 4)

I guess it's development within certain principles, so energy efficiency and materials right up to design factors and how we can make a building function better and over its full life cycle and cost less, not necessarily less costs money wise but less costs in materials haulage and that sort of thing and what materials we put in it and what effect that can have to the environment. (SM2 / Theme 4)

I think sustainable development [is] about a final product that's going to be energy efficient, it's going to use materials that are carbon neutral and products that possibly have been recycled. (SM5 / Theme 4)

I would have thought of it to be, whether it's economically sustainable, whether it's environmentally sustainable. I probably would see sustainable development as development that is going keep happening in the future. (SM4 / Theme 4)

Keeping the long-term… yeah, OK. Well I've been in ….. all my life and …we've got.. .a constant flow of work. And it's a good environment to work in. (SM7 / Theme 4)

It is about the practices that we undertake in our delivery of projects. ….of how we can build those projects with as little impact on the environment as we possibly can...it's about the ongoing impact of the operation of that building. (D4 / Theme 4)

Sustainability came into it because it's just good practice at the end of the day, its nothing new. …it's about the materials we use, the life span of the materials, more importantly it's how they're produced. (D9 / Theme 4)

Theme 5: SD perceptions shaping the future of businesses, industry and society

This theme captures the SD aspirations and concerns of construction managers which go beyond their role and their business. Here the long-term sustainability of the industry itself in changing times is questioned and the impact of resource limitations and responsibility as 'stewards of what we've been given here' is part of the managers' construct of SD.

It is thinking longer term and how we're going to use our resources into the future. It's about being able to build and develop something that's going to last longer and also have a lesser impact on the environment and avoid negative impacts on the economy or population. (SM3 / Theme 5)

…The ability to reuse existing and ensure that we're working towards the future… building in a way that we can ensure our future is confirmed and safe… working smarter is definitely a big part. It's just trying to change the culture of the older people, not necessarily within the organisation but within the industry more than anything. (PM3 Theme 5)

…managing development in a way that it's sustainable in the future, to make sure that we've always got the resources to ensure the future of our industry… you always strive to do the right thing if there's an opportunity… You certainly

wouldn't go and do the wrong thing for the sake of convenience,…things in the construction industry as the selection of materials, especially timbers, ensuring they're coming from renewable sources. (PM4 / Theme 5)

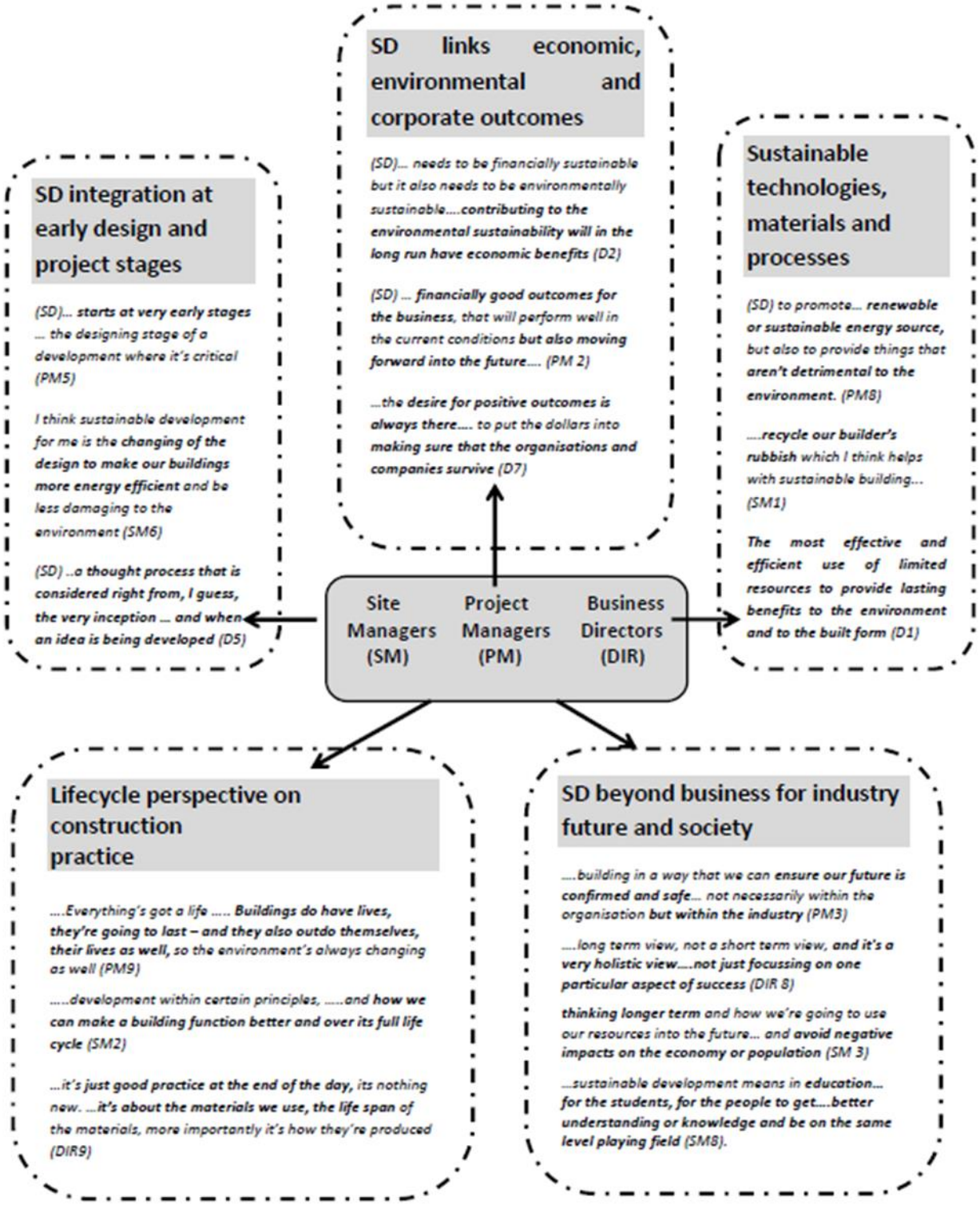
(SD)…is building now that will not damage or change anything for the future or future generations or anything down the track. Designing and constructing buildings that don't…rely on change or they're able to be pulled apart and recycled and reused for the future projects. (PM6 / Theme 5)

With a long-term view, not a short-term view, and it's a very holistic view. … Not just focussing on one particular aspect of success, e.g., did it make money? So it incorporates a lot more into a development than just did it make money, was it on time, has it benefited people..? (D8 / Theme 5)

Sustainable development is an old and a new thing I would suggest in terms of perception, because good practice should be sustainable anyway…..We're accountable in my very personal opinion, to be stewards of what we've been given here and good stewards at that, both from a resource point of view and from a 'what are my kids going to have?' point of view. (D3 / Theme 5)

When initially reflecting on these five key themes of sustainable development perceptions, it seems that building and construction professionals across a range of roles and industry experiences have a broad but common basis of SD values, beliefs and attitudes. The themes themselves cover sustainable development business practices and processes as well as awareness and concerns for future business prospects and long-term sustainability of environment, industry and society. Figure 9 below provides a visual representation of these key themes identified through the data analysis process, which will be discussed in detail in the next chapter.

Figure 9: Managers' sustainable development perception: five key themes



5.5 Chapter Summary

This chapter outlined the development of the data analysis and its application as an iterative inductive and deductive sequence within an overall reflective practice approach by the researcher. The chapter highlighted the importance of the connections in the qualitative methodology from principles to detailed framework and its application. This led to the description of research validity and basis for selection of its criteria of dependability, confirmability and authenticity. The chapter concluded with a presentation of the five key themes drawn from the twenty seven interviews of nine construction directors, nine project managers and nine site managers on sustainable development perceptions, which were briefly introduced and will be analysed in detail in the next chapter on the discussion of findings on SD perceptions and practice.

6.0 Discussion of Findings: Perceptions and Practices

6.1 Introduction

This chapter discusses the findings on SD perceptions and places these in the context of the SD practice experienced by managers in the Australian construction industry. The chapter is set out in two main sections. Firstly, SD in practice, which identifies and reviews the specific practice-focused SD issues and contexts experienced by construction directors, project managers and site managers. Detailed themes are distilled and analysed for each group. The second part of this chapter focuses on SD perceptions in the construction industry itself. Here the specific findings in terms of SD perceptions and practices are reviewed and discussed in combination. This chapter presents how the research arrives at five key themes, which in the construction industry specific context offer an important new finding enabling the conceptualisation of SD perceptions within and across a spectrum of construction industry processes and practices. Chapters 5 and 6 together encompass the development and discussion of these research findings in detail. This provides the basis for Chapter 7 which outlines the contribution of this research to academic theory and management practice in relation to SD.

6.2 Findings: sustainable development in practice

Parallel to the inductive and deductive investigation processes, which made it possible to identify the five key themes that emerged in all the twenty seven interviews of nine construction directors, nine project managers and nine site managers. The same process was then applied to each group of interviewees individually according to their management roles. That process allowed for the investigation and identification of potentially different, related or expanded themes to those identified across roles. Additionally, it provided a deeper insight

into sustainable development perceptions, which are more specific to the roles and responsibilities of directors, project managers and site managers.

Directors

> *Sustainable development is an old and a new thing I would suggest in terms of perception, because good practice should be sustainable anyway…..We're accountable in my very personal opinion, to be stewards of what we've been given here and good stewards at that, both from a resource point of view and from a 'what are my kids going to have?' point of view.* (Director 3)

At the beginning of each interview participants were asked to describe what SD is. These responses whilst using similar expressions appear to vary in terms of scope and perceived context of application for each director interviewed. This seems to initially reflect the findings of several larger-scale research surveys undertaken in recent years. As discussed earlier (see Chapter 3) the predominantly quantitative research studies undertaken to date in relation to sustainability perception and awareness detected a high level of variability and confusion of meaning and discrepancy concerning the perceptions and practices of sustainable development (Abidin, 2010; Chong et al., 2009; Jones et al., 2008; Jones et al., 2010). Upon closer review here and with the opportunity of being able to take into consideration additional descriptions and explanations given by the directors throughout the interviews, three predominant SD perceptions are noted:

Theme 1 / Directors: A broader corporate perspective

Theme 2 / Directors: Effective business processes

Theme 3 / Directors: Sustainable development is not new, but good business practice

Theme 1 / Directors: A broader corporate perspective

…with a ***long-term view, not a short-term view, and it's a very holistic view. Not just focussing on one particular aspect of success****, e.g., did it make money? So it incorporates a lot more into a development than just did it make money, was it on time, has it benefited people..?* (Director 8)

…It's ***pretty broad, I'd say as anything from the building materials you use****, through to the inputs used to run the building.* (Director 6 additional comment) *So it's a matter of designing buildings so that their* ***environmental footprint is minimised****… with the ideal goal of* ***having energy neutral or positive generating facilities***. (Director 6)

Sustainability can be ***seen in a number of different ways****.. it needs to be financially sustainable but it also needs to be environmentally sustainable.* (Director 2 additional comment)*… contributing to the* ***environmental sustainability will in the long run have economic benefits.*** (Director 2)

Theme 2 / Directors: Effective business processes

The most ***effective and efficient use of limited resources to provide lasting benefits*** *to the environment and to the built form.* (Director 1 additional comment): ***How we do things in a different way to essentially eliminate waste and re-work****, and the best use of our resources.* (Director 1)

Consideration being given to ***the impact that a project or a task is going to have*** *on the environment that we live in.* (Director 5 additional comment)***...a thought process that is considered right from, I guess, the very inception*** *… and when an idea is being developed.* (Director 5)

Sustainable development, I think there are ***probably simple things that can be done****, rather than what a lot of people perceive as concepts, designs and things.* ***I think the desire for positive outcomes is always there - you have to put the dollars into making sure (1) that the organisations and companies survive,*** *you know before you can sometimes have the nice to haves sort of things as well.* (Director 7)

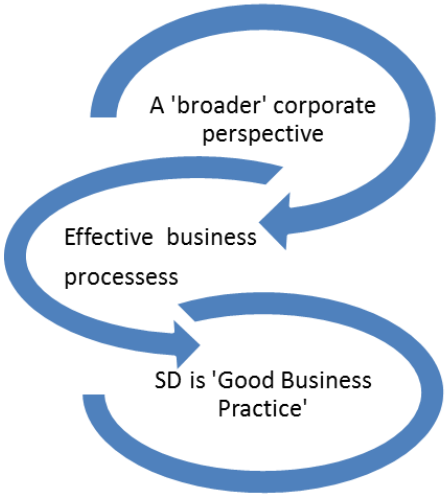
Theme 3 / Directors: Sustainable development is not new, but good business practice

Sustainability came into it because it's just ***good practice at the end of the day, its nothing new****. …it's* ***about the materials we use, the life span of the materials, more importantly it's how they're produced.****'* (Director 9)

Sustainable development is ***an old and a new thing*** *I would suggest in terms of perception, because* ***good practice should be sustainable anyway*****.** (Director 3 additional comment): ***We're accountable in my very personal opinion, to be stewards of what we've been given*** *here and good stewards at that, both from a resource point of view and from a 'what are my kids going to have?' point of view.* (Director 3)

It is about the ***practices that we undertake*** *in our delivery of projects*. (Director 4 additional comment): ***...of how we can build those projects with as little impact on the environment as we possibly can…it's about the ongoing impact of the operation of that building.*** (Director 4)

Figure 10. Directors' sustainable development perceptions – three key themes



These initial extensions of the business directors' perceptions of SD encompass corporate perspectives, awareness of actions and impacts, and appreciation for responsible business practice. Whilst this is extensive in scope and breadth it is aligned with recent research on sustainability and CSR perceptions by Strand et al. (2015) who argue that sustainability can be understood as an 'umbrella construct' and a 'broad concept or idea used loosely to encompass and account for a broad set of diverse phenomena' (Strand et al., 2015).

Project managers

Everything's got a life and you're trying to keep something that'll remain in place throughout the time. Buildings do have lives, they're going to last – and they also outdo themselves, their lives as well, so the environment's always changing as well. (Project Manager 9)

At the beginning of each interview participants were asked to describe what SD means to them. The de-identified project managers (numbered 1 to 9) each responded with their own unique

remarks. Following an initial thematic analysis of these stand-alone statements, six of the nine project managers' responses agreed on the importance for SD to deliver buildings that make a much lower impact on the environment and make a positive and lasting contribution to industry and future generations. The other three responses highlighted the impact that costs can have on SD intentions in a project. One PM made a valuable contribution and suggested a clear difference in the understanding and decision-making processes between short-term cost calculations and long-term corporate benefits.

Theme 1) Managing short-term financial budgets with long-term sustainable development outcomes

> *(SD is) ...obviously managing cost,* ***financially good outcomes for the business****, and that will perform well in the current conditions* ***but also moving forward into the future and therefore provide a benefit, not only to the people that are purchasing that product but just longer term… look at it holistically*** *and say, "Righto, well if I'm going to build this building, how long is going to be around for and if I put in this product, is that going to improve its performance…"* (PM2)

> *… two parts: There's the* ***building component and then the whole of life component****… two are grouped together but really* ***they are entirely separate cost benefit arguments*** *when it comes to developing a project, and the two are often looked at the same time but in reality they probably should be separated to make those decisions relating to whole of life costings, because* ***decisions are often made at the start of a project based purely on a financial sense and looked at in a very short timeframe***. (PM5)

> *(SD is)…..More of* ***a theoretical opportunity that always gets crushed by cost****. Everybody has these sustainable ideas but* ***when it comes down to value management and the client's budget there's always less than what the initial concept is.*** *It's one of the things that suffers badly. ...I think the definition of sustainability and what people are expecting is quite fluffy and prone to misinterpretation or different levels of interpretation… whereas in fact it (SD) should be everybody's property.* (PM7)

Theme 2) Building for a sustainable future and industry - environmental, economic, social

> *(SD)…* ***starts at very early stages with the developer or the builder.*** *..(at) the designing stage of a development where it's critical ....almost a pre-requisite, I guess, for the designers to say, look,* ***we want to achieve a good environmental status****.* (PM1)

…The ability to reuse existing and ensure that we're working towards the future… ***building in a way that we can ensure our future is confirmed and safe…*** *working smarter is definitely a big part. It's just trying to change the culture of the older people,* ***not necessarily within the organisation but within the industry more than anything.*** (PM3)

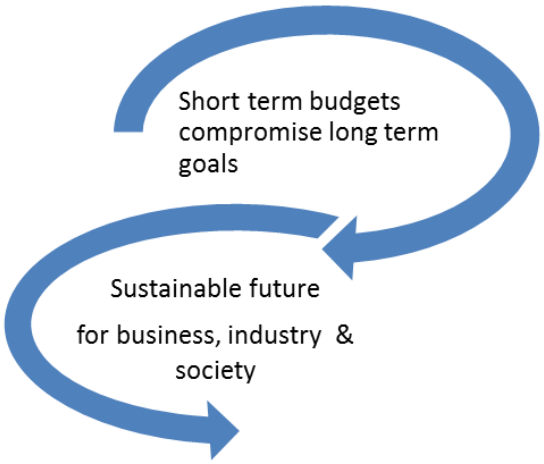
*…**managing development in a way that it's sustainable in the future, to make sure that we've always got the resources to ensure the future of our industry… you always strive to do the right thing if there's an opportunity**… You certainly wouldn't go and do the wrong thing for the sake of convenience…things in the construction industry as the selection of materials, especially timbers, ensuring they're coming from renewable sources*. (PM4)

*(SD)…**is building now that will not damage or change anything for the future or future generations or anything down the track**. Designing and constructing buildings that don't...rely on change or they're* ***able to be pulled apart and recycled and reused for the future projects.*** (PM 6)

…encourage to build ***buildings and developments that are manmade and promote…renewable or sustainable energy source****. But also to provide* ***things that aren't detrimental to the environment.*** (PM8)

*(SD is**)… the broader context of the buildability and also the environment you're working in… sustainable' is something that's going to be around for a while or last,** is the way I see it. Everything's got a life and you're trying to* ***keep something that'll remain in place throughout the time. Buildings do have lives, they're going to last*** *– and they also outdo themselves, their lives as well, so the environment's always changing as well*. (PM 9)

Figure 11. Project managers' sustainable development perceptions – two key themes



Site managers

> *It is thinking longer term and how we're going to use our resources into the future. It's about being able to build and develop something that's going to last longer and also have a lesser impact on the environment and avoid negative impacts on the economy or population. (Site Manager 3)*

The site manager's role is focused on the construction site and he/she implements the project manager's program through the timely, cost-efficient, safe and good quality day-to-day construction activities. The site managers' extensive technical skills set are developed over many decades of on-site experience. In addition, they require highly developed interpersonal communication and leadership skills in order to engage with all project stakeholders, on-site trades, contractors, suppliers, as well as the client, project management and technical consultant teams.

Research by Salzmann et al., (2005) asserted that managers in firms are primarily focused on the economic and financial outcomes, 'since managers are naturally focused on the economic dimensions of corporate responsibility'(Salzmann et al., 2005, p.30). The research findings here confirm that this is one aspect of SD perceptions, but furthermore as found in this study, managers and in particular the site managers and the project managers, all hold strong beliefs and values in relation to corporate performance and longer term concerns for stakeholders, business and the industry.

At the beginning of each interview participants were asked to describe what SD meant to them. The de-identified site managers here numbered 1 to 9 each responded with their own personal

views and experiences. Following an initial thematic analysis of these stand-alone statements, three key themes relate to:

Theme 1: Site Managers: Improving project design and early project decision-making

Theme 2: Site Managers: Energy efficiency and reducing negative environmental impact through better construction materials selection and recycling

Theme 3: Site Managers: Longer term considerations and decision-making for economy, industry and people

Theme 1) Improving design decision-making and education within industry

> *I think* ***sustainable development for me is the changing of the design to make our buildings more energy efficient and be less damaging to the environment*** *… and* ***better to people's health*** *I suppose as well, is an important part of it*. (SM6)

> *(SD)…* ***starts at very early stages with the developer or the builder. ..(at) the designing stage of a development*** *where it's critical ….almost a pre-requisite, I guess, for the designers to say, look, we want* ***to achieve a good environmental status***. (SM9)

> *To me* ***sustainable development means in education or in the building industry****…. For it to be sustainable in the future I think we really need to* ***improve in those areas for the students for the people to get, I suppose, better understanding or knowledge and be on the same level playing field.*** *I suppose personally how I connect to …is probably* ***cost saving, energy efficiency in the future of the building industry but not to take away from design***. (SM8)

Theme 2) Energy Efficiency and reducing negative environmental impact through better construction material selection and recycling

> *Look to be honest, I don't know a lot about it … from personal experience, which is not much, so all I can tell you that we…****recycle our builder's rubbish which I think helps with sustainable building...we're building units at the moment so we try and build them energy efficient****. I'm not going to say it's not important to me but…* (SM1)

> *I guess it's* ***development within certain principles, so energy efficiency and materials right up to design factors and how we can make a building function better and over its full life cycle and cost less,*** *not necessarily less costs money wise*

but less costs in materials haulage and that sort of thing and ***what materials we put in it and what effect that can have to the environment.*** (SM2)

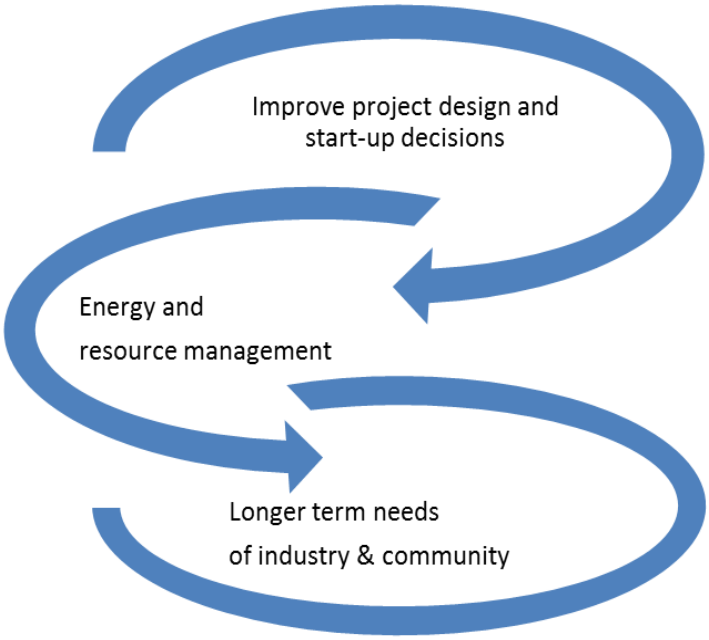
I think sustainable development (is) about a ***final product that's going to be energy efficient, it's going to use materials that are carbon neutral and products that possibly have been recycled.*** (SM5)

Theme 3) Longer term considerations and decision-making for economy, industry and people

It is ***thinking longer term and how we're going to use our resources into the future****. It's about being able to build and develop something that's* ***going to last longer and also have a lesser impact on the environment and avoid negative impacts on the economy or population***. (SM3)

I would have thought of it to be, whether it's ***economically sustainable, whether it's environmentally sustainable.*** *I probably would see* ***sustainable development as development that is going keep happening in the future.*** (SM4)

Figure 12: Site managers' sustainable development perceptions – three key themes



6.3 Findings: SD perceptions in industry context

The review of the management literature and theoretical context for this research outlined in Chapter 3 identified the knowledge gap around 'how' managers are constructing their understanding of SD through their industry-specific experiences and knowledge developed through their work as construction managers. There are further findings in the research literature, currently interpreted as a 'fragmented' understanding of SD in the construction industry, but where a common and accepted definition is lacking. This led to a particular focus in this study using a qualitative methodology to get a deeper understanding of issues through individual managers' lenses on how the corporate responsive attitudes play out in the dynamic context of managing diverse stakeholders, the broader community and industry expectations, and corporate business interests (Drucker, 1988; Freeman, 1984; Freeman et al., 2007; Mankelow & Quazi, 2007; Porter & Kramer, 2006).

The academic research focusing on the construction industry highlighted the complexities between business management theory and the practicalities of building and construction management. The literature here also identified discrepancies in relation to SD perceptions and business values as well as lack of knowledge about the managers' decision-making and SD perceptions (Chong et al., 2009; Christen & Schmidt, 2012; Kaatz et al., 2006). It is in this context that the findings of the five key themes for managing SD identified in this research are being discussed and further interpreted. It is instructive here to ask how the identified themes individually and jointly relate to the current discourse on sustainable development in the literature and offer a starting point for a deeper investigation into management beliefs and values of Australian building and construction professionals. As in many other sectors, the building and construction industry in Australia does not have an industry-specific or agreed definition of sustainable development. However, it does refer back and builds on the initial

and still widely used definition from the Brundtland report, '…development that meets the needs of the present without compromising the ability of future generations to meet their own needs' in a number of ways (WCED, 1987, p.43).

The Green Building Council of Australia (GBCA), which is a national membership body representing the property and construction sector has also adopted the Brundtland definition in its corporate statements and highlights the need for the property industry to balance environmental, social and economic issues for the future (GBCA. 2016). Furthermore, the Australian Government's *National Strategy for Ecologically Sustainable Development* (NSESD) was released in 1992 with the following definition:

> *Using, conserving and enhancing the community's resources so that ecological processes, on which life depends, are maintained, and the total quality of life, now and in the future, can be increased* (Australian Government, 1992).

The above GBCA and Australian federal government definitions of sustainable development build on the components of the Brundtland definition by emphasising the notion of considering how future generations may be affected by resource use decisions taken for current purposes. This reflects a strong commitment with a focus on the industry's financial and sustainable future. These SD values and attitudes are reflected in two of the five themes expressed by directors, project managers and site managers:

> Theme 4: Taking on a long-term SD perspective for building and construction practice
>
> Theme 5: SD perceptions shaping the future of businesses, industry and society

In fact, these themes go beyond that of the GBCA, in that the long-term perspective incorporates current industry practice and extends to businesses, industry and society, and not just the industry itself. There appears to be an underlying sentiment of understanding and even sense of responsibility through the construction managers' lens for what future generations will need. The interviewees do not know yet who will need what, how much, why, or for how long. It is, however, clear to them that these needs exist and that their sustainable development values and decisions are connected to long-term outcomes and future conditions for business, industry and society. Throughout the interviews and the wording used by the directors and managers there was a consistently strong sense of appreciation for ensuring sustainable development into the future. Wordings to confirm were for example: 'working towards the future… building in a way that we can ensure our future is confirmed and safe' (PM3 / Theme 5); and 'It's about being able to build and develop something that's going to last longer and also have a lesser impact on the environment and avoid negative impacts on the economy or population' (SM3 / Theme 5).

In relation to the applicability of the Brundtland definition of sustainable development to business and industry, the specific views in the literature extend from being too vague and not actually leading to clear instructions or solutions (Becker, Jahn, & Stiess, 1999; Christen & Schmidt, 2012) to being a complex conceptual structure (Costa & Menichini, 2013; Springett, 2003) and a plurality of epistemological and normative perspectives (Sneddon et al., 2006).
The initial findings from this investigation into how building and construction professionals identify sustainable development as part of their day-to-day practice is reflected in the themes 1, 2 and 3, which capture the values and insights through actively managing for SD in the construction industry:

Theme 1: Importance of SD integration from early design with shared responsibility

Theme 2: Ongoing conflicts between shorter term financial and longer term SD goals

Theme 3: Focus on environmentally sustainable business and project processes

These SD themes appear quite specific in themselves and not linked to each other. On first sight, this may support what has in the management literature been interpreted as fragmented. Porter and Kramer's (2006) business management research found that SD perceptions and values are not well aligned with the core business values and strategy (Porter & Kramer, 2006) and lacking integration into corporate CSR policies and sustainability management practices (Hopwood et al., 2005; Springett, 2003). These observations, interpreted as fragmented and disconnected, were further examined and suggested a potential knowledge gap in corporate perceptions of what is good for business in the future and how corporate practices can be directed to that end (Garriga & Melé, 2004; Quazi & O'Brien, 2000). This is an important element of the current discourse linking CSR and SD, seeking to better understand current practice and underlying motivation in business management in order to progress the relevance and uptake of CSR and SD in future.

International research with a focus on SD in the construction sector made similar findings. In a survey of 200 US civil engineering professionals (Chong et al., 2009) employed a quantitative methodology to analyse responses to the question: 'How do you define sustainability as it relates to the architecture, engineering and construction community?' The responses ranged from environmental protection, life cycle performance, recycling and efficient material use to improving design and construction processes, financial bottom line and social and cultural factors such as quality of life. Chong et al. interpreted this extensive spread of responses as 'confusion about perception and understanding of sustainability &

sustainable construction'. They also argued that knowledge of sustainable construction 'is fragmented within the industry and construction stakeholders do not have a platform to integrate their knowledge' (Chong et al., 2009, p. 153).

Research by Jones et al. (2010) reviewed 300 annual reports of engineering firms and found that a range of environmental, economic and community practices were included in the corporate vision, mission and annual reports. However, it has been found that many companies seemed to apply the concept of sustainability in practices that were in fact very different from their stated corporate policies. A different interpretation on this issue is offered by Atkinson (2008, p.245) who also identified that sustainability and sustainable development, while they 'convey different meanings to different people, at their heart is a concern about how current decisions affect future well-being'. This assertion seeks to shift the discourse from a reductive search for a single definition or construct of SD through large-scale quantitative surveys. Atkinson instead argues that the underlying value and importance of SD in the construction industry is linked to a concern for the future well-being more broadly. This refers back and reflects to the broader Brundtland definition of SD that 'meets the needs of the present without compromising the ability of future generations to meet their own needs' (WCED, 1987, p.43).

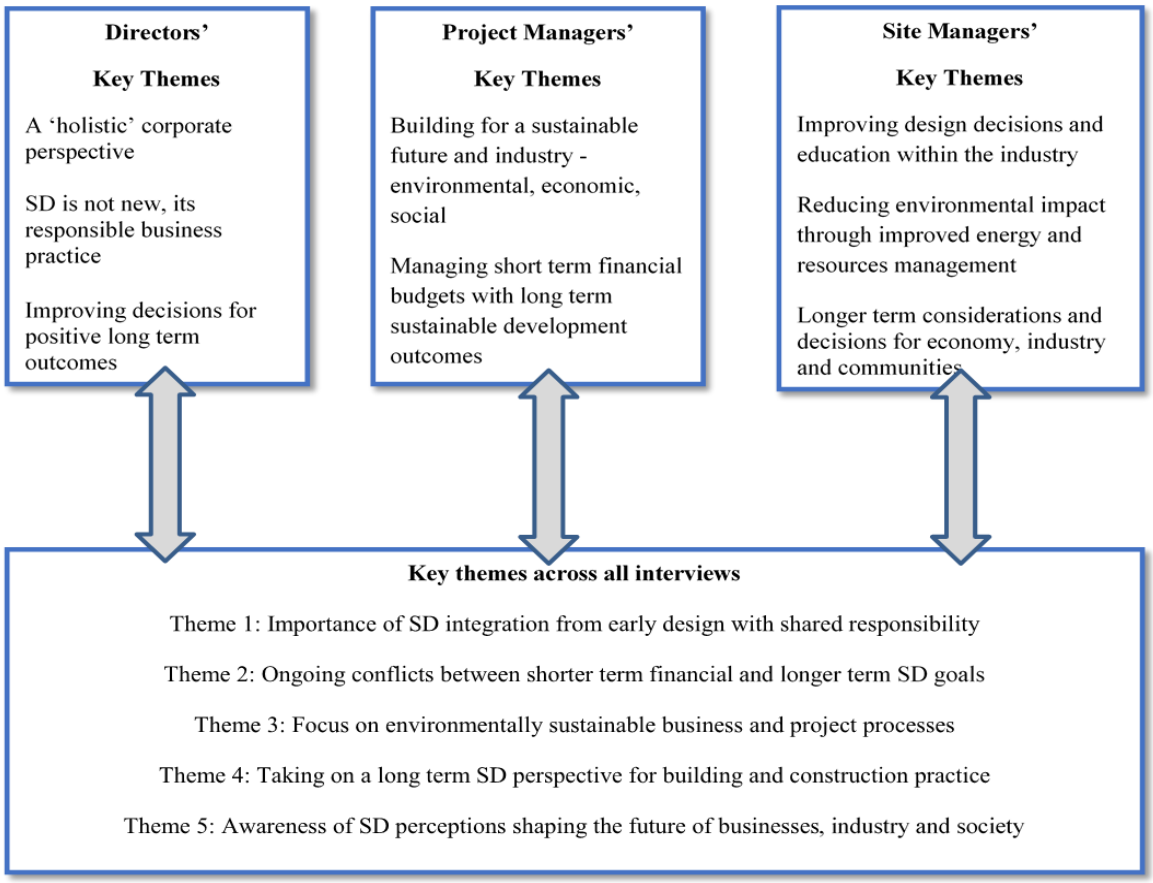
In this context, the findings from this research point towards a new differentiation identified through the qualitative methodology and data analysis, resulting in more detailed insights than achieved via larger number of survey responses analysed in terms of frequency of response terms and reduced to commonalities, rather than depth and differentiation. As outlined in the previous chapter, inductive and deductive reviews of the participants' responses regarding their SD perceptions and values indicated indeed that every interviewee used different, though at times similar wording, with varying emphasis and examples related to their professional

practice, through which they have constructed their understandings. These findings indicate that construction managers' SD perceptions go beyond their immediate short- term project delivery role to meet cost, time, quality standards and extends to a deeper personal possibly moral identity and ethical values in relation to SD recognising their decisions and longer term outcomes impact industry, communities and societies (Chowdhury, 2017; Chowdhury & Fernando, 2014; Vitell, Keith, & Mathur, 2011).

After the initial qualitative stages of data analysis, the findings of this research also revealed that SD perceptions are diverse and personally constructed by the twenty seven professionals, nine business directors, nine project managers and nine on-site managers, who were interviewed. Yet, with further iterative analysis and the researcher's reflection on the industry-specific descriptions and contexts, these initial diverse patterns can be further distilled in how they are linked to the five main themes discussed in the previous chapter.

Combined, these themes confirm Atkinson's proposition, that individually expressed SD perceptions align around key common concerns (Atkinson, 2008). These are concerns for the longer term perspective for SD construction practice and its impact on the future of construction businesses, the industry and society. The other three themes relate to SD management engagement aspect such as: early integration into the project management; management activities balancing short to longer term economic value decisions and creating SD outcomes through sustainable business and project processes.

Figure 13. Key themes: sustainable development perceptions of construction managers



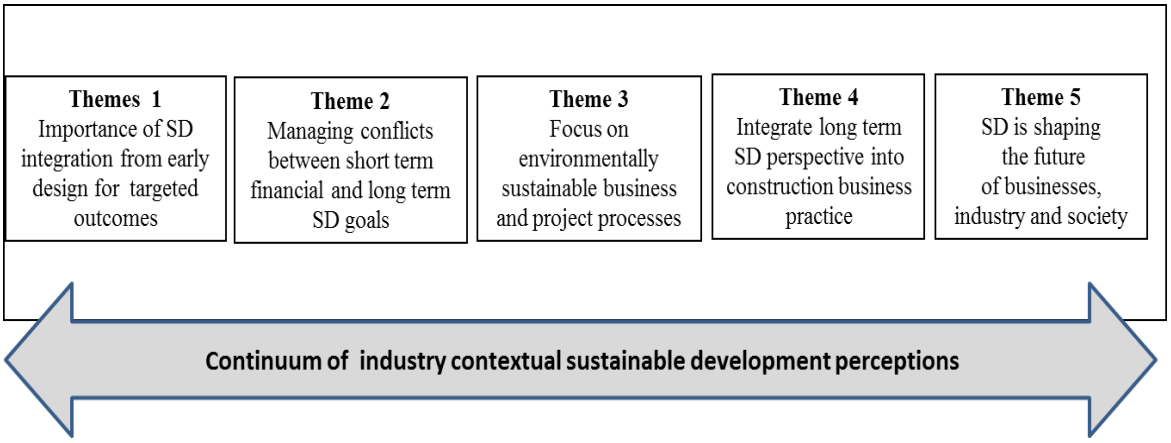
Whilst this research is based on a small but purposively selected sample, the findings clearly show there is a broad alignment of key themes across the construction management spectrum. Important also is the finding, that the themes are reflected in responses across management roles of directors, project managers and site managers.

The findings on SD perceptions for managers in Australia's building and construction sector contribute to the understanding that sustainable development is conceptually complex, multi-dimensional and influenced by contexts and stakeholders alike (Amran et al., 2015; Christen & Schmidt, 2012; Sneddon et al., 2006; Springett, 2013). It can therefore be argued that

findings from this research indicate how Australian construction managers' SD perceptions are shaped by their industry-specific focus of continually managing complex issues, stakeholders and processes with an understanding of responsibility and concern for long-term business, industry and community outcomes.

Figure 14 below indicates that the identified themes are significant and that, in addition, these values are not specific to professional role or the individual corporate business, but instead are embedded more deeply in underlying construction industry values and beliefs. This indicates that construction managers bring industry-specific perceptions and values to their day-to-day routines for the management of sustainable development in construction.

Figure 14. Construction industry-specific sustainable development perceptions



An important additional finding emerged when the managers were asked about their sustainability skills development and training. Only one of the twenty seven interviewees had received formal training on sustainable construction at tertiary level. All others, despite an average of twenty years working in the professional industry and with a high level of expertise, have had no formal training in or about sustainability in construction to date as they would like to be more skilled in this area. The construction managers interviewed have developed their own sustainability perceptions and practices through project-specific roles and over long-term business practice, working closely with expert stakeholders such as clients, architects and

engineers. Based on these findings, Figure 14 below provides a conceptual diagram visualising this continuum of industry sustainability perceptions.

The five key themes identified in this research as a contextual continuum for sustainable development perceptions are broadly aligned with main construction management and life cycle stages at the individual project level. This includes initial design development and approval, cost planning, material selection and procurement, followed by on-site construction practice. Then, after completion and occupation the longer term efficient operation and eventual reuse and redevelopment leads to the next design process.

It, therefore, can be argued that construction managers in their day-to-day practice are actively operating across an industry-specific sustainable development spectrum, which broadly aligns with Brundtland's visions and definition. This relates in particular to identified themes 4 and 5 on sustainable development practices and long-term outcomes for business, industry and society. Whilst the academic discourse has criticised the Brundtland definition as being too broad in wording and scope and not addressing continued profit-seeking management decisions limiting long-term sustainable development outcomes (Christen & Schmidt, 2012; Langhelle, 1999; Sneddon et al., 2006; Springett, 2003). The contextual importance in the construction industry of a complex stakeholder network also aligns with some of the theoretical management research on stakeholder management (Fuchs, 2017; Hörisch et al., 2014), sustainable development management in developing countries (Azmat, 2013; Azmat & Ha, 2013; Du Plessis, 2001). The plurality of epistemological and normative perspectives in management research (Bebbington, 2001; Ebner & Baumgartner, 2006; Hopwood et al., 2005; Langhelle, 1999; Sneddon et al., 2006) is evident. Hopwood et al. (2005, p. 47) adequately sums up this wide field as:

There is no such thing as a single unified philosophy of sustainable development; there is no sustainable development 'ism'. In most cases people bring to the debates on sustainable development already existing political and philosophical outlooks are.

Adding to this 'outlook' are the industry-specific perceptions and values that construction managers bring to their day-to-day practice of sustainable development and stakeholder engagement (Heikkurinen, 2013; Pedersen, 2010).

6.4 Chapter Summary

The findings from the iterative inductive and deductive data analysis process identified five key themes of managers' sustainable development perceptions:

Theme 1: Importance of SD integration at early design and project stages

Theme 2: Ongoing conflicts between shorter term financial and longer term SD goals

Theme 3: Focus on environmentally sustainable business and project processes

Theme 4: Taking on a long-term SD perspective for building and construction practice

Theme 5: SD Perceptions shaping the future of businesses, industry and society

These themes were reviewed and discussed in relation to the current literature and can now be positioned to respond to the research questions of this study:

Firstly, how is sustainable development understood and perceived in the construction industry? The important finding made here was that whilst the industry to date has not develop or accepted an agreed definition of sustainable development, there is an underlying understanding of SD which has been captured through the identification of five key themes, which together reflect a current spectrum of SD perceptions. It as further demonstrated that these themes are not reflecting fragmented views or a discrepancy in understanding of SD, as argued in other studies. Instead, when viewed as individually valid and aligned to the SD management activities, the key themes link and spread across the main stages of the construction

engagement processes. The themes were found to be relevant across all managers interviewed, irrespective of their role and not specific to a business setting but rather appear grounded in common industry values and practices. This additional finding explains the diversity of expressions, based on individual experiences and meaning, but the strong common themes, which point towards industry-specific guiding beliefs and values.

Secondly, How are stakeholder relationships developed and managed in the construction industry ? This research found that in the Australian construction sector, active stakeholder engagement and management is a critical core activity for the business and essential for successful and responsible service delivery. As outlined earlier, managers in the construction industry engage daily with a large number and diverse groups of stakeholders. These stakeholders include the key groups noted in the theoretical models of clients, staff, financier, customer and community but there are several features inherent in the construction sector which give stakeholder management greater complexity. Based on the findings of this research, a shift in stakeholder management focus for SD is proposed from the 'the firm' as central and predominantly static actor in the current theoretical models to the 'facilitating manager' who is actively involved in building and nurturing stakeholder relationships, including managing the relationships between stakeholders towards common SD outcomes. In small to medium businesses of the Australian construction industry, the individual construction managers take on the central position of facilitating stakeholder management for each project. In this context and in terms of classical stakeholder management theory, the firm is moved into the background as underlying legal corporate entity responsible for operational processes and corporate governance

Third research questions asked how construction industry-specific contexts shape sustainable development management? Through this research investigation it is now apparent that

building and construction professionals across a range of roles and industry experiences have developed a common basis of industry-specific SD values, beliefs and attitudes. The themes themselves cover sustainable development business practice and processes from initial design and stakeholder value statements, leading to the complex cost planning and pre-construction contracting, followed by on and off-site stakeholder management during all SD construction stages and finally to the post-construction continuation of the stakeholder network engagement. The construction managers also expressed concerns for future business prospects and long-term sustainability of the environment, industry and society. Figure 15 below provides a visual representation illustrating the connection of the identified SD perceptions across the five key themes to the main building and construction stages, proposing a sustainable development spectrum for construction managers.

Figure 15. Sustainable Development Spectrum for Construction Managers

Key SD themes identified	**Theme 1** Importance of SD integration from early design for targeted outcomes	**Theme 2** Managing conflicts between short term financial and long term SD goals	**Theme 3** Focus on sustainable business and project processes and practice	**Theme 4** Integrate long term SD perspective into business practice	**Theme 5** SD is shaping the future businesses, industry and society
Stakeholder Engagement across key construction management stages	Project start-up ad Initial stakeholder value alignment	Construction costing and SD value allocation in contracts and roles	On-site construction and stakeholder management processes	Post-construction management for longer term SD operation	Long term perspective concerned with inter-generational and industry adaptability
	Sustainable Development Spectrum for Construction Managers				
Directors	1	2	2	2	2
Project Managers	1	3	1	1	3
Site Manager	2	0	1	4	2
Subtotal confirming key theme	4	5	4	7	7

These findings are further discussed and linked to the contribution to academic theory and industry in the next and final chapter.

7.0 Contribution to theory and practice

7.1 Introduction

This chapter presents the theoretical contributions of this research and outlines relevant implications for industry practice. The research findings enabled contributions to be made in three key areas relating to stakeholder management. Firstly, the research findings confirm the strategic importance for the construction industry of effective stakeholder management. The findings also extended our understanding of stakeholder management by highlighting that, in the context of pursuing SD outcomes in the construction sector, the values and beliefs of stakeholders are an important element to understand when facilitating successful stakeholder engagement. Secondly, the research findings indicate that it is the managers themselves who are the main actors in stakeholder engagement. Stakeholder management theory attaches a strong emphasis to the firm being at the centre of stakeholder engagement and being the main actor. This investigation in the Australian construction industry, however, indicate that it is in fact the managers who take on the key role drawing on their personal values with a more limited reference to the firm. Thus the findings reduce the emphasis on the firm and shift towards the manager in a central facilitating role for SD outcomes. Thirdly, the findings argue for a revision of current theoretical positions which imply a relatively static and unchanging linear approach to stakeholder engagement, to one that recognises that managers are engaged in highly dynamic processes of stakeholder management in industry specific contexts.

7.2 Strategic dimension of stakeholder management: confirmed and extended

As rightly understood by Freeman and underscored with his seminal book *Strategic Management: A stakeholder approach* (Freeman, 1984), the, then, new emphasis on

addressing stakeholder and shareholder expectations represented a shift in strategic thinking and subsequent management action. The initial contribution of stakeholder theory was to expand the predominant neo-liberal and profit orientated shareholder theories prevailing at that time (Friedman, 1970; Solow, 1974). By incorporating stakeholder interests and impacts on theory and practice, considering how stakeholders were affected became a critical aspect of a firm's strategic management horizon (Barney, 1986; Carroll, 1991; Drucker, 1984; Freeman, 1984). Possibly of equally strategic importance was the timing of the adoption of stakeholder theory by management theorists. In this respect stakeholder management theory converged with established CSR perspectives which had already expanded and pushed corporate responsibility principles towards the triple bottom line concept of economic, environmental and social benefits for shareholders and stakeholders (Carroll, 1979; Drucker, 1984; Elkington, 1998; McGuire, 1963; Preston & Post, 1975; Sethi, 1975).

This research found that in the Australian construction sector, active stakeholder engagement and management is a critical core activity for the business and essential for successful and responsible service delivery. As outlined earlier, managers in the construction industry engage daily with a large number and diverse groups of stakeholders. These stakeholders include the key groups noted in the theoretical models of clients, staff, financier, customer and community but there are several features inherent in the construction sector which give stakeholder management greater complexity. Due to the complex and lengthy processes of planning, design, approval, construction, handover, operation and long-term building management, the construction manager may engage with some stakeholders over a number of years as well as with a wide range of government agencies/departments/ authorities. In that period government policy, staff and approval processes may change and the manager's role will evolve to include

facilitating these government stakeholders and their processes and practices to align with the targeted SD project immediate and projected longer term outcomes.

Construction managers are employed and contracted under the legal entity of the business to deliver a physical outcome, usually a building or infrastructure for a client or community of future users. The business sets out legal, contractual and governance parameters to ensure compliance and payments, but it is the role and responsibility of the individual project manager to establish the extensive and complex human interactions between very diverse stakeholders and their interests over the major stages of construction project management for SD outcomes. In terms of business strategy, to position for success and to ensure future sustainability of the business through a successful management approach, stakeholder engagement is at the centre of 'how and why' construction businesses are operating.

This research on sustainable development perceptions and practices in the Australian construction industry confirms the relevance of stakeholder management theory regarding the importance of actively engaging and working with diverse stakeholder groups. In addition, this research found that the theoretical emphasis on who the stakeholder groups are and how they affect or be affected by the business of the firm should be expanded. This research argues for the theoretical extension from the approach of stakeholder identification and assignment of roles, to encompass a deeper understanding and engagement with stakeholders' SD beliefs and values in order to enhance long-term SD outcomes. This new shift in the theoretical argument highlights the importance and influence of the individual stakeholder representative with identifiable values, roles and influences across the stakeholder relationship network.

Findings of this research also highlight how the beliefs and values of the individual manager in construction firms determine 'how' the management of stakeholder relationships across the spheres of their influence take place in specific contexts, project stages or situations. This is done in keeping with and to deliver on the central values, business pratice, industry context and broader socio-cultural environment. The key responsibilities of managers in the construction industry are to design, contract, build and deliver agreed-to and outcomes for the client, comply with government legislation and/or regulations, and be in tune with communities' expectations. Managers also take care of budgets, government approval, safety, quality and timeliness to ensure professional and corporate expectations and the longer term reputation and sustainability of the industry. This extensive scope demonstrates the inherent complexity of managing stakeholder relationships.

7.3 Central role of the firm: reduced and shifted towards the manager

A second contribution of this research is to review and advance our understanding of the role of the firm *vis-à-vis* the managers in terms of stakeholder management theory and practice. The findings from this research into SD management in the construction industry found that the managers themselves engage, lead and shape the stakeholder management processes, whilst the firm fulfils the role of the legal entity for the project and sets out the contractual parameters for example the project timing, financing and progress payments.

Based on the findings of this research, a shift in stakeholder management focus for SD is proposed from the 'the firm' as central and predominantly static actor in the current theoretical models to the 'facilitating manager' who is actively involved in building and nurturing stakeholder relationships, including managing the relationships between stakeholders towards

common SD outcomes. In small to medium businesses of the Australian construction industry, the individual construction managers take on the central position of facilitating stakeholder management for each project. In this context and in terms of classical stakeholder management theory, the firm is moved into the background as underlying legal corporate entity responsible for operational processes and corporate governance. The manager's values and practices to make this happen are shaped by established industry beliefs and values. These have not been formalised or regulated by the firm or business, but rather reflect recurring phases and stages of the manager's experience and the continual adaptation to individual contexts and issues.

The qualitative research methodology and social-constructivist lens of investigation has allowed the research to uncover detailed insights into sustainable development beliefs and values which identified industry-specific expressions of 'how' the managers perceive, engage with and manage relationships with a wide range of stakeholders. As outlined in the data analysis and findings, managers in the construction industry are consciously and actively facilitating engagement within dynamic project and industry contexts to achieve outcomes. Key findings included the existence of underlying sustainable development perceptions and values, which informed individual and corporate day-to-day decisions and actions between stakeholders, which have impact across wider stakeholder relationships. The identified perceptions of SD can be described as common or unifying elements and relate to underlying industry sector values and beliefs, which insiders draw upon regarding business ethics, personal management attributes and general 'rules of engagement'. This was confirmed and identified in detail through the thematic analysis of SD perceptions, which were interpreted and aligned across the key stages of construction stakeholder management and SD project delivery.

The centralised and static theoretical conceptualisation of stakeholder management by Freeman assumed that by placing the firm at the centre, it also implicitly represented the managers' perceptions and values to be the same as the firm's. Throughout its theoretical development over the last thirty years, stakeholder management theory has retained the 'firm' or the 'business' at the centre of its conceptual management decision-making. Whilst the neo-classical economic models have captured the duty of the firm to make a profit for shareholders, these have not included the underlying values and broader perspective of the modern 'marketplace' or industry specific contexts within these decisions are being made. Van Marrewijk discussed in detail the basis of common values and norms (Van Marrewijk, 2003, p.100):

> *According to various sources in academic literature…common values and norms play a major role in shaping society. Once it was the government elite that stated the societal values, later business leaders added theirs. Along with the process of democratization, representatives of the civil society have increasingly been introducing "common" values and norms and acting upon them to make government and business respond to these values.*

Underlying beliefs and values provide a strong linkage to the engagement of stakeholders in corporate context. This finds particular application in the building and construction industry, where the ultimate physical building outcome and resultant built environment is fundamentally based on a complex network of stakeholder negotiations and decision-making. These negotiations and decisions relate back to delivering and achieving the agreed project SD goals and values and are aligned with time, cost, safety and quality expectations and compliance:

> *…in capitalism stakeholders do not act in a moral vacuum but cooperate around values. Based on these values, stakeholders have to negotiate to create mutual*

> *interests. Applying this to the context of sustainability management requires sustainability to be one of these values (maybe even the most important value) around which stakeholders cooperate* (Freeman et al., 2000, cited by Höerisch et al., 2014, p. 326).

Freeman et al. (Freeman et al., 2007) acknowledge the importance of values in relationship management but firmly retain the central positioning of the firm:

> *… These firms also see the import of values and relationships with stakeholders as a critical part of their ongoing success. Stakeholder theory begins with the assumption that values are necessarily and explicitly a part of doing business* (p. 364).

This research found that there is indeed a 'common core' of industry-grounded values as expressed by Schwartz and Carroll (Schwartz & Carroll, 2008) and that the individuals through their stakeholder management roles in their businesses are continually engaging, referring and relating their decisions and actions to the agreed SD values and targeted outcomes. Recent research by Holden, Linnerud and Bannister (Holden, Linnerud, & Banister, 2017) confirms the value based focus for the management of sustainable development:

> *Sustainable development is a normative value system, on a par with human rights, democracy and freedom (and it is closely interlinked with all these systems). Thus, sustainable development is essentially a strong ethical, or moral, pronouncement as to what should be done. We call such a pronouncement a moral imperative*
> (Holden et al., 2017, p. 3).

The findings from this research identified that the individual manager's SD beliefs and values are central to how the stakeholder management is actioned. Whilst each manager interviewed

expressed SD perception and practices in personal terms and wordings, the data analysis identified key common themes, based on underlying industry-based spectrum of values and practices. These were not determined by the firm, but the managers themselves and applied in relation to the specific stakeholder and project-specific management context to achieve the desired SD outcomes.

In this industry, individual managers are putting their own SD perceptions into action, as well as their values and professional skills, in order to carry out stakeholder engagement activities. Furthermore, it was apparent that the small to medium-sized businesses that the managers are employed by did not have explicit SD perceptions and values that the managers were instructed to apply. The businesses provided a proven financial, contractual and safe construction operating environment within which each manager engages individually with their diverse and changing stakeholders throughout each project stage. The managers' role and responsibility reflected the firm, but it is the individual managers who took on the central role in all stakeholder engagement and management processes and importantly they provide the required values or making sure they are adhered to by other personnel.

Theoretical models of stakeholder engagement have evolved over the last several decades, including in such as areas as further categorising stakeholders as primary or secondary as well as internal or external. However although called for by authors such as Frooman (Frooman, 1999) and Key (Key, 1999), models do not yet capture inter-relational linkages between the firm at the centre of the model and the internal and external stakeholders. This increased questioning and renewed focus on the positioning of the firm indicates the theoretical boundary for management thinking which, after Frooman and Key, moves towards the conceptualisation of complex and dynamic stakeholder inter-relationships and networks. The

underlying question and critique remain, that the Freeman model is in essence an extension of the 'firm-centric' and economic focused model with the firm managing the stakeholder engagement process.

This aspect has been raised as an important issue by Key (Key, 1999), who describes Freeman's theory as a positivist reduction for simplicity versus interpretivist which is broadened for complexity. She argues that theories provide a way to shape and order

> "*reality" as we observe it by creating "models" of reality if you will, they almost by necessity simplify that which is being explained. While theory attempts to map or mirror reality, complexity may be lost in the trade off of simplifying in order to achieve clarity and understanding* (Key, 1999, p. 317).

One of the key gaps in the current debate on stakeholder management theory is that the assumed reductive theoretical process remains removed from modern management context and has not been sufficiently and empirically tested against industry-specific management contexts and the very complex way in which managerial decisions have to be made (Bird & Waters, 1987; Costa & Menichini, 2013; Moodley et al., 2008; Schwartz & Carroll, 2008; Wheeler et al., 2003).

Replacing in the construction industry context the 'firm' with the individual 'manager' as the central and activating role of the theoretical model of stakeholder theory offers additional new insights and opportunities for consideration. This theoretical shift towards the manager's role emphasises the importance of understanding the manager's perceptions and practices as these are shaping stakeholder relationships and, in the construction industry, supporting long-term

built environment outcomes for clients, customers, and communities. Reconceptualising stakeholders from the perspective of managers rather than the firm is therefore important.

In the current research on SD in management it was found that the individual manager, whilst employed and representing the firm or business, is personally developing and managing the wide range of stakeholder relationships for the client, supporting project progress, as well as managing any inter or intra-stakeholder conflict or disagreements, in order to achieved agreed outcomes. As was further found and discussed in Chapters 5 and 6, another manager in the same firm or another firm will have different SD perceptions and values and hence apply these differently in his/her personal management approach. The key finding from the current research is that each construction manager has expressed different SD perceptions and ways of managing the stakeholder dynamics in the individual contexts and stakeholder relationship networks encountered and which they are engaging in on a daily basis. Whilst expressed as uniquely individual experiences, the qualitative research analysis distilled a 'process of managing' for SD that aligns along an industry-specific spectrum of skills and services. This SD perception and practice spectrum was found not to be firm-specific, but instead appeared to be based on broader industry and project-specific values and activities.

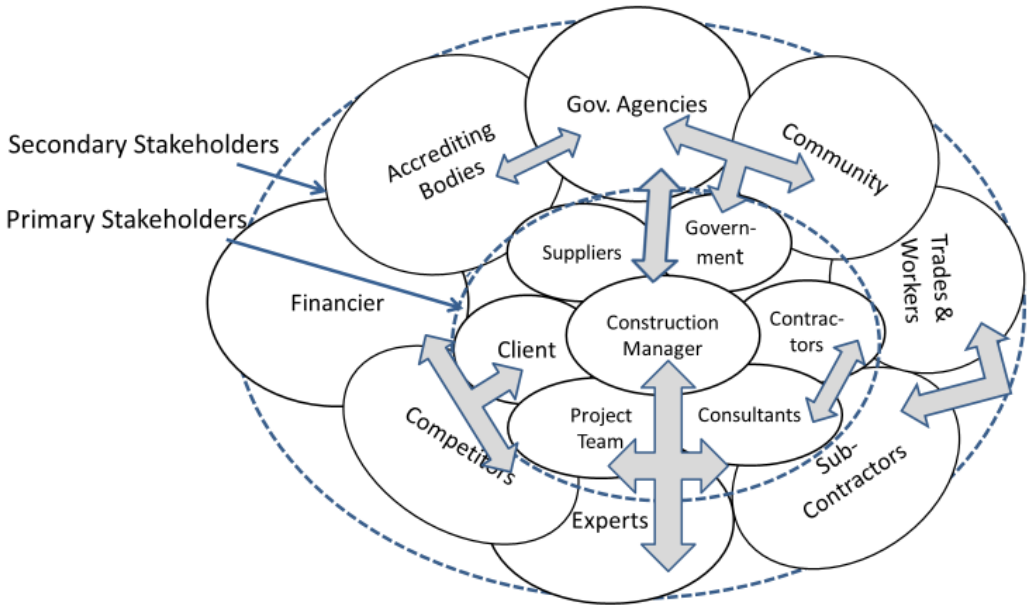
To sum up, findings emerging from this research make contributions to a better understanding of stakeholder management mechanisms, chiefly by highlighting the role of managers as the central focal point in stakeholder management, rather than the firm. The research identified a shift in the stakeholder management focus from the 'firm' as a central and static actor to the 'facilitating manager' who is actively involved in stakeholder relationships management. In small to medium businesses of the Australian construction industry, the individual construction managers take on the central position of facilitating stakeholder management for

each project. In this context and in terms of classical stakeholder management theory, the firm is moved into the background as underlying legal corporate entity responsible for operational processes and corporate governance. The manager's values and practices to make this happen are shaped by established industry beliefs and values. These have not been formalised or regulated by the firm or business, but rather reflect recurring phases and stages of the manager's experience and the continual adaptation to individual contexts and issues.

7.4 Engagement with stakeholders: extended from static to dynamic interrelationships

The third theoretical contribution is the re-conceptualisation of 'stakeholder management' from a corporate terminology towards the dialectic processes and important skill of 'managing stakeholder relationships' as expressed and enacted by the construction managers in this research. The initial Freeman model describes 'stakeholder management' as the identification of the stakeholder by the firm and separate engagement between the firm and each individually identified stakeholder or group, such as client, customer, competitors, financier (Freeman, 1984). Whilst this conceptual model later expanded 'stakeholders' into primary and secondary or internal and external stakeholders to the business, it still assumes these are separable in a prevailing 'one on one' management relationships between the firm at the centre and each individual stakeholder in seemingly disparate contexts to the firm and other stakeholders (Wheeler et al., 2003). The findings from this research concerning the building and construction industry showed the existence of interconnected contexts with highly dynamic, continually adapting, and at times 'messy', engagement across a diverse network of stakeholder relationship. To illustrate this, Figure 16 below depicts the scope of potential stakeholder engagement involved during the start-up phase of a construction project seeking to achieve SD outcomes.

Figure 16. Construction project start-up inter-stakeholder engagement



Due to these dynamic and continually developing stakeholder relationships the manager's central role is as a facilitator with individual stakeholders and across diverse or connected stakeholder groups and networks to promote consensus, resolve conflicts and achieve decision-making and progress across the SD management spectrum towards common values and agreed SD outcomes (Alam, Kabir, & Chaudhri, 2014; Selsky & Parker, 2005).

Findings showed that construction managers have to be able to understand a wide range of stakeholders' views and values and develop consensus outcomes across several and often conflicting shareholder interests and networks in order to progress each project stage and continue SD integration as well as underlying economic, environmental and broader outcomes for stakeholder communities. This requires the manager and a number of relevant stakeholders during the engagement process for SD to also appreciate and engage in each other's SD values and expectations. The dynamic and continually evolving stakeholder relationship in a complex industry is at the centre of construction managers' day-to-day activities. This research provides empirical evidence of how the industry-specific spectrum of SD management, as

identified in the research findings, is applied in practice. These findings advance the theoretical discourse of stakeholder management towards a dynamic, multifaceted and multi-objective engagement by its managers (Laplume, Sonpar, & Litz, 2008).

Improved communications and information systems available for businesses in the 2000s, together with the speed of globalisation and technological rationalisation meant that virtually everyone and everything, everywhere, can 'affect or be affected' by the decisions and actions of a business enterprise (Fassin, 2009, p. 117) and therefore be a stakeholder. This significant shift in management thinking and practice enhances the point made by Key (1999), that stakeholder management theory of the 1980s and 1990s cannot address the complex problems of the 21st century with reference to environmental, urban and broader socio-political issues. This is particularly given the dynamics in the emerging economies of China, India, Australasia and in Africa. Researchers are increasingly focused on investigating and redefining the boundaries of the firm and further broadening management thinking within global and technological contexts (Orts & Strudler, 2002; Sternberg, 1997). Fassin achieved a major breakthrough and proposed the first dynamic model capturing the modern reality of not just stakeholder identification but stakeholder connections and relationships (Fassin, 2009). Höerisch et al. (2014, p.330) emphasised that the focus is not on stakeholder management but rather 'managing stakeholder relationships' and 'mutual sustainability interests'. This has previously been raised by Helin et al. (Helin, Jensen, & Sandström, 2013) as well as Phillips (Phillips, 2003), who argue that stakeholders are different to each other and hence the engagement varies depending on circumstances, relationships and context.

Findings from this research reflect and confirm several key elements of Fassin's theoretical conceptualisation of stakeholder management. These relate to removing the firm as the central

focus and replacing it with ‘management’, as a verb, a corporate skill and activity that is conducted within the firm or corporation surrounding it. This important shift of emphasis is significant and reflected in the views held by managers interviewed for this research. Findings highlight that managers are aware and acting ‘within’ the broader corporate and project context, but are themselves actively determining, actioning and managing stakeholder relationships in their own sphere of day-to-day business practices.

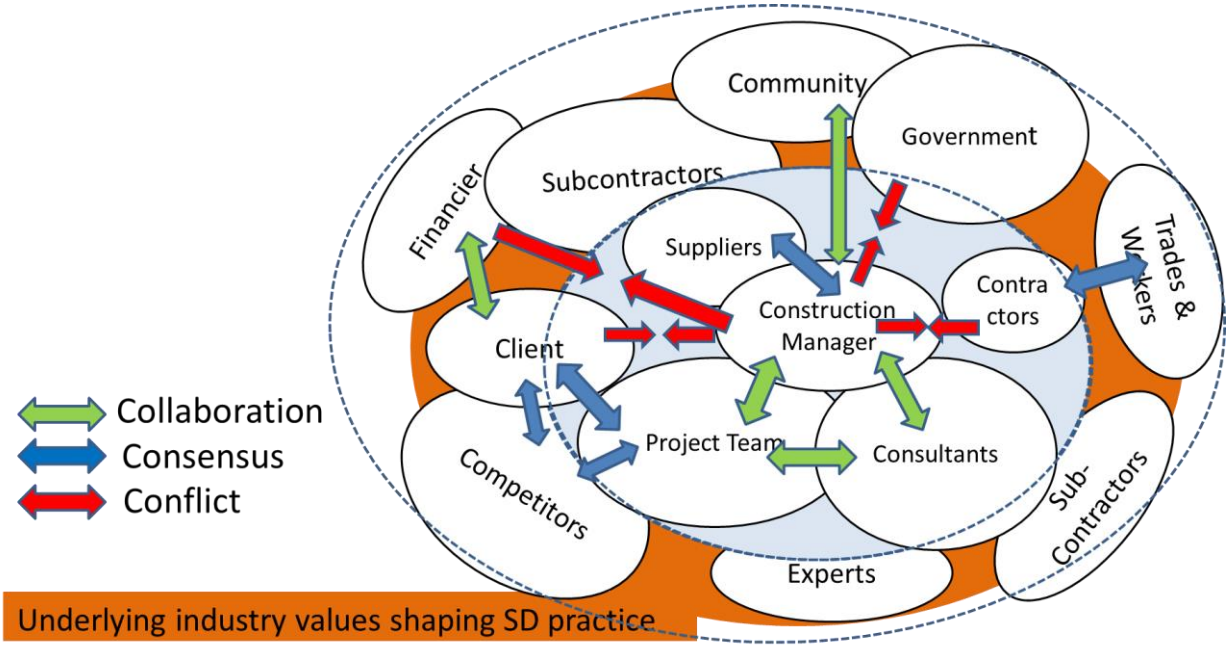
The new categorisation of stakeholders by Fassin (Fassin, 2009) relates to three distinct groups: firstly, ‘stakeholders’ who actively hold, and manage the stakes for the business; secondly, the ‘stake watchers’ who watch over a stake, do not have a direct claim, but protect and support the direct stakeholder, for example, industry bodies, unions, financiers; and thirdly, the ‘stake keepers’ who are furthest removed from the direct holders of the ‘stake’. This last group, however, is still able to exert influence and control, for example government policy-makers and/or regulators, the media or urban interest groups. In his model, Fassin has removed the ‘firm’ from the centre of Freeman’s model and has placed ‘management’ in the centre. He does not discuss this shift in more detail himself. It is, however, of relevance, as findings from this research support Fassin’s approach and in addition propose the next conceptual step to more clearly define the core of ‘management’.

Fassin’s work managed to reconceptualise the strategic dimension of stakeholder theory in management. He discussed the ‘major shortcomings’ of the ‘boundaries and level of firm environment’ and ‘ambivalent position of pressure groups and regulators’ (Fassin, 2008). This relates closely to findings from this research on manager’s perceptions of government regulators not enacting government policy commitments and exerting pressure on the management to reduce cost and thereby compromise the very SD parameters the government

stipulated in its policies and values statements to the key stakeholders. Examples given by interviewees indicated how stakeholders are shifting their positions in relation to the central beliefs and values set out for the project and to their own policy positions. Another example of this dynamic repositioning of stakeholders to or away from each other, as primary and secondary stakeholders, refers to non-compliant competitors or project contractors who are not adequately committed to the central SD values and project targets and require substantial time and effort in the 'management of stakeholder relationships' by directors, project managers and on-site managers. The active management of dynamic stakeholder relationships in regard to the central sustainable development values and goals, is a critical skill in the building and construction industry.

Figure 17 below illustrates as an example the dynamic interconnectedness of stakeholder relations at a point in time. In this instance shifting from the early project design stage (findings for key theme 1) to the more cost and skills sensitive contract procurement stage (findings for key theme 2). The diagram captures the manager at the centre engaging across the construction specific stakeholder network facilitating consensus, resolving conflict and supporting collaboration for SD outcomes.

Figure 17. Construction manager facilitating SD in dynamic stakeholder contexts



Stakeholder management is significantly more complex and often messy in terms of its changes through difficult project stages and resolution of issues and conflicts.

Managers interviewed in this research provided various illustrations of the dynamic nature of stakeholder engagement. For example, a change in SD beliefs and values of one or several stakeholders during a project decision making stage may affect the entire stakeholder relationships network and create a new management dimension for the manager. This is a frequent occurrence at all project stages and may include changing the priorities by the client and financer, additional SD conditions required by the approving authorities, unplanned irresponsible actions by sub-contractors who may use unapproved or unsustainable materials or practices. These are problems that can seriously compromise or endanger a construction project and SD outcomes.

7.5 Chapter summary

This chapter outlined the three areas of theoretical contributions delivered through this research. Firstly, the central and strategic focus of stakeholder management theory was confirmed and the importance of stakeholders for construction managers extended. Secondly, the research identified a shift in the stakeholder management focus from the 'firm' as a central and static actor to the 'facilitating manager' who is actively involved in stakeholder relationship management. Thirdly, stakeholder engagement was conceptually revised and expanded from static individual roles to managing dynamic stakeholder relationships. Table 7 below summarises the contribution that this research has made to theory and understanding of practice.

Table 7: Research contribution to theory and practice

Contribution to Stakeholder Management Theory			
Theoretical Dimension	**Current theoretical assumptions**	**Research contribution: theoretical context**	**Research contribution: industry context**
Stakeholder strategic dimension Importance of identifying stakeholder role and impact on, or impacted by the activities of the business Freeman, (1984, 2007 & 2009), Carroll (1979, 1991 & 2010)	Theory promotes strategic planning and identification of stakeholder groups and roles (primary or secondary). This can inform the potential influence or impact of stakeholders on the business, may determine the level of engagement, activities and targeted business outcomes.	**Strategic dimension is confirmed and expanded** In the Australian construction industry stakeholders are of critical importance at all stages of business activities. The stakeholder groups are diverse and vary in role and impact from project to project and their importance and influence within a project varies over time. Stakeholder management is therefore critical, dynamic and of high strategic importance for each construction manager and the business	Active engagement and stakeholder management practice by construction managers and businesses is confirmed. Stakeholder management for SD outcomes can now be better understood and be more clearly positioned in its strategic importance. SD education and SD skills development for manager is currently lacking within the industry.

Central role of the firm The firm or business is in a central and controlling position of the stakeholder management theory and its conceptual models Orts & Strudler (2002), Sternberg (1997), Key (1999)	The underlying theoretical premise assumes that the stakeholder context serves the firm. The stakeholders are being individually addressed and their potential impact on the firm is managed to assure targeted business outcomes. This implies that shareholders at the 'centre' are controlling the stakeholder management processes.	**Central role of firm is revised and shifted towards the Manager** In small to medium businesses of the Australian construction industry, the individual construction managers take on the central position of facilitating stakeholder management for each project. In this context and in terms of classical stakeholder management theory, the firm is moved into the background as underlying legal corporate entity responsible for operational processes and corporate governance.	Australian construction managers are taking on the central facilitating role of stakeholder management for SD outcomes. However, this is not made explicit in terms of skills development, education and importance of their role to the business and its successful operation.
Managing dynamic stakeholder networks in industry specific context. Laplume, Sonpar, & Litz, (2008) Fassin, Y. (2009), Helin, S., Jensen, T., & Sandström, J. (2013)	The current theoretical concepts for stakeholder management theory assume a static and linear to hierarchical engagement from the centre of the firm to each individual stakeholder and back to the firm.	**New theoretical parameter: dynamic stakeholder management** In the Australian construction industry context, individual stakeholders and groups vary in their role, engagement level and impacts. This results in a dynamic and continual interaction of stakeholders and the firm's manager facilitating the interactions across a newly identified spectrum of stakeholder management activities for sustainable development outcomes.	The increasingly dynamic and interactive stakeholder management processes in the modern construction industry are yet to be fully understood and addressed. This research highlights critical aspects for the emerging modern management contexts.

This study made important contributions to theory in the realm of construction and building sector-specific SD practices. It has been found that the building and construction managers who were interviewed all hold defined personal sustainable development values and beliefs, not linked to corporate values or firm-specific practices; they are in fact grounded in broader and longer term values learned through their work in the construction industry. These beliefs and values inform how the directors, project managers and site managers engage and manage stakeholder relationships. This extends the theoretical discourse which since the late 1990s has questioned and criticised the underlying utilitarian and positivistic generalisation of earlier decades (Bird & Waters, 1987; Costa & Menichini, 2013; Moodley et al., 2008; Schwartz &

Carroll, 2008; Wheeler et al., 2003). The research findings of this study suggest that instead of the 'firm', the core of stakeholder management theory is the 'beliefs and values' of managers that connect and facilitate overall stakeholder management for SD.

The concept and practice of 'stakeholder management' is therefore shifted from the predominantly prescribed linear and one or two-way isolated corporate activity that goes out from and is retained by the firm. Based on the findings of this research it is argued that instead 'managing stakeholder relationships and networks' in continually changing and dynamic contexts is what managers in the building and construction industry facilitate and engage in. In small to medium businesses of the Australian construction industry, the individual construction managers take on the central position of facilitating stakeholder management for each project. This proposed important shift in theoretical perspective and position of managers in stakeholder engagement entails an increased role, skills and responsibilities of managing the SD dynamics across the stakeholder networks.

8.0 Conclusion

This novel research has been undertaken at a time when the building and construction sector in Australia and internationally is adapting to dynamic imperatives facing the sector. This research has made significant contributions to theory and practice in an industry sector which has an increasing impact on long-term sustainable development outcomes nationally and internationally. Modern business managers in the construction/building industry are seeking to deliver positive economic, environmental as well as social outcomes for their clients and communities. In Australia, the sustainable development perceptions and practices of managers tasked in leading and delivering these outcomes have to date not been investigated. This research addressed this significant knowledge gap and examined construction managers' perceptions and values for sustainable development and what they actually do when working with their businesses, clients and communities.

The theoretical context discussed in the international literature has pointed out the increasing gap and growing need to develop an understanding of sustainable development in management, its implementation and performance (Du Plessis, 2002; Matar et al., 2008; Vollenbroek, 2002). Prior research undertaken outside Australia, found that 'sustainable development' conveyed different meanings to different people in the industry (Atkinson, 2008) and interpreted these seemingly diverse responses as 'fragmented within the industry and construction stakeholders do not have a platform to integrate their knowledge' (Chong et al., 2009)

This research utilised stakeholder management theory (Donaldson & Preston, 1995; Freeman, 1984; Freeman et al., 2007) as the primary theoretical lens, in order to investigate the boundaries of the firm and management thinking within global and technological contexts (Orts & Strudler, 2002; Sternberg, 1997). The theoretical management literature has highlighted the

need for more in-depth inquiries into industry-specific contexts to advance knowledge and make a contribution to academic theory and industry practice (Barnett, 2007; Costa & Menichini, 2013; Kurucz et al., 2008).

A qualitative case study methodology was developed and used here to collate and analyse in-depth data through personal interviews with nine construction directors, nine project managers and nine site managers equally spread across three building and construction businesses.
This methodological approach and perspective allowed to investigate the key research questions:

1) How is sustainable development understood and perceived in the construction industry?
2) How are stakeholder relationships developed and managed in the construction industry?
3) How do construction industry-specific contexts shape sustainable development management?

8.1 Key findings

The research findings identified that Australian construction managers have distinct SD values and perceptions. These perceptions initially appeared as disconnected or fragmented as described in other international construction industry studies. However, iterative analysis and using the researcher's knowledge and practice of the construction industry, enabled the identification of five key SD themes. The identification of these themes enabled for the first time a process of thematically mapping and interpreting manager's SD perceptions across a distinct spectrum of construction management stages. This identification of the spectrum of beliefs and values highlights the importance and impact of sustainability considerations ranging from early project start-up and design development for client approval through themes

related to cost planning and complex procurement for sustainable material and on-site construction practice. The construction managers also outlined their management awareness and engagement towards longer term sustainable operation and concerns about the future skills needs and capacity of the construction industry to deliver long-lasting SD outcomes for clients, businesses and communities.

8.2 Contribution to theory

This thesis makes three distinct contributions to theory. Firstly, the conceptual and strategic importance of engaging and managing increasing numbers of stakeholders in the construction management context was confirmed and extended. Secondly, the findings from the research provide the basis to propose a theoretical shift in the stakeholder management focus from the 'firm' as a central and static actor to centre on the 'facilitating manager' who is actively involved in stakeholder relationships management. Thirdly, stakeholder engagement was conceptually revised and expanded from static individual roles to managing dynamic stakeholder relationships and networks across the stages of the construction management spectrum. The research highlighted the continually changing and often 'messy' engagement that managers have across complex networks of stakeholders, which in turn influence each other. This confirms a shift in industry practice from the prevailing static theoretical models to the multi-dimensional stakeholder relationship networks.

8.3 Contribution to management practice

The thesis also makes a distinct contribution to management practice. The research identified the existence of a range of SD values and practices in the construction sector reaching across, and linking, design and construction project cycles to longer term community interests and future industry skills capacity. This insight highlights the importance for construction

managers to make their managerial values and beliefs more explicit from the 'front end' of the project and be an active facilitator for sustainable development across all stages of the design and construction spectrum. For industry stakeholders and educators alike, this research opens new avenues to integrate sustainable development management skills and practices into construction education programs and continuing professional development.

8.4 Research limitations and future research opportunities

This research resulted in a number of new findings and contributions to theory and implications for management practice. However, it also has several limitations. The data collection from twenty seven construction managers, which were purposively selected due to their comparable industry management expertise in three small to medium construction businesses. As outlined in Chapter 4, the selected sample size is larger than in other focused investigations and suitable for a defined contextual setting. However, it is limited at this stage in its transferability to larger businesses, construction sectors in other countries and other industry sectors in Australia or internationally. Further research can utilise this research methodology and design, but with appropriate consideration of factors specific the industry sectors, country and contextual conditions investigated.

The development of research findings were informed and shaped by the researcher's insider perspective. The interpretivist lens, which is an important aspect of the qualitative research methodology, may also be perceived as a limiting or subjective parameter by researchers working from a positivist or reductive analytical position. These findings shift the research perspective of sustainable development in construction management. This further highlights the importance for construction managers to make their management values and beliefs more explicit from the 'front end' of the project and be an active facilitator for sustainable

development across all design and construction management processes with clear linkages to longer term outcomes for future users and communities. Further research opportunities include international collaboration to extend and apply this research methodology to other sectors or internationally to specific industry, for example small to medium businesses in other countries in order to expand the understanding their sustainable development perceptions and practices. This could include the development of a broader industry based model, following additional data collection on SD practices in the Australian construction sector.

For industry stakeholders and educators alike this research opens new avenues to integrate sustainable development as management skill and practice into construction education and continuing professional development more broadly. It engages with the need to enhance strategic management perspectives for closer alignment with the complex dynamics experienced by industry managers in their day to day practice.

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10.0 Appendices

Appendix 1 Human research ethics approval

UNIVERSITY OF CANBERRA
AUSTRALIA'S CAPITAL UNIVERSITY

3 March 2014

APPROVED - Project number 14-37

Assistant Professor Gesa Ruge
Faculty of Business, Government & Law
University of Canberra
Canberra ACT 2601

Dear Gesa,

The Human Research Ethics Committee has considered your application to conduct research with human subjects for the project titled **Sustainable development in management of Building and Construction businesses in Australia – perception, practice and performance.**

Approval is granted until 30 June 2015.

The following general conditions apply to your approval.

These requirements are determined by University policy and the ***National Statement on Ethical Conduct in Human Research*** (National Health and Medical Research Council, 2007).

Monitoring:	You, in conjunction with your supervisor, must assist the Committee to monitor the conduct of approved research by completing and promptly returning project review forms, which will be sent to you at the end of your project and, in the case of extended research, at least annually during the approval period.
Discontinuation of research:	You, in conjunction with your supervisor, must inform the Committee, giving reasons, if the research is not conducted or is discontinued before the expected date of completion.
Extension of approval:	If your project will not be complete by the expiry date stated above, you must apply in writing for extension of approval. Application should be made before current approval expires; should specify a new completion date; should include reasons for your request.
Retention and storage of data:	University policy states that all research data must be stored securely, on University premises, for a minimum of five years. You must ensure that all records are transferred to the University when the project is complete.
Contact details and notification of changes:	All email contact should use the UC email address. You should advise the Committee of any change of address during or soon after the approval period including, if appropriate, email address(es).

Yours sincerely
Human Research Ethics Committee

Hendryk Flaegel
Research Ethics & Compliance Officer
Research Services Office
T
E hendryk.flaegel@canberra.edu.au

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Australian Government Higher Education Registered Provider Number (CRICOS): 00212K

Appendix 2 Invitation to participate in the research project

UNIVERSITY OF CANBERRA
AUSTRALIA'S CAPITAL UNIVERSITY

Invitation to participate in the research project:

"Sustainable development in management of Building and Construction businesses in Australia - perception, practice and performance"

This research wants to find out how sustainable development (SD) works as a management practice and how SD is understood and applied within building and construction businesses. To date, current SD perceptions, practices and performance of the Australian building and construction businesses in management, rather than through individual project outcomes, have not been investigated in detail. With the importance of SD outcomes growing in Australia and globally, the findings of this research will be of interest to the Australian building and construction industry and government, as well as contribute to research and theoretical development of SD and management theories.

The study involves your participation in a semi-structured interview and informal conversation about your ideas and experience with sustainable development in the Australian Building and Construction Sector. The interview will be conducted in your office or a site nearby, which is convenient to you and will take about 30 to 45 minutes. If time allows, I would also appreciate the opportunity of a tour of one of your project sites or your business, where sustainable development initiatives are being implemented. All interviews and site visits will be pre-arranged and confirmed for a time and place convenient to you.

As this research is an essential part of my PhD, I will be the principle researcher and primary point of contact for any questions you may. It is also important for you to know, that the participation in this research is completely voluntary, and you are free to withdraw your participation at any stage of the questionnaire. The information provided in your interview will be treated confidential, with no names of persons or company noted in my research. Please see also the *Participant Information Form* attached, which provides more detailed information on this project. If you have questions at any time please contact me directly on gesa.ruge@canberra.edu.au or via mobile on 0423055964.

Yours sincerely,

Gesa Ruge

Appendix 3 Participant information form

University of Canberra

Faculty of Business, Government & Law

Participant Information Form

Research Project: Sustainable development in management of building and construction businesses in Australia - perception, practice and performance.

Dear Participant,

Thank you for considering to participate in this study. The following provides you with some information on the research project.

What is the study about?

This research wants to find out how sustainable development (SD) works as a management practice and how SD is understood and applied within building and construction businesses. To date, current SD perceptions, practices and performance of the Australian building and construction businesses in management, rather than through individual project outcomes, have not been investigated in detail. With the importance of SD outcomes growing in Australia and globally, the findings of this research will be of interest to the Australian building and construction industry and government, as well as contribute to research and theoretical development of SD and management theories

Who is carrying out the study?

This study is being conducted by Mrs Gesa Ruge, PhD candidate at the School of Management, University of Canberra (UC). Mrs Ruge has over 20 years of experience in the Building and Construction industry and Europe and she is also a part - time staff member at UC lecturing in Building and Construction Management. For any queries regarding this research project, please email gesa.ruge@canberra.edu.au

What is the aim of the study?

The research aims and objectives of this study are to:

• investigate how current perceptions, practices and performance of sustainable development are informing management of building and construction businesses in Australia,

• contribute to the knowledge and theory of management, in particular Social Contract Theory,

• develop a novel research agenda, linking the field of sustainable development to management theory and its practice to the building and construction sector in Australia, and

• investigate opportunities for future research in other business sectors nationally and internationally.

What does the study involve?

The study involves your participation in a semi-structured interview and informal conversation about your ideas and experience with sustainable development in the Australian Building and Construction Sector. The interview will be conducted in your office or a site nearby, which is convenient to you and will take about 30 to 45 minutes. I will seek your written consent prior to starting the interview. If time allows, I would also appreciate the opportunity of a tour of your site or business, where sustainable development initiatives are being implemented. All interviews and site visits will be pre-arranged and confirmed for a time and place convenient to you.

What are the benefits for you and your organisation

This study aims to provide you with new insights and an opportunity to reflect on how knowledge is defined, developed and transferred in a day to day working operation. The research reports and any publications will be made available to you and may provide a range of opportunities to discuss and develop these further. You may also like to include the findings in your own internal reporting and reviews.

How much time will the study take?

The semi-structured interviews will take about 45 minutes. I may request a follow-up interview or meeting, only if needed and again seek your approval and consent before any follow-up interview. I am seeking to make the interview context as comfortable as possible and you will be able to ask for clarifications or more information at any time during the interview.

Can you withdraw from the study?

Yes, you can withdraw at any time from the study. Your participation in this study is completely voluntarily.

I will ask for your consent at the beginning of the interview, but you are not under any obligation to consent. If you do not consent to any questions you can withdraw at any time.

How will the information be kept and treated?

I will treat all data collected and recorded, as confidential and only myself as primary researcher will have access to information collected through this research project. Privacy and confidentiality will be maintained at all times. All data will be kept securely at a password protected file at the University of Canberra for a maximum of five years, after which the data will be deleted. A report or

conference paper of the study may be submitted for publication, but I will ensure that no individual participants will be identifiable in such a report.

Will any participation costs be incurred?

As participant you will not be incurring any costs, besides offering your time and possibly your office or meeting room as interview venue. No reimbursements will be paid to participants. Mrs Ruge will coordinate all activites to meet your needs and ensure an efficient process is followed.

Is this study approved?

Yes. This study has been submitted and approved by the Committee for Ethics in Human Research at the University of Canberra.

If you have any complaints or any concerns?

Any person with concerns or complaints about the conduct or any aspects of the research study can contact the Committee for Ethics in Human Research at the University of Canberra. E-Mail: HumanEthicsCommittee@canberra.edu.au

Thank you for supporting this University of Canberra PhD research project.

Regards

Gesa Ruge

Appendix 4 Informed consent form

University of Canberra

Faculty of Business, Government & Law

Informed Consent Form

Research Project:

Sustainable development in management of building and construction businesses in Australia - perception, practice and performance

Consent Statement

I have read and understood the information about the research. I am not aware of any condition that would prevent my participation and I agree to participate in this project. I have had the opportunity to ask questions about my participation in the research. All questions I have asked have been answered to my satisfaction.

Please indicate whether you agree to participate in each of the following parts of the research (please indicate which parts you agree to by putting a cross in the relevant box):

☐ Participate in an interview with the researcher.

☐ Allow the researcher to make a digital recording of the interview.

Name……..

Signature……..

Date ……..

A summary of the research report can be forwarded to you when published. If you would like to receive a copy of the report, please include your mailing (or email) address below.

Name……..

Address……..

Appendix 5 Indicative interview questions

University of Canberra

Faculty of Business, Government & Law

Indicative Interview Questions

Research Project: Sustainable development in management of building and construction businesses in Australia - perception, practice and performance

	Questions to position the interviewee in the company context, confirm role and skills
Q 1.1	Thank you for agreeing to be interviewed. Could you please describe your role and responsibilities in your organisation?
Q 1.2	What are the key skills required for this role?
Q.1.3	Who are the people within the business and stakeholders outside the business, you work with on a day to day basis?

Part 2	Questions in relation to perception about Sustainable Development (SD)
Q 2.1	How would you describe Sustainable Development?
Q 2.2	Is Sustainability and Sustainable Development important to you? (Prompts: Could you give an example? In what way and why?)
Q 2.3	How important is Sustainable Development (SD) to the business? (Prompts: Could you give an example? Does the business have SD values?)
Q 2.4	How important is Sustainable Development to the Australian Building and Construction sector?
Q 2.5	How do key external stakeholders of the business, who you regularly work with, understand and interpret Sustainable Development?

Part 3	Questions in relation to Sustainable Development practice
Q 3.1	Which SD practices are used in your company? (Prompts: Could you please give an examples? Who looks after it?)
Q 3.2	How do you make decisions on Sustainability and Sustainable Development in the business or in relation to your work? How does that work?
Q 3.3	To what degree do you get involved in SD processes or practices of the business? How frequent are these practices in your business?
Q 3.4	How well do you think the company is managing SD? What is working and what doesn't? Who leads/ sets expectations?
Q 3.5	How well do you think the stakeholders you work with on a daily basis are managing SD? (Prompts: Could you please expand on how this works in practice?)
Q 3.6	How well do you think SD is integrated into the practice of the Australian B&C industry overall?

Part 4	Questions in relation to Sustainable Development performance
Q 4.1	Are you required to measure or report on any aspects of the businesses sustainable development performance? (Prompt: Could you please give an example to explain how that works?)
Q 4.2	How does the business overall measure and report SD performance? (Prompts: How does this this work? Has this an impact on your work?)
Q 4.3	Do the external stakeholders you work with, receive or request details about the SD performance of the business? (Prompts: What are they interested in or expect from the business?)
Q 4.4	How does the Australian B&C industry measure its SD performance? What are the key areas that you think should be addressed by the industry locally or nationally?
Q 4.5	What do you think are the key opportunities or barriers to SD performances in your business? What has or could be changing?
Q 4.6	Has the level or nature of SD management in the business been changing? Could you please give an example?

Part 5	Concluding questions allowing interviewee to expand on any other aspects , invite broader reflection and comments
Q 5.1	Are there any other aspects around sustainable development that we have not talked about and which you think are important?
Q 5.2	What else would you like to see happen either in the Australian Building and Construction Industry or within your company in the next decade?
Q 5.3	Is there anything else, you would like to add to this interview?
	Thank you very much for your time and your contribution to this research.