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CAMBRIDGE

**Incorporating sustainability into business decisions: how
organisations choose to build a better world**

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This dissertation is submitted for the degree of Doctor of Philosophy

Declaration

This dissertation is the result of my own work and includes nothing which is the outcome of work done in collaboration except as declared in the Preface and specified in the text.

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Incorporating sustainability into business decisions: how organisations choose to build a better world

Catherine Tilley

Abstract

Businesses have a critical role in the transition to a sustainable economy, but this requires them to include social and environmental considerations in their decision-making. However, this creates the problem of resolving competing economic, social and environmental commitments over the long and short term. Scholars have examined this either as an analytical or a cognitive problem, but these approaches may understate the importance of organisational influences. This thesis therefore addresses two questions: first, how do the formal, behavioural and social structures of an organisation interact to influence the inclusion of sustainability criteria in decision-making in incumbent businesses? Second, what are the points of intervention to influence these systems? To answer these questions, I undertook three connected empirical studies, using mixed qualitative methods.

These investigations produced four findings. First, including sustainability changes the nature of decisions, leading to four specific archetypes of decisions. Second, the way in which decision-makers resolve the competing commitments in these situations is shaped by a broader framing of the tension between the fundamental logic of the business and the demands of its environment. Third, decision-making is influenced by a series of contextual factors, including the properties of the decision itself; the decision maker(s); the organisation; and the broader environmental context. Fourth, the process of changing decision-making requires a combination of interventions, and a set of foundational capabilities to change. Companies undertaking this type of change find systemic barriers that can only be resolved through co-operation beyond the boundaries of the organisation. These findings have implications for practice.

This research contributes to the literature on decision-making and sustainability by presenting a novel classification of decisions and by adding detail to the understanding of contextual factors influencing decision-makers and to paradox theory by demonstrating the influence of paradoxes on decision-making logic and on driving change. This matters: corporate sustainability is an enacted process and unless business decision-making changes, we will not be able to achieve the social and environmental change we need.

'It is our choices, Harry, that show what we truly are, far more than our abilities'

J.K. Rowling
Harry Potter and Chamber of Secrets

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1: INTRODUCTION

1.1 The context

In two major global policy decisions in 2015, policy-makers described the world we want to see and committed to substantial change to create an economy which is more socially and environmentally sustainable. In September that year, the UN signed the Sustainable Development Goals (SDGs), which set out targets to achieve better social, environmental and economic outcomes for the world over the next 15 years, and in December the Conference of Parties (COP) signed the Paris Agreement to commit to reduce greenhouse gas emissions. Taken together, these commitments describe the world we want to live in. However, achieving these outcomes will require considerable change throughout the economy. Analysis by Johan Rockström et al (2017) shows that from 2020 to 2050, we need to halve global emissions every decade if we are to achieve our commitments to slowing climate change. The level of change required is dramatic and demanding.

This analysis is expanded in the IPCC's 2018 report (Rogelj et al. 2018), which identifies the sectors that need to change most dramatically in order to reduce carbon emissions. Specifically, the use of energy by industry, transport and buildings is a very significant driver of the change that is needed. Much of the burden of this change falls upon incumbent businesses. These businesses are not only significant emitters of carbon, but also shape systems of supply and consumption. If we are to see a just transition to a low-carbon economy, business will be a significant player.

As well as the urgent need to de-carbonise, companies are also working on other environmental goals (for example, reducing resource consumption and waste) and on social goals (for example working towards having a more positive impact on the communities they serve). This balancing of environmental, economic and social outcomes over the long and short term is at the basis of the definition of sustainable development (World Commission on Environment and Development 1987 p.16). In this thesis, I will be describing this balance as 'corporate sustainability'.

This is a contested concept, and both corporate ‘sustainability’ and corporate ‘responsibility’ are ideas that continue to evolve (Bansal & Song 2017). While the nature of the social role of business has been debated historically (Margolis & Walsh 2003), there is increasing recognition of the need for companies to act responsibly – indeed, corporate social responsibility has gone ‘mainstream’ (Lyon et al. 2018). However, there is much more to do to shift the emphasis from a focus on simply making the case for green business to taking a systemic approach to corporate sustainability (Bansal & Song 2017) and to engage business in tackling the world’s grand challenges (George et al. 2016). In this context, there is also a role for management scholars to understand how these changes can be effected (Eisenhardt et al. 2016; George et al. 2016; Lyon et al. 2018). This dissertation seeks to address one of the problems businesses face in acting in a way that is socially and environmentally sustainable.

1.2 The problem this creates

Corporate sustainability is an enacted process. Becoming an environmentally, socially and economically sustainable organisation is not a matter of simply changing a policy – people throughout the organisation need to develop new habits in their choices and behaviour. The decision to act sustainably is not limited to a single point in the organisation. Instead, decisions in many functions and at many levels all contribute to the organisation’s social and environmental sustainability. As Herbert Simon wrote: “The task of “deciding” pervades the entire administrative organisation quite as much as the task of “doing”” (Simon 1997 p.1).

Companies therefore face a highly complex problem as they work towards corporate sustainability. First, they are dealing with a change that is both extremely urgent and presents a global threat (UNEP 2018 p.xiv). Second, the change that is needed is pervasive: corporate actions with sustainability impacts are not limited to the work of individual experts, but can occur anywhere in an organisation where there is an impact on resources or stakeholders. Third, businesses working to become sustainable are trying to effect systemic change in a system characterised by complexity and uncertainty. This means that the knowledge required to make fully informed decisions may not be available. We simply cannot know the complete range of impacts of some

actions. This combination of urgency, uncertainty and pervasiveness means that the context of corporate sustainability is uniquely problematic for decision-makers.

Within this context, the decisions themselves are complicated because they are 'rife with tensions' (Van Der Byl & Slawinski 2015). Tension is inevitable: it is encapsulated in the definition of sustainability, which involves managing economic, environmental and social outcomes for the long and short term (World Commission on Environment and Development 1987 p.16). This leads to tension between public and private value (Haffar & Searcy 2015), between the long and short term (Slawinski & Bansal 2015) and between different ethical approaches to the problem (Rode et al. 2015). These tensions appear in different permutations (Haffar & Searcy 2015), at several levels in the organisation, and can be mutually reinforcing (Slawinski et al. 2017). Tensions related to sustainability also arise at the system level (Schad & Bansal, 2018) when there are multiple, conflicting demands from the external environment, whether from customers, shareholders, regulators or other stakeholders (Smith & Lewis 2011). However they become salient for executives at a more specific level (Schad & Bansal, 2018), for example when they need to make choices between conflicting demands.

Thus we see that the world needs to change, and that business is an important constituency in this transformation. However, businesses seeking to act in a way that is socially and environmentally sustainable need to make profound changes to the way in which they make decisions. Acting sustainably will create tensions for decision-makers, and they need to find ways to resolve these in a context where the available information may not be adequate for the task.

1.3 The objective of this research

Over the last couple of decades there has been a considerable body of research that makes the case for sustainable business. However, there has been rather less work looking at how businesses need to act differently to be socially and environmentally sustainable (Zollo et al. 2013). The objective of the research was therefore to help us better understand **how businesses can adapt their decision-making systems to incorporate social and environmental considerations.**

This question sits at the intersection between two quite fragmented fields: work on decision-making, and work on corporate sustainability. Within the research objectives there are several possible fields of enquiry, and so I conducted an extensive literature review before finalising the research question. This is discussed in Chapter 2.

This research is warranted for two main reasons. First, the problem of changing the way corporations act is urgent (Rogelj et al. 2018 p. 97) and yet there is relatively little clear guidance on how they need to change (Zollo et al. 2013). This leads to a blind spot for practitioners. Second, there have been calls in the academic community for further empirical work in this field (Epstein et al. 2015; Van Der Byl & Slawinski 2015; Haffar & Searcy 2015). The objective of this work is to address this lacuna by taking an ‘engaged scholarship’ approach (Van de Ven 2007) to ensure that the empirical approach not only addresses gaps in the academic literature, but also meets the needs of practitioners.

1.4 How this document is organised

The organisation of this dissertation broadly reflects the sequence in which the work was conducted, starting with the development of a research question, and then presenting the methods used and the findings from three connected qualitative studies, and the conclusions from the research. The main body of the argument is therefore organised in the following chapters:

The Research Question

Chapter 2 situates the research in the context of the existing literature, which is problematized to identify the research question.

Methods

Chapter 3 outlines the philosophy and principles underlying the research method, and then explains the overarching structure of the research process. The project consisted of three, connected qualitative studies informed by the principles of engaged scholarship (Van de Ven 2007). The following three chapters present the findings of these three studies.

Study 1

Chapter 4 presents the findings of the first of the three studies. The data in this chapter is drawn from the analysis of 45 decisions collected in interviews with executives. These findings were combined with a second literature review in order to create three new concepts for analysing decisions that include social and environmental aspects.

Study 2

Chapter 5 presents a single case study that was developed to explore the relationships between the concepts emerging in Chapter 4. This study sheds light on the way decision-making in organisations can change over time, as they respond to pressures for sustainability.

Study 3

Chapter 6 introduces the findings from the third study. This study was a series of focus groups with senior executives whose decisions involved social or environmental considerations. The purpose of this study was to test and extend the emerging findings, and to ensure that the work had relevance for practice as well as theory.

Contribution and Conclusions

In the final chapter, I discuss the findings from this work, assessing the limitations of the work, contributions to knowledge and implications for practice. This chapter also includes a suggested agenda for future research.

In this series of steps, the research progresses from an initial objective – to understand how business can adapt their decision-making systems to incorporate social and environmental considerations – to the development of a clear research question rooted in current knowledge. I then develop answers to this question through a series of three related empirical studies. Finally, these findings are reviewed in the context of current knowledge to show both the contributions to this corpus and the future developments suggested by this work.

2: THE RESEARCH QUESTION

2.1 Introduction

This chapter examines the current state of the literature on decision-making and how this relates to the field of corporate sustainability. I take a systematic approach to the literature on sustainability in business decision-making to map out the key themes in the literature. These are then problematized (Alvesson & Sandberg 2011) to identify the research questions and situate them in the context of existing knowledge. I will return to the literature again in Chapter 4 to contextualise the early empirical findings from the research.

This chapter is organised in five parts. It begins with an outline of the broad schools of thinking on decision-making that emerged in twentieth-century academia. Second, it explores the ways in which these broad schools of thought have been adopted in the sustainability literature. Third, it shows why the sustainability context is particularly challenging for decision-makers. This is followed by a review of the literature, following systematic principles (Tranfield et al. 2003) and a map the major themes arising from this. Finally, I problematise this literature to draw out the research questions that inform this thesis.

2.2 Three main schools of thought in decision-making

Decision-making is part of the human condition, and problems of choice occur in works by many great philosophers, including Plato, Aristotle and Aquinas (Greco, Ehrigott, & Figueira, 2016 p.4). There is also a tradition of analysing decisions from a mathematical point of view, and in the seventeenth century Pascal and Fermat began work that sowed the seeds of our understanding of probability (Hodgett, 2013 p.10). Given this long history, I intend only to outline the major themes in the literature that have informed current work on decision-making in businesses. Our current thinking on decision-making was significantly shaped by work developed from the middle of the twentieth century onwards, which reflects three fundamentally different views of human rationality.

The first of these views is exemplified in the work of game theorists Von Neumann and Morgenstern (1947). Much of the subsequent development of our ideas on decision-making has been a response or reaction to their development of game theory. First, Von Neumann and Morgenstern developed an expected utility function that has become the standard method to model rational choice (Hodgett, 2013 p.11). This theory underpins several techniques for making complex decisions – including multi-criteria decision analysis (Hodgett, 2013 p.13), but is based on an assumption that decision-makers have access to the time and information that they need, and will act rationally to make their decisions.

However, this view of human rationality was challenged by Herbert Simon, a contemporary of Von Neumann, when he proposed the theory of bounded rationality (Simon, 1945 p.121). Simon's view was that decision makers' ability to act rationally was limited – or bounded – by their organisational conditions, that led to partial information (Simon, 1945 p.88), and he developed this into a behavioural model of rational choice (Simon 1955), exploring the relationship between the decision-maker and environment. Von Neumann and Morgenstern's assumptions about rationality were challenged still further in 1979 by Kahneman and Tversky who demonstrated that people view risk asymmetrically, and therefore do not conform to the expected norms of economically rational behaviour (Kahneman & Tversky 1979). This led to a subsequent stream of work analysing cognitive bias in decision-making.

This gives three broad views on the nature of decision-making. First, one that suggests that decision-making is something that can be modelled and supported mathematically. Second, one that suggests that our decision-making is shaped by an organisational context that focuses our attention in one direction and limits both the availability of data and the time available to make choices. Third, there is an approach that focuses on our cognitive limitations and suggests that only by changing the way we think can we change the way we make decisions. Essentially, we can characterise these as analytical, organisational and cognitive approaches to decision-making.

These lead to quite different approaches to decision-support. While the analytical school has produced a range of different tools to manage the complexity of decisions, work by Gerd Gigerenzer (for example: Gigerenzer & Goldstein, 1996), building on the

behavioural view of decision-making, suggests that some decisions can be simplified to heuristics, and that these can be used for effective organisational decision-making (Bingham & Eisenhardt 2011). Other academics – most notably Richard Thaler (Thaler & Sundstein 2008) – have developed approaches to decision-support that are based on Kahneman and Tversky's recognition of cognitive limitation. They point out that by working with these biases, we can create environments that encourage people to make particular decisions.

Thus, we see that the literature on decision-making is somewhat fragmented. Work has been driven by mathematicians, economists and psychologists, and is rooted in differing views of human rationality. These fractures persist in the literature about strategic decision-making (Shepherd & Rudd 2014). But how are these approaches used in the context of business decisions involving sustainability?

2.3 Sustainability in business decision-making: mapping the literature.

To understand this problem better, I undertook a literature review informed by the principles of systematic review (Tranfield et al. 2003). Systematic review has its origins in the field of medicine (Kitchenham et al. 2009) and was developed as a way to compile evidence from multiple studies. Since then, it has been adapted for different fields, including software engineering (Kitchenham et al. 2009) social sciences and public policy (Tranfield et al. 2003). However, the objectives of the systematic approach vary by field: in medicine and software engineering, the intent is to create an evidence base for practitioners, drawing on a synthesis of scientific evidence; by contrast, Tranfield et al (2003) in their work on applying systematic literature review to management, observe that some of the norms (such as ontological or epistemological consistency) that apply in other fields do not apply to management, and so while a systematic approach to literature can be helpful, it is unlikely to produce the type of evidence base that is available in other fields. Because decision-making is a multi-disciplinary field, I expected to find that the literature would be quite fragmented, and that there would be epistemological inconsistencies in the field. I therefore decided to use the systematic approach only to map the literature and uncover the main themes or perspectives, rather than to compare individual studies. I have therefore adopted a systematic approach to the search and mapping of existing work in order to develop a

research question, rather than using this as a step to accumulate evidence for a particular finding.

This work comprised three steps. The first step was a search in the Thomson Reuters Web of Science database for all materials published in English before the end of 2018 using the string: business AND decision-making AND sustainab*. This produced a list of 820 articles (including conference papers, journal articles and book chapters). For the second step, I reviewed the titles and abstracts of these articles to remove those that were:

- Not focused on decision-making (eg. Articles about gender difference in which differences in decision-making were a very small part of the discussion)
- Not focused on social or environmental sustainability (eg. Articles that were assessing whether a sector could continue in the long term)
- Not focused on the internal workings of an organisation (eg. Articles about consumer decision-making)
- Focused on the green supply chain (this is a large, and growing body of specialised literature)
- Focused on very specific situations such as healthcare, community interventions or agriculture, that might not be generalizable to business settings
- Focused on multi-organisation decision-making (eg. Management of common resources such as water supplies)
- Focused on educational settings (eg. Provision of better sustainability education for MBA students)
- Focused on science as a topic (eg. How science can be used to inform policy decisions).

This filtering left a set of 234 articles to review.

Because some writers use 'sustainability' and 'corporate social responsibility' more or less interchangeably, I conducted a second search using the string 'organisation AND decision making AND (sustainab* OR corporate social responsibility)' in the Web of Science's business and management databases. This search produced 583 articles. I read the titles (and where necessary the abstracts) to

apply the same filtering criteria, creating a list of 107 articles. I then merged the two lists, removing any overlaps to build a final set of 325 documents.

The third step was to read and categorise the articles. Because of the broad nature of the enquiry, the articles were very diverse and so I grouped the articles thematically into four main groups. One of these groups was about the overall context for business and sustainability; the remaining three broadly reflected the three schools of thought outlined above – there was a group about information and analysis; a group about managerial cognition; and a group about organisation. The overall distribution of the articles is shown in Table 1 below:

Table 1: Number of articles categorised by theme

<i>Theme</i>	<i>Number of articles</i>	<i>% of total</i>
Sustainability context	51	16
Information and analysis	187	58
Managerial cognition	29	9
Organisation	46	14
Other (for example, specific industries)	12	4

The literature is strikingly fragmented. The articles were spread across 191 journals, conference proceedings or books, of which only 14 included more than three articles. Of the generalist management journals that are often used as the basis for a literature review (for example Van Der Byl & Slawinski 2015), only one – the *Academy of Management Review* – included more than two articles about sustainability and decision-making. The more specialised journals, such as *Journal of Cleaner Production*, *Journal of Business Ethics* and *Sustainability* were most prolific, but even they accounted collectively for only 25% of the articles. 151 Journals included only one relevant article. The bibliometrics are shown in Table 2:

Table 2: Thematic analysis of articles by publication

<i>Journal</i>	<i>Context</i>	<i>Cognition</i>	<i>Organisation</i>	<i>Information</i>	<i>Tools</i>	<i>Other</i>	<i>Total</i>
Journal of Cleaner Production			7	3	21	3	34
Journal of Business Ethics	6	11	6	2	2		27
Sustainability	2	1	2	1	14	1	21
International Journal of Lifecycle Assessment					7		7
Management Decision	1		2	1	1		5
Business Strategy and the Environment			1	2	1		4
Organisation and Environment		1	2	1			4
Resources Conservation and Recycling	1			1	2		4
Sustainability Accounting Management and Policy Journal	1	1		2			4
Academy of Management Review	2	1					3
Business Ethics - A European Review	2		1				3
Ecological Economics				1	1	1	3
European Journal of Operational Research	1				2		3
Group Decision and Negotiation				1	1	1	3

Journals had an editorial slant either towards the 'human' aspects of decision-making (the context, cognition and organisation articles), or the 'technical' aspects (information and analysis). This suggests that the distinction made by Bansal & Song (2017) between work on 'responsibility', which is based on a normative or moral imperative and work on 'sustainability', based on an understanding of ecological systems, is reflected in the journals with 'responsibility' represented in the journals emphasising context, cognition and organisation, and 'sustainability' represented in the more technically focused journals.

I used this initial classification as a basis to review and problematize the literature to identify my research question, expanding the search using a 'snowballing' approach when necessary. This analysis forms the basis for the rest of this chapter.

2.4 The sustainability context

Businesses that aspire to work in a way that is socially and environmentally responsible face a particular organisational challenge, specifically, how to cope with the added complexity this presents (Pirson & Turnbull 2018). It is important to understand the choice to act in a way that is socially and environmentally sustainable can make decision-making more complicated, as individuals – and indeed organisations – working with multiple objectives (Epstein et al. 2015; Mitchell et al. 2016) that are in tension with each other. This is discussed briefly in the Introduction (Section 1.1 above).

These tensions are often nested within a broader question about the purpose of the company (Dyck & Greidanus 2017; Bento et al. 2017). They can be generalised as a tension between private value and shared value (Haffar & Searcy 2015; Porter & Kramer 2006) essentially contrasting the immediate needs of the company with the long-term needs of stakeholders, which can include other species or future generations. This tension between the external environment and the company's value creation system can be seen as a paradox – 'a persistent contradiction between independent elements' (Schad 2016) – for the company. This can be a challenge to companies seeking to act sustainably as it creates a paradox at the heart of their operations.

This is particularly well illustrated in decision-making: each decision presents specific tensions, but these are located in an organisational context that may present a larger set of enduring tensions (Smith 2014). These tensions may be latent, or unseen until a choice needs to be made (Smith & Lewis 2011; Bansal et al. 2018). However, at this point, they complicate decision-making in four distinct ways. First, decision-makers find that they may need to manage conflicting demands from the external environment, whether from customers, shareholders, regulators or other stakeholders (Smith & Lewis 2011). Second, they need to find ways to balance the long-term and the short-term which may be in tension (Bansal & Desjardine 2014). These two factors interact to create a third problem of complexity (Pirson & Turnbull 2018). Finally, some sustainability-related decisions have the characteristics of wicked problems (Rittel & Webber 1973) so that they are characterised by high levels of ambiguity.

Not only do decision-makers find that these four factors make their decisions intrinsically more complex, they may find that there is a tension between the demands of the external environment and the dominant organisational logic, the 'practices, assumptions, values and beliefs that shape cognition and behaviour' (Besharov & Smith 2014) used to make choices in the organisation. There has been little empirical research into how executives actually experience these clusters of tensions (Sheep et al. 2017) and there have been calls for more empirical research to understand how executives resolve the tensions arising from incorporating sustainability in decision-making (Epstein & Widener 2011; Haffar & Searcy 2015; Van Der Byl & Slawinski 2015).

There are divisions in the literature about the way these tensions can be handled. The three main theoretical perspectives – analytical, cognitive and organisational – that dominate the academic work on decision-making persist. Herbert Simon (1997 p.56) noted that decisions were always 'a combination of facts and judgement'. The three literatures I will review approach this in different ways: the literature on analysis and information focuses on the facts; literature on cognition focuses on the processes underlying judgement; and the work on organisation focuses on the broader context within which these interact.

2.5 Literature on analysis and information

The majority – 58% – of the articles that appeared in the search were focused on the problems of assembling and analysing information to include sustainability considerations in decision-making.

Because working sustainably requires businesses to look at social and environmental outcomes as well as economic ones, the starting point of many sustainability initiatives is a requirement for new data reporting (Stefan et al. 2011). There is a significant body of literature about this, covering questions of corporate reporting and the need for new standards of measurement (Hosoda & Suzuki 2015). As Beloff et al observe, the sheer number of tools and methods is overwhelming (Beloff et al. 2004). Much of the initial pressure to adopt these methods is external to the organisation (Beloff et al. 2004), and so the information may not reflect the way in which the organisation structures its information: it may be a complex mix of internally and externally sourced data and – unlike conventional corporate reporting – may be in a mix of units, rather than expressed exclusively in economic terms. Given the vital role of external stakeholders for sustainability, data from them is important (Epstein & Widener 2011), and yet given its dynamic nature, it is difficult to create standardised reporting approaches for these groups.

Scholars have identified three challenges inherent in the introduction of new information. First existing corporate ontologies do not incorporate this data (Muñoz et al. 2013), implying a need for much more profound changes to the information infrastructure of the organisation. Second, data is collected for external reporting to stakeholders, and may not be well connected to the management accounting system that informs decision-making (Hosoda & Suzuki 2015). Finally, executives do not know how to process this large volume of new data, or rely too heavily on it (Zapico 2014; Neumann et al. 2012). I conclude that the data need to be prioritised and analysed before they can be useful for making decisions.

This is a significant focus of scholarship: 142 of the articles reviewed were focused on analytical techniques to process the information. These fall broadly into two categories: methods for analysis; and systems for managing and presenting data.

The articles about analytical methods fall broadly into four categories, each of which address a specific problem inherent in the sustainability context. Life cycle analysis is an approach developed to reduce the problem of decision-methods that favour the short-term (such as discounted cash flow methods) by comparing the impact of projects or products over their entire life cycle. This was the focus of 20 of the articles. The second category was a group of analytic methods that enable the evaluation of decisions based on multiple different criteria, and was described in 37 articles. The third category was a group of analytic methods that help analyse decisions under conditions of uncertainty, for example by analysing options, and there were 12 articles focused on these approaches. Finally, there were 11 articles that described models or systems dynamics approaches to exploring the complexity in decisions. Broadly, the analytical methods each address particular problems posed by the tensions implicit in introducing sustainability considerations to business decision-making, thus:

Table 3: How analytic methods map onto tensions created by the sustainability context

<i>Problem</i>	<i>Approach</i>
Tension between the short and long-term in decision-making	Life cycle analysis allows decision-makers to examine the complete impact of a decision
Tension between economic / environmental / social outcomes (or combinations of these)	Multi-criteria decision analysis, analytic hierarchy process and TOPSIS all enable decision-makers to examine multiple criteria
High levels of uncertainty about input variables and outcomes	Grey decision-making, fuzzy logic and data envelopment all allow decision-makers to analyse the range of outcomes of a decision.
Complexity of relationships between system elements	System dynamics and modelling.

The problem these analytical methods present is that many decisions have all of these tensions, and so the tools would need to be used in conjunction with each other. Several authors have described situations using combinations of analytical methods, as more than one is required to solve the full set of problems posed by a given decision (Hoogmartens et al. 2014; Bakshi 2011).

This has led to the development of work on building sustainability information into enterprise-level systems. Chofreh et al, in a literature review of the work on sustainable

enterprise resource planning (Chofreh et al. 2014) make the case for embedding sustainability into business systems. However, the addition of extra information complicates the underlying model and may end up confusing users (Oertwig et al. 2015), and there are significant challenges in implementing these systems (McIntosh et al. 2011). There is still a focus in enterprise-level systems on data, rather than the decisions to which these will be applied (Stefan et al. 2011).

In many organisations, managers already receive large quantities of information even without additional facts related to sustainability, leading to the risk of cognitive overload (Neumann et al. 2012). It is therefore helpful to have presentational tools to help summarise and synthesise the core data, and ensure that management attention is focused on the most salient facts. The way in which managers receive the data needs to reflect the organisational ontology and way in which the company signals what is important. Interestingly, there is relatively little about this in the academic literature, and almost all of what has been written is about versions of one tool: the Balanced Scorecard, mentioned in seven of the articles. Pistoni and Songini (2016) point out that the Balanced Scorecard has been proposed as a vehicle for signalling the company's priorities and that there are several options for providing the data, ranging from an entirely separate scorecard for sustainability questions to the complete integration of sustainability into the business scorecard.

Despite the extent of this literature and its prominence in academic work on decision-making for sustainability, it has some limitations. First, these approaches all seek to solve problems within the existing business system (Zapico 2014). This means that tensions arising from the firm's fundamental value creation method are not addressed. Rather, the symptomatic tensions – differences in stakeholder views, for example – are managed either through individual analytical approaches described above, or through combinations of approaches. These approaches tend to be quite resource-intensive, and therefore used for decisions that are exceptional in their complexity (Arvai et al. 2012). When they are successfully embedded in corporate information systems they also become relatively inflexible (Brynjarsdottir et al. 2012). They therefore may not be appropriate for the organisational reality of very distributed, rapid decision-making that needs to respond dynamically to stakeholders. Finally, they place significant cognitive

demands on managers (Neumann et al. 2012): Zapico (2014) suggests that this leads to a blind dependence on data that can lead to unwitting short-termism.

Thus, while improved data may help people make better-informed decisions, there is no evidence that it fundamentally changes people's ways of managing the tensions inherent in sustainability. While the balanced scorecard is effective for managing multiple objectives, it reinforces the Firm's existing strategy and so does not help executives address problems that they are not already thinking about (Hahn & Figge 2018). People are therefore 'locked into' a particular way of seeing the social and environmental issues facing a business, and responding accordingly. The presentation of data in a balanced scorecard does not seem to change ethical perspectives (Wynder & Dunbar 2016). This question of how people think is an important part of the decision-making process, and has been extensively discussed in a separate body of literature on managerial cognition.

2.6 Sustainability and managerial cognition

Since Hambrick and Mason developed the upper echelons theory in order to describe the way in which the characteristics and attitudes of senior managers shape corporate decision-making (Hambrick & Mason 1984), scholars have been interested in the way that socially and environmentally responsible behaviour in businesses originates in the ethical orientation of individual leaders (Yin et al. 2016). If sustainability is a moral issue (Margolis & Walsh 2003; Mazutis & Eckardt 2017), then it makes sense to understand whether people act morally. However, historically, there has been relatively little empirical examination of this phenomenon (Aguinis & Glavas 2012). There has therefore been a trend in recent years towards exploration of these micro-foundations of sustainability, focused on managerial cognition.

Research on managerial cognition has its roots in the problem of uncertainty in the external environment (Kaplan 2011) and incorporates both the knowledge and the values and beliefs of decision-makers (Hambrick & Mason 1984). Because people are not able to know everything about a situation (Simon, 1997 p.78), they develop cognitive frames, defined as 'a well-learned set of mental associations that excludes some interpretations of environmental stimuli and reinforces others' (Porac & Rosa 1996). These frames help direct attention to particular issues in a situation (Kaplan & Tripsas 2008), effectively acting as filters in decision-making. People have a repertoire

of frames, or 'schemata of interpretation' (Goffman 1974 p.21), but they tend to be fairly stable (Porac & Rosa 1996), changing in response to uncertainty and external pressure (Kaplan 2008).

Given the importance of these cognitive frames for sense making, there is a growing body of scholarship exploring the ways in which they enable executives to make sense of the tensions inherent in the context of sustainable business. Hahn et al suggest that there are two dominant cognitive frames among executives, and characterise these as a 'business case frame' and a 'paradox frame' (Hahn, Preuss, Pinkse & Figge, 2014). Cognitive frames are vital in decision-making as they shape both the interpretation of the problem and the choice of action (Kaplan 2008; Grewatsch & Kleindienst 2018), and Hahn et al's work suggests that executives with these two different frames will behave very differently both in their way of seeing the tensions in corporate sustainability and in their responses to them (Hahn et al. 2014).

In the first of these frames – the 'Business Case' frame – Hahn et al propose that managers are focusing on environmental and social actions that will support economic outcomes (for example, improving resource efficiency is beneficial to the environment and reduces costs). This enables them to make relatively straightforward decisions: something either works economically, or it does not. They contrast this with a 'Paradox frame', in which the executives have a more complex and ambivalent attitude towards the tensions in sustainability. This leads them to consider more comprehensive responses to tensions, but at the same time they are more aware of the risks associated with these (Hahn et al. 2014). This is not dissimilar to the two worldviews (mechanic and organic) proposed by Ims & Jakobsen (2011). This conceptualisation has been influential (to date, the original article by Hahn et. al. has been cited 110 times), but has not so far been tested empirically.

The distinction between these two framings underpins a fracture in the literature: while the analytical literature reviewed in section 2.5 is framed in terms of a business case, there is also a body of work with its roots in the corporate social responsibility literature that has a much deeper focus on ethical, values-based perspectives (Bansal & Song 2017), which reflects the complexities suggested by Hahn et al's 'Paradox frame'. The tension between these two frames can be used productively – for example to manage

bias in group decision-making (Mazutis & Eckardt 2017; Hahn & Aragón-Correa 2015) and so arrive at better solutions. However, it can also be a cause of stress for individuals when their cognitive frame clashes with the dominant frame in their organisation (Zollo et al. 2013).

While cognitive frames are effective at directing attention, they can also create blind spots – important issues that decision-makers fail to attend to because they fall outside the cognitive frame. This can be because the issue is ‘too large’ – for example systemic problems such as climate change – or ‘too small’ to be of interest to the corporation (Bansal et al. 2018). Failure to attend to sustainability can also be caused by cognitive biases (Mazutis & Eckardt 2017), and by habits of mind and action that are created by ‘organisational scripts’ (Gioia 1992). These scripts offer not only a cognitive framing, but an established pattern of behaviour (Gioia 1992). They have the benefit of reducing the cognitive cost of decision-making, and may enable non-specialists to make decisions, which means they are helpful in situations where sustainability issues are pervasive in the organisation. The disadvantage is that they give confidence where it may not be warranted (Gioia 1992), and may allow decision-makers to gloss over inconvenient truths.

The result of this is that many organisational decisions are ‘scripted’ – that is to say they follow particular cognitive patterns and sequences of behaviour ranging from the very sophisticated (‘when we have a business case for an investment giving a positive net present value, we refer it to the investment committee for approval’) to the trivial (‘when I leave the office I switch the lights out’). These patterns are often efficient and reduce the cognitive load for decision-makers, but they are not necessarily well adapted to handling the complexity of the tensions raised by sustainability. These ‘scripts’ or schemas are embedded in the organisation, so this raises the question: how do organisational systems shape decision-making routines?

2.7 Sustainability and organisation

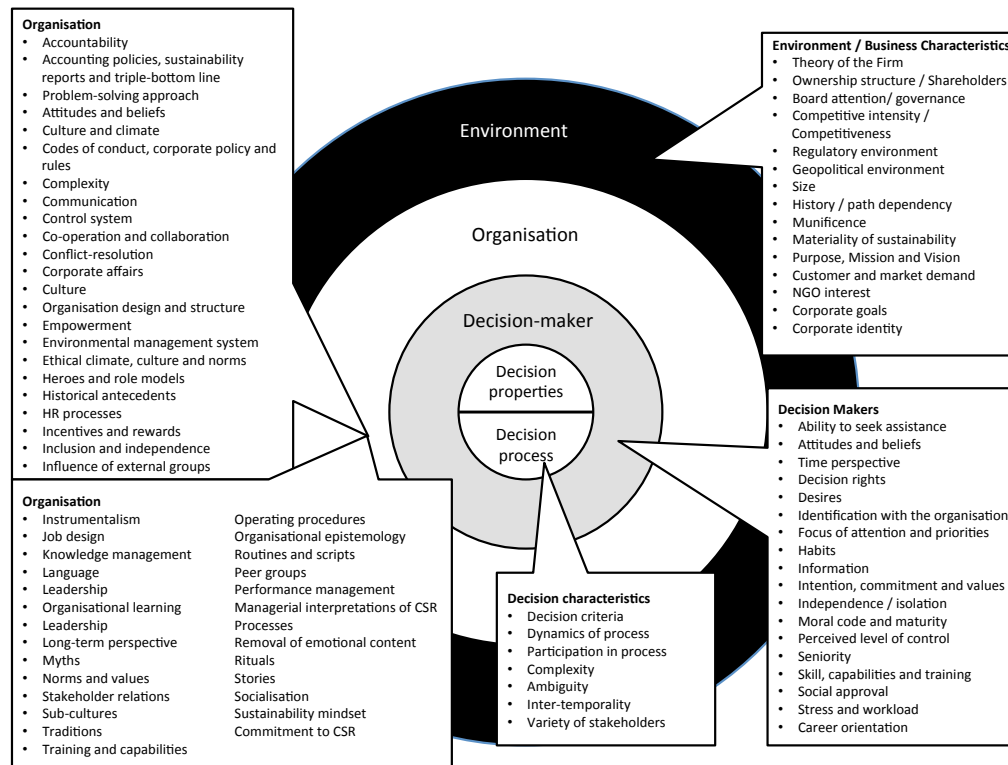
There is an extensive body of work about organisational context and the way it influences corporate approaches to sustainability. Scholars recognise that the broader context is important in shaping decision-making (Shepherd & Rudd 2014; Dean et al. 1991). Organisations exert influence – either through formal processes, habits and routines – on the way in which people understand decisions even before they make them. Work on ethical decision-making identifies organisational context as a dominant force in decision-making (Blome & Paulraj 2013; Li et al. 2018), overriding the individual preferences of managers (Chen et al. 1997). As Lülfs and Hahn (2014) write: ‘The creation of an organizational culture fostering sustainability orientation seems to be more important than formal expressions of corporate sustainability (Howard-Grenville, 2006; Linnenluecke & Griffiths, 2010; Tudor et al., 2008).’ (Lülfs & Hahn, 2014 p.52) How, then, is this achieved?

Although many issues are identified in the literature as influences in decision-making, none of the articles reviewed offered a comprehensive model connecting these concepts to show the organisational influences on decision-makers. Instead, scholars have focused on specific issues such as the role of sub-cultures (Howard-Grenville 2006), the creation of organisational climate (Ardichvili et al. 2009) or the impact of formal systems (Ford & Richardson 1994). There was a particularly large body of literature about the characteristics of individual leaders (For example: Aguinis & Glavas, 2012; Ardichvili et al., 2009; Blome & Paulraj, 2013; Stubbs & Cocklin, 2008), and a general tendency to emphasise the ‘soft systems’, such as culture and ethical climate, rather than the more formal processes of the organisation, although these do appear in literature reviews (Ford & Richardson 1994; Verbos et al. 2007; Nawaz & Koç 2018). As Schrettle et al write: ‘To the best of our knowledge, there is no descriptive model, which supports decision-making of firms facing a sustainability challenge by linking all relevant dimensions in a transparent way’ (Schrettle et al. 2014 p.74).

This reading of the literature on organisation generated a list of 107 factors that could influence decision-processes. The sources for these are listed in Appendix 1. These 107 concepts operate at different organisational levels: some describe the behaviour of individuals (for example: moral responsibility); others operate at the level of the organisation, or organisational unit (for example: culture); some describe the

relationship between the internal and external aspects of the firm (for example: theory of the firm). I therefore organised them into a broad conceptual framework drawing on the four contexts identified by Dean, Sharfman and Ford in their review of the literature on strategic decision-making (Dean et al. 1991 p. 89). Dean et al did not elaborate on the more detailed aspects of these contexts (for example, the specific organisational elements influencing decisions). I therefore adapted their original framework and used this as a basis for mapping the factors identified in the sustainability literature. I made two alterations to this mapping: first, Dean et al put the decision process and problem at two different organisational levels (on the grounds that the process is an interaction between the decision-maker and the problem). While this may be the case for strategic decisions, the use of organisational scripts for some sustainability-related decisions means that the process is more closely related to the problem than to the decision-maker. I have therefore grouped the decision problem and process in the same layer. The second change that I propose in this framework is that I have changed Dean et al's 'team' to 'decision-maker', as some sustainability-related decisions are made by individuals rather than groups. This mapping is thus a development of their original proposed framework and is shown in Figure 1.

Figure 1: Contextual factors influencing the inclusion of sustainability in decision-making



This synoptic model shows that there are many possible influences on decision-makers. Many of them underpin the organisational logic that shapes behaviour and cognition (Besharov & Smith 2014). However, there is no indication of the relative significance of these, nor the relationships between these factors to show how businesses might shape their organisations to better manage the challenges of acting sustainably. I will develop this idea further in Chapter 4.

2.8 Problematising the literature

The mapping of the literature in Table 2 shows that there is not a coherent literature about how companies incorporate social and environmental considerations into their decision-making. It is clear that there is not so much a gap in the literature as a series of problems to be solved (Alvesson & Sandberg 2011). These will inform the research question.

The first problem in the literature is an apparent disconnect between the complex, systemic problem of incorporating social and environmental criteria into decision-

making (Pirson & Turnbull 2018) and the type of solutions proposed. Many articles describe single approaches to a multi-faceted problem (see Table 3, above), and the fragmentation of the literature has limited theoretical development (Shepherd & Rudd 2014). What is needed is therefore a more integrative approach to the topic to make connections between the analytical, cognitive and organisational literatures.

The natural starting point for these connections would be a research question stemming from the organisational literature. The attention based view of the firm suggests that the organisation shapes and influences ways of seeing information and thinking about it (Ocasio 1997). I therefore take the organisational literature as my starting point. I interpret the organisation broadly to encompass a range of formal, behavioural and social factors that shape the organisational logic, the information and the cognitive process of the decision-maker.

The second problem in the literature is a trade-off between theoretical complexity and empiricism. The articles describing the complex, paradoxical nature of sustainability (for example: Hahn et al. 2015; Hahn et al. 2017) tend to be conceptual. By contrast, the empirical articles in this collection tended to focus on narrower issues – for example case studies showing the use of analytical methods, or survey based studies of ethical leadership. The empirical settings are very varied. However, given that the industries that most need to decarbonise (Rogelj et al. 2018 p138-148) are often dominated by incumbents, there is value in focusing on large, established businesses as an empirical setting.

The third problem is related to the first. Because decision-making behaviour in organisations arises from a broad system, it is difficult to identify the points of intervention where decisions can be changed or improved. Research to date has identified a range of approaches, ranging from improving information (Chofreh et al. 2014) to influencing leadership (Epstein et al. 2010), but these need to be set in the broader context of the system that shapes decision-making.

By using these problems as a starting point, I have defined two research questions to address in this thesis.

2.9 The Research Questions

Q1: How do the formal, behavioural and social structures of an organisation interact to influence the inclusion of sustainability criteria in decision-making in incumbent businesses?

Q2: What are the points of intervention to influence these systems?

3: METHOD

3.1 Introduction

Having concluded the last chapter with two research questions, this chapter describes the methods used to answer these. The chapter is organised in four main sections. The first introduces the fundamental beliefs – the research philosophy and principles – underlying the research approach. The second introduces the overall architecture of the project and the choice of qualitative mixed methods used. The third comments on the analytical methods used to derive insight from the data. Finally, there is a short commentary on the limitations of these methods and the mitigation strategies adopted in the research.

3.2 Research approach

3.2.1 Research philosophy

Many fields have established ontological and epistemological conventions. However, as I established in Chapter 2, the fields of decision-making and sustainability are fragmented, and there are a variety of perspectives. Schad and Bansal (2018) suggest that the inconsistency for sustainability writers arises because we are working at the interface between the material (such as emissions or physical resources) and the socially constructed. There is therefore a real choice for scholars in this field both ontologically and epistemologically.

The research philosophy I have adopted is rooted in the nature of the problem examined. In this study, I have taken a constructionist ontological approach. This is because based on the review of the literature, there are two forces shaping decision-making in organisations: a formal or technical approach (for example in the systematic analysis of problems); and an approach rooted in social interactions and behavioural models (for example the personal stance taken by leaders). Herbert Simon in 'Administrative Behaviour' (Simon 1997 p.119) pointed out that people limit the amount of information they take into account in decision-making. Their thinking is constrained by circumstance. To understand the nature of these constraints, I seek to

understand the way in which they are interpreted by the decision-makers. My view that a constructionist approach is better suited to understanding this problem because of the significant role of personal constructs in the phenomenon observed.

Just as decision-makers limit the information they take into account, researchers also operate from a position of incomplete knowledge and bounded rationality (Mantere & Ketokivi 2013). The epistemological approach is therefore interpretivist. Again, this choice is rooted in the subject of the research. The decisions I am interested in create a problem of data collection: much of the heavy work of decision-making happens inside people's heads as they evaluate the information and options available. My view is that this can only be understood phenomenologically: 'in order to grasp the meanings of a person's behaviour, the phenomenologist attempts to see things from that person's point of view' (Taylor & Bogdan, 1975 p.14).

This philosophical approach means that the research is grounded in the experiences of the informants. This has influenced a series of choices about the principles, architecture and methods used to address the research question.

3.2.2 Research principles

A key principle that has informed the research design is a need to involve decision-makers as active participants in the process. This is for two reasons. First, one observation from the review of the literature in Chapter 2 is that much of the work on the way that decision-makers resolve the tensions brought about by trying to act sustainably is conceptual in nature. There has been relatively little work that actually engages the decision-makers themselves, and I seek to address this gap in our understanding. Second, the problem of incorporating social and environmental thinking into corporate decision-making is a real one: one aim of this research is therefore to generate practical insights for decision-makers.

To achieve this, the study follows an 'engaged scholarship' approach (Van de Ven 2007), and indeed this principle informed other design choices, such as the use of qualitative mixed methods and an abductive approach to reasoning, in which I toggle between empirical data from my informants and theory (Alvesson & Kärrenman 2007). The intention was to understand the nature of a specific problem (the first words of my two

research questions are 'how' and 'what') that has not been well described from the point of view of those experiencing it, and to explore this from multiple perspectives. In Van de Ven's terms, this is 'informed basic research' in which the academic researcher is clearly positioned 'as an outsider' (Van de Ven, 2007 p.271) but consults stakeholders at each step of the research process. This process of consultation was built into the research design.

A corollary of engaging closely with human subjects is the need to work to high standards of confidentiality in both the data management and the reporting. Data that could identify individuals or companies (such as job titles for the individuals or the number of staff, or size of turnover for the companies) has been withheld throughout this thesis. I filed a data management plan at the beginning of the programme in which I committed to separating the data about respondents from the data they supplied. All participants were invited to participate and had the option to refuse. They gave informed consent for any recordings (one participant withheld consent, but gave permission for me to take notes during the interview).

3.3 Research methods

3.3.1 Research architecture

Just as the research philosophy and principles were chosen to reflect the characteristics of the research question and the current knowledge in the field, the research architecture was developed to respond to three specific characteristics of current knowledge. First, the knowledge is somewhat fragmented, and so it was important to take a broad approach to identifying the factors that could influence decision-making. Second, some of the most influential work in the field was developed conceptually, and so had not been tested by practitioners. This approach therefore combined a series of qualitative investigations to first, generate theories from the broad experience of decision-makers working to include sustainability in their choices, then test these theories in a single case, and finally explore their generalizability through discussions with practitioners. This led to the development of a series of interconnected studies described in Table 4, below.

Table 4: Objectives and approach for each research step

Stage	Objective	Output
Research clarification	Understand the current state of knowledge and identify the research questions	Literature review described in Chapter 2.
Study 1	Understand the current experience of decision-makers and develop theoretical models of decision-making and organisation	Analyses of the types of decisions, logics used and factors influencing decision-making described in Chapter 4.
Study 2	Test and extend the developing theory and explore the interactions between models in a case study	Application of the analysis in Chapter 4, and development of a model showing how decision-making changed over time in an organisation, described in Chapter 5.
Study 3	Test the emerging findings with practitioners, following the engaged scholarship approach.	Testing and extension of the ideas developed in Studies 1 and 2, described in Chapter 6.

I selected different research methods for each of these studies. .

3.3.2 Choice of qualitative mixed methods

Given the nature of the gap in the literature described in Chapter 2, I decided to take an abductive approach to theory building. As Alvesson & Kärrenman (2007) observe, researchers often combine deductive, inductive and abductive approaches in the course of their thinking, and this work is no exception. However, the focus on an abductive approach in this study is for two main reasons. First, as the literature is fragmented, it was not possible to take a deductive approach, building a coherent set of hypotheses for testing deductively. However, there are some theoretical frameworks that can inform this work – particularly from the field of paradox theory. Blessing and Chakrabarti (2009) emphasise a parallel process of exploring the literature and empirical data, which creates the conditions for an abductive approach (Alvesson & Kärrenman 2007). Abduction also enables the researcher to focus on solving a problem, rather than testing a hypothesis (Bryman & Bell 2015) which is congruent with my research objectives. Because the work is exploratory, I have used a combination of qualitative methods (Edmondson & McManus 2007), using different methods for data collection and analysis in each of the three studies.

For Study 1, I conducted 17 interviews, using critical incident technique. Critical incident technique has some distinct strengths as a method for understanding the features of a phenomenon. The approach enables ‘the conscious reflections of the incumbent, their frame of reference, feelings, attitudes and perspective on matters which are of critical importance to them’ (Chell, 1998 p.68). This tends to produce data at two levels: descriptions of the specific incident (in this case decisions); and reflections on the broader context for this incident, allowing the researcher to make connections between the incident and broader context (Chell, 1998 p.55). It is not an uncomfortable or excessively time-consuming process for interviewees. Rather than focusing on psychological constructs, data is collected through debriefing particular incidents (in this case, decisions) and allowing the interviewee to reflect on these. As the unit of analysis is the incident, rather than the interviewee (Flanagan 1954), this is an efficient data-collection method as it is possible to examine several incidents in one interview, and it enables the generation of insight both at the specific case level and as comparisons between cases (Chell 1998 p.55). These factors combined to make this a suitable method for an initial study to examine the way in which organisations resolve the tensions of sustainability consideration in decisions.

I conducted 17 interviews with executives between December 2016 and June 2017, at which point the research began to reach theoretical saturation (Glaser & Strauss 1968 p.61). The criteria for inclusion in the sample were that interviewees should be experienced senior managers, working in the private sector, that they should have exposure to sustainability issues, and that they should be from industries where sustainability is a material consideration. Because interviewees were reflecting on decisions that they had made at any time in their careers, some interviewees gave examples of decisions from more than one company. The full list of interviewees is shown in Table 5.

Table 5: List of interviewees

Interviewee	Job title	Industry/ies
1	Director of Capital Investment	Beverages
2	Director of Procurement	Retail
3	CEO	Apparel
4	Director of Policy	Water, energy and construction
5	Global Head of Sustainability	Engineering
6	Sustainability Director	Real Estate
7	Director of Engineering	Engineering
8	Director of Corporate Affairs	Travel & tourism
9	Head of Sustainability	Aerospace
10	Marketing Director	Telecomms and energy
11	Director of Project Investment, later Director of Sustainability	Banking (two separate banks)
12	VP of Strategy	Energy
13	Head of Sustainability	Apparel
14	Head of Innovation	Flooring
15	Director of Manufacturing	Flooring
16	Director of Sustainability	Construction
17	Strategy Director	FMCG.

This means that although there were 17 interviewees, there were 20 companies represented in the sample. The industries represented were: apparel, banking, beverages, consulting engineering, energy, flooring, FMCG, real estate, retail, telecoms and tourism, and the companies had a range of different ownership structures. This variety was important: I was explicitly looking for patterns that could be generalizable, and a broad sample would be more helpful in identifying the common features of the problem, rather than issues that might be specific to a particular organisation, or even a particular executive.

During the interviews (which typically lasted about one hour), the interviewees were asked to describe situations when they had been involved in making decisions that had been complicated by the need to consider social or environmental sustainability. This means that they only described situations in which they felt the tension to be salient, and so the sample does not include decisions in which sustainability issues might have been present but unnoticed (Schad & Bansal, 2018). The interviewees described and reflected on 45 different decisions: 12 of them described multiple decisions, and five

described one decision in detail. The full list of decisions is described in Appendix 2. Thus, the data covered 45 decisions, 17 executives and 20 companies. The interviews were recorded and transcribed, and the analysis conducted using Atlas Ti software.

One limitation of Study 1 is that the theories generated from the analysis were based on experiences in a range of different settings. For the Study 2, I developed a single company case study that allowed me to explore the way in which these emerging ideas interact in a single company. The company, which is described more fully in Chapter 5, had a multi-year history of working towards sustainability in an industrial context that is characterised by tension: the design and construction of infrastructure. The case study is based on four main data sources (Yin 1984). These are summarised in Table 6:

Table 6: Sources and uses of data in the Prescriptive Study

Source	Type of data	Use in the case study
Company documents	5 years' of annual reports. Two years' of press-cuttings, 12 reports written by ConsultCo on sustainability Over 6,000 tweets	Evidence about the company's sustainability commitments, performance and context.
Consultancy report	37 page report produced in 2017 evaluating the ConsultCo's change management process for sustainability	Evidence about the change management process and timeline
Interviews	12 interviews with people in line management roles at ConsultCo (conducted between March and July 2018)	Evidence about the timeline and impacts of the change management, and the experiences of managing paradox
Client events	Participant observation in two day-long client education events (in 2015 and 2016)	Evidence about the engagement of clients and senior managers

The interviewees were selected using a sampling frame to ensure that we gathered points of view from each of the major geographic regions and each of the major business units where ConsultCo operates. Half of the interviewees were senior managers typically serving in 'double-hatting' roles where they had responsibility for a combination of client work, business development and knowledge leadership. The other six interviewees were project managers, responsible for the day-to-day management of

engineering projects. The interviews typically lasted 1 hour, and were recorded and transcribed for analysis.

Study 3 was again a response to a possible limitation of the previous study, in that it allowed me to test the generalizability of the emerging findings. It also allowed me to follow the principles of ‘engaged scholarship’ (Van de Ven 2007) by regularly discussing the relevance of both the research questions and the emerging findings with a group of practitioners. The study consisted of a series of three 2-hour workshops for senior executives who were interested in sustainability. The workshops were convened in November 2017 (8 participants), June 2018 (5 participants) and October 2018 (5 participants). Because there was some continuity in the participants, a total of 12 executives were involved in these meetings. The participants were recruited from different sectors, and were organised so that there were never two participants from competing companies in the same meeting. The participants were a mixture of sustainability professionals (eg. Head of Sustainability) and executives in related roles (eg. CEO, Director of Strategy). The overall programme of workshops is shown in Table 7:

Table 7: Topics and participants for Study 3

<i>Date</i>	<i>Discussion topics</i>	<i>Participants</i>
November 2017	Overview of the project and objectives. Findings from Study 1: Ways to resolve tension	Roles: CEO, Director of Technology, Director of Strategy, Head of Policy, Director of Sustainability, Director of Procurement Industries: Retail, Furniture, FMCG, Utilities, Telecom, Beverages, Energy, Food
June 2018	Findings from Study 1: Archetypes of decisions Approaches to change	Roles: Director of Compliance, CEO, Governance Advisor, Director of Sustainability, Policy Advisor Industries: Energy, Utilities, Transport, Engineering, Pharmaceuticals
October 2018	Findings from Study 2: Organisational systems The dynamics of change	Roles: Director of Sustainability, CEO, Policy Advisor, Director of Technology, Industries: Telecoms, Utilities, Food, Retail, Energy

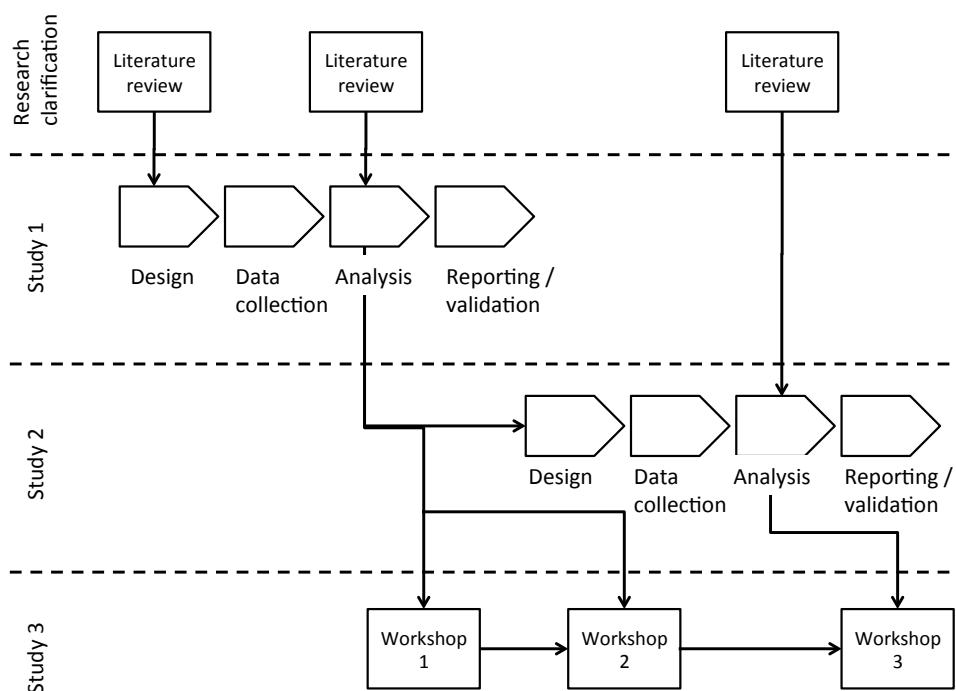
The workshops all followed the same format: a presentation lasting approximately 40 minutes introducing the current findings and topics for discussion, followed by a group discussion typically lasting 80 minutes.

Each meeting was run under the 'Chatham House' rule, the meetings were recorded and a short summary was sent to the participants for their review.

In addition to this formal process for data collection, I arranged regular discussions with executives who were unable to participate in the workshops (either because they were not UK based or because of prior commitments), which allowed me to maintain their involvement in the 'engaged scholarship' process.

In total, the data informing my work comprises 29 formal interviews (either using critical incident technique or as part of a case study), a broad collection of documents supporting the case analysis, and six hours of recorded workshops. The overall architecture showing the sequence of data collection and analysis is shown in Figure 2, below:

Figure 2: Overall study design



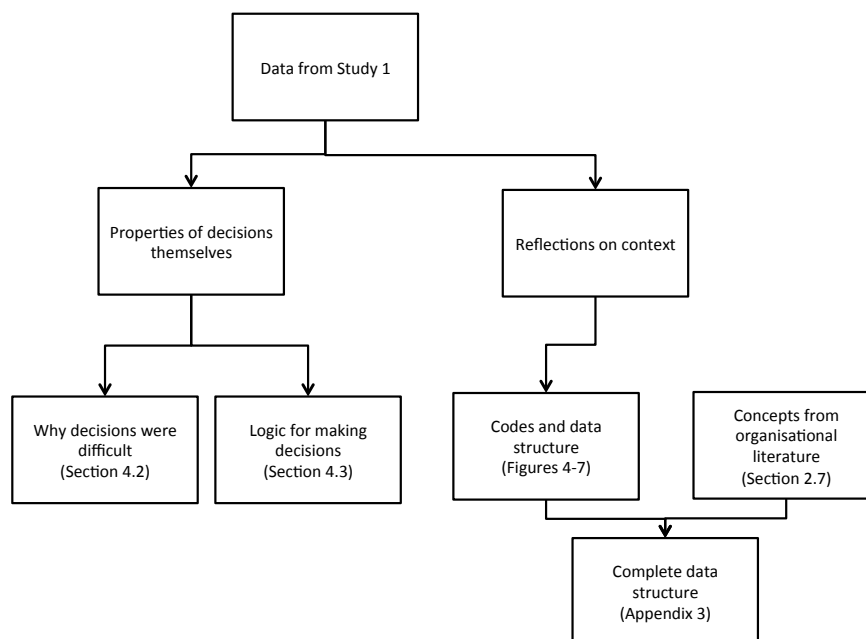
For each of the studies, I adopted the principles of participant cross-checking (Butterfield et al. 2005) by writing a report of my findings and circulating it to the participants to invite their feedback.

3.4 Analytical approach

Because one of the main objectives of this research was to develop an understanding of the experiences of executives who were including social and environmental considerations in their decision-making, much of the analysis was based on the fundamental principles of grounded theory (Glaser & Strauss 1968). However, this was applied in different ways to the three studies, given their different objectives. In all cases, analysis started while the data-collection was still in progress.

The analytical process consisted of the steps shown in Figure 3. Given that critical incident technique provides data at two different levels (information about the incident itself and reflections on the context) (Chell 1998 p.55), I started two separate analytical processes, first to capture information about the decisions, and second to capture information about their organisational contexts.

Figure 3: Process for data analysis – Study 1



The first process is described in detail in section 4.2.1 and 4.3.1. I analysed the descriptions of each of the 45 decisions described in the interviews (and listed in Appendix 2) and identified, first, the characteristics that the interviewee said made the decision difficult, and second, the logical approach that the decision-makers took to resolving the competing commitments inherent in the decision.

The second analysis was the creation of a framework describing the context influencing decision-making (shown in Figure 1). To do this, I took four steps. The first two steps were both intended to generate codes, and ran broadly in parallel. First, I identified the different organisational concepts in the literature (this is shown in Section 2.7), taking a grounded approach to identifying concepts. In parallel, I coded my interview data using open coding and then axial coding (Strauss & Corbin 2008). Second, I organised these codes into a data structure (Gioia et al. 2013). Interestingly, the emerging structure mapped well onto Dean et al's (1991) model of four nested contexts informing decisions. These structures are shown in Figures 4 to 7. Figure 4 shows the data structure outermost layer of the framework (the external and internal context), Figure 5 shows the data structure for the formal elements of the organisational context. Figure 6 shows the data structure for the social elements of the organisational context, and Figure 7 shows the data structure for the individual 'layer' of the context framework.

Figure 4: Data structure for the outer layer of the context framework

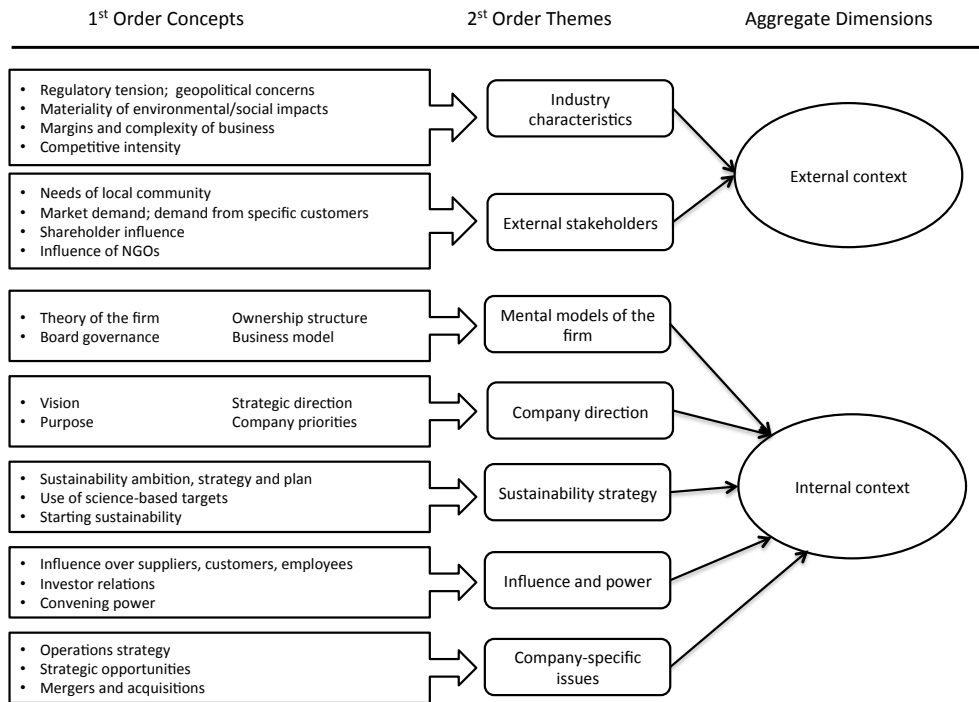


Figure 5: Data structure for the formal elements of the organisational context

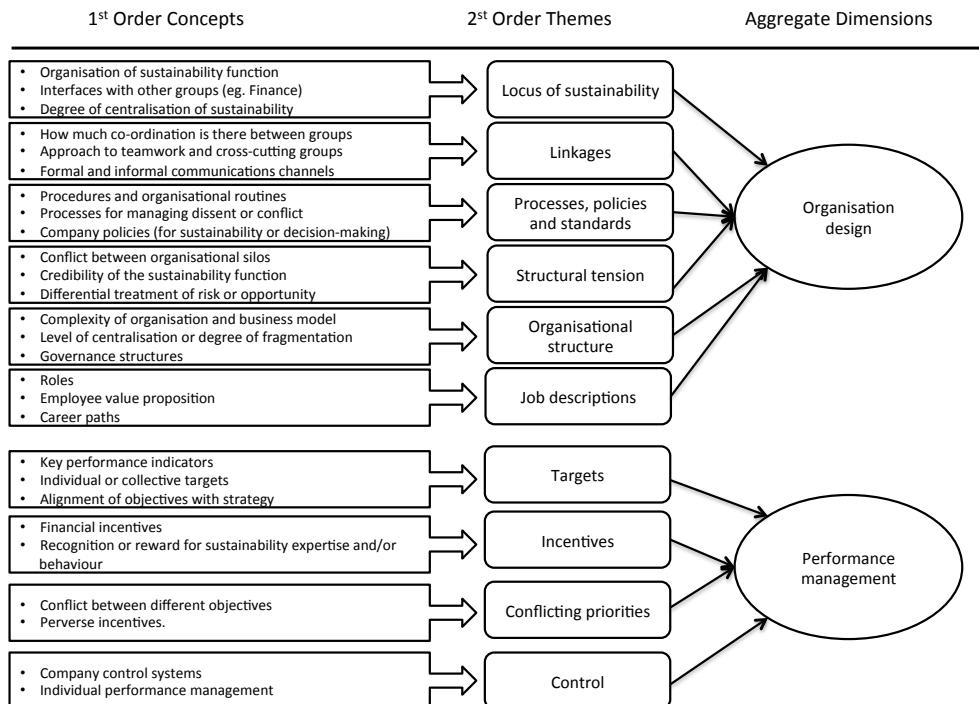


Figure 6: Data structure for the social elements of the organisational context

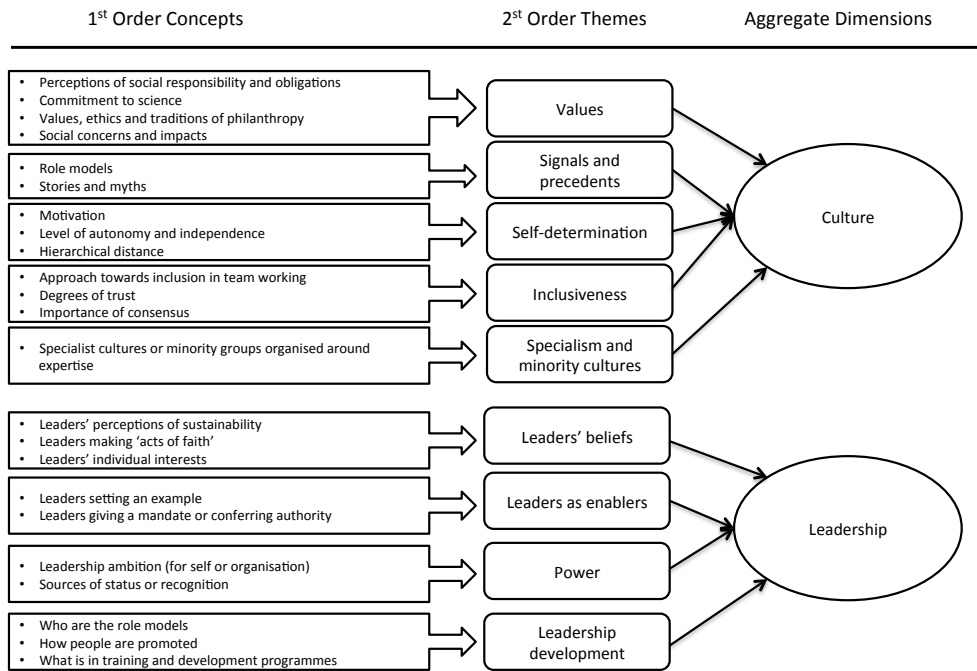
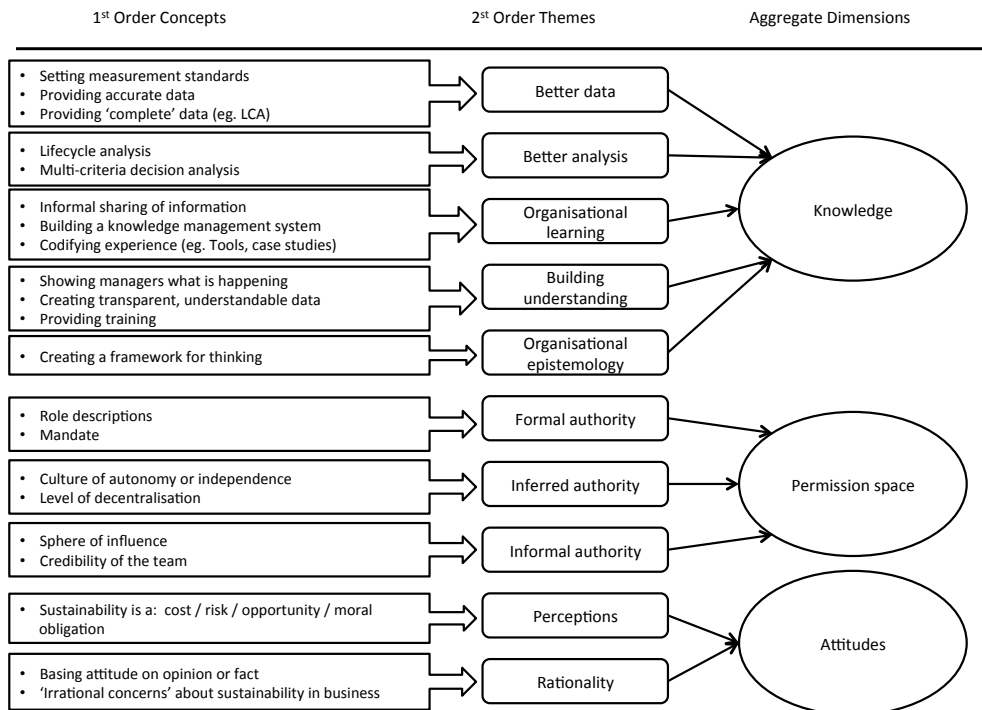


Figure 7: Data structure for the individual layer of the context framework



Having identified the concepts, themes and dimensions from both the literature and the interviews, I combined them to form a complete code structure. This is in Appendix 3. Finally, I organised these into a framework to explore the emerging relationships between factors.

This framework formed the basis of the coding for Study 2, described in Chapter 5. However, there were a few constructs that were specific to ConsultCo's operating context (for example: risk management; post-merger integration), and I created additional codes for these in order to ensure that I was grounding the analysis in the data, and not simply forcing the data into a preconceived structure (Strauss & Corbin 2008 p.113). Because the workshops in Study 3 were responses to material that had already been analysed, I did not transcribe or code these. Rather, I prepared a short report of each discussion, and used this to confirm my understanding of the debate with the participants. These findings are discussed in Chapter 6.

I engaged the participants actively in the analysis, sharing reports of the findings with the interviewees at each stage of the process, and providing the opportunity to give feedback if they did not agree with the analysis.

3.5 Limitations of the method

There are naturally some limitations to these methods, and three in particular merit attention: the choice of people and companies involved in the research; the truthfulness of interviewees; and the reliability of the analytical methods. I will briefly outline the problems these present, and the methods by which I mitigated these difficulties.

The companies and participants in this study were not chosen at random. I deliberately worked with companies that are aware of the social and environmental issues they face, and have started to take steps to address these directly in the way they do business. The emphasis in this research is on incumbent businesses, as they have a substantial social and environmental impact, and need to change significantly in order to address this. The participants in the first of the three studies were largely recruited from my own professional network or members of sustainability-related professional groups.

This purposive approach to sampling meant that large, international companies with a strong presence in Western Europe are over-represented in the study: the interviewees and workshop group members almost all worked for companies like this, and the case study company was also an international organisation with a strong UK presence. There are also a relatively high number of former consultants in the sample (five out of the seventeen in the first study). This bias persisted in the participants in the workshop groups, who were recruited in the same way (and did include some interviewees). This bias does suggest that the findings are more likely to apply to large, European companies, but does not exclude the possibility that they may be helpful to smaller organisations, or other international contexts.

Interviews can be political occasions (Alvesson & Kärrenman 2007) in which the interviewee (or interviewer) seeks to impress their own version of events into the written record. Groups also have the potential to become political as group members may compete with each other for attention and for 'share of voice'. This means that the researcher needs to understand and check both the content and the undercurrent of the words spoken – to 'listen for the song beneath the words' (Heifetz & Linsky, 2002 p.55). To manage this, I took a series of steps.

First, in all three studies, I worked to establish a rapport with the interviewees and ensured that they understood how I would be using their information confidentially. The interview method used for the first study – critical incident technique – has a distinct advantage in that it directs the interviewee to focus very specifically on describing an incident that is important to them. These very concrete events become the starting point for reflection. This means that although the data are interpretations, they are rooted in a specific and describable context. The interviewees were speaking on their own behalf about their own experience, rather than trying to represent a particular position. This reduces the 'political' content of these interviews, and meant that although the interviewees may have been making sense of their experience retrospectively, they were discussing this authentically.

The political stance was a higher risk in the case-study interviews, which involved junior and senior managers from a single company, some of whom may have wished to make a particular impression about the business's work in sustainability. To manage this, I

started each interview with a question that largely built on the critical incident approach, inviting the interviewee to share a very specific experience about decision-making, and then worked from that to start to test the emerging theories about the organisation. I was able to triangulate some of the data between different sources (for example, combining interview data with the company's external reports) to gather a holistic view of the company.

While the problem of managing political positioning within one company can be managed through triangulation, the problem of managing a discussion between several executives needs a different approach. For the third study, I invited executives who did not have existing working relationships at the start of the programme to participate in workshops. The risk in this case was that participants would try to present their own companies or experiences in a particularly favourable light, or would simply not contribute productively to the discussion. To manage this, I took three steps: first, I was very clear about the 'rules of engagement' in the workshops, including the approach to confidentiality and the recruitment of people from non-competing businesses; second, I designed the workshop so that we opened the meeting with a presentation and quite uncontroversial discussion to allow participants to get used to the setting; third, I was accompanied by a second researcher, who helped ensure that the discussion included everyone. Over time, the participants in the workshop started to get to know each other, and became increasingly comfortable in their discussions. This led to a much more open and direct sharing of views.

As well as the problems of collecting data in a way that would provide a reliable set of evidence, qualitative research can create problems of interpretation and analysis. The main strategy for validating the findings was participant cross-checking, which was used in all three of the studies. Additionally for some analyses, I convened groups of other researchers to discuss and check my coding of evidence. Given the abductive approach, I have placed less emphasis on researcher invariance than on reflexivity and credibility in the interpretation of the data (Mantere & Ketokivi 2013), tested through sharing the findings with interviewees, workshop group members and fellow academics.

Despite the natural limitations of the methods, my view is that the findings from this study can form a basis for further research and practice, and this is discussed further in Chapter 7.

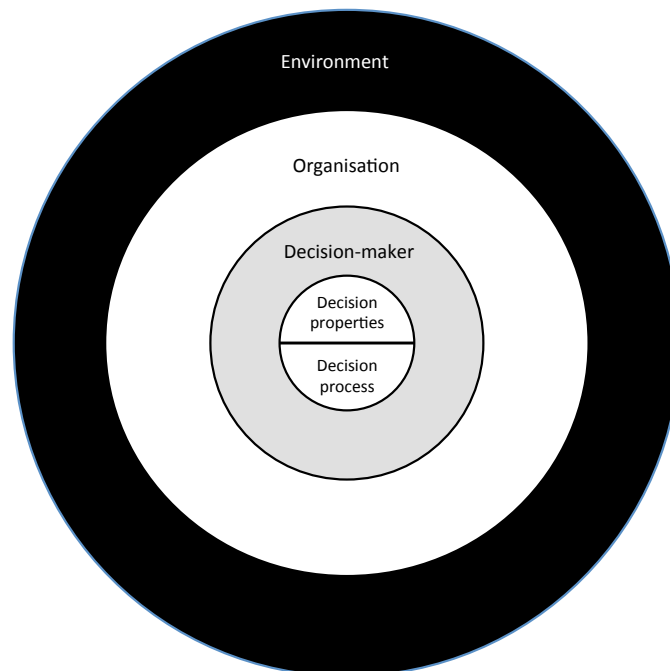
4: STUDY 1

4.1 Introduction

The objective Study 1 was to address the first research question: how do the formal, behavioural and social structures of an organisation interact to influence the inclusion of sustainability criteria in decision-making in incumbent businesses? To do this, I conducted interviews with 17 executives using critical incident technique, using the methods described in Chapter 3. This chapter describes the main findings from that study, introducing ideas that I later test in Chapters 5 and 6.

The chapter is in four long sections, followed by a concluding discussion. These sections map onto the four 'layers' of context shown in Figure 8.

Figure 8: Four contexts for decision-making



In this model, derived from work by Dean, Sharfman and Ford (1991 p.89) and elaborated in Section 2.7, the decisions are at the heart of a system comprising the broad external context, the organisational context, and the context of individual decision-makers. Dean et al (1991) do not distinguish between the properties, or

characteristics, of the decision and the process by which it is made. However, the review of the literature suggests that sustainability-related decisions do have particular characteristics that make them difficult: in Section 4.2 I review these and comment on their implications for process. Process and properties are therefore separated in this model. Each section of this chapter discusses one of the 'layers' of the framework and begins with a brief comment on the key findings from the literature review in order to situate the findings from the interviews in context.

First, Section 4.2 introduces the decisions themselves. One feature of critical incident technique is that the unit of analysis is the incident, rather than the interview. By analysing the 45 decisions described by the interviewees, I identify the factors that make these decisions difficult and suggest a novel classification of decisions.

Second, one of the main challenges of introducing sustainability criteria to decision-making is the introduction of tension between competing commitments (this is described in Chapter 2). In Section 4.3, by examining the different approaches that executives take to managing these tensions at the decision level, I show how the competing commitments that arise at the individual level are nested within a broader context and 'zoom out' to examine the tension between the external environment and the firm.

The relationship between this high level tension (between the firm and the environment) and the tensions at the individual level is influenced by factors at the level of the organisation, and at the level of the individual decision-maker. These are reviewed in Sections 4.4 and 4.5 respectively.

Section 4.6 presents a synthesis of these findings, and offers a model to show the way organisational systems shape decision-making. This section summarises the ideas that are tested and extended through the Prescriptive Study in Chapter 5.

4.2 Why do sustainability considerations make decisions difficult?

The literature describes four ways in which including social and environmental considerations in decision-making can add complexity (see Section 2.4, above). These

were: managing the demands of stakeholders (Smith & Lewis 2011); managing inter-temporality (Bansal & Desjardine 2014); managing complexity (Pirson & Turnbull 2018); and managing ambiguity (Rittel & Webber 1973). However, there are two clear gaps in our understanding of how decisions are difficult. First, these criteria have been proposed by different authors, largely writing from a conceptual basis. We do not know how they interact, or how decision-makers experience these challenges. Is there only one type of sustainability-related decision, or are there several? Second, these criteria focus on characteristics of the *decision itself* rather than the ways in which the context might make the decision problematic. They do not take account of the decision-makers and the factors that might influence them, which are discussed in Sections 4.3 to 4.5.

The inquiry started by examining the nature of the decisions, and why these are problematic in order to lead to a better understanding of how the formal, behavioural and social structures of the organisation can help support (or stand in the way of) including sustainability in decision-making.

4.2.1 Analytical approach

In the interview protocol, I specifically asked about ‘decisions that had been made difficult because of the need to include social or environmental considerations’, but did not explicitly suggest any of the tensions that have been identified in the literature. The interviewees then identified decisions that were salient for them. The decisions were on a range of topics, including business decisions (such as choices about strategy or capital expenditure), questions of innovation or resource efficiency (such as choices of technology) and operational questions. The decisions were all ‘paradoxes of performing’ (Smith & Lewis 2011), that is to say, they were characterised by having to meet multiple objectives simultaneously.

Because the literature did not offer a comprehensive set of characteristics of these sustainability-related decisions, I decided to take a grounded approach to this analysis and therefore did not approach it with a set of existing constructs to test. These emerged from my coding of the interviews. In my initial analysis, I used open coding that identified six specific attributes that made decisions difficult: inter-temporality; stakeholders; ambiguity; uncertainty; irrevocability; and centrality.

Table 8: Interviewees reflections on characteristics of sustainability-related decisions

Attribute	Example quotation
Inter-temporality	'I think sustainability's great for economics but it's over a much longer sustained period, and I think one of the difficulties was ... the system was quarterly results and even annual results whereas sustainable benefits are over a much wider length of time.'
Stakeholders	'It is also always a sort of negotiation thing so you have to negotiate with several counter-parties, authorities, regulators, owners''
Ambiguity	'It is about taking a top-down ...view on one hand and mapping out these complexities and first of all making it transparent what the trade-offs and optimisation choices are. And then trying to simply find the best possible alternative, or various alternatives.'
Uncertainty	'You can get it incredibly wrong. You have some beliefs ... but none of these are calibrated with anything so you're taking a massive guess.'
Irrevocability	'The first thing that we really changed is that sustainability is discussed really early on. So it's not "oh yes, let's get the whole thing planned out, architects engaged, everything designed" and then much, much later, what about that sustainability target. So we're there right at the start, and more senior people are there right at the start.'
Centrality	'It's important to do the hygiene stuff, but [sustainability's] got to be part of the business.'

The first two of these factors have their roots in the definitions of sustainability. First, almost all of the decisions had some problem of inter-temporality. Inter-temporality is well-described as a problem in the literature (Slawinski & Bansal 2015; Bansal & Desjardine 2014). While this was intrinsic in many of the decisions, it was felt most acutely in cases involving capital allocation, particularly when making a business case for long-term projects that were assessed on a relatively short payback period. Second, several decisions were characterised by having multiple stakeholders, sometimes including a large or diverse group of stakeholders, often with differing views on the 'right' answer to a question. The presence of multiple stakeholders tends to create tensions for an organisation (Smith et al. 2013), and Haffer and Searcy (2016) identify tension between stakeholders as one of the main areas for trade-offs in corporate sustainability. A large body of literature is devoted to organisational responses to stakeholder demands (Yuan et al. 2011), and indeed stakeholder management is often a significant responsibility for senior sustainability professionals (Strand 2014).

These two factors have second order effects that created two further difficulties for the executives. First, the inter-temporal or inter-stakeholder problems meant that some decisions were ambiguous or difficult to frame, or had unclear goals. Second, in many cases the decision was unprecedented and information was unavailable, so the decision-makers were working from a position of high uncertainty. Both of these factors led to a lack of clarity for the decision-makers, and this in turn created some stresses in the organisation. As one interviewee said:

"You can really feel that the discomfort people have because although it's data driven it's not the data people have... People are trying to figure out what's right and what's involved."

The final two characteristics that made the decisions difficult were intrinsic to the decisions themselves. First, some of the decisions demanded attention because they were irrevocable or had systemic second-order consequences that made them difficult to reverse – effectively this increased their complexity. For example, some decisions about products may change an entire supply chain, or involve the configuration of capital assets. Second, many of the decisions were central to the business. I found that there was a difference between the way companies treated 'hygiene' decisions (such as a choice to recycle office paper or use LED lighting) versus decisions that related to the core of the business (such as choices about the portfolio of assets). The issues that were central to the business tended to have more significant second-order effects and were therefore more complex.

After identifying these six concepts from the interview data, I created a set of indicators to assess the extent to which each factor was present in the decisions.

The key indicators used to analyse these factors are listed in Table 9:

Table 9: Factors making decisions more difficult

Factor	Key indicators	Scale for assessment
Inter-temporality	Range of different time-horizons implied by the decision	Low (no significant inter-temporality) Medium (some inter-temporality, but not considered significant) High (significant inter-temporality)
Stakeholders	Number of different stakeholders involved	Many stakeholders – Few stakeholders
Centrality	Degree of importance of the decision to the way in which the company creates value.	Core (decision is part of the value creation system) Hygiene (decision is peripheral to value creation system)
Uncertainty	Difficulty of predicting the outcome of the decision – this may be because the problem is novel, or because of the absence of data.	High (the problem is novel or unquantifiable) Low (this type of problem is familiar or data is easily available)
Ambiguity	Level of clarity in the problem definition.	High (problem is not clearly defined) Low (problem is clearly defined)
Irrevocability	Difficulty of reversing the decision (because of second-order effects)	High (the decision has systemic effects that cannot be reversed) Medium (the decision has second-order effects that would be expensive or difficult to reverse) Low (the decision is relatively easy to reverse)

One limitation of this analysis is that the data-gathering approach was not designed to collect this data in a structured way – rather, it was codified in retrospect. This means that the calibration of each category is somewhat crude, and there is clearly an opportunity to develop these constructs further. Nevertheless, the interviews did include sufficient information to be able to categorise each of the 45 decisions in terms of these criteria. The findings are therefore sufficiently robust to suggest a theoretical framework for further testing.

These factors are not necessarily independent (for example, ambiguity and uncertainty are related: if the terms of reference for a decision are unclear, then the certainty of the

outcome is likely to be lower). Most of these factors directly relate to the need for social and environmental sustainability (for example irrevocability is related to inter-temporal tensions, ambiguity and complexity are related to having multiple stakeholders), and all of the decisions had some combination of these characteristics directly driven by the tensions arising from the need to act sustainably.

4.2.2 Four archetypes of decisions

I assessed each decision using the criteria in Table 9 (above). Over 80% of the 45 decisions had a 'high' (or equivalent) rating in three or more of the criteria. There were some repeated combinations of factors meaning that almost all of the decisions fell into one of four broad categories – or archetypes – of decisions. The archetypes each have particular characteristics requiring different approaches, and I gave them names based on these. The archetypes are shown in Table 10. The four decisions that did not fall immediately into these archetypes were decisions about implementing a sustainability plan (for example: choices about target-setting for sustainability).

Table 10: Four archetypes of decisions

Operational Decisions				Engineering efficiency		Messy situations		Wicked problems	
Stakeholders	May be broad groups of stakeholders – often including customers			Generally relatively few stakeholders (occasionally more)		Many, varied stakeholders		– sometimes in conflict	
Inter-temporality	Inter-temporality is relatively less important, but may be present			Decision methods (eg. Payback, NPV) may not be aligned to investment life-cycle		Time horizons are different for different stakeholders		Several challenges of inter-temporality (for example, different stakeholders and different decision-methods)	
Centrality to the business	The decision may be central, or may be a hygiene issue			The decision is material to the business					
Uncertainty	The decision is not generally uncertain.			The decision is relatively uncertain and may need new information.			There is a high degree of uncertainty, and information may be unavailable.		
Problem ambiguity	The problem is fairly well defined			The problem is fairly well defined, but may be perceived differently by stakeholders		Problem definition is unclear or ambiguous			
Decision Irrevocability	The decision may be hard to reverse			The decision has effects for the broader system, so cannot be reversed					

The archetypal decisions had different characteristics, typically occurring in particular parts of the organisation, and requiring different informational, cognitive and organisational capabilities to make the decisions. Some of these characteristics were described in the literature, but had not been attributed to a particular decision type.

Operational Decisions

The 'Operational Decisions' in the sample were frequent decisions that were generally core to the business. Typically, these were decisions made by generalist managers as part of their daily work, without reference to specialist expertise. They included choices about packaging materials, logistics (for example, use of air-freight), or issues arising in the supply chain (for example where to place a particular order, or whether to serve a particular customer). Often these decisions were made rapidly, under pressure and using 'routine' processes and heuristics: the executives' established habits of mind were very important in making these choices.

There were two main problems that executives faced in dealing with these situations. First, in several cases, the decisions were made difficult because of where the key issues driving complexity were their organisational issues, such as conflicting incentives within the organisation or a need to reorganise decision-making processes (this is discussed in Section 4.2.3 below). Second, in some cases, the 'rules of thumb', or heuristics being used were not based on the right information. One interviewee pointed to situations where people had fallen back on habits without re-analysing the situation and had therefore made mistakes:

"I turned to [my colleague] and I said: "You've never done it this way before, have you?" and he said "no" ... so even people who do this all day long haven't asked the question. So the idea that sustainability is some sort of known secret that everyone knows the answer to, and only needs to be able to afford is not true. People don't know what's best."

These habits of mind are shaped to a large extent by the organisational culture and formal structures (such as incentives and decision-rights), and are difficult to change (Gioia 1992). There is competition for executives' attention (Ocasio 2011), and this is shaped and directed by the organisation (Simon 1997; Felin et al. 2017). Sections 4.4 and 4.5 discuss the factors influencing this process.

Engineering Efficiency

Several of the decisions arose in an engineering context – often in questions about large capital investments or a choice of technology. The engineering efficiency problems were generally well-defined, unambiguous problems, with a reasonable degree of alignment amongst stakeholders, and which were irrevocable and central to the business.

Examples included choices of manufacturing technology, or the management of large capital programmes. Many of these examples were situations where the issue at stake was one of resource efficiency and businesses found that they could improve economic and environmental outcomes by improving energy or material use. In many of these cases, the decision was made as part of a recurring process (for example capital budgeting) using standardised information and analysis to make a business case (typically using a net present value or payback period calculation).

These decisions are characterised by three interconnected problems. First, they may require the decision-makers to see the opportunity and use some creativity in the option-generation stage in order to identify resource-saving solutions. One interviewee commented:

“What we found before is that an awful lot of stuff just didn’t get thought about because the wrong people were making the decisions, well not the wrong people, but people who didn’t know.”

Second, to identify and assess resource-savings, companies often require new forms of data – for example about energy use – which may not be available. One manager described the process he led to develop an information system to improve analysis of a capital investment programme for a global manufacturing network:

“We knew that we had to debunk these common myths, and we had to do the science so we got every single piece of data that we could from the volume of the site to the type of product to the type of packaging, to the age of the site, to the fuel type – everything you could get. And then we did the r-squared analysis to see what the drivers of performance were.”

This company built a very effective knowledge management system to improve the quality of their engineering planning and achieve aggressive resource efficiency targets.

Third, these are often long-term projects in which the evaluation process privileges the short-term impacts (Bansal & Desjardine 2014), and so if a resource is relatively low cost (for example, water) or the impact is in the longer-term future (for example reduced costs of decommissioning), it may be difficult to make a business case. As one interviewee said:

“For energy, it is always easy to make the business case... but for other environmental elements, the case is never going to add up. We never have a business case for a water improvement project, but we do it anyway because it’s the right thing to do.”

In other companies, the expenditure process was more stringent, and opportunities to make improvements to environmental performance were postponed because the payback time was too long. Companies with large numbers of ‘engineering efficiency’ decisions tended to manage them using established processes for gathering and managing information, and evaluating business cases consistently. This means that to fully incorporate social and environmental considerations into decision-making, some companies need to challenge standard investment evaluation techniques (such as payback periods or net present value) (Slawinski & Bansal 2015).

Messy situations

These decisions were about fairly well defined problems, but were difficult because of the misalignment of stakeholder needs, sometimes combined with constraints on the situation (for example, little time to make a decision, lack of information to assess the issues properly, difficult technical problems). These demands could be substantial:

“These are good people working hard, but they are under so much pressure to deliver against plan development, planning application, pension fund investors, shareholders, regulation compliance and so on, that the idea that they could stand above all this and think ‘what’s the really big picture here?’ ... it’s beyond the capability ... of the team.”

Often, the organisation was facing a ‘one-off’ situation, and did not have well-established procedures for making the decision. Examples included a bank trying to evaluate the environmental risk of a substantial infrastructure project; an executive deciding whether to take a customer order for a piece of work which might have serious negative social and environmental consequences; and the design of a complex infrastructure project. These were situations that did not have established organisational routines, or

established information systems, and so there needed to be real leadership in engaging internal and external stakeholders, and establishing processes for escalating high-risk issues. As one interviewee said:

“It is always a sort of negotiation. You have to negotiate with several counter-parties – authorities, regulators, owners – on several fronts at the same time.”

Thus, the executives working on these decisions typically needed to have strong stakeholder engagement skills, and in particular needed to be able to shape the way different parties saw the decision. The presence of multiple stakeholders can create demands for new information (Epstein & Widener 2011) and a need for the creation of sense-making narratives (Angus-Leppan, Benn, et al. 2010; Tuckett & Nikolic 2017).

Wicked problems

All of the factors that make it difficult to include sustainability considerations in decision-making were present in these decisions. They therefore required very careful formulation, as the ambiguity of the problem meant that the solution space was potentially large. These were typically strategic or direction-setting problems, and were demanding for the decision-makers. Many of the decisions in this category were not simple dilemmas with two outcomes to be balanced, but presented more complex situations with multiple dimensions to be optimised. One interviewee described an iterative process for making this type of decision:

“You need to have your minimum requirements clear so that you know what is the ultimate, what you can live with and beyond what point you cannot go, but it still leaves some flexibility and room for manoeuvre. So you try to get the best possible solution. It is about ... mapping out these complexities and first of all making it transparent what the trade-offs and optimisation choices are. And then trying to simply find the best possible alternative, or various alternatives.”

Examples of decisions in this category included decisions about managing portfolios of assets (for example, how to manage an energy production portfolio); the development of very significant new infrastructure projects involving large communities; and fundamental shifts of corporate strategy.

These problems have the characteristics of ‘wicked problems’ (Rittel & Webber 1973). Rittel and Weber (1973) in their delineation of the characteristics of wicked problems point to four clusters of characteristics that then shape the approaches to making these decisions. First, they argue that there is no definitive formulation for a wicked problem, and thus no ‘stopping rule’. This makes many data-driven approaches difficult (Zapico 2014), as they tend need both a precise formulation and a stopping point. The analytical approaches that have been traditionally suggested as decision-support methods are insufficient to tackle the wicked problems of sustainability (Bakshi 2011), and more interdisciplinary approaches are needed. Second, they argue that solutions are good/bad, rather than true/false, meaning that we depend on judgement rather than analysis to evaluate solutions. This has led authors to focus on leadership as the key to cracking these problems (Metcalf & Benn 2013; Grint 2008). Leaders have a particular role in asking questions to advance this problem-solving (Grint 2005; Heifetz & Linsky 2002). This questioning approach raises two further activities for leaders addressing wicked problems: processes of iteration (Sheep et al. 2017) and engagement with a broader set of stakeholders (Roberts 2000) to frame and re-frame the problem (Reinecke & Ansari 2016). It is clear that these different configurations of problems make different demands on the decision-makers.

4.2.3 Demands on decision-making process

Including sustainability considerations in business decisions adds complexity and gives decisions that might typically be characterised as ‘operational’ or ‘tactical’ some of the characteristics of strategic decisions. Leiblein et al (2018) argue that strategic decisions have three properties: interdependence across contemporaneous decisions, across the decisions of other economic actors, and across time. 40% (18 out of 45) of the decisions reported in the interviews had all of these characteristics, and almost as many again (16 out of 45) had two out of these three characteristics. Furthermore inter-personal and intra-organisational issues are also common in strategic decisions. Different perspectives or frames are particularly important in managing strategic uncertainty (Kaplan 2008). However, despite this complexity, sustainability-related decisions are not always supported with the same resources – information, time and senior attention – as strategic decisions.

In Chapter 2, I described three broad strands of scholarship in the literature: the analytical, the cognitive and the organisational. My analysis suggests that the different decision-types have particular characteristics that made them more amenable to particular analytical, cognitive or organisational approaches. The decisions are held at different points in the organisation, ranging from operational managers, designated experts with deep expertise, or the strategic apex. They are made in different time frames, allowing different levels of deliberation or analysis. They require different balances of judgement and information (Simon 1997 p.60). The characteristics of the decisions and their different cognitive, organisational and analytical demands are summarised Table 11:

Table 11: Different characteristics and decision-support needs of the four decision archetypes

	Operational decisions	Engineering efficiency	Messy situations	Wicked problems
Why the decision is difficult	Typically, these decisions have many stakeholders and are central to the business. They are often irrevocable or hard to reverse	These decisions have problems of inter-temporality, are central to the business and irrevocable	These decisions have many stakeholders and significant issues of inter-temporality. The issue is material to the business and decision is irrevocable	The decisions are highly ambiguous with many stakeholders, problems of inter-temporality, and second-order systemic effects.
Organisation	Throughout the organisation	Specialist division (usually technical)	Can be any group with impact on external constituencies	Typically at the strategic apex, or a designated specialist group
Key challenges	Generalists need to be able to make good decisions in short time-frames	Need to have sufficient information to evaluate options over time	Need to be able to balance the demands of stakeholders	The decision has high levels of uncertainty and complexity
Informational needs	Need for easily accessible, standardised information or heuristics	Relevant sustainability and performance metrics (eg. Emissions, energy use). Analytical methods eg. Life cycle analysis, AHP may be used	Information about the actual impacts of the decision in several different dimensions. Understanding of how this impacts stakeholders.	Need information to define the boundary conditions of the problem
Cognitive approach	Organisational schemas or scripts	'Business case' approach	Need for careful framing and narratives to engage different audiences	Need for iterations of framing and re-framing of paradoxes
Organisation capabilities	A supportive culture with appropriate sustainability training. Clear decision-rights and processes to pre-empt poor decisions	Effective process management and good flows of information	Skilled engagement of external groups, and an ability to lead complex decision processes	Ability to engage with paradoxical problems, including using judgement and creativity.

The type of decisions that are problematic in any given company will depend on its particular circumstances. For example, a retailer with a large number of managers working in the supply chain may find that its most material impacts come from operational problems; a manufacturer may be focused on engineering efficiency to run its assets; an organisation involved in developing infrastructure may deal with many messy situations; and a power generator seeking to exit fossil fuels may face wicked problems. These differences suggest that there is not a 'one size fits all' approach to solving the problems of including sustainability considerations in decision-making, and that the approaches companies take will need to be tailored to the issues that are most material in their business. Simply adopting better information or analytic methods – helpful though these are – does not address the fundamental capabilities needed to bring sustainability considerations into decision-making.

This goes some way to explaining the diversity of approaches in the literature. It is clear from the literature review in Chapter 2 that the solutions proposed to decision-making for sustainability tend to concentrate on analytical and informational problems. These might be suited either to 'engineering efficiency' or 'messy situations' archetypes. The methods identified – ranging from life-cycle analysis to various forms of multi-criteria decision analysis – can be effective for making this type of decision (that is to say, one with a fairly clearly defined problem and one where the time to make the decision is long enough to be able to complete the analysis). However, these decisions are only a subset of the complete range of problems companies face. While it was clear from the interviews that information and analysis are important, they are only part of a broader organisational capability that includes formal structures (such as performance management or decision rights), social structures (such as culture and leadership), and cognitive abilities. This organisational context will be described in more depth in Section 4.4.

The interviewees commented on the need to revise processes more thoroughly in order to accommodate sustainability. One interviewee whose company was in the process of changing its sustainability approach commented:

“When you come into the decision making process, it’s a little bit vague now in terms of that prioritization ... that’s probably why sustainability sometimes gets pushed out”

Others, however described a much more fundamental review of the decision-making processes, particularly for decisions made repeatedly (such as capital budgeting).

The interviewees also observed that some one-off decisions (such as ones characterised as ‘messy problems’) now required a much greater process of consultation:

“[The] decision had, ultimately taken by CEO, had input from the relevant people and the rest of the board, and it had the sustainability team doing a lot of work, working out exactly how bad it was, presenting that in its full glory, presenting that, and saying ‘this is exactly what you’re biting off, and this is exactly what you’ll get back, and these are the options for the future to make it better or worse. What do you want to do?’”

An interviewee in a different organisation had a similar observation:

“Everyone does get included in the decision-making process, and everyone has a voice. So, again that can make it quite difficult because everyone is very considered, and there’s a great culture of inclusion.”

The interviewees did take the view that process matters. One of them, in comparing two difficult decisions that had each had implications for social or environmental sustainability, reflected:

“I would say the first one was actually wrong, and the second one was right. I would say that the first one was not made in the right way. The actual decision itself, the process was wrong. The outcome, I think was also wrong.... The second one, I think was the right decision. And I think, whether we do it again, I don’t know if everyone would do it again but I would. And that process was definitely right.”

These alterations to process also include some changes to decision-making criteria. These were particularly clear in the decisions about investments, for which there were very specific financial guidelines – usually payback periods or net present value calculations. Payback was used in many of the ‘operational’ decisions:

“So a plant site would normally only fund something with a [payback period] of two years. And that’s quite typical. In some places it’s as low as a year.”

“We have done a lot of things which have very [quick payback] where it might be less than 2 years, less than 1 year, less than 6 months depending on the investment that is required. But ... people think that now, the management or directors or people who make decisions on the financial side, are now finding it hard to give proper [returns] for the investments that are required to be maintained for us to become more sustainable. So that is the main problem that we are facing at the moment.”

These changes of criteria presented companies with two new problems: first, a need for new information (discussed above), for example to price carbon or water; second the question of what to do in the case of decisions that were important from a sustainability point of view (for example to save water), but for which there was not a clear business case. Companies took different approaches to this: while one specifically mentioned a designated capital budget for these situations, another commented:

“There was no capex slush fund, and there were no special arrangements where it doesn’t break even but because it’s a Sustainable Development project it can go. My previous boss was a very hard-nosed guy and this is not altruism. It’s what the business needs.”

Others described situations where the process of building a business case had been expanded to accommodate sustainability criteria:

“So a whole part of it was that we have re-reviewed our acquisitions process and how we think about sustainability. So previously those asset and portfolio and investment teams would go off and buy an asset ... but we’ve now redesigned the processes and [the sustainability manager] is involved very, very early.”

These changes are not trivial: they require new processes for information management, consultation and stakeholder engagement. Companies that choose to act sustainably need to make inter-linked changes at the level of the individual decision, the individual, and the organisation.

Thus, the 'active' decision-support approaches that have been suggested in the literature (Arvai et al. 2012) address only a subset of the problems decision-makers face. Social and psychological approaches – such as cultural norms, stakeholder management and cognitive framing – also play a significant role in resolving the tensions these decisions create. The factors making decisions difficult arise in particular configurations in organisations, creating the four archetypes of decisions and placing different pressures on decision-makers. So, given that decision-support systems that exist in organisations may not be well matched to the types of decisions that executives face, how do they manage this problem?

4.3 Competing commitments and paradoxes in sustainability

The tensions related to sustainability occur at the macro and micro levels of the organisation (Haffar & Searcy 2015). This is particularly well illustrated in decision-making: each decision presents specific tensions, but these are located in an organisational context that may present a larger set of enduring tensions (Smith 2014). Tensions related to sustainability arise at the system level (Schad & Bansal, 2018) when there are multiple, conflicting demands from the external environment, whether from customers, shareholders, regulators or other stakeholders (Smith & Lewis 2011). However they become salient for executives at a more specific level (Schad & Bansal, 2018), for example when they need to make choices between conflicting demands. In this section, I will explore the relationship between the macro-level and micro-level tensions in sustainability decisions. This refers to the relationship between the outer layer in Figure 8 (the environment, which includes both external and internal elements) and the innermost layer (the decision itself).

As I established in the introduction, the problem sustainability creates for executives making decisions is that they are constantly trying to reconcile competing objectives. Six different approaches to resolving these tensions in business decisions are described in the literature. The vast bulk of research to date has focused on making a business case for sustainability (Margolis & Walsh 2003; Gao & Bansal 2013; Van Der Byl & Slawinski 2015). These business cases are framed in two different ways: win/win business cases and trade-offs. In the win/win business cases, decisions have been made that are positive both for the business and for society and the environment – for

example, adopting solutions which make more efficient use of resources (and thus both saving money and reducing material impacts). In the trade-off cases, decision-makers have had to choose between the economic, environmental and social outcomes of a decision – it has not been possible to find answers which allow all three to be optimised. These two approaches share an important common feature, which is that they are both instrumental – that is to say they prioritise economic outcomes above the economic or social outcomes of the decision.

This instrumental approach, however, neglects the systemic aspects of sustainability and may create moral dilemmas for managers (Margolis & Walsh 2003). By privileging economic outcomes over environmental and social outcomes, managers will tend to focus on the short term (Gao & Bansal 2013) and may lose the opportunity to create value that is shared between stakeholders (Porter & Kramer 2011). Gao and Bansal (2013) therefore propose an alternative, integrative logic for decision-making, and describe four distinct characteristics of this approach: first, decision-makers look simultaneously at the environmental, social and economic aspects; second, they accommodate multiple time-frames, not simply the economic time-frame; third, their spatial approach encompasses multiple stakeholders, rather than privileging shareholders; and finally, integrative logics are informed by an ethics of care, rather than an ethics of fairness (Gao & Bansal 2013). Thus, there are two instrumental approaches (trade-offs and win-win business cases), and one integrative approach to decision-making.

This integrative logic is not the only alternative that has been proposed to the business case approach. Scholars have also developed a body of work exploring the problem of managing multiple outcomes – social, environmental and economic – from a paradox theory perspective. This theory has already been proposed in the context of sustainability (Hahn et al. 2015; Van Der Byl & Slawinski 2015), and has features which makes it particularly relevant for decision-making in this context. Decision-making is often driven by conditions of plurality, change and scarcity – all pre-conditions for organisational paradox (Smith & Lewis 2011). Paradox theory has also been useful in examining interrelated problems – producing concepts such as nested paradoxes (Andriopoulos & Lewis 2009) and knots of tension (Sheep et al. 2017).

Paradox theory presents three ways to manage tension (Hahn et al., 2015; Poole & Van de Ven, 1989): opposition, in which the two competing demands are polarised; separation, in which they are separated either in time or space; and synthesis, in which a solution is found to resolve the competing demands by managing them creatively – for example by re-framing the problem. This adds three new strategies to the two instrumental and one integrative approaches. Thus, the literature suggests that there are six archetypal approaches to resolving the tensions inherent in these decisions. These are shown in Table 12:

Table 12: Six theoretical approaches to managing tension

Approach	Type of logic	How tension is managed
Opposition	Paradox	Tension managed by accentuating the difference (e.g., ‘Business versus society’)
Separation	Paradox	Tension managed by separating through time/space/structure (e.g., Two policies operating in different locations)
Trade-off	Instrumentalism	Tension avoided as one sustainability element is chosen over another (e.g., Choosing to have a worse environmental or social outcome in order to have a better economic outcome)
Win-win business case	Instrumentalism	Tension avoided through alignment /optimisation of sustainability elements (e.g., Finding a sustainable solution that is also lower cost for the business or higher value for customers).
Integration	Integration	Tension managed by shifting focus from economic to social and/or environmental. (e.g., Setting a design principle to address all three issues in parallel).
Synthesis	Paradox	Tension managed by addressing a broader issue that connects the two elements at tension (e.g., Reframing the question).

Clearly, some of these approaches are more likely to produce favourable social and environmental outcomes. Win-win business cases, integration and paradox all present the possibility of improving sustainability, while trade-offs, separation and opposition imply compromise at best. It would therefore be useful to know more about how executives use these different approaches, and under what conditions.

4.3.1 Analytical approach

To understand the types of logic decision-makers use, and the situations in which they use this, I took three steps. First, I reviewed each of the 45 decisions, and identified from the interviews the type of logic used to make the decision: I found that there were linguistic markers associated with each type of logic (for example, people do actually describe ‘win wins’ as ‘win wins’, but talk about integrative decisions as ‘values-based judgements’). These linguistic markers are shown in Table 13:

Table 13: How people talk about their logical approach

<i>Logical approach</i>	<i>Example phrase</i>
Opposition	Not used: see Section 4.3.2 below
Separation	‘We know that there is no way yet – and that’s the operative word – there is no way yet to make this a sustainable product. There is such a thing on the drawing board’
Trade-off	‘So one objective is obviously sustainability in terms of climate change, positive or neutral investments and energy production. But then one other is security of supply. And these two are not necessarily going in the same direction because if you have wind and solar you don’t necessarily have security of supply.’
Win-win business case	‘We tasked them to say ‘is this achievable, how much is it going to cost this, and how are we going to do it?’ And the answers were: yes, it is achievable; it’s not going to cost you, in fact it will save you £400m; and you already know how’.
Integration	‘So essentially running it is quite cost negative really. It’s quite a huge step. So, admirably, the company are doing the right thing.’
Synthesis	‘It’s a risk management issue in the big picture. But it’s also a strategic issue.’

I engaged a group of colleagues to test the validity of this analysis by reading extracts of the interviews describing the decisions (not the longer reflective sections) and assigning them to different approaches. Six colleagues participated in this process and they were unanimous in their allocation of decisions to logics. This therefore meets the goal of researcher neutrality (Mantere & Ketokivi 2013; Eisenhardt & Graebner 1989).

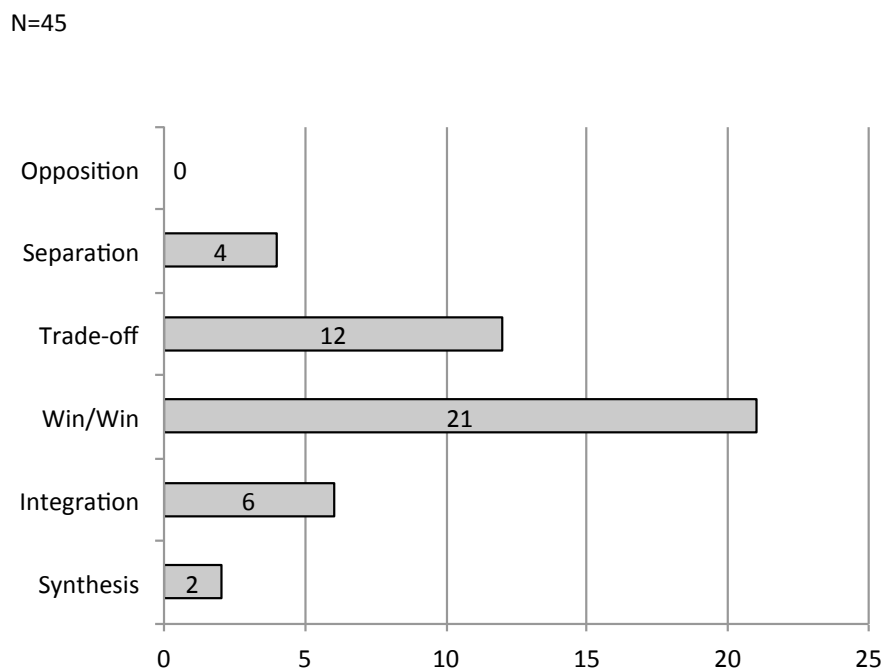
Second, I set out to understand the factors that influenced the choice of approach. To do this, I looked at responses of the individual decision makers to see if there were particular patterns of behaviour (for example related to professional background), and then looked at the characteristics of the decision at hand and the broader organisational context that they described in their interviews.

This analysis gives four main findings, which will be reported as follows: first, the way in which the six approaches were used overall; second, the way *individual* decision-makers used them; third, the way different logical approaches might be used for the different types of decisions described in section 4.2; and fourth, the organisational context for these approaches.

4.3.2 How do executives manage competing demands?

All the decisions I analysed could be described in terms of these six approaches, and I did not in the course of analysis uncover a seventh approach. The distribution of the approaches is shown in Figure 9:

Figure 9: How frequently are different approaches used to manage competing demands?



There is clearly more use of the two ‘business-case’ approaches than the integrative or paradoxical approaches in this sample. Only one of the approaches – opposition – was not used in the decisions analysed. This is interesting because although opposition is undoubtedly part of the discourse about sustainability (Margolis & Walsh 2003), and there has been historical opposition to the notion of corporate social responsibility, this

simply did not arise in the interviews. People did not identify 'ideological' opposition to sustainability: failure to adequately consider social or environmental issues was attributed instead to ignorance or to process failures. This may be an outcome of the interview protocol (which encouraged people to consider decisions involving sustainability), and so I have retained this logic in the model as it may be used in some circumstances or in some companies that fell outside the sampling frame.

It is possible that the 'win-win' business cases are over-represented in the data, first because they are memorable; and second because it is possible that some more integrative decisions are described as 'win-wins'. Gao and Bansal (2013) give a specific list of criteria for 'integrative' decisions, and it is possible that some of the decisions described as 'win-wins' were actually made on this basis, but were then justified by giving a business case. For example, some of the 'win-win' decisions describe thoughtful assessment of stakeholder positions (for example, engineers installing new infrastructure in communities regularly engage the stakeholders and are often dealing with multiple time-frames as they consider the whole life of the installed project), and may meet the criteria for an integrative decision. However, people find it easier to justify their decisions in win/win terms: one executive reported taking a 'win/win' approach because "*I wanted to stick to my mandate*", and he clearly felt that his authority did not extend to values-based judgements. This led me to look at the way individual decision-makers use these approaches.

4.3.3 How do individual decision-makers use these approaches?

As 12 out of the 17 interviewees described more than one decision (the remainder typically described a single problem in more depth and with a greater level of reflection on the context), I was able to make some preliminary observation about the way they use these approaches as a repertoire. The majority of the interviewees described using at least two of the different approaches, suggesting that people can be flexible in their problem-solving. However, for many interviewees, their repertoire tended to focus *either* on trade-offs (for example trade-offs plus separations) *or* on win-wins (for example using win-wins and integrative solutions). Only two people described using a repertoire that included both trade-offs and win-win business cases, integration or synthesis solutions.

While there is a body of literature focusing on individuals' ability to take creative, paradoxical approaches to decision-making (Miron-Spektor et al. 2017), empirical work in this area has tended to focus on people making the same types of decisions. While one possible interpretation of my data is that people either held a 'business case' frame or a 'paradox frame' (Hahn et al. 2014), the data is not sufficiently robust to be able to clearly support this. There are three reasons to be cautious about individual cognitive framing in this particular data. First, the interviewees chose the decisions themselves, and at least one of the people describing a 'trade-off' view and one of the two strategists who described a broader repertoire specifically focused on situations that they had found frustrating because of the compromises involved, and so under-reported the win-win business cases that they worked on. Second, people in different roles face different types of decision – it is possible that some of these choices were simply not amenable to alternative views. Finally, all of these people were working in different organisations, and therefore faced different influences – for example, engineers in some organisations had a different cognitive frame from engineers in other settings. I therefore looked at the types of decisions in which each approach was used to see if this provided a stronger explanation for the choice of approach.

4.3.4 How do the characteristics of the decisions inform choice of approach?

The approaches in the repertoire are used under different circumstances. This means that they may not all be available for every decision: in some cases it may simply be impossible to find a win-win business case, for example. The typical uses of each strategy are summarised below, in Table 14.

Table 14: Characteristics of decisions associated with different resolution approaches

Approach	Use case
Separation	Temporal separation is used as an interim strategy, usually on the path to a win-win business case. This may be, for example, to allow time for development of a technology.
Trade-off	Trade-offs were typically used under two conditions. First in situations of scarcity, often described by interviewees as either a problem of a particular situation, or an on-going problem in a low-margin industry (for example, construction). Second, they occurred when the question was very narrowly focused (we can only do x or y) and so options were limited.
Win-win business case	Win-win business cases are used in two cases: 1) when there is a case made on the basis of material efficiency and 2) when there is a constructive process of stakeholder engagement to arrive at a business case.
Integration	Complex decisions, often made by senior leaders under conditions of uncertainty (for example: information not available), and determined on the basis of values.
Synthesis	The two cases in this data were complex decisions that the executives described as exceptional cases without a standard resolution process, and where there is sufficient time and senior attention to work on alternative framings.

Separation strategies were used as interim measures – as one interviewee said:

“We also know that there is no way yet – and that’s the operative word – there is no way yet to make this a sustainable product. There is such a thing on the drawing board which is becoming closer and closer and which we hope to launch next year”.

While many of the organisations were international, and could therefore adopt separation strategies based on spatial separations, all of these decisions were described as inter-temporal separations or steps on a pathway to a better resolution of the problem. In all these cases, the separation approach was a step towards a win-win business case solution. Thus, we can see that people may change their approach to a decision over time.

Trade-offs were used extensively, but were particularly associated with conditions of scarcity:

“Construction is driven by contractors that make generally less than 2% profit, so if it doesn’t save money, or shorten the programme, or reduce health and safety risk, they just, it doesn’t matter whether they’re interested or not interested, they can’t influence the sustainability decision.”

There were also some decisions which were simply not possible to frame in other terms as they eventually involved irreconcilable tensions – or tensions which were not reconcilable by the decision-maker. These were often described as structural problems:

“The capex team is responsible for getting the money, you’ve got another part of the organisation responsible for spending the money ... the procurement team. And then you’ve got another part of the organisation actually running the machine.”

The differences in priorities in these three teams meant that the decision-maker often found that it was impossible to resolve the tensions in developing an economically and environmentally sustainable asset without making a trade-off, and so this was recognised as a paradox. The different logics of different professional groups could not be reconciled (Besharov & Smith 2014).

By contrast, the other ‘instrumental’ logic was seen very positively. Win-win business cases were consistently described as good outcomes, as by definition they meet the needs of many parties to the decision. As one interviewee said:

“‘Why wouldn’t you? You’d be naughty not to’ was the sentiment in our mind. So there was this double win, double no-brainer was the idea from our perspective”

The decisions made using win-win logic fell into two distinct categories. First, there were a series of decisions where the business case was predicated on resource efficiency: using less energy (or packaging, or other materials) not only reduced emissions but reduced costs. As one interviewee said:

“There’s so much that doesn’t cost money that I’m happy framing everything in that win/win scenario and development is really on the embodied carbon and while we’re stripping that out and we’re also stripping cost out, then that’s fine.”

Other win-wins were significantly more complex, and involved negotiations with a variety of stakeholders, for example in the management of social and environmental issues in the development of large infrastructure projects. It is possible that win-wins are over-represented in this data, first because they are memorable – nevertheless, they are clearly a significant part of the repertoire of decision-making approaches; and second because it is possible that some more integrative decisions are described as ‘win-wins’.

Despite the possible over-statement of win-wins (described above), there were some decisions that were clearly integrative, and were qualitative judgements based on

values, and had involved extensive stakeholder engagement. These were used only in cases where senior managers made the decisions because they tended to have high ambiguity and uncertainty, and ethical issues were involved. The justification for these decisions was often values based:

"Our board ... was split on this. We had a couple ... who said 'look, I don't want my business inconvenienced on this'... And there were one or two others who seemed to have a sense of responsibility and saw it as a responsibility issue. And then we had the chair who said 'Look if it helps me manage [the business] as a responsible member of society then I'll do it.'"

Because of the nature of these decisions, they were typically made by senior executives working with a higher level of managerial discretion and the authority to make these more values-based decisions.

'Synthesis' strategies were only used by executives in complex, policy-setting situations. The two interviewees who had used these approaches described the decisions in terms of new insights that had allowed them to reframe the decision – for example bringing a risk-management approach to a decision that had previously only been seen as a sustainability problem, and so changing the nature of the debate. Because they were unusual, I invited a group of senior executives to comment on them, and they observed that these decisions are cognitively demanding as they involve creating new ways of seeing a problem, and so are not widely used, or routinized in standard decision-making processes. This discussion is described more fully in Chapter 6. Both of the two decisions which were resolved using synthesis (a fundamental reframing of the issues) were decisions directly related to the central paradox of the business, in both cases reframing their approach to the environment as an issue of risk-management rather than sustainability. These were both decisions that were extremely complex, and required significant efforts and bespoke processes to resolve. This data set is of course relatively small, but it suggests that the integration and synthesis approaches are cognitively and procedurally demanding, and so are used less than other approaches.

This suggests that the use of the different approaches is contextual, and that there is a mixture of determinants of the approach used, including the complexity of the decision, the process to be used, the seniority or discretion of the permission holder, and then the opportunity for savings. This led me to look at the broader context surrounding the decision.

4.3.5 Tension between the external and internal context

So far, I have established that executives use the different decision-making approaches as a repertoire, but that most people use only part of the repertoire, with their decisions clustering either around a trade-off frame, or a win-win business case framing. While this is influenced to a certain extent by the characteristics of the decisions they are making, the approaches are also nested in the broader logic of the organisation. In each business, there was a long-term tension between different social, environmental and commercial forces that created a long-term and fundamental paradox. This was more nuanced than the central tension between pursuit of company value versus pursuit of shared value (Haffar & Searcy 2015), but did relate directly to the way the company chose to respond to its external environment.

The central sustainability-related paradox arises in each company when tensions exist either at the field level in the external environment (for example between institutions and NGOs), or between the external environment and the organisational logic that is used to make sense of it. Scholars recognise that the broad environmental context is important in shaping decision-making (Dean et al. 1991; Shepherd & Rudd 2014), but there is not a broad consensus for describing these environmental factors (Shepherd & Rudd 2014). Schneider et al (2017) observe that the requirements of sustainability increase the complexity of the external environment (for example, by creating pressure to consider a broader group of stakeholders), but there is not a single source that describes these features of the environment. Different authors have emphasised different facets. Because of this, I reviewed the environment in terms of two distinct contexts: the external context (which may be creating new social or environmental demands) and the internal context, or set of ways in which the company may respond to these.

The main elements of the external context fall into two groups: the particular constellation of stakeholders around the business; and the industry characteristics (for example, munificence and competitive intensity). The interviewees experienced the diversity of stakeholders as an important driver of complexity. Complexity is a factor which appears several times in the literature about the decision-making context (Shepherd & Rudd 2014; Hahn et al. 2016; Aragón-Correa & Sharma 2003; Chen et al.

2017). While the different authors propose slightly different definitions of complexity (some to describe heterogeneity of competitors eg. Chen et al, others to describe a proliferation of different actors eg. Aragon Correa and Sharma), there is a strong sense that companies that are having to monitor many different organisations have to bring in more information to their decision-making. The interviewees particularly experienced this as having a broad range of stakeholders, including regulators, customers, suppliers, NGOs, civil society and shareholders. As one interviewee said:

“There was a lot of work last year to engage with people at all levels, actually, within the company but also externally we spent a lot of time talking to our suppliers, our customers, our investors and really tried to look at what all our peer group were doing, what legislation was telling us, and really trying to identify what were our most material issues and what we want to major on.”

While this company had managed to identify a core set of issues to work on, many of the interviewees experienced tension or complexity as a result of working with multiple stakeholders. This took three main forms: tension between sustainability and financial outcomes; tension between different external institutions; and internal tension arising from differences in the priorities accorded to different stakeholder groups.

The main tension that the interviewees described was between stakeholder needs and profits: essentially a problem of value-sharing (Porter & Kramer 2011). For example, one interviewee described the company's dealings with NGOs:

“I think that that relationship between business and NGOs has really changed since 2003/2004, and its now much more collaborative, which is ‘yes, we actually understand the environmental or social issue. That’s not the issue. The issue is can we find smart ways around it.’ So there is always a tension with profitability, but we said, look why would you create potential risk for profit’s sake?”

However, some interviewees described a business case that would meet investor or customer needs by improving resource efficiency:

“[After the VW carbon incident] we got a few letters to our Chief Executive saying ‘we will not invest in you unless you do carbon reporting and manage your carbon’. Which was great for us. I mean we are very much of the opinion that if you drive down carbon you drive down cost: they are absolutely linked.”

Another pointed out that customers were extremely important in building internal commitment to sustainability as it suggested the possibility of growing the business sustainably:

"I wouldn't say everybody's interested, but there are more and more customers who are really, really interested in it. That's music to my ears."

The second tension that interviewees reported was the complexity of dealing with institutions at multiple levels. This particularly affected companies working in regulated industries.

"The complexity is that in Europe these things should be cutting across Europe with the same regulation and targets. However, every country makes their own energy strategies and plans and road maps and so on and it becomes a blurry mess very easily. And the EU thing is like a very visionary, high level thing but the dirty details are different in every country and every location and everyone interprets it in different ways."

Tension could also arise when different parts of an organisation emphasised different stakeholders in developing their sustainability priorities:

"There has been some friction between the facilities and the corporate level because what the factories need is to help the community that they live in. But the corporate need is something to market."

The response to these tensions was influenced by the resources – whether of money or attention – available to the decision-makers. This is shaped by the structure of the industry. Competitive threats (Dean et al. 1991) and competitive intensity (Ford & Richardson 1994)(Ford & Richardson 1994) are influences in strategic and ethical decision-making. Competition can play a dual role in sustainability, either as a spur to act more sustainably (Bansal & Roth 2000), or by reducing resources or directing attention away from social and environmental needs. Several interviewees described their sustainability strategy as a form of competitive differentiation:

"I think they'd done some market research and saw there was a niche there. So there were lots of people doing commercial development, but no one really had cornered the extreme, green sustainable angle."

“Our CEO had already decided that he wanted [company] to be the ... sector leader on sustainability and there’d been quite a bit of discussion at executive committee level about why they wanted to take that leadership position”

“They really wanted to put themselves, from a brand perspective, as a sustainable company, an environmental company.”

One effect of competitive intensity, particularly in more commoditised industries, is downward pressure on margins. Munificence is an environmental factor that is described by several authors particularly as a driver of sustainability initiatives (Aragón-Correa & Sharma 2003; Chen et al. 2017; Hahn et al. 2016). In the interviews, the companies operating in industries with structurally higher margins tended to feel that they were less constrained in their decision-making. The companies in low margin sectors (examples included apparel manufacture and construction) tended to make more trade-offs in their decisions. This sectoral characteristic also has a time dimension: companies with low margins tend to need to focus on the short term for survival, and so find that there is real tension in taking long-term decisions for sustainability (Bansal & Desjardine 2014). One interviewee in a low-margin sector described a company changing its investment criteria during hard times to focus only on projects with a very short payback period.

The demands of this external environment can create a paradox – ‘a persistent contradiction between independent elements’ (Schad et al. 2016) – for the company. This arises from a tension between some aspect of the external environment and a fundamental aspect of the company itself, typically related to the way in which it is configured to address the needs of the external environment. This internal context is at a more abstract level than the company’s organisation or operations – rather, it comprises the set of fundamental beliefs about what the company does, and how it does it. Working from the literature, I found two main aspects of this internal context, which also appeared in the interviews: the theory of the firm, and its vision, mission and purpose.

Each of these addresses – in different ways – the fundamental question of what the firm is for. Theories of the firm exist in economics to address the question of the

fundamental design of the firm (for example, why does it exist? where should its boundaries be? What is its function?) (Seth & Thomas 1994). These questions have important implications for the way in which a company thinks about sustainability (Lozano et al. 2015), for example a company seeking to maximise shareholder returns will tend to emphasise the needs of shareholders above other stakeholders. Although the interviewees did not use the term ‘theory of the firm’, the underlying beliefs about the function of the firm, the importance of its ownership and governance structure did emerge in interviews and it was clear that there were fundamental beliefs in the organisation about the function of the firm. These were often expressed through corporate visions (Ardichvili et al. 2009), missions or statements of purpose (Hyman & Curran 2000). For example:

“I heard our chief executive saying, is that a company that just makes money is not much of a company. You’ve got to add value. You’ve got to have a purpose, I mean why are you doing it?”

Not having a vision was also a barrier to clear decision-making: as one interviewee said:

“We end up in the place of not doing anything because we can’t make that future decision because we haven’t got the vision.”

The interaction between these external forces – the needs of society and the environment (often expressed through the voices of regulators, NGOs and civil society), and the internal forces – the choices the company has made about how to serve the market, with what products and services, and how they choose to interact with customers and suppliers – is a complex one, and it is at the core both of the creation of paradox and its resolution.

Some of the companies had directly addressed this paradox by creating and articulating a way of thinking about sustainability in their business. For example, a bank that was facing difficulties in making decisions about financing projects with significant social or environmental impacts reframed the decision as a question about risk (rather than sustainability), which created a language and framework for thinking. By contrast, one of the companies that had not framed its approach to sustainability was a manufacturer. Although they had adopted a range of environmentally responsible practices in

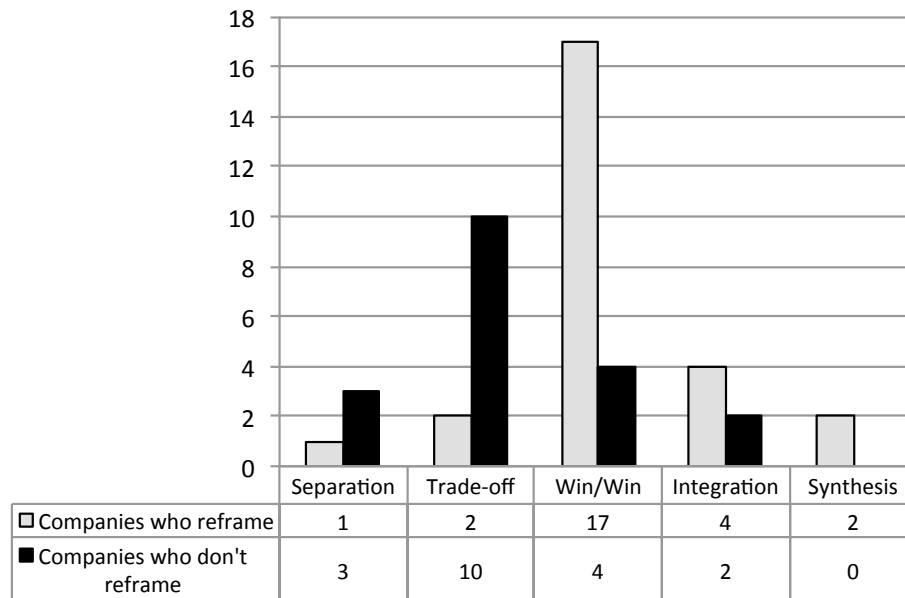
manufacturing, they had not managed to reduce the life-cycle impact of the product and so their growth strategy was increasing overall emissions. This created some tension for the sustainability team. All of the companies had some tension at the heart of the business, and so all the decisions were nested in significant and enduring paradoxes.

The management of this central paradox is significant in shaping the way in which executives resolved the tensions caused by including social and environmental considerations in their decision-making. Of the 20 companies discussed in the interviews, eight had clearly taken steps to frame the sustainability paradox at the heart of the business, for example by describing social and environmental sustainability as a matter of business risk or opportunity and so creating a new organisational logic. These framings were all based on win-win business cases: they gave reasons why acting in a socially and environmentally responsible way would be good for their business. These framings were tailored to the specific issues faced by the company and addressed a range of concepts including: risk management; market access (including markets for talent); cost efficiency; and values. The framing needs to be sufficiently flexible to be relevant to different groups across the business and to external stakeholders

In the other twelve companies, the tension created by the paradox had not been explicitly addressed. As Schad and Bansal (2018) observe, paradoxes created by sustainability may be latent within a system: some of the executives in these companies may have recognised the paradox, but there had not been an effort to address it at the company level. We observed that this made a difference to the logic that the executives used in their decision-making. Executives in organisations which had actively reframed their central paradox made more use of win/win logics, integrative logics and synthesis; executives in organisations that had not reframed used trade-offs and separation more frequently. This is shown in Figure 10:

Figure 10: Approaches adopted in companies that reframe their business paradox

N=45



This strongly suggests that the way in which the company is handling paradox at the organisational level influences the way in which tensions in business decisions are managed.

4.3.6 Connections between the macro and micro level tensions

There are some limitations to this analysis. First, because the interviewees chose the decisions, they are not necessarily typical of the suite of decisions taken in an organisation. In particular, un-memorable decisions (those that seem trivial or simple to the interviewee) are under-recorded, and those where sustainability considerations were not part of the discussion are under-recorded. Second, situations where a decision was made 'on auto-pilot' – for example following organisational scripts (Gioia 1992) – are under-recorded. Finally, as with so much interview-based research, the interviewees were making sense of their experience after the fact: this is a subjective process. Nevertheless, there are some interesting indicative findings.

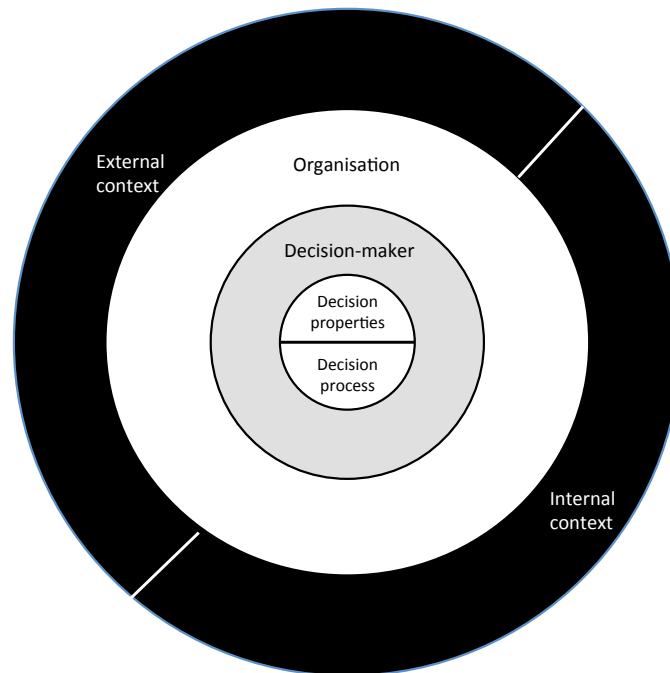
The interaction between the decision and the decision-maker is an important one: although decision-makers are very positive about win-win business cases, some decisions cannot be resolved using that logic (in one example, separation was used as a strategy while the company developed the technology for a win-win approach). Decisions with high levels of novelty (for example with no established process for deciding), or complexity (for example, with particularly complex demands from stakeholders) also present real challenges to the decision-makers. The decision-makers then bring their own mental resources to these decisions, determining the way the choice is made and typically using part of an available repertoire of ways to reconcile competing commitments. These mental resources are shaped by the organisation – either formally (for example through information systems), socially (for example through leadership processes or the organisational culture) or behaviourally (for example through cognitive framing). In particular, the corporate level framing of sustainability – the way in which it is built into their approach to business – plays a significant role in enabling managers to incorporate social and environmental considerations into their decision-making. Context, in short, matters.

Decisions that executives make are thus nested within a broader, paradoxical context (Sheep et al. 2017). However, this raises a question about how the tension at this contextual level is transmitted to the micro-level of decisions. How are the paradoxes, or frames of tensions, expressed through the organisation?

4.4 Organisational influences on decision-making

In Chapter 2, I presented a broad framework for understanding the layers of context that shape decision-making. I have now established that decisions including social and environmental considerations have particular properties, creating competing commitments for decision-makers, and that these are influenced by a macro-level paradox shaped by the relationship between the external context of the organisation and the internal response to it. There are two further contextual levels that influence decision-making: the organisation and the individual decision-maker (Dean et al. 1991). This is shown in Figure 11, which has now been developed to show that there is a relationship between the external and internal contexts, described above.

Figure 11: Four levels of influence on decision-making



However, as I observed in Chapter 2.7, authors have focused on individual factors, or groups of factors, in organisations: we do not have a complete model of how this works. In this section, I use my interview data and the literature to identify the main organisational factors that influence decision-makers, and organise these into a conceptual framework. In section 4.5, I will use the same approach to identify the factors at the level of the individual decision-maker, that enable – or hinder – the inclusion of social and environmental sustainability in decision-making.

4.4.1 The problem of organising for sustainability

In section 4.2, I showed that decisions with material social and environmental impacts can emerge at many different points in the organisation and can require a wide range of types of information and expertise. This creates a specific problem in designing an organisation for social and environmental sustainability because there is a need for sustainability expertise in two places: companies want to retain some level of central function to be able to set direction and standards and to provide some core services (such as reporting), but at the same time sustainability is an issue for people working in

line functions – for example in engineering, procurement or operations – where the daily decisions can make a substantial difference to the company's environmental and social impact.

Although the data collection process did not include collecting organisation charts from each of the interviewees, seven interviewees described a situation in which the sustainability function was a small group, reporting to the Corporate Affairs directorate. This enabled them to play a critical role in managing the complex needs of external stakeholders, but separated them from the operations that have the most direct impact on sustainability. Several interviewees mentioned this:

"[There's a] dynamic tension between technical manufacturing and corporate affairs ... we used to joke that we had to take the Corporate Affairs Director and show him where the Technical Director's office was, because they never used to collaborate. They were boxed in."

"They [the sustainability group] reported to various different people over time. They now report to our Head of Marketing who is also responsible for brand. And those two are now quite integrated together They're independent of the supply chain director, but that is slightly odd because they do spend all their time working with the supply chain team."

These groups are often relatively very small. Although I did not collect data on each of the companies involved, the range of ratios of 'HQ sustainability people' (who can be performing a wide range of tasks) to the total employees (any of whom could be involved in a decision with a material impact) ranged from 1:33 to over 1:10,000. This means that the sustainability specialists face a dilemma that is sometimes faced by other 'compliance' functions (for example, Health & Safety), which is how they can influence the behaviour of tens or thousands of people with whom they may have no formal organisational relationship.

This has two effects. First, there is a strong need for linkage mechanisms to transmit knowledge between the sustainability experts and the decision-makers (and to provide a feedback loop). Second, there is a need to embed sustainability thinking into some of the organisational routines and processes that are used for decision-making (for

example to make ‘operational decisions’ or ‘engineering efficiency’ decisions described in Section 4.2.2 above). The general trend that the interviewees described was towards pushing accountability for sustainability into the mainstream of the business. This does take time, and the companies with the longest experience of working on sustainability issues tended to have the strongest structures for de-centralising accountability for sustainability while retaining expertise.

The organisational layer of the framework describes the means by which the organisation influences the decision-making of the people who are making the material decisions. Although the interviewees identified several different organisational design elements, these fell into four main groups. Two of these – organisation design and performance management – are essentially formal in their operation. The other two – culture and leadership – are forms of social influence. These means for connecting knowledge and awareness of sustainability to the decision-makers are important: a failure to have ‘the right people in the room’ was often given as a reason for excluding sustainability considerations from decisions. As one interviewee said:

“All the ideas that were obvious to anyone had been engineered out. But if you’d had a leadership team that knew something about sustainability and were engineers, you could have done something exciting.”

4.4.2 Organisation design

The term ‘organisation design’ can be quite broad. In this research, I use it to refer to a) the structural mechanisms of the organisation that group and link activities; b) the processes and policies by which work is carried out and c) formal job descriptions. These are the activities that influence the organisational locus of sustainability activities, and the channels by which knowledge and influence are conveyed from the sustainability leaders and experts to the people making decisions every day.

There is relatively little research at the intersection between organisation structure and decision-making (Pirson & Turnbull 2018), indeed organisation design is an under-researched field (Miller et al. 2009) and the articles in the literature review tended to focus either on co-ordination mechanisms or HR management. At the most obvious level, there may be a formal organisation co-ordinating sustainability across the

organisation (Arruda et al. 2013). However, other formal structures including HR processes, codes of conduct and formal relationships with the external world also give signals about the role of sustainability in the organisation. The fundamental beliefs and values of the organisation are most effective when they are reflected in HR processes (companies that claim to be ethical need to reward ethical behaviour), and so decision-makers take their cues about the values of the organisation from processes for talent attraction, selection and attrition (Verbos et al. 2007; Ardichvili et al. 2009) and promotion (Meyers 2004).

Based on the interview data, the structural mechanisms that are used to link the central sustainability team to the broader business vary in the degree of formality used. First, there were examples of organisations with strong formal structures for directing sustainability. One interviewee described an organisation with a clear governance structure led from the top team; another made it clear that there was strong leadership from the board. However, while these are effective in creating top-down legitimacy for sustainability in the organisation, they are less effective at transferring ideas across groups or gathering information and feedback from different divisions. As one of the interviewees said:

“But the reality is that the way that decisions get made here is that before you would go to [the top team] I’ll have done loads of engagement with everyone”.

Many of the organisations therefore also had networks to form connections across the organisation. Some of these were formally designed:

“The sustainability team is a group-wide function that works with the units, and then there are sustainability persons that are also in the units... so it works in this sense like a matrix of some kind.”

“We’ve got an industrial sustainability network, with all the sites represented, and we meet face to face three times over the course of the year, and share best practice, go and see some of the best projects at the different sites”

Others were much less formal in their structure:

“We ended up developing an “eco-products division”, and I use that word loosely in speech-marks, because it didn’t exist on paper.”

These less formal networks were particularly effective for building a sense of inclusion in the organisation. As one interviewee said:

“This is the group where we can get them together to talk about what’s going on, so we’ve got people [from all the business areas], and it’s taken a while, but the people now, they just all want to be on the group, and it adds a really meaningful, purposeful bit of their job. They’re excited about it.”

The challenge with these linking mechanisms is that they are inherently costly, and they need to be effective in order to create commensurate value.

The second mechanism that was used in many organisations to improve the ‘reach’ of the central sustainability team was process. One of the key tasks of embedding sustainability into an organisation’s decision-making is to ensure that it is incorporated in the critical processes of the organisation. As one interviewee said: *“Changing the processes is a ‘must’.”* For example: two interviewees described changes to the portfolio management and acquisition process; others described changes to operating procedures; another said:

“We went on to develop policies in lots of [business areas] and we followed a similar approach which was adopting a framework, taking it out, consulting with both sides, and then saying ‘These are the rules and this is what we will live up to.’”

Processes are often supported by standards, and several interviewees talked about introducing sustainability standards to the organisation as a way of controlling the inputs to processes. Executives said:

“From a sustainability point of view as well when we’re starting to form our requirements for equipment ... so we’re embedding that in our process and making sure that every time you go through the process of designing products or equipment that we want to integrate we’ve considered the whole possibility.”

“You don’t want people to be spending time thinking about this, you want them to do what it says in the rule-book and report properly, and then get on with it or there’s the nightmare of arguing and fighting”

Changing processes and standards is complicated work: not only is it difficult to do, the change needs legitimacy in order to be adopted, and needs to be supported by the leaders of the organisation. Although processes are a powerful way of embedding sustainability in organisational decision-making, not all of the interviewees were in organisations where this had been possible.

The third formal design element that interviewees described was job descriptions. Job descriptions focus people's time and attention on the areas for which they are accountable. As organisations begin to include sustainability considerations in their core processes, they may also need to update job descriptions to accommodate these. This can create some difficulties for managers:

"Things move so quickly, and I see [my colleagues], they're here in the evenings, they're working weekends, and now we're saying 'right as well as this, you have to consider [sustainability]', and we've actually got a formal requirement of sustainability and we've got formal guidelines of how you have to do that. And there was a bit of pushback on that – 'this isn't realistic' 'how are we going to do this?' So yes [we needed to provide] more resource to help do it."

"But now, I think, managers have to be all things to all people, so they have to show diversity and inclusion, they have to show good ethical performance and behaviours, so now you have to be an all-rounder and address all of these sustainability elements"

However, in some cases it is welcomed - *"some young engineers have got a real liking for environmental work, and ask for it"; "when they come here they're already passionate about it and they want to use that and think about sustainability in their jobs."* This can be motivating for staff. As one executive said:

"In actual fact the hearts and minds of the people on the shop floor is what makes it happen. So they go home at night and the kids say 'what did you do', and you say 'I worked on this amazing project so that we use less water', and the kids are like 'wow, dad, that's cool' whereas when you say 'today I did a project that made this company £1 million' then they're like 'OK, so what do we get from that?'."

4.4.3 Performance management

There is an extensive general management literature on performance management, and in a sustainability context, performance management (Hallstedt et al. 2010) and reward systems (Ardichvili et al., 2009; James Jr., 2000; Lülfs, Hahn 2014; Nijhof & Rietdijk, 1999) can also reinforce and encourage particular types of behaviour. Targets and incentives (Aguinis & Glavas, 2012; Ardichvili et al., 2009; Lülfs & Hahn, 2014) are influential in signalling expectations of decision-makers and directing attention.

The question of performance management – whether through targets, incentives or rewards – came up very frequently in the interviews. One way in which companies reinforce the focus on sustainability – particularly for line managers - is through the performance management system. Many of the companies described a strong system of targets within the organisation, and the inclusion of sustainability in these targets was extremely helpful in focusing attention on sustainability:

“They had 10 KPIs, then they had 11 [when carbon was added], then they had 12 [when water was added]. And the whole business is driven around those KPIS, so it’s just like the quality now the water that you use is just one of these.”

“Each year the whole business has group KPIs and that’s what the whole company’s bonus allocations are on. And they’re set every year, and there’s about 12 of them, and this year two of them are about sustainability. So it’s really great.”

“It doesn’t matter if you hit your revenue, your profit, your brand target and your people target. If you don’t hit your sustainability ones, it’s just as big a failure as if you didn’t hit the financial ones.”

By contrast, the performance management system can also be a real challenge for sustainability when incentives do not support sustainability, or when the responsibility for sustainability or resource consumption is separated from the activity driving it. As one executive said:

“Everyone else always had an imperative that overruled it, so that commercial guy had it as part of their role, but it was a whole lot less important than hitting their numbers. So for everyone it was priority number five. Apart from a few people who had it as priority number one and no decision making power”

Problems also arise when the targets are not a good fit for the operating context:

“these goals have been set by people who don’t work in my area and don’t work in factories and don’t have much experience of social responsibility, and so most of these goals were completely unachievable.”

As well as performance indicators and targets, one company had included sustainability on its list of promotion criteria: *“you weren’t going to get promoted if you weren’t going to engage with the green agenda, so it became about status.”*

However, this is only effective when it is congruent with the existing performance management system. One interviewee, working in a privately held company observed that while they do monitor and manage individual performance, individual behaviour is not target driven, and so these approaches would simply not work in that context.

4.4.5 Culture

The literature on organisational cultures is extensive, and many writers on sustainability in organisations draw from it. The key features that emerged from the literature search are founded on the basic beliefs arising in the organisations. While individuals can and do have strong attitudes, these can be accentuated (or overridden) by organisational attitudes (McNamara & Bromiley 1997). These organisational attitudes are shaped by underlying shared beliefs (James Jr. 2000; Meyers 2004; Gioia 1992) which can lead to pro-social or pro-environmental attitudes (Victor & Cullen 1988; Howard-Grenville 2006), to the perception of a climate that supports sustainability (Lülfes & Hahn, 2014) or, by contrast, to an instrumentalist attitude (Aguinis & Glavas 2012; Victor & Cullen 1988). Attitudes towards time are also important in shaping the way in which decision-makers will think about the inter-temporal tensions presented by sustainability (Howard-Grenville 2006; Stubbs & Cocklin 2008; Ardichvili et al. 2009).

These attitudes are established in the organisation through norms and values (Nijhof & Rietdijk 1999; Ardichvili et al. 2009; Blome & Paulraj 2013). People acquire these from observing their peers, leaders and referent groups (Ford & Richardson, 1994; Lülfes &

Hahn, 2014) and from external bodies – for example professional associations (Victor & Cullen 1988). Norms are expressed further through a variety of signals in the organisation. These include the choice of role models and heroes, (James Jr. 2000; Ardichvili et al. 2009) stories, (James Jr. 2000; Ardichvili et al. 2009), language (Blome & Paulraj 2013; James Jr. 2000; Ardichvili et al. 2009), rituals (Blome & Paulraj 2013; James Jr. 2000) and traditions (Nijhof & Rietdijk 1999). These norms are reinforced by socialisation mechanisms (Blome & Paulraj 2013; Cohen 1993).

The interviewees identified several of these factors in their reflections on their decisions. While a few described a fundamental belief about sustainability, many others described the way this belief was reflected through social mechanisms, such as language, role modelling and ways of working. At the heart of the sustainability culture is a common belief about the business – this is described earlier in the discussion about framing (Section 4.3.5) and in the description of visions and purpose. As one interviewee said:

“It was a relatively easy decision to make at any rate, because what allowed for that was a common sentiment that business can be a force for good, and commonality of wanting to explore how we could make it good. And nobody had a point of cynicism against that. And that’s the first time in my career that I’ve experienced that.”

But this clarity about the company’s approach to sustainability needs to be constantly reinforced through its social processes. Interviewees described several different approaches that were being used to improve awareness and understanding of sustainability. Several interviewees gave examples of the way that changing the way people talked about sustainability began to normalise and legitimate it in the corporate culture. One of the major shifts for some organisations was the move from talking about sustainability as a cost to talking about it as a risk, or an opportunity. As one interviewee said:

“We wanted to change the thinking. And we had – it wasn’t called a campaign about green thinking – but we talked about green thinking. We wanted people to think green.”

Interviews also mentioned the importance of stories – for example about how clients were valuing sustainability, how shareholders valued it or about how the company was

making a difference started to change the language within companies to place a renewed emphasis on sustainability.

“So this is probably going to make the impact, the change. Asking clients and the clients’ clients – the final users I could see that this concept, if it is pursued with... good speakers, good stories, then they get it. Clients, colleagues ... they realise that this is all about co-operation, all about integration”

In some cases, these stories were amplified through processes - such as awards - to give formal recognition to people who had incorporated sustainability into their work. This also had the effect of creating visible role models within the company. Several of the interviewees gave examples of the ways in which their organisations were raising the profile of managers who had done outstanding work on sustainability by using internal awards schemes and using these to raise the status of people who were acting sustainably.

Another company had been effective at celebrating clients who had been innovative in sustainability, which in turn inspired its own staff to think more about the issues. Several of the executives interviewed had worked for companies that had won awards for sustainability or had undertaken community initiatives that had a motivating effect on staff:

“We also know that our people love it ... all our employees were asked ‘what makes you proud to be [here]?’ and this was the number one issue on why they feel proud.”

This work on the social fabric of the organisation is not trivial, but the interviewees on the whole saw it as a fundamental driver of change:

“My aim in introducing this is not to get more work for me. It is to train the decision-makers in thinking a different way. If I manage to train them to think in a different way and we get what we want, it may be that we’re successful.”

Well done, these culture changes can be a real source of distinctiveness for a company:

“And what set us apart was that it was throughout – on any job, with any kind of person, they kind of knew [about sustainability].”

Despite the fact that several interviewees reported innovations (such as ways to create recognition for sustainability), they were also working within existing cultural systems that did not change. These also had an impact on decision-making. For example, companies need a way to resolve conflicts between groups involved in a decision: while

this can sometimes be handled through formal decision-rights, there may also be cultural norms for managing consensus or dissent for example, one interviewee described a process for resolving a conflict about a sustainability issue:

“I have disagreed and committed which is a [company principle]. So we say disagree and commit. So I’ve disagreed with her, but I’ve committed that we could put a plan together or them and make it clear that we don’t think this is OK.”

Similarly, another company described an existing cultural influence on decision-making:

“The culture is one of information sharing, and in a way that’s great because everyone’s involved but it can slow things down. So when you say who’s involved, it can be a lot of people involved in that decision. We have a lot of stakeholders generally, or a lot of people who perceive themselves as stakeholders. So we try to involve everyone, we have a lot of meetings.”

Thus, culture is not only a substantial theme in the literature about bringing sustainability to decision-making, it is also a feature that some organisations have deliberately influenced in order to include more consideration of social and environmental thinking. This is particularly important in companies where the material impacts of sustainability occur at some distance from the central sustainability team. Social factors, such as storytelling or role modelling, are effectively substituting formal processes of influence for the sustainability team. However, to give them legitimacy, they may need a second social process: leadership.

4.4.5 Leadership

A discussion of culture would be incomplete without observing that people take their cues from the top of the organisation and that leadership is a key factor in shaping the way people think and make decisions. Leaders influence the climate in a variety of ways (Cohen 1993), but particularly through their focus of attention, the choice of what they reward (Ford & Richardson 1994) and their norms (Blome & Paulraj, 2013; Lülfs & Hahn, 2014). Choice of leadership style is also important: Verbos suggests that ‘authentic leadership’ is helpful for creating an ethical climate (Verbos et al. 2007) and Nijhof and Reitdijk comment on the importance of supportive management (Nijhof & Reitdijk 1999). Leadership was a clear theme in the interview data as well as the literature, and while there is not one normative model of effective sustainability

leadership emerging, interviewees gave a series of interesting examples of three main phenomena: direction setting; advocacy and support; and engaging people.

Many of the interviewees described situations in which a senior leader (or small group) had taken a clear decision that the company should operate sustainably, and this had subsequently informed the development of a programme. These leaders had generally seen sustainability either as a responsibility or an opportunity:

"It is driven by individual passions"

"Our CEO had already decided that he wanted [the company to be the] sector leader on sustainability and there'd been quite a bit of discussion at executive committee level about why they wanted to take that leadership position"

This direction setting needs to be sufficiently concrete to inform the way the organisation works. One interviewee commented on an organisation whose direction had been too vague: *"They need much clearer guidance"*.

The second role that emerged for leadership is to advocate for sustainability within (and sometimes beyond) the organization:

"[The CEO] launched the new KPIs ... and someone asked: 'Why is sustainability on that? Is it really strategic?' and he looked the person in the eye and he said: 'If you're asking that question you're working for the wrong company.'"

"He's more of an advocate now for social and environmental sustainability as he's matured as an individual, you can see the way he's taken himself"

Given the relative lack of formal authority that most sustainability professionals have in their organisations, this advocacy role is an important enabler of some of the other organisational functions – including formal activities such as establishing networks, and social activities such as influencing the choice of words – that people have used to build sustainability criteria into the organisation's decision-making.

Finally, leaders recognise that sustainability needs to be both broad and deep within an organisation, and makes particular demands on people in terms of managing multiple stakeholders, new knowledge and higher levels of complexity, uncertainty or ambiguity.

Some have therefore started to use this as a catalyst to build new leadership capabilities within the organisation:

“My endgame is to use sustainability to create leadership. But not the kind of leadership which is the command and control. But the kind that allows a multitude of individuals to work together in a constructive, collaborative, leading way.”

Leadership alone cannot change a complete organisational system, however. It is reinforced by systems to transfer knowledge and understanding; by role models and by the language used in the organisation.

4.4.6 Summary of organisational influences

Thus, there is a clear relationship between the four organisational elements – organisation design, performance management, culture and leadership – that influence the inclusion of sustainability criteria in decision-making. When these work effectively together, it becomes possible for companies to bring social and environmental considerations into more of their decisions. However, disconnects between these elements can cause significant barriers to this type of action. The interviewees singled out three organisational problems creating tension in decision-making: conflicting objectives; structural silos; and a lack of mechanisms or norms for resolving problems.

First, decisions are made difficult when incentives do not support sustainability, or when the responsibility for sustainability or resource consumption is separated from the activity driving it. Problems also arise when the targets do not reflect the operating context, or cannot be understood by the people to whom they apply. Second, decisions can be made more difficult when there are structural silos in the organisation.

Compartmentalisation of the sustainability team can lead to tension in decision-making: one interviewee described a “*dynamic tension*” between departments, and another pointed out the problems of needing to run different parts of the business in different ways. Finally, companies need effective mechanisms for resolving problems. Some interviewees described very clear norms or processes for resolving disagreement, whereas others described a more informal approach. While it is clear that either of these approaches could be effective in the right context, it was also clear that both created conditions in which resolving problems could be time-intensive and frustrating.

Thus we cannot separate the decision from its organisational context and the decision-makers themselves. Decision-making in business is seen through the eyes of particular decision-makers, whose perception of the problem is, in turn, shaped by the organisation itself.

4.5 Individual decision-makers

The formal and social structures of the organisation influence decision-makers by directing their attention (Felin et al. 2017; Heimer 2008; Simon 1997; Ocasio 1997). However, decision-makers are also individuals with their own agency and their own interpretations of the decision at hand. I therefore examined the literature and the data to identify the particular attributes that individual decision-makers bring to their context, to suggest the ways in which variation might occur in decision-making.

Both the literature and the data are somewhat fragmented on this topic. As Shepherd and Rudd (2013) observe, most studies of decision-makers focus on a very limited number of variables, meaning that there is not a holistic basis for theory building. My own data are also limited: some interviewees did reflect on the particular characteristics of decision-makers, but the interview structure was not designed to probe this systematically. However, there is sufficient material here to start to identify the elements that shape individual decision-makers' approach to their decisions.

Although my analysis was inductive, and drew on the axial coding from the data and the key themes in the literature, I found that the three recurrent topics in this analysis are all features of bounded rationality, described by Herbert Simon in *Administrative Behaviour* (1997 p.66). Our individual ways of understanding decisions are limited by our knowledge of the matter at hand; our own attitudes and the way we pay attention to it; and our perceived authority to deal with it – a phenomenon which I will call 'permission space'.

4.5.1 Knowledge

Decision-making may call upon both explicit and tacit knowledge (Nonaka & Takeuchi 1995 p.8). Adding sustainability considerations to corporate decision-making complicates this: new systems need to be developed to create and share explicit

knowledge; and the sets of experience and pattern recognition that form tacit knowledge need to change to accommodate these new ideas. The literature on organisational learning is fragmented (Fortis et al. 2018). However, scholars suggest that social factors play an important role in the way individuals acquire and process the knowledge they need to take informed decisions.

First, different organisations – including different parts of a single organisation – have different epistemologies, and define problems in different ways. Howard Grenville gives an example of this in comparing two units within a single large manufacturing organisation (Howard-Grenville 2006). In this example, one group take a very scientific, factual approach to knowledge and describe problems in a way that will lead them to a single, technical ‘right answer’. The second group has a much higher tolerance of ambiguity, and expects that the ‘right’ answer will be a matter of judgement. Sackmann (1992) identifies four different types of knowledge that are used in different ways by different sub-cultures, and so shape the ways in which problems are defined. Different organisations (or parts of organisations) will evaluate decisions based on different tacit criteria besides formal decision criteria, based on their ethical orientation (Victor & Cullen 1988). These schemas are the outcomes of several characteristics of the groups – cultural, historical, and expertise driven – but will necessarily narrow the focus of the group’s problem-solving approach. Thus, the organisational locus of the decision-maker may shape their access to, and interpretation of, knowledge about sustainability.

Because knowledge is a system of stocks and flows (Dierickx & Cool 1989), the ability of the organisation to share knowledge and to learn plays a vital role in the way decision-makers are able to use knowledge. Knowledge sharing is connected to organisational climate (Blome & Paulraj 2013) and is listed as a factor in building an ethical climate, that is to say one in which value judgements can be built effectively into decision-making (Verbos et al. 2007). Organisations that are able to use a double-loop learning process (Verbos et al. 2007; Marlow et al. 2012), are also able to accelerate their learning and so improve judgement. Hyman and Curran (Hyman & Curran 2000) comment that a capacity for organisational learning is essential to build a moral organisation. The organisation’s ability to learn intersects with the learning ability of its members. Training and awareness of sustainability does influence the extent to which these considerations can be brought into decision-making (Aguinis & Glavas, 2012; Lülfs & Hahn, 2014), and can generate more knowledge (Schrettle et al. 2014). Arruda goes

so far as to say that converting knowledge into collective learning is key responsibility of leadership (Arruda et al. 2013 p. 4324).

The interviewees were intensely aware of differences in levels of knowledge and understanding between decision-makers. This was often expressed as having ‘the wrong people in the room’:

“What we found before is that an awful lot of stuff just didn’t get thought about because the wrong people were making the decisions, well not the wrong people, but people who didn’t know.”

Another said:

“All the ideas that were obvious to anyone had been engineered out. But if you’d had a leadership team that knew something about sustainability and were engineers, you could have done something exciting.”

The interviewees put much less emphasis on information and analysis than would be expected from the body of literature described in Chapter 2 (in which a substantial majority of the articles focused on analytical techniques for decision-making). The interviewees discussed knowledge extensively, but placed much less emphasis on the formal analytical techniques, and much more on the decision-makers’ relationships with knowledge. Some had extremely impressive data and analysis systems; others were still in the process of building the information needed to make informed decisions. As one interviewee said:

“You can really feel that the discomfort people have because although it’s data driven it’s not the data people have... People are trying to figure out what’s right and what’s involved.”

This question of the epistemology was an important one. As several interviewees pointed out, sustainability is quite a nebulous concept, and people cannot incorporate it into their decisions until it is clear what the focus is. Companies took different approaches to creating this clarity, ranging from quite a subjective discussion with senior leaders:

“I asked them ‘what do you want to achieve? What do you want to get out of ... sustainability?’ So they gave me some answers... I played it back ... letting them discuss it, to choose, and letting them shape it based on what they asked me. So they could define it because they can only think this way.”

This act of shaping thinking was central to the way some of the interviewees described their work, particularly in influencing training programmes. One interviewee described frameworks as a way to achieve this:

"If you've bounded that concern in some way by creating a framework and saying 'this is how we're managing this, this is how we're managing that', then I think you know it's a more informed, rational discussion... for me, having transparent frameworks that help you navigate a decision that upfront you might know nothing about, that's been helpful."

However, even when the information and methods are available there is still a problem of using the knowledge correctly. One interviewee gave examples of decisions which were not correctly analysed and where a heuristic had turned out to be incorrect. As the executive involved said:

"Even people who do this all day long haven't asked the question. So the idea that sustainability is some sort of known secret that everyone knows the answer to, and only needs to be able to afford is not true. People don't know what's best."

This variation in the knowledge that individuals bring to their decision-making means that decision-makers may not recognise the social or environmental aspects of a problem at hand: in short, it directs and bounds their attention. The second factor that arose at the individual level – individual attitudes and biases – also has this effect.

4.5.2 Biases and attitudes

In Chapter 2, I described a body of literature that explores the psychological aspects of decision-making, particularly addressing the limits on pure rationality. We know that individuals bring a range of cognitive biases to decision-making (Kahneman 2011; Arvai et al. 2012). This bias is heightened in the case of sustainability decisions, in which there is some evidence that personal opinions about sustainability issues change behaviour in group decision-making (de la Torre-Ruiz et al. 2015). As Herbert Simon observes, the presence of emotion in decision-making tends to narrow the focus of attention (Simon 1997 p.91). While there is increasing interest in finding ways to manage the problem of bias in decision-making (Kahneman et al. 2011), none of the interviewees directly addressed this in their reflections on actual decisions.

Earlier in this chapter (Section 4.3.3) I suggested that individuals bring their own cognitive frames – or particular ways of seeing a problem – to their work, and that these are very much influenced by a broader, corporate framing of sustainability (where one exists). This analysis suggested people tended to use a framing for their decision-making that was influenced by the broader organisational perspective on sustainability. As well as exploring the way people framed the logic of their decisions, the coding of the interview data revealed four perspectives on how sustainability is interpreted more generally. In Section 4.3.3, I looked specifically at the logic that executives were using to resolve the competing commitments arising in their decision-making. The four perspectives described below describe the broader framing of sustainability: how sustainability is *seen* rather than how a conflict is *resolved*. These perspectives may be situational: an executive may interpret one question as a matter of cost and another as a matter of opportunity. While there is a logical connection between these two frames, although there is not sufficient data to test this connection robustly.

Although critical incident technique does encourage reflection, my method was not designed to deliberately surface either conscious or unconscious bias, nor did I directly attempt to assess people's individual framing of sustainability. However, some interviewees did reflect on the differing perceptions of sustainability among decision-makers. The word they most frequently used was 'attitude', and so rather than describing these as 'cognitive frames', I am calling them 'attitudes'. These are positions that executives adopt in their organisations, and may be distinct from beliefs they hold in their personal lives: my interviews did not explore this. This study does not examine the way in which these beliefs are held nor their origins – which are likely to be complex and may stem from personal views, professional identity, or the broader framing of sustainability within the organisation.

The first attitude that appeared in the interviews is that '*Sustainability is a cost*'. One of the challenges for business is that taking measures to improve social and environmental sustainability can be a short-term cost. This has led to a perception that acting sustainably is more expensive than not, and so it is not always seen as possible source of value. As one interviewee said:

"There was skepticism about this in Finance. You know there's a 'yes we can do it' department and a 'no, we can't do it' department, and that's how it felt to me at the time. And they were worried about the cost".

Another interviewee observed the same, commenting: *"They only saw it as a cost."*

The second attitude is that *"Sustainability is about risk management"*. Some of the interviewees described decisions about sustainability in terms of risk management. Interviewees mentioned three major types of risk: the risk of non-compliance with changing regulation; risks to the company's operations; and risk to the company's reputation. One interviewee commented: *"It's a risk management issue in the big picture."* Another described his internal discussions with the organization:

"[They said] 'Why are you doing this? It's just going to make life more difficult for us'. One of them said, 'You're opening Pandora's box' to which I said 'Pandora's box is already open, I'm just trying to control it as a risk issue'."

Third, some interviewees took the attitude that *"Sustainability is a responsibility"*. Sometimes, people make decisions based not just on economic value but also on values. This is not to say that they are not economically informed, but rather that a company has decided that they have a responsibility extending beyond their own immediate interests. One interviewee commented:

"Our board ... was split on this. There were one or two others who seemed to have a sense of responsibility and saw it as a responsibility issue."

Another interviewee observed that responsibility was core to the company's reputation:

"One of the key parts of our strategy is to be top of mind as an example of a responsible business."

This sense of responsibility can influence the way individual decisions are made: another interviewee said:

"We never have a business case for a water improvement project, but we do it anyway because it's the right thing to do."

Another company described the same dilemma:

"It is a difficult call. And it comes back to the financial versus where the responsibility is."

Fourth, some people took the attitude that *"Sustainability is an opportunity"*. Just as sustainability is not always a cost, it is not always an opportunity. However, there are

cases when does create the possibility of innovation and development. One interviewee said:

"It's also a strategic issue. We want to be in industries where the mega-trend is behind us and supporting us. And the megatrend is that climate change is important and that more and more countries and businesses will see it that way."

Another said:

"They really wanted to put themselves, from a brand perspective, as a sustainable company, an environmental company... I think they'd done some market research and saw there was a niche there... no one really had cornered the extreme, green sustainable angle."

A third described sustainability as a trigger for innovation:

"People from different parts of [the organization] just saw the opportunity to grow different parts of the market."

These different attitudes each have some strengths but because they focus and direct attention in a particular way, they can create blind-spots and can lead to mismatches in communication: an executive who believes that sustainability is a responsibility may not get far by appealing to the values of someone who believes it is a cost. Several interviewees described these clashes, for example:

"The CEO thought it was a great idea – his perspective was reputation, marketing, brand-building, consumer engagement, and others in the team looked it essentially through those prisms. But the Finance guys were essentially 'oh what's it going to cost?' and 'I can't see any positive return on this.'"

The differences are not necessarily irreconcilable. However, several interviewees saw them as a barrier to effective decision-making.

4.5.3 Permission space

The final factor that influences the way in which individuals make decisions is their sense of permission, or the authority and agency that they have to choose. This shapes the range of options that they will consider in making a decision. Although permission is 'given' (for example through decision rights) it is also 'taken', and individuals may vary in their interpretation of their authority and responsibility in terms of sustainability. This is particularly significant in an emerging field: organisations that are adopting sustainability may be adding it to a set of existing responsibilities and so

there is a level of managerial interpretation involved (Sandhu & Kulik 2018). This means that some managers are relying on organisational cues to decide whether they have permission to make a particular decision, and if so, how bold should they be in making it? I am therefore calling the manager's interpretation of their decision-making mandate the 'permission space' to distinguish it from the more formally given 'authority'.

Again, the literature touches on different aspects of the permission space, offering a range of formal and social influences on the decision-maker, but there is not a central theory of permission. At the core of this 'permission space' lie the formal elements of the organisation, including decision-rights, formal accountabilities and job design (James Jr. 2000; Varma et al. 2007). Targets and incentives (Aguinis & Glavas, 2012; Ardichvili et al., 2009; Lülfs & Hahn, 2014) are also extremely influential in signalling expectations of decision-makers. Many organisations prescribe formal decision criteria (Gioia 1992) or guidelines for making decisions (Nijhof & Rietdijk 1999). The managers will also interpret their 'permission space' bearing in mind their degree of empowerment (Blome & Paulraj 2013; James Jr. 2000; Aguinis & Glavas 2012).

Structural design may also have an influence on the way in which the decision-maker interprets their brief. The relative independence or interdependence of the organisational unit will shape the level of autonomy a decision-maker might feel (Victor & Cullen 1988) and the way in which they take moral responsibility for decisions (Weber 1990). Managers' perceptions about the control system (Verbeke et al. 1996; James Jr. 2000) will also influence their beliefs about the level of independence they have in decision-making.

Decision-makers also interpret their permission space and criteria based on their understanding of historical antecedents (Blome & Paulraj 2013; Nijhof & Rietdijk 1999), and their interpretation of the culture described above (in Section 4.4.5). Finally, some stylistic characteristics of the organisation (or the sub-culture) may influence the decision-makers' interpretation of the way to work, for example the extent to which the organisation encourages co-operation and collaboration (Stubbs & Cocklin 2008) and the existence of co-operative conflict resolution processes (Hyman & Curran 2000).

Firms vary in the specificity with which they define individual decision-rights. This means that some of the interviewees were clearer about the boundaries of their mandate than others: as one interviewee said, *"I wanted to stick on the mandate. I didn't want to expand too much"*. They often associated it with risk. Some felt that there was a personal risk to stepping beyond their mandate, and others described a situation when the person responsible for a decision had caused a breach of a sustainability principle because of their interpretation of their permission:

"The decision was taken not by the Board or the CEO, but it was taken by the [two executives responsible]... and it wasn't clear at all whether they were making the right trade-offs. They certainly didn't have any larger context to our sustainability commitments, which they certainly should have. Nor was it clear that they were trading things off in the right way."

As a result of this particular incident, the company involved had reviewed the way it managed decision rights.

In the interviews, I found evidence of the companies using both formal and informal systems to signal and control decision-rights, and individuals interpreting these based on their own understanding of the situation. First, formal decision rights can be assigned to people in particular roles. Several interviewees described formal decision-making processes, typically involving a committee or leadership group:

"We have a global committee ... chaired by myself and meeting once a month on a conference call, and once a year we meet face-to-face. We have the guys from each of the hubs (i.e. regions) and a rolling agenda, which we discuss, but the final decision is made by me."

"The governance of our programme is that the Executive Committee has delegated authority to the Sustainability Committee to make decision. There are seven people on the Executive Committee, but three of them are also on the Sustainability Committee so the other four I suppose have said 'Yes we trust you to get on and make sensible decisions'."

This clarity is not guaranteed, particularly in companies that are still developing their approach to sustainability. As one interviewee said:

“One of the things I’ve found ... is that there’s mixed understanding of what sustainability means, where it begins, where it ends, whose responsibility is it?”

This lack of clarity about responsibility made it difficult for them to include social and environmental considerations consistently in their decision-making.

While the rights to decide are often clear, the responsibility to consult is not. If the formal decision rights are vested in a person or group who has an incomplete or partial understanding of the sustainability issues involved in a problem, the result is likely to be a decision that does not incorporate these considerations. As one interviewee said:

“We really did take a view that we would try to enable people to have better discussions and make better decisions about things by being better informed.”

This process can be time consuming. To help executives manage this, one company articulated a series of ‘red lines’ to signal the points where a decision really needed attention.

“So what they did first of all is that they put in a set of, they called them ‘red lines’, which were basically ‘you never ever ever do this’... What does red line mean? Does it mean we never do it? No it doesn’t. It means that you have to get the entire Board to a special session where they have to agree together, unanimously that it has to be done.”

This helped them to prioritise the decisions that needed attention, and clarified responsibility in the organisation to manage the risk of breaching a sustainability commitment.

As well as these formal guidelines, cultural factors can play a role in helping people interpret and understand their permission space. This can take various forms. First the degree of empowerment in an organisation is important in shaping the way people make decisions:

“People were given more freedom to do their own things. It wasn’t a very controlling, top-down place. They tried to do that on some things, but it didn’t work because people liked to be their own boss. So we had policy, but got people to implement in their own way. So we then engaged with people, and some of them didn’t agree, but

we just kept engaging. And then people came up with some wonderful suggestions and I think that's why we were considered to be very successful."

Organisational factors are also important here: decentralised organisations may give their managers more independence, which means that they interpret their permission space in a particular way:

"It's a very decentralised organisation and a lot of the managers run their own empire, ... and sustainable development did not have the agenda then that it does now so we had to go 'guys this is just about money' and that cut to traction, so we could get to them by saving energy."

While these comments all reinforce the factors I identified in the literature, there was one other theme in the interviews that shaped the permission decision-makers were given: credibility. Credibility was particularly important for sustainability specialists. These people tended to have relatively little formal authority for decisions, but found that they needed to influence other – often senior – decision-makers. As one interviewee said:

"One of the things I've had to do is improve the credibility of my team internally. I need to know that they will have enough commercial knowledge that they're not going to say something silly, that they're going to be taken seriously."

This credibility and permission space can be developed and changed over time:

"So definitely that roadmap was set at the beginning of my mandate, but it is very alive and it develops as the situation is developing."

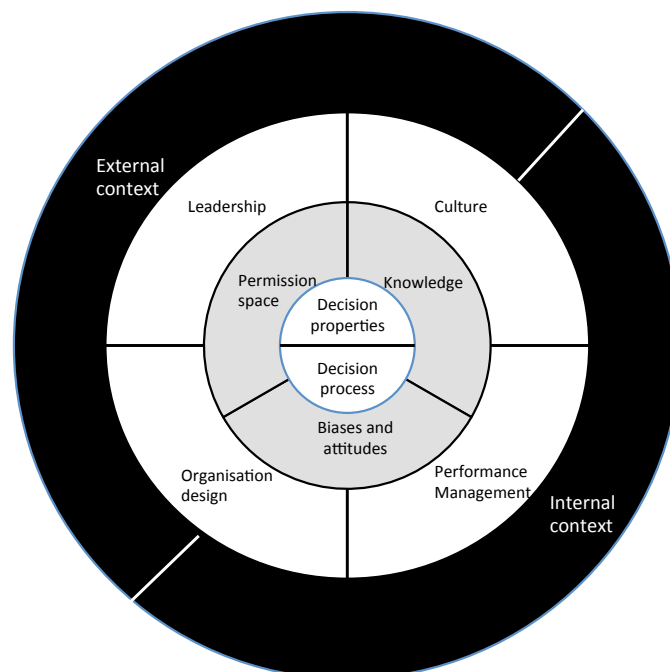
These ideas of a sphere of influence, mandate and credibility are clearly important in practice. In the literature these issues may appear as 'political' considerations (Elbanna 2006), and there is a strong body of work about the role of politics in organizational decision-making (Eisenhardt & Bourgeois 1988). Despite this, the interviewees themselves rarely described their work as political. Rather, they accepted and managed the power imbalances or informational asymmetries in their work and directed their attention towards the problems of the decision at hand.

4.5.4 Framework of influences on decision-making.

This analysis allows me to complete the conceptual framework connecting the formal, behavioural and social structures influencing the inclusion of sustainability criteria in decision-making in incumbent businesses.

The decision itself is at the heart of the model. This comprises two elements – the properties of the decision (what is it, how is it defined?) and the process for the decision (how will the decision be taken? What are the criteria for evaluation?) The decision is surrounded by a second layer, which brings in the decision-makers. This comprises three elements: the knowledge and permission space that the decision-makers bring, and their own personal attitudes and biases. The third layer describes the organisational factors influencing the decision-makers. These include the organisation design, culture, leadership and performance management of the organisation. The outer layer includes the contextual factors – both within and beyond the organisation – which shape the approach to the problem

Figure 12: Organisational influences on decision-making



These four levels – the internal/external, the organisational, the decision-maker and the decision itself – map closely onto the four contexts identified by Dean, Sharfman and Ford in their review of the literature on strategic decision-making (Dean et al. 1991: 89). However, Dean et al did not elaborate on the more detailed aspects of these contexts (for example the specific organisational elements influencing decisions). This work in turn influenced Shepherd and Rudd’s framework (Shepherd & Rudd 2014 p.352) – again based on a literature review of strategic management decision processes. While Shepherd and Rudd include more detail in their framework, there is little information on the organisational factors and more emphasis on the political activity of the decision-makers than I found in the data on sustainability-related decisions. The resemblances between these three frameworks are structural rather than specific.

Three of these levels – the individual, organisational and institutional – also occur in the paradox literature in discussions about tensions. Tensions can be exacerbated when they are reinforced at multiple levels (Sheep et al. 2017), and can sometimes be only understood and addressed by ‘zooming in’ to the individual level or ‘zooming out’ to the system level (Schad & Bansal 2018). In a sustainability context, the connections between these levels can create barriers to action (Slawinski et al. 2017). The existence of these different levels in both the strategic decision-making literature and the paradox literature, suggests that they merit further exploration. In Chapter 5, I will show how these different levels of analysis can be applied in a single case study.

4.6 The system for decision-making

This analysis has generated three significant new concepts. First, a classification of different decision types; second an analysis of the different ways in which decision-makers can resolve the tension between competing commitments; and third, a framework showing the relationships between the organisational factors that shape decision-making. This integrates several themes from the literature, which have previously been treated independently. My work so far has, however, described elements of a system, rather than the system itself. This systemic aspect is important: as one of the interviewees said:

“We have created a systemic approach... if we’ve got a more complex mix of things it is harder to copy, and more differentiated”.

This is a contrast with the very granular descriptions of the phenomenon in the literature. While these have enabled quite specific understanding of elements of the system (such as the nature of tensions, organisational culture or how to use multi-criteria decision analysis), the literature does not address the problem of how to integrate these elements. This has hitherto been a barrier to theoretical development.

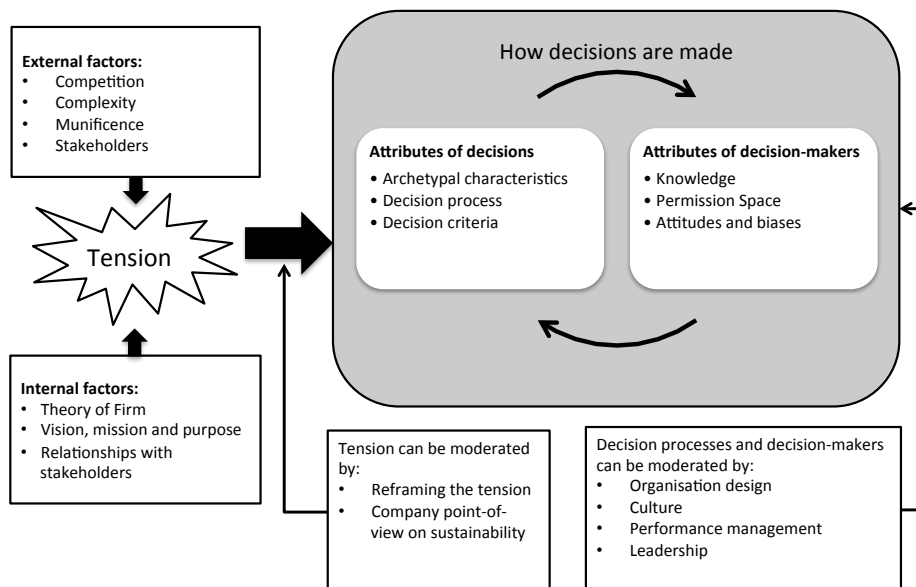
This initial study demonstrates six broad principles:

1. Introducing social and environmental considerations into corporate decision-making causes a clash between the needs of stakeholders and – for many companies – fundamental beliefs about the nature and business of the firm. For many firms, this creates a paradox in their value creation model.
2. This creates tension between competing commitments, which will influence the way in which executives make their decisions. If companies reframe their business to include some concept of sustainability, this may broaden the logical possibilities available to decision-makers in resolving the tension between these commitments.
3. This tension will be held in different parts of the organisation in different ways. The material impacts of the tension between the company's business and the needs of external stakeholders could be manifest in a number of ways from operational activities (for example, in packaging choices) through to capital investment or portfolio management decisions. Because these decisions are made in different ways, different decision-making capabilities – information, analytical or framing methods, or scripts and schemas – will be needed in different parts of the organisation.
4. To manage the changes in the nature of the decisions, decision-makers will need to work in new ways. Specifically, they will need: access to new explicit knowledge (for example, information about carbon emissions) and tacit knowledge (for example, how to interpret this information); new ways of thinking, or attitudes, towards sustainability; and clarity about their permission, or mandate, to include social and environmental considerations in their choices.

5. These attitudes, knowledge and permission space can be influenced through formal processes (such as training), but are also shaped by and interpreted from the signals the organisation send through its formal and social systems.
6. The main formal and social systems implicated in shaping decision-makers' thinking are: organisation design, performance management, culture and leadership.

These relationships are shown in Figure 13, below:

Figure 13: The decision-making system



This systemic view of the relationships between the formal, behavioural and social structures that influence the inclusion of sustainability criteria in decision-making lead to a series of ideas to explore in the case study reported in Chapter 5. Specifically:

1. The tension between the external and internal factors is specific to a particular business at a particular time.
2. The reframing of this tension is a significant decision, which has implications broadly in the business. This is therefore led from the top of the organisation

3. If the tension is not re-framed, it will persist. This will create trade-off problems wherever in the organisation the material impacts of the tension might be felt.
4. If the tension is reframed, it still exists, but decision-makers may have been given a broader repertoire of ways to manage the competing commitments they face.
5. Simply re-framing sustainability is not sufficient if the organisational systems which 'bound' decision-making are unchanged.
6. There needs to be complementarity between these systems. Changing one factor without addressing systemic effects (for example, changing the availability of information without changing the criteria by which decisions are made) will not improve decision-making.

However, this is still essentially a theoretical model, created from combining ideas in the literature with observations from practitioners. In the next chapter, I will show, using a case study, how the parts of the model work together to configure a system in a company that is working to become more socially and environmentally sustainable.

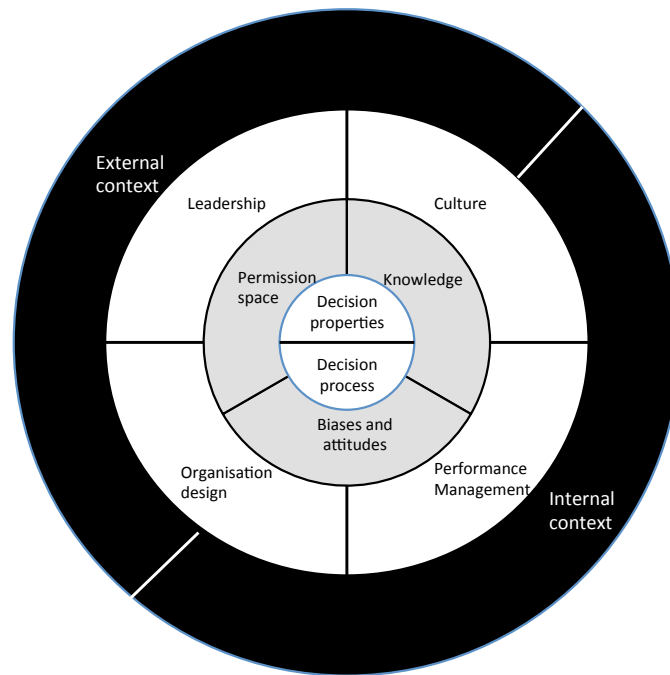
5: STUDY 2

5.1 Introduction

The system diagram at the end of Chapter 4 (Figure 13) illustrates the problems that incorporating social and environmental criteria into business decisions present. First, in order to change the way a decision is made, the broader organisational system needs to change so that the forces influencing decision-makers accommodate these new criteria. Second, because decisions are difficult for different reasons, there is not a single system that can be optimised for everything: it is more likely that there will be sub-systems (for example, capital investment, portfolio planning or product innovation) which need to work in different ways, despite a common corporate context. These two insights were developed by making comparisons across different case contexts so to understand the relationships between organisational elements more fully, I decided to observe these phenomena in a single context (Dyer & Wilkins 1991).

This chapter presents the Study 2, a single-company case study of a large engineering company using the pseudonym ConsultCo. This builds on Chapter 4, by examining the three new theoretical ideas proposed in Study 1 – a segmentation of decision-types, a classification of logic, and a framework of organisational influences on decision making – in a single setting to see how the three concepts interact.

The chapter is organised in a way that reflects the framework originally presented in Chapter 4.4.2, which is repeated below for clarity.



After this introduction, I describe the method and the context for the case study. Section 5.4 introduces the outer circle of the framework – the tension between the internal and external context – to give an overview of the corporate framing of sustainability and logics used for decision-making. In section 5.5, I present the different decision types that are present in ConsultCo. Having established these, in section 5.6, I analyse the organisational and individual factors shaping decision-making. Section 5.7 shows how the tensions in decision-making at ConsultCo are nested, and how by understanding the challenges at the micro-level, ConsultCo is able to start addressing tensions at the meso- and macro-levels. The chapter ends with a brief summary of the findings and limitations of the study.

5.2 Method

This case study is based on data collected from a range of sources (Yin 1984), described in Section 3.3.2 above. While the analysis below is informed by the contextual data (largely company reports), it is rooted in the interview transcripts, which were coded using Atlas Ti software.

My objective in this study was to test and extend the emerging theories, rather than to develop theory in an inductive way. This broadly follows the theory-informed approach described by Eisenhardt and Graebner (1989), and is consistent with the abductive approach that I took to developing the initial ideas for testing. Therefore, instead of starting with open coding, as I did in Study 1, I coded the data using the code structure developed in Study 1 as a starting point. This is described in section 3.4. I then wrote a 'thick description' (Dyer & Wilkins 1991), which I used as the basis for participant cross-checking (Butterfield et al. 2005). In order to check my understanding of the situation, I held two meetings with the Sustainability Leader at ConsultCo during the course of the analysis, and shared a 15,000-word report of the findings with the interviewees.

5.3 The Case Context

ConsultCo was chosen for the case study using the principle of theoretical sampling (Eisenhardt & Graebner 1989), coupled with an enthusiasm on the part of their Sustainability Leader (who had been an interviewee in Descriptive Study 1) to deepen his engagement with the study. ConsultCo is an interesting example of a company that had a multi-year history of working towards sustainability in an industry that has significant social and environmental impacts (Rogelj et al. 2018 p.140-142) and is characterised by tension: the design and construction of infrastructure. ConsultCo is a large, international engineering consultancy with a staff of approximately 15,000 people. It has a global presence, and works in a range of sectors, including infrastructure, water, energy and transport providing services from advisory work to more detailed engineering design. These sectors are carbon intensive and the assets often have long lives, and so the way in which ConsultCo provides its services to these clients can have a very significant impact on social and environmental sustainability.

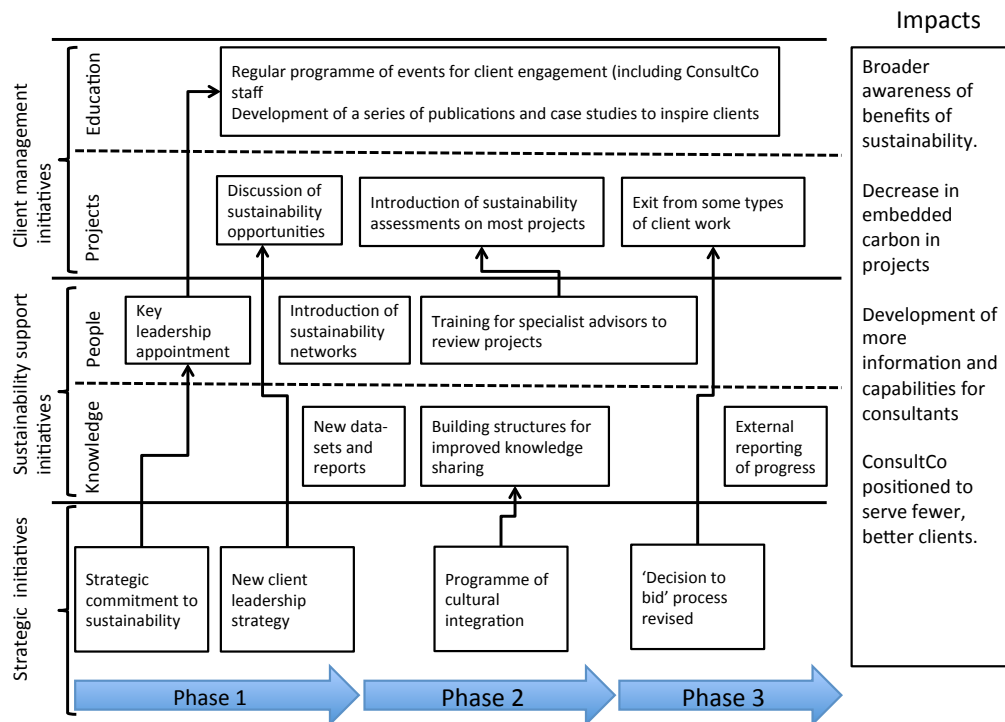
Because of this, ConsultCo has made sustainability a key strategic initiative. This was initiated from the very top of the organisation, as part of a strategic refresh a few years ago. This review of strategy also triggered other initiatives, including a focus on ethics, on big data, an updated brand identity and some work on the organisation (such as the clarification of accountabilities). These initiatives have been mutually reinforcing, and so ConsultCo's sustainability work is part of their broader organisational system.

“It’s our Chairman who’s championed it [sustainability], and ethics, and the digital revolution. Those are the three things he’s particularly gone for. And he could see that there were changing patterns in society and that this would become important.”

Deciding to adopt corporate sustainability as a strategic initiative was prescient. In a recent memo which was publically shared, ConsultCo’s CEO observed that there is increasing pressure from financial bodies (such as the Financial Stability Board’s Taskforce on Climate-related Financial Disclosure) for professionals to take responsibility for the infrastructure they design, and this has become a significant debate among the professional bodies setting standards for engineering. ConsultCo has taken a decision to act pre-emptively and to take a leadership stance in sustainability.

At the time I undertook this research, ConsultCo was in the fifth year of its change programme. ConsultCo approached their change programme by working in parallel on developing the awareness and understanding of their clients, and by developing their own knowledge and capabilities to design and build sustainable infrastructure. Effectively, there have been three broad strands to the change programme: phase one involved setting the strategic direction for sustainability, and introducing core concepts; phase two involved building capabilities and knowledge stocks and flows; and phase three involved changing the selection of clients to help ConsultCo exit particularly polluting or problematic businesses. The overall architecture of the project is shown in Figure 14. The main initiatives are shown in boxes, which are connected with arrows to show significant interdependencies. The three phases of the project are indicated across the bottom of the figure using broad arrows.

Figure 14: Key initiatives in ConsultCo's change management programme



Rather than describing the impact of each change initiative chronologically, the next sections (5.4 to 5.6) analyse the way these organisational changes have shaped the way people manage social and environmental issues in their decision-making.

5.4 Tension between the internal and external context

In Chapter 4.3, I discussed the role of having a corporate frame, or perspective on sustainability and the way this influences decision-making. ConsultCo has developed an approach to framing that reflects the nature of its impacts – which are primarily incurred through the decisions they make about construction projects. The two assets that ConsultCo brings to its work are the time of its consultants and the knowledge that they have (including knowledge-based tools). This contrasts with organisations that may be managing large fixed assets responsible for energy or materials use. Instead, ConsultCo needs to be able to manage an approach to sustainability that is essentially intangible. This means that while they are able to use some conventional metrics (and do publish an annual progress report covering issues such as carbon emissions), much more of their work is conducted 'invisibly' through their work with clients.

ConsultCo (like many other professional advisory firms) faces a tension in decision-making for sustainability, in that their work is actually carried out for clients who are ultimately responsible for owning and operating the built asset. As one interviewee said:

“As a consulting firm, we can propose, we can recommend. And then, this happens throughout the whole decision-making process, not just sustainability.”

Thus, ConsultCo’s approach to sustainability – while an important strategic platform – is constantly negotiated through the process of client engagement and is specific to the context. As one interviewee said:

“The drivers in each of those geographical locations are quite different, and, I for many years have believed that sustainability is about place”.

Despite this apparent ambiguity, ConsultCo’s approach to sustainability is based on a fundamental logic that there is a business case for acting in a way that is socially and environmentally sustainable, and this ‘corporate framing’ is communicated to ConsultCo’s staff through a range of channels, including training and internal publications. This business case is based on three main ideas. First, the materials and energy saving from acting sustainably means that sustainability pays for itself:

“We’ve got this mantra now ... that reducing carbon reduces cost, which is great and there’s some evidence of that, but we should be doing that as standard across all of our projects.”

Second, the ability to work sustainably is relevant and appealing for clients, and has reputational value;

“Sustainability is a layer, rather than something that clients purchase on their own but sometimes it the strand that makes them take notice of us.”

And third, employees are more attracted to a company that they believe acts responsibly, and that they wish to work this way – as one interviewee said:

“I ended up going to quite a few recruitment events and found that almost universally, [that] if I was a person at a recruiting event who knew something about sustainability ... then I was always in very high demand and it very quickly became clear that it is core to the business, and it is absolutely fundamental for recruitment as well as all sorts of other things”.

Because of this ‘win/win business case’ framing, I found that the two dominant logics used in making decisions about sustainability were either win/wins (in which case the decisions were predicated either on material or energy savings, or on social benefits without significant cost), or trade-offs (in situations where win/wins were apparently unachievable).

The engineers’ level of focus on win/wins was influenced by clients’ approaches to sustainability. Some of the interviewees commented on how important it is to have a client that believes in the importance of sustainability:

“I am a proponent of sustainability but I think the overall company is really pushed by our clients from the sustainability perspective, at least in my experience.”

“The projects that I see that integrate sustainability the most are the ones where our clients are requesting it.”

ConsultCo has therefore worked actively on engaging clients with sustainability (for example through events and publications) and has created processes (discussed in section 5.6.1, below) to ensure that the client perspective on sustainability and the ConsultCo perspective are aligned before a project begins, and that this alignment is maintained through the project life cycle.

There are therefore two fundamental drivers for sustainability in ConsultCo: client demand and ConsultCo’s own strategic push. These drivers are balanced differently in each situation, and so there is no ‘one right way’ to manage each project for social and environmental sustainability.

There are, however, two potential areas where the interests of ConsultCo and its clients are not aligned: the life cycle of the asset and the contractual terms for the work. The problem of inter-temporality – balancing the long and the short term – is a common one in companies that are trying to act sustainably (Bansal & Desjardine 2014). Some of ConsultCo’s projects have extremely long life cycles, and yet the consultants only work on it for a short period:

“To be successful in sustainable development we need to think about the whole project’s life. We can’t just constrain our thinking by getting to the end of the project and practical completion and then just go away. Which of course is what we do.”

This problem can be reinforced by the contractual terms:

“Most of our clients aren't incentivised on a whole life basis, and they're certainly not incentivising us on a whole life basis.”

Clients vary not only in their approach to sustainability, but also in their approach to contract management. One interviewee contrasted two very different experiences with different projects. In the first case, the interviewee described a very positive win/win experience:

“He's an excellent, inspirational leader, still at the back of his mind we were on a cost-incentivised project, so he was also aware that all of this great stuff we were doing ... wasn't just for the sake of it, it would actually drive efficiencies and it would save us money.”

The interviewee compared this with a project for a different client:

“Where you're working with a very, very traditional client, who isn't really interested in [sustainability], you're being paid by the hour, anything that isn't in your scope is a disallowed cost so you can't cover it in any way, you're not going to get any financial award from doing it, then that will inevitably drive a very different culture.”

This means that the consultants are trying to deliver social, environmental and economic outturns within a brief that has been set by a client, and sometimes working to optimise total life impacts while being rewarded based on an initial capital budget. The interviewees identified two ways in which this tension is managed. The first of these, which is discussed in section 5.5.1, is ConsultCo's process for deciding which clients to work with, and which projects to work on. The second is the role of leadership (discussed further in section 5.6.1). As one senior interviewee said:

“Sometimes the things we need to deliver for our business don't fit into our costings and approach for a project, so we need to find different ways of delivering outcomes, and those come under pressures of things like utilisation and budgets and all those sorts of things. So one of my jobs ... is to try to understand some of those stressors or constraints and try to unlock those barriers.”

This tension between the long and short-term, and the tension that may be set up through the contractual terms needs to be managed through the decisions that the engineers make over the lifetime of the project.

5.5 Segmentation of ConsultCo's decisions

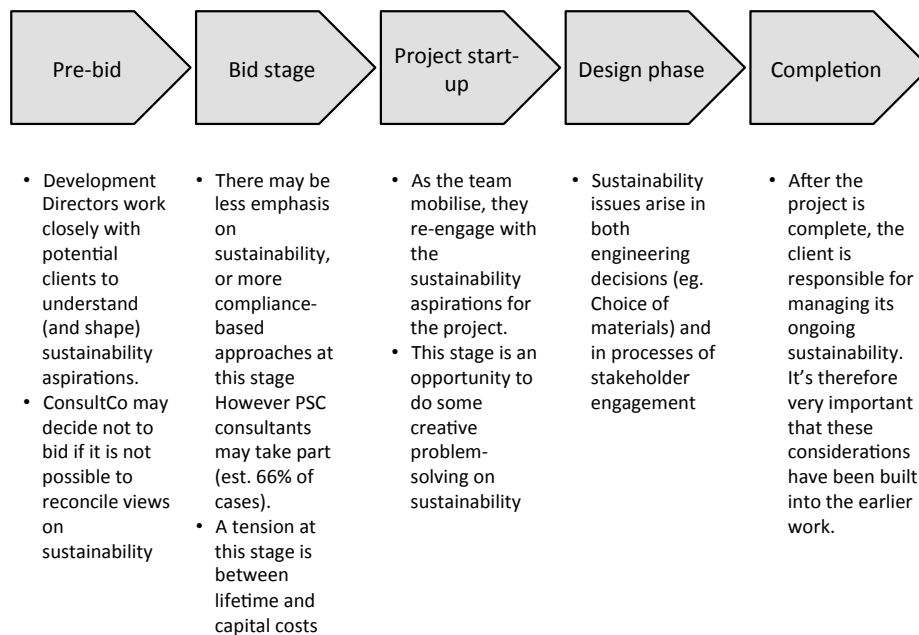
Because ConsultCo's main impact is through the decisions made on its projects – whether these are high-level city masterplans or detailed engineering design – the main focus of this analysis is on the decisions made during the course of the projects. These decisions are spread throughout the organisation, rather than being concentrated in a single locus. The nature, complexity and scope of the decisions vary according to seniority and role, but it is not the case that there are jobs where sustainability is irrelevant. The nature of the problem being solved – and the potential sustainability impact – changes over the project life-cycle, and so I will review the types of decisions and the strategies for managing them across four stages of the lifecycle: the pre-bid stage, bid stage, project start-up, and project management.

There are, of course, other decisions that are important for sustainability at ConsultCo – for example, choices about investments in knowledge, in staff development or in the basic operational management of the company (for example managing the carbon efficiency of ConsultCo's offices). While some interviewees did discuss aspects of these, the main focus of the interviews was on the decisions made in the course of ConsultCo's projects. The nature of the decisions, and the decision-makers, changes over the course of this life-cycle, as one interviewee commented:

"Sometimes we'll pick up work where some of the baseline decisions have been made. For example, if something's been taken through the planning consent phase then we can only go so far. When we're into detailed design, then a lot of the work may be about selection of materials or construction methods, that sort of thing. Whereas when we're in the earlier stages, clearly you can get much more involved in the pillars of sustainability, and you can have much more of an influence on the overall choice of the scheme options".

This section outlines the key characteristics of the decisions at each step in the process shown in Figure 15:

Figure 15: Key decisions during the project life cycle



5.5.1 The Pre-Bid Stage

One conventional challenge with formal bidding processes is that they are often quite time-pressured and can feel quite transactional. To manage this, ConsultCo has started to work with clients earlier in the project life cycle. There is now a formal role for account leaders, who are charged with understanding more about client needs prior to a potential bid arising. These relationships allow the leaders to reflect on first, whether the company should engage with a particular project at all, and second, the client's sustainability goals and priorities. As one leader said:

"I've been working for [client] for over 20 years – we've been involved in the conception stage, in the construction stage. In those kind of long-term relationships then we really do have the opportunity, and we really do invest by bringing expertise in [sustainability], and I can think of numerous times when we've done that and we've added value."

As part of the third wave of its change programme (See Figure 14, above) ConsultCo has made some choices about the type of project it is prepared to engage with both in terms of sustainability and ethics:

“Given that the big decisions we make are about who we work with ... they’ve got to pass the ethics test”

“[Sustainability] is a criterion in whether or not we take on projects. So if you’re working in a project area - well, any project area, but particularly those that might have significant sustainability impacts - it will affect what markets, what projects you will pursue. So, hydro-projects involving large scale resettlement, or coal-fired projects will be, well we likely won’t get involved. It would have to be something exceptional to make us do that.”

This stance is effective not only in reducing the reputational risks that ConsultCo might face, but also can make the decisions facing the group simpler. For example, there are difficult trade-offs to be made in some geographies about the best source of energy to use. ConsultCo’s approach of only working in some sectors means that it is able to better focus on building responsibly. This has had some organisational implications:

“I can’t pretend it’s a simple problem because sometimes people’s livelihoods are tied up in a technology which is not deemed sustainable I think it does take very strong leadership, and strong leadership signals and a firm resolve ... It is tough, and it does have challenging aspects in terms of maintaining that collaborative, open working culture when you’re deprioritising some sectors over others.”

However, the decisions made at a day-to-day level have become clearer.

While the process of managing client relationships is an ongoing one, at some point there is a decision to bid or not. This is the point at which the people leading the relationship need to bring together their knowledge – as one person said: *“A number of things go into the decision”*. To formalise this process, again, as part of its sustainability change programme, ConsultCo has introduced a ‘decision-to-bid’ form. This was mentioned by several of the interviewees, and described more fully by one:

“It asks you a series of questions and that result in ‘OK, I have answered all these questions, I have thought about all these things’ and [it] presents you whether we should go after it or we shouldn’t go after it. So that decision-to-bid form is definitely something that we use, and there are some other factors to it obviously, like the cost

of it, the position, do we have the expertise, and things like that too. But really the big thing is the decision-to-bid form. That's what ConsultCo really wants you to consider prior to going after something."

The effect this has is that ConsultCo has very few decisions with the characteristics of 'wicked problems', that is to say questions that are truly ambiguous. This is not to say that the decisions that arise during the remainder of the project are easy – they are not. However, they tend to be soluble within the terms of reference of the project itself.

5.5.2 The Bid Stage

Several interviewees reported that coverage of sustainability at the bid stage was relatively lower than at the pre-bid stage. They suggested two reasons for this. First, despite the enthusiasm some clients have for sustainability, this may not be a key point in their procurement processes. One Account Leader, who worked both on the pre-bid and bid stages with clients observed:

"We quite often get disappointed by the level of sustainability coverage in bids. Even at the more optimistic side of that spectrum, the question might be fairly generic, process-based pieces, there's often an opportunity to bring in some evidence of awards or particular savings that we made in completed projects. But ... if the question doesn't really demand a lot, you don't get any extra marks for it and you can actually lose marks by focusing on something that's not really being asked for, no matter how passionate you feel about it."

Second, there can be a lack of resources. If ConsultCo decides to proceed with a bid, they assemble a team to develop this work. As well as the engineers, and sometimes marketing people, there are designated 'Project Sustainability Co-ordinators' (PSCs) who are allocated to projects to ensure that the appropriate knowledge is brought in. One of the project managers spoke about the value of this group:

"These people have had to take a training course for construction projects, and they're able to be a kind of sounding board. Because the risk is that people who have worked on the fee bid ... might get blinkered. Sometimes you need a greener person to come in and say 'really? Have you solved the problem?'"

However, some of the interviewees observed problems with the system. In some locations, there are not enough qualified PSCs, and in others, they are sometimes not used very much, partly because of the lack of emphasis on sustainability in the bid, and partly because of the pressure of other activities:

“You’re being asked to think about it at the same time as doing a risk matrix, and putting the costs together, so it’s just another thing ... And putting a fee together, to be fair, is probably still way more important.”

Despite this relatively low emphasis on sustainability at the bid phase of the project, interviewees maintain that it is important:

“It genuinely is important to us. Just because a tender may not have covered it very much, we will take the opportunity afterwards to explore within our project as well as our positioning, how best we can serve the sustainability ambitions and aims of our clients.”

This process of re-grouping starts in the project start-up phase.

5.5.3 Project Start-Up

The interviewees were unanimous in identifying that the beginning of the project was important in incorporating sustainability ideas into the work:

“From a personal satisfaction point of view, I think the front end of the project is where we can create the greatest value, find the greatest opportunities, and try to impart those solutions.”

However, this is also a point of discontinuity where the people leading the bid hand over to the people who will actually implement the work. This is a critical point for building alignment both within ConsultCo and with the client about the role of sustainability. A project manager discussed the process of alignment:

“You have a project kick-off where you get everyone into a room, and if it’s across a few offices, then you get everyone dialed in via Skype, and you say: this is our brief, this is the client requirement, and this is ConsultCo’s requirements on top of the client requirements.”

Another interviewee described the process for engaging clients in building clarity about the sustainability aims of the project:

"I try ... to have that conversation about 'what are you trying to achieve? And what are the constraints for your organisation? And what are the things that work well and that don't work well?' Because that then gives us the flavour, and the guidance about how we tackle that next stage. And also it gives us the opportunity to come back at various stages in the process to come back and say 'Hey, you remember these were your headline goals, these were the things you want to achieve'."

At project start-up, the decisions may be renewed again as the team takes over and starts working:

"Once you've mobilised, you're into a role, and clearly as an organisation we can continue to invest in things we believe in and maybe even spend some of our own money on a project putting some experts and some input into the sustainability space ... because we think we will be able to make savings either within the specific project we're working on or in the whole life cost of the piece of infrastructure we're working on."

This process effectively sets the context for making the decisions through the next phase of the project.

5.5.4 Project Management

ConsultCo's material impacts on society and the environment come from the decisions that their engineers (and other professionals) make in the course of the projects themselves. These range from high level, conceptual decisions to detailed design choices. Some are taken based on standards or rules of thumb, whereas others involve more complex processes of engaging clients or a broader group of stakeholders. Using the classification of decision types from Chapter 4.2.2, ConsultCo's projects present decisions in three categories: 'operational decisions', 'engineering efficiency' and 'messy situations'

Design decisions vary in their complexity. Some are relatively routine, and can be made using standard procedures. Several interviewees spoke about using particular

sustainability standards (which exist in different regions) in order to make sure that they had a process for making sure that engineers paid attention to sustainability in some decisions. Where possible, ConsultCo has also been developing tools – for example carbon calculators – that can accelerate these routine decisions. However, there are two potential limitations of this standardisation and routinisation. The first is that the standards still need to be applied thoughtfully by the engineers:

“It's not like the tools are being prescriptive 'do this and that specifically and you'll be more sustainable'. No, it's more 'save energy: you show us the best way to save energy to suit the needs of your project.' 'Promote indoor environmental quality for occupants', 'reduce environmental impact through waste minimisation and material selection', you know, all of those things are broad subjects and certainly there are specific things we need to satisfy, but we don't need to be constrained by those tools.”

The second is that some established standards might not be the most appropriate for a particular situation:

“Somebody ... might look at it and say 'this is the British Standard, this is what it has to be, and there are no deviations'. So you sometimes have to take these people aside and say 'can we be clever here?'”

So while tools and standards were certainly seen as helpful by many of the interviewees, some pointed out that engineers needed to go further:

“I think you have to be unafraid to challenge things, and you have to say 'why?' and 'what are our limits here really?' and you can't take things at face value.”

The interviewees gave several examples of decisions that were improved by challenging the fundamental assumptions of a project. Taking this approach, however, does require people to take time and thought. One interviewee described using a ‘Take Five’ approach – borrowed from health and safety protocols – to encourage engineers in the design phase to step back and look at the broader context for their decisions.

5.5.5 How ConsultCo's sustainability agenda influences decisions

The changes that ConsultCo has made to the project process as part of its sustainability programme have had some effects on the type of decisions they are involved in. Introducing the ‘Decision-to-bid’ process means that they do not face decisions with the characteristics of ‘wicked problems’ as they have elected not to take work that creates

these. However, the introduction of PSCs and ‘Take 5’ has directed attention to routine decisions. Choices that were once managed as ‘operational decisions’ now have the characteristics of ‘engineering efficiency’ or ‘messy situation’ decisions as the engineers’ attention is directed towards the social and environmental aspects of the decision, thus creating more potential tensions. This makes new demands on the engineers, particularly on their time and knowledge. Although the interviewees were convinced that stakeholder engagement was essential to some types of decision-making, engaging communities is complex work, and can be time-consuming:

“The social side takes more time than the design, which is ridiculous in theory, but in practice that is what happens. So ... you put in your assumptions on how much time you need to design and how much you need to consult, and ... we got the balance wrong because we underestimated the time to get people on side. Because it can take a lot of effort, you know, to bring people on board. Then overall the project succeeds better.”

Thus, ConsultCo’s adoption of social and environmental sustainability as a strategic priority in its work has started to redirect attention in the organisation, and has changed the nature of the decisions that are made in its projects. Increasing awareness among the staff of the social and environmental aspects of the projects has both improved the impact of ConsultCo’s work, and increased the demands on its engineers in terms of time and knowledge.

5.6 ConsultCo’s organisation

These changes have, of course, taken place within the context of an established organisation. In this section, I examine first the organisational factors influencing decision-makers (culture, organisation design, leadership and performance management), and second, the factors that individual decision-makers bring to each decision (their sense of permission, attitudes and biases, and knowledge). At the end of each section, I comment on how these characteristics might enable or hinder the effective inclusion of social or environmental considerations in decision-making.

5.6.1 Organisational Factors

Culture

The interviewees placed a strong emphasis on culture in their descriptions of the decision-making environment. ConsultCo's culture is very much shaped by its history. In particular, it has two apparently contradictory characteristics that are influenced by the way the company developed. On one hand, the culture is quite fragmented, with several distinct sub-cultures; on the other, the employee ownership structure means that there is a deep sense of shared commitment and mutual reliance.

The cultural fragmentation stems from three distinct phenomena. First, ConsultCo's strategy of growth by acquisition – either geographically or through the acquisition of firms bringing new specialist disciplines to the company – has meant that the culture is not completely consistent throughout the organisation.

This has been problematic in some cases, particularly when the intention was to bring in very specific expertise:

"We were acquired by ConsultCo but the problem was ... they thought it [the culture] would just rub off on people. So to some extent the indoctrination of the ConsultCo way killed it."

"You could see the very much a different culture which is now in place, and the transition from the less-disciplined and highly enthusiastic, but now moving into the more controlled environment."

However, when the acquisitions were predicated on geographic growth, this level of cultural diversity has sometimes been advantageous.

"It's easy to take for granted as [nationality] where it's in our culture to be questioning. And that's not necessarily the same in other cultures. We need to recognise those differences and find other ways of getting the best out of people."

This flexibility is sometimes seen as an advantage as it enables ConsultCo to reflect the characteristics of its clients, and one interviewee commented on this effect at the level of the micro-culture of a project team:

"The project manager set a really good culture in that team, and made it very clear from the start that he wanted it to be a flagship project. He wanted new ideas. He wanted it to take a step forward, to be the example that we used for the next three or four years."

"Even within that project, the culture changed dramatically over the course of it."

Specialist cultures are also created by the norms of different engineering professions. However, ConsultCo's need to cultivate professional specialists and at the same time make them work together in a multidisciplinary way is something that needs to be managed actively:

"It's easy to see in engineering: you look at an electrical engineer or a mechanical engineer and they will be quite heavy in their single discipline... we encourage people to be far more multi-disciplinary in their approach."

"We try to get them to understand the needs – you know mechanical engineers understanding electrical engineers understanding hydraulic engineers, understanding architects, understanding clients – we really try to engender this culture with the team."

Thus, there are potential fissures in the corporate culture between different geographies, professional disciplines and in some cases the cultures of acquired organisations.

In recent years, there has been a concerted effort to address these challenges with an initiative to improve connectivity within the company. Several interviewees commented on this:

"There's a cultural change that's gone through in my timeframe here"

"Two years ago they started a new initiative, which was 'we are ConsultCo, we are one company. Let's break down these barriers'"

This new approach was well received by the interviewees who mentioned it. In particular it emphasises connected thinking and problem-solving, both of which were

seen as strengths of ConsultCo, and both of which were relevant for the work on sustainability. One interviewee commented explicitly on the way in which this changing culture could support sustainability:

"We're talking about a change over years, rather than weeks and months. But that's how you change the culture of a business [sustainability] really has become a part of ConsultCo's culture and our ethos that this is important to us, not because we have to, but because we've turned 'have to' into 'want to' and we see the benefits of it."

As a result of these efforts, the interviewees identified a few fundamental characteristics that were shared by all the sub-cultures:

"You know, although the group culture isn't homogenous across the regions, I think there are strong common elements running through most business units and most regions that do facilitate that open, collaborative approach to doing things. And I really do value it because I often see how much other organisations don't always achieve this and are much more silo-ed."

The two most common themes that were mentioned in the interviews were collegiality and risk aversion, and these seem to be consistent across sectors and geographies

Almost every interviewee appreciated and saw the value of the company's collegiality:

"Collaboration is encouraged at the top and also bottom-up"

"ConsultCo is unique. It is engaged, open and collaborative"

Interviewees also made the connection between this type of collaborative approach and the need to seek knowledge and expertise to make informed decisions:

"There's is a big focus on a kind of flat hierarchy, collaborative approach, openness to new learning, globally integrated working."

"People are very helpful"

The other consistent theme in the comments about culture was a certain level of risk-aversion. This clearly informs decision-making:

"Looking at the issue of risk – corporate risk – a lot of the decisions I would make would be 'what is the risk to ConsultCo in this?'... A lot of the time with decision-making I go through the process that says 'what happens if?' I do a lot of that."

These two aspects of the culture are apparently in tension with each other. One interviewee pointed out the difficulty of managing this tension:

"We are quite risk averse, and we could empower people more. It's hard to strike the right balance between these two things."

Another interviewee pointed out that this balance of conservatism and collegiality occurs in other cultures too, using an analogy: *"in some ways we're probably a Gentlemen's club."* Many interviewees attributed these to the company ownership, commenting: *"I think the culture is special because we are employee owned"*. This drives collegiality, as people see the value of working together because they can share in the benefit of the work, but also drives a level of risk aversion as people have a personal financial stake in the company.

These aspects of ConsultCo's culture do influence decision-makers. While each of them is operating in a particular client context and with a background in a particular geography or discipline, the broader context of ConsultCo enables them both to make judgement and to seek knowledge and input, both of which were important in influencing individual decision-makers.

Organisation Design

This commitment to collegiality also influences some of the formal systems of the organisation. The interviewees emphasised three characteristics of ConsultCo's formal organisation – processes, job descriptions and networks – that play a significant role in bringing sustainability into decision-making. They also commented on the structural tensions that exist within the company.

In the analysis of the decision types in Section 5.5, it was clear that the overall management of the project process is a key feature of the way decisions are made at ConsultCo, for example through the decision-to-bid form. Despite this, not everything can be managed through process. One interviewee observed that this routinisation can be uninspiring at times:

"There's bottom up enthusiasm, but when the top down processes apply, it switches everybody off."

This is partly for cultural reasons. As we have seen, ConsultCo's people value collegiality and professional identity, rather than simply being told what to do. By contrast, another interviewee pointed out that sometimes processes do not go far enough:

"What I'm trying to do is what's not part of the routine process - well, we need to make sure that's working - but we need to push beyond what the routine process won't provide."

This suggests that the processes, while undoubtedly useful, need to be complemented with other systemic approaches – such as the corporate culture, and the network structure – to influence decision-makers.

The second mechanism by which ConsultCo shapes and directs the attention of decision-makers is job descriptions. One interviewee pointed out that the remit for decisions is established based on people's roles:

"[People] start with a very small remit with possibly not a great deal of ultimate risk, and then as they grow their skill set they grow the extent to which their decisions are significant."

Another commented that these are clarified at the project level too, to ensure that decision-rights are unambiguous.

"At the start of every project we try to be clear about the role, responsibility and accountability of everyone on the team, and people know what the goalposts are and how to escalate projects."

Again, this is an effective way to manage in a culture that is essentially collegial.

While clear job descriptions and processes are the means by which ConsultCo brings clarity and accountability to decision-making, networks are the means by which it ensures that the right knowledge and information is channelled to the decision-makers. One of the challenges of including social and environmental sustainability in decision-making is that it may call on types of expertise that are not in the team. ConsultCo has emphasised the importance of multi-disciplinarity in this type of work:

"I think that sustainability is necessarily a very multi-disciplined practice, that it requires the shared knowledge and experience of people from a variety of backgrounds."

This type of multi-disciplinarity is recognised as an institutional strength, and is a source of distinctiveness for the business, as well as being an important part of managing sustainability:

“It’s our ability to synergise those complex multidisciplinary environments that sets ConsultCo apart. So genuinely, in that space, we are recognised as one of the few organisations who can really do that.”

To address this need, ConsultCo has created a series of practice groups that are able to connect people and knowledge. These groups are responsible for the stock of knowledge (described later in this section), and the organisation design is responsible for its flow. One of the interviewees described the role of the practices:

“The resources are in the regions, so the practice is really a coordinating function. So making sure that people are plugged in together and making sure that knowledge is collated and put together in a common accessible place in a way that people are required to access it. So the practice is more about making sure that the interface happens than about hosting the capability.”

The practice leaders are all in ‘double-hatting’ roles, combining client and business leadership with knowledge. As one said:

“We felt at ConsultCo that it would be quite useful to have people in the cross-hairs between the vertical business and the horizontal practice It’s challenging, but it makes sense.”

Although social and environmental sustainability is not a practice group, it largely operates in the same way, as a channel for knowledge and a network for people:

“In terms of how sustainability fits within ConsultCo, ... if you make a team of people who do sustainability, it gives everyone else in the room a remit to not do sustainability. So that’s why you don’t have a sustainability team. You have a sustainability network and practitioners”

One of the members of this network described the role thus: *“I act as a conduit or flue between different disciplines and give people guidance”*.

Despite the clarity of processes and job descriptions, and the energy that has gone into creating linking mechanisms and networks to support sustainability, there remain some structural tensions within ConsultCo’s organisation design. The interviewees identified

three main areas of tension in the design. First, the size of the organisation means that there are very many countries, sectors and practices that need to be co-ordinated, and this is complex work. The sheer complexity means that silos can be almost inevitable. The second challenge is the tension that is held within individual roles because of the need for double-hatting: while this only affects senior people, it makes considerable demands on time. As one interviewee said:

“But one of the challenges we face – it never ceases to amaze me – how complex everybody’s job is”

“If I had endless hours to spend on this, I could do more, but you’ve got to balance everything.”

The final area of tension is between different levels in ConsultCo’s hierarchy. A few interviewees identified a layer of middle management as a barrier to sustainability. This was mentioned both by senior managers (generally referring to a layer below them) and by project managers (generally referring to a layer above them). As one person said:

“They’re blocked by the middle managers who don’t know what [sustainability] is, can’t see what it’s got to do with their day job, and don’t let it happen”.

This gap may be a problem of knowledge and experience:

“Between early career professionals and mid-career professionals ... I think that’s where the gap is. It’s not with the senior leaders - they do get it, and they very much buy into it, so it is that mid-level. There may be an element of skepticism, I think, but I think actually, generally, my view of it is that it feels as though people do get it and they do buy into it, and they do believe it’s important, they just maybe don’t have the confidence to do it.”

It may also be a function of the problem that has arisen as the time demands of building social and environmental thinking into the work. The mid-career professionals have more demands on their time, and so may not have the capacity to spend time on creative solutions or stakeholder engagement. This question of the pressures on individual managers is discussed later, in Sections 5.6.2 and 5.7.

Leadership

Leadership was a recurrent theme when interviewees were talking about the adoption of sustainability as a topic for the company. It is also, of course, essential in modelling the company's collegiality. The interviewees talked about the importance of leading this from the front, of role-modelling and developing the next cohort of leaders.

There was widespread acknowledgement that ConsultCo's decision to build social and environmental sustainability into their work had taken strong leadership:

"There's that initial leadership saying: 'Do you know what? We're going to spend some money on this. We're going to invest, and we think we're going to get a return on this investment.' And the next layer of leadership is having the courage to appoint people and enable them in that role who have the leadership credentials to make a difference."

"[Our Chairman] stood up and put his personal reputation on the basis that we were going to invest a significant amount of the group's money in sustainability... and by taking that stance very early... he's put us in a position where we've got a leading edge".

This very visible leadership has, in turn given people confidence to start applying sustainability principles in their own work:

"It does take behaviour at the top to make people say: 'well I can see that they care about it, and so I have permission too'."

However, becoming a leader is difficult. Although ConsultCo has a structure of career development programmes designed to help build leadership, some of the project managers did mention the difficulty of making the transition to leadership:

"I think that might be that a lot of the time we have these really good engineers and we promote them to be project managers, and that might not always be the best spot for them, because it's a very different job. A very different job."

One of the concerns expressed about the possible layer of middle management that are not deeply committed to sustainability was the effect it would have on others:

“The problem is that either consciously or sub-consciously, people follow what their managers do. It just sort of gets eroded in the people who came into the company with the passion.”

Because of the need to work in a multi-disciplinary way, often leading others with more subject-matter expertise, many people talked about leadership as a process of empowering:

“I find that increasingly I need to give space to other people to do these things and empower them, and that’s going to give them the opportunity to develop those skills”.

“He had to drive that and say ‘I’m going to believe in you guys, I’m going to believe in my team come to me with what ideas, and if I think they’re good enough, I’m going to put some money in that, and I’m going to invest some of our future profit because I think it’s going to have a multiplier effect and create more profit.’”

“So I’m a firm believer from a leadership style to bring everybody in, and drag those into the decisions. In the end of the day you’ve got to make the decision.”

This is all consistent with the cultural emphasis on collegiality.

Performance Management

Interestingly, most interviewees did not discuss questions of performance management (such as key performance indicators) unprompted. As part of the series of organisational changes that have led to the cultural renewal and brand renewal, ConsultCo has clarified and emphasised the importance of accountability:

“One of the things that has changed in recent years is an increased understanding around the business of the difference between responsibility and accountability and also an increased understanding of the definition of accountability.”

The interviewees were generally very clear that they were accountable for project delivery to time and budget, and this is where they directed their attention.

This intense focus on time and cost can be in tension with the demands for creative thinking to produce more sustainable outcomes:

"Sometimes, the project, you just have to focus on getting the project done within the fee. There is a big push on making sure you don't overrun. And I think it does depend on the people being able to see that there are different ways to skin a cat, and that actually you could, if you're more creative at the beginning be able to do something more interesting within the fee. But some people can do it, and some people can't."

This commercial imperative clearly focuses attention on the projects, but it may be at the cost of other sustainability-related activities. In particular, sustainability is not monitored particularly directly:

"From a KPIs perspective .. there isn't actually a question 'what have you done to boost sustainability in your projects,' ... maybe that would be penalising people who don't have opportunities to. But it's worth the question."

This problem of when and how to spend extra time on sustainability and knowledge activities was a recurrent theme in the discussions. One interviewee pointed out that performance reviews also do not take account of non-project based behaviour that is needed to maintain the cultural collegiality and knowledge sharing that ConsultCo is actively promoting:

"Bring it into their PDR - performance development reviews - that we have to do once a year, and see if we could use that to say 'how are you engaging across the network? what are you giving back, besides your day job?'"

Thus, although the performance management system is not seen as a particularly strong influence on including sustainability considerations in decision-making (compared with, for example, the culture or organisation design), it does potentially create tension between the commercial pressures on people, and the time required to make considered decisions.

These comments on ConsultCo's organisation suggest a combination of factors enabling the incorporation of social and environmental sustainability into decision-making. The revised processes (such as the decision-to-bid forms and the allocation of PSCs) are gaining traction. The strong emphasis on networks and the culture of multi-disciplinarity also make it easier for engineers to access the knowledge that they need to include sustainability in their work. There is visible leadership both at the top and at other levels in the firm to ensure that people pay attention to sustainability.

However, there are some areas that may inhibit the adoption of sustainability. ConsultCo's strong commercial focus ensures that people are very focused on the time and cost of their project, which only supports sustainability thinking if the opportunities for savings (from example from material efficiency) outweigh the time cost of finding these. ConsultCo's historical difficulties in integrating new cultures are still being resolved. Although there are several opportunities for people to learn about sustainability, it is not routinely included in leadership development. Finally, there are concerns about a particular layer of management who do not seem to be fully engaged with sustainability: it is possible that this is a generational issue, and so will take time to be resolved, or that this is a group of people who simply require more knowledge in order to be confident handling the demands of social and environmental sustainability.

These factors all influence the decision-makers. But what do the decision-makers themselves add to this mix?

5.6.2 Individual factors

Although ConsultCo has some established processes and structures, ultimately the way decisions are made depends on how decision-makers themselves interpret the situation, and the actions that they choose to take. I explore these in terms of the three factors identified in Chapter 4: permission space, biases and attitudes, and knowledge.

Permission space

Although accountability is set out both in job descriptions and in the discussions teams have at the project kick-off, permission is something that people interpret in their roles. In particular, people may interpret the signals that the system sends, for example choosing where to focus their attention and how much creativity to apply to a particular problem. This in turn can influence the decisions that they make. One interviewee described this well:

"Because we do tend to be limited by our job descriptions, but within that there's also 'I do know what it says, I do know what the rules are about when to ask' but there's an assumption that anything outside of those boundaries is fair game. Well, I don't know, maybe that's a personality thing, but the options there are to check or to act."

In general, the interviewees found ConsultCo's approach to permission was unambiguous. Even at the most senior levels, one interviewee commented: *"there are some no-go areas"*. One interviewee who had joined ConsultCo from another company spoke about a time when this had stifled the ability to innovate, but recognized that this is changing in response to some of the cultural and strategic initiatives in progress:

"There was a clampdown of 'no. This is your project. This is your job. This is what you do'. And that was quite tough, I found. But I think they are rallying. I think with new initiatives there is progress to be made."

Another interviewee also commented that the work on culture change was encouraging creativity:

"[ConsultCo] needed to ... promote more of the people who think differently, promote as in nurture, give them a place to act"

As the culture continues to develop, ConsultCo is managing a tension between the high levels of accountability that support the delivery of projects, and the levels of managerial discretion that allow people to think creatively to solve the problems of social and environmental sustainability.

Attitudes and biases

The interviewees generally shared a positive attitude towards sustainability and the opportunities that it presents for ConsultCo. They also observe this in their colleagues – nobody described any situations where people had not acknowledged the potential value of acting sustainably:

"Our senior engineers, principal engineers, get that trying to reduce carbon is a good thing. They conceptually get that."

"It started off being something for specialists or zealots, but that's changed"

"It's intellectually stimulating and it's about engineers saving the planet."

Sustainability is not just tolerated, for some employees it is an important part of what they value about their work:

"[for] a lot of our employees, and the younger ones in particular, this is not a fad it's a way of life, and if we do not pursue work that interests them, then that won't work".

However, believing in the logic of acting sustainably is necessary but not sufficient to actually do it. Some of the interviewees pointed out that in order to bring sustainability into decision-making it is also important to ask the right questions and approach problems creatively: *"it's a certain mindset that you don't have to do things the same way"*. The barriers to doing this are also attitudinal:

"It's probably to do with not using the tools to share knowledge and maybe not questioning enough or maybe not wanting to be questioned."

But as one interviewee pointed out, sometimes the barriers to incorporating sustainability into decisions are situational:

"The importance of ConsultCo's values is definitely stressed [but] I think that sometimes can get lost in the stress of the job and that's when things get a little challenging."

"It's still hard to balance all this making decisions with thinking outside the box while still trying to get the work done"

In summary, attitudes towards sustainability are generally positive at ConsultCo, but the ability to ask the right questions, especially under pressure of time, are needed to convert these attitudes into behaviour.

Knowledge

Knowledge is a vital part of ConsultCo's business model, and therefore a key asset to the firm. Effective knowledge management requires not only an appropriate 'stock' of knowledge, but also systems to guide the 'flow' through an organization (Dierickx & Cool 1989). These systems often combine formal elements (such as knowledge managers

and taxonomies) with social elements (such as recognition for knowledge contributions).

Because of its strategic importance, and the rapid development of new knowledge in a large, international company, ConsultCo has been working on formalizing the institutional approach to knowledge management:

“I would say that we are trying move from individual heroics to a common system, and in doing so for both knowledge and innovation we’re working with a framework which sets out the ConsultCo way of doing those topics by introducing a common set of terms, by introducing a flow ... that allows us to take those individual heroes but get consistency across the business”.

This has benefits for ConsultCo’s work on sustainability. The interviewees recognize that knowledge sharing is essential for sustainability to be integrated into the work of the organisation.

“As I’ve gathered more experience I’ve come to recognise that if we want to achieve broader success for sustainability and success for the outcomes of our projects then we need to share our knowledge and we need to engage with all of our colleagues to achieve the best outcomes.”

Developing and maintaining a stock of codified knowledge is the first step in creating a knowledge-management system, and this is a focus for ConsultCo, particularly in areas that are developing rapidly:

“in ConsultCo there is a lot of moving implicit to explicit knowledge at the moment.”

The stock comprises three main elements: new knowledge from R&D; codification of knowledge in frameworks; and individual expertise.

ConsultCo’s R&D investments reflect the potential areas for future growth. This means that there are quite different priorities in different units. One interviewee highlighted this contrast:

“There are some units or sectors where there’s much more of a focus on keeping everyone on the straight and narrow fee-earning work, and there’s less space for

innovation, there's less space, less funding and therefore time, available for testing out some of these new approaches."

In other groups, there is an urgent need for the rapid development of knowledge:

"The underlying technology is changing sufficiently fast that it's not just a matter of getting new people up to speed with what's out there, it's also a matter of what's out there also changing and having to keep up to speed with that. So it is a massive challenge to manage that while delivering projects and growing the business."

Although R&D is important, for many parts of ConsultCo the objective of investment in knowledge is to find ways to scale and share knowledge, rather than relying too heavily on individual experts.

"So in [sector] for example, our target is to increase the standardisation of materials, so rather than knowledge sitting in individual specialists' heads we're getting more and more onto paper into guidelines, into report templates, into training modules, into induction materials so that it facilitates our path to growth because we can induct people into the practice when more of our knowledge is kind of down on paper and standardised."

One format for codification is tools or frameworks. These may be external (for example some building standards), or may have been developed by ConsultCo. Several interviewees gave examples of using frameworks:

"When I'm looking at sustainability considerations I really look to published guidance, whether that be the client's guidance for sustainability considerations because they have their own as well, or this [industry standard], to say 'OK what are the considerations we should have, and are we considering all of the sustainability factors where we may be missing something that we didn't consider previously?'"

Besides these formal investments, frameworks and tools, knowledge stocks include the experiences of individual practitioners. Even with strong systems and processes in place, there are always elements of knowledge management that are essentially voluntary. People need to choose to share their knowledge and experience with others. One person pointed out that this knowledge sharing needs to be reinforced in ConsultCo:

"It takes somebody taking the time to do it and getting satisfaction from it. But not a lot of people would be motivated to do that, and I don't think across the company it is encouraged as much as it should be."

ConsultCo's collegial culture needs to be supported by some formal systems to encourage this level of knowledge sharing.

This need for people to take some personal ownership applies to the development not only of stocks of knowledge for ConsultCo, but also to individual skill development. Although ConsultCo does provide many training opportunities, some interviewees also commented on the need for individuals to invest time in their own professional development:

"And people have to invest time in their skills, and that's around self-directed research, it's around reading, it's around looking on YouTube, it's looking at articles, it's going to conferences, it's about public speaking, trade shows."

This means that for some people, the need to continue to build their own skills and to make contributions to ConsultCo's knowledge stock is quite demanding.

A good stock of knowledge is necessary, but not sufficient, for a company like ConsultCo. People also need to be able to find and use the knowledge when they need it.

Interviewees identified three main components of this system: first, awareness of the tools and knowledge available; second, networks of knowledge and people; and third a culture which encourages the use of these methods.

The interviewees took different views of levels of awareness, which seems to be partly dependent on their location. One commented that there were some limitations on awareness of good practices between groups:

"I feel like we've developed our own things that help with our work here in this office, and we do try to share it ... but then you get kind of stuck in your own group and you don't get enough, you don't look far enough out when you need it. Like, there might be another office that does this work already who could help support you, but you're not aware of that resource."

Another commented that there were good resources, but that people varied in their level of engagement:

"We have Yammer, but it depends on the engagement levels of staff whether they engage with it or not. But there's definitely good things."

Finally, talking specifically about tools, one person commented that for some activities there was a cost to adoption: awareness on its own is not sufficient, but people also need to acquire the skills to use the tools or apply the knowledge that they are able to access:

"I think people are aware of them, but actually getting them to use them is harder. And so there's probably, even now, there's a latent awareness that some of these tools exist and are available. What there isn't is, ... there isn't that sort of pot of gold to fund time for people to just play with things for familiarisation."

This raises an important issue about access to expertise, through people and not just through tools or documents:

"We need to have practitioners in each of our locations who understand those tools. But it's more than that because the tools are not the means to the end. Certainly they are a framework that takes people on a journey to achieving an outcome, and certainly they provide great guidance, but you still need the practitioners who understand excellence"

There is thus a bottleneck: knowledge exists, but there is a limited supply of expertise to interpret it.

"You need to have the right people for the right project.... a lot of those technical experts can sometimes be, well they're experts for a reason and everyone wants them. So we need to come up with a way to manage that."

ConsultCo encourages individual networks and collaboration to help distribute knowledge efficiently within the organisation, and interviewees gave examples of how they used their personal networks to solve technical problems. However, these need to be initiated. One project manager observed that networks for knowledge sharing are not necessarily accessible to everyone:

"And I think it's also a challenge of who is building that network. So in my position, maybe other people know, but it doesn't necessarily get passed down to the younger engineers. At my level, it might be harder for me to know that those resources are available."

Finally, the system needs to be reinforced culturally. Two interviewees commented on this positive culture:

“A collegiate culture allows for much faster, organic uptake of some topics”

“I think it must be something to do with it being employee owned ...I remember that there was this mantra when I arrived that was ‘within two phone calls you’ll get what you need to know’.”

This shows that ConsultCo’s knowledge management is a system of knowledge stocks and flows, supported by a set of behaviour that can encourage both the development of the stocks and the use of the flows.

Although permission-space, attitudes and knowledge are all important in making decisions, the ConsultCo interviewees placed a particularly strong emphasis on their need to have the right knowledge available to inform their decisions.

ConsultCo’s organisation includes formal and social elements to reinforce the sharing of knowledge: there are investment processes to develop the stock of knowledge; practice networks create a formal structure for sharing it, and this is supported socially by a broadly collegial culture. Thus, there are some mutually supporting elements across the organisation, and that ConsultCo particularly emphasises: leadership, culture, organisation design (including processes and job descriptions) and knowledge to influence the ways people make their decisions.

5.6.3 Summary

This analysis shows how ConsultCo has started to develop some facets of the organisation to support its initiative in sustainability:

Table 15: The role of organisational factors in enabling or hindering sustainability at ConsultCo

<i>Organisational factor</i>	<i>Role in enabling or hindering the inclusion of sustainability in decision-making at ConsultCo</i>
Culture	Strong focus on collegiality enables better sharing of sustainability knowledge and information, and risk aversion leads to awareness of sustainability issues. However, commercial pressures on time may lead to some trade-offs in design decisions.
Organisation Design	The organisation design includes linking mechanisms that enable and encourage knowledge transfer and build awareness of sustainability. However, sustainability is not explicitly included in performance management or incentive systems.
Leadership	Corporate level leadership for sustainability is strong and well respected. However, leadership at the individual project level is more variable, and subject to the pressures on the individual project manager.
Performance Management	The performance management system is not designed to support sustainability. People are under strong commercial pressures, reflecting the contractual relationships between ConsultCo and its clients.
Permission space	People interpret their permission space based on strong signals from the commercial management of the project coupled with encouragement from the culture to act in a way that is sustainable. There is sometimes a tension between these signals.
Attitudes / Biases	People are generally positive in their attitudes towards social and environmental sustainability in their work.
Knowledge	The knowledge management system within ConsultCo can support sustainability by providing information and accelerating decision-making. However, maintaining the system creates time-pressure for practitioners.

This shows that there are some clear formal and social enablers for the incorporation of sustainability considerations into decision-making at ConsultCo. However, these are counterbalanced by the pressure of time on the consultants. As ConsultCo has directed people's attention towards sustainability, they find that they need to spend more time on either finding innovative designs or engaging with stakeholders. Decisions that were once made in a routine way (and perhaps without considering social and environmental impacts) need to be analysed more deeply. Given that time utilisation is the driver of commercial success for ConsultCo, this creates a tension in the projects. In the next section, I will discuss the way this tension is managed in the organisation.

5.7 ConsultCo's nested paradoxes

The analysis of ConsultCo's situation reveals a series of tensions at the macro, meso and micro levels of the organisation. At the macro level, there is tension between the need to build more infrastructure to meet the needs of a growing global population set against the need to conserve resources. This then feeds a meso-level tension between clients and ConsultCo, which may be accentuated by contractual arrangements. At the micro-level, individual engineers find new pressures on their time. First, the new focus on social and environmental sustainability means that they need to spend more time on projects in order to solve difficult problems, but the contractual terms that determine the available time have not changed, and so they feel constrained. Second, the engineers need to build and share new knowledge (ranging from methods to new data sets) in order to act sustainably, but this would require them to spend time away from their clients. These tensions act as a reinforcing knot, and directly address the heart of ConsultCo's business model. Each of these tensions arises in response to ConsultCo's management of the previous tension.

The resolution to these tensions also lies in a series of nested responses, and indeed, ConsultCo's ongoing change programme addresses these. First, ConsultCo is addressing the tension experienced by individual engineers in their time management through targeted investments in technology. These can accelerate decision-making. For example, one interviewee talked about improved carbon calculations

"To optioneer the carbon impact takes seconds now instead of days, which means we can try many more ideas now. And what we are doing now is bringing in things like machine learning and organic algorithm development and some automated procedures to really challenge the norm. But that is a huge opportunity in the sustainability space."

Some technologies can also accelerate the process of stakeholder engagement and decision-making:

"Back in the day we would try desperately to try to explain things to people using drawings and now we can put a pair of goggles on them and stand in the front

garden and see what a bridge is going to look like... We're even at a stage now where we're not just playing with a couple of options, we're working off the real model, so in consulting with stakeholders, in a room we can literally make changes to the model as we're making decisions and it records that change and makes it into the thing everyone is working from."

However, at the current stage of development technology alone cannot solve the problems faced by engineers. There is a fundamental disconnect in the relationship between the client and the consultant that causes this pressure. One interviewee pointed out that the contractual terms can be established in a way that is more holistic, and that this can be helpful in reinforcing the social and environmental elements of a project:

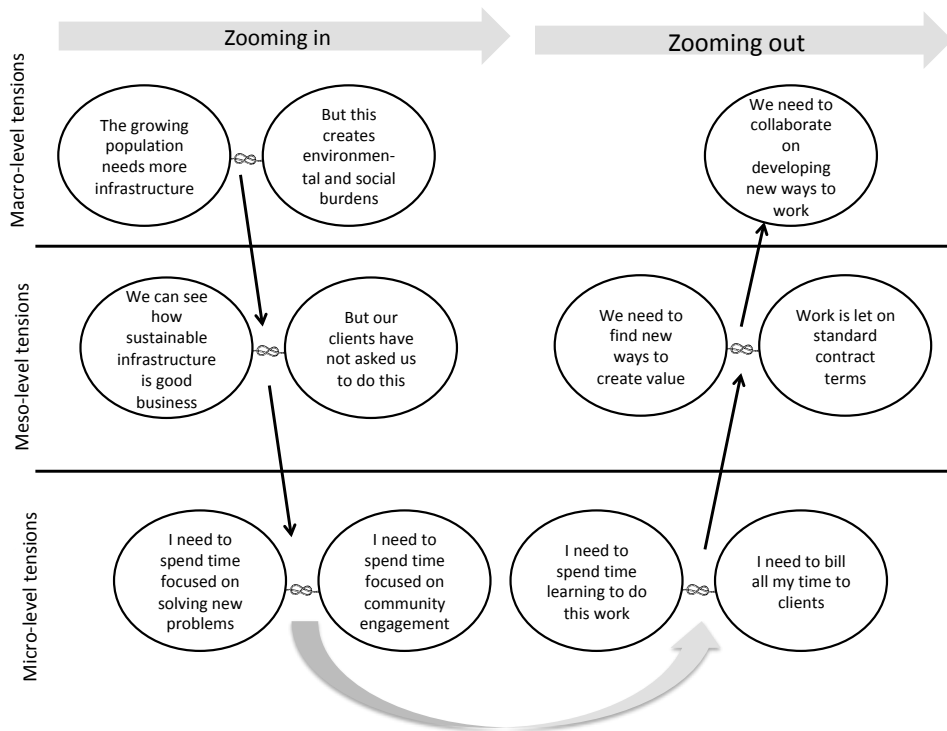
"Probably the key thing is the set up and how you're incentivised. So I've worked on jobs where ... you're in a sort of set up where there are clear KPIs and you're being monitored and incentivised to work across a range of things, a wide basket of indicators that aren't just commercial ... So that would be the first question: what's our role in the project? and what's the scope? and what's our performance incentivised on?"

Questions at this meso level have led several companies – including ConsultCo to join industry-level initiatives, such as the Institute for Civil Engineering's 'Project 13' approach to infrastructure, which could re-shape the client relationships to deliver more sustainable outcomes:

"It's an ICE [Institute of Civil Engineers] initiative which is ... trying to transform how infrastructure's delivered. There's quite a big focus on shifting from minimum outturn cost to maximising value over the lifecycle, so whole-life value."

This pattern of the creation and resolution of tensions at different levels within the organisation is shown below in Figure 16 which is based on the model proposed by Schad & Bansal (2018). The relationships between tensions are revealed by 'zooming in' from the macro to the micro and then 'zooming out' (Schad & Bansal 2018) to show how each level of tension is related:

Figure 16: Nested tensions at ConsultCo



The case demonstrates the problem of changing the way people bring social and environmental decisions by showing a series of nested, complex tensions (Sheep et al. 2017) situated in a broader – and in this case quite problematic – system. The nest of paradoxes is revealed by zooming in (Schad & Bansal 2018; Nicolini 2009), but these can only ultimately be managed by zooming out to solve the systemic problem in conjunction with other parties (in this case an industry body) (Schneider et al. 2017). By examining this process over time, I show that the company’s efforts to change do make a difference but that eventually this programme cannot be completed within the boundaries of the organisation and they need to engage a broader system to effect the change that is needed. The case also shows the connection between the macro / meso / micro levels of the system: changes are needed at the level in which the various entities interact, and also at the level of the organisation, and the individual decision-maker.

It is also easy to see why some organisations fail to change (Slawinski et al. 2017): unpicking the paradoxes at the heart of this change process has required bold leadership and deep thinking by ConsultCo. From the point of view of the people in the organisation, managing this change is like playing the game ‘whack-a-mole’. They are

working hard, perhaps at an increasing rate, to fix problems, but these continue to persist because the underlying system – in this case the structure of the construction industry - generates them. However, the ‘moles’ – the problems and paradoxes created – can provide a means of understanding the fundamentals of the system, and thus starting to identify the points for change.

5.8 Conclusions

The purpose of the Prescriptive Study was to test and extend the developing theory and explore the interactions between models in a case study to start to reveal the points of intervention in the system. It shows that the framework created abductively in Chapter 4 from the literature and my empirical findings is a helpful analytical tool and can show the formal, behavioural and social influences on decision-makers in an organisation. It illustrates the four different archetypes of decisions, and shows how these can change through the direction of attention. It also shows the ‘nestedness’ of tension in organisations. I ended Chapter 4 with a series of ideas to explore in the case study, and find that in this case they largely hold true. These are discussed in Table 16:

Table 16: Testing the theoretical ideas

Idea from Chapter 4	Observation in this case
The tension between the external and internal factors is specific to a particular business at a particular time.	In ConsultCo's case it is clear that the tensions between the internal and the external take two forms: first, the broad tension that exists in the construction industry; and second, the tensions that exist in a particular project.
The reframing of this tension is a significant decision, which has implications broadly in the business. This is therefore led from the top of the organisation	ConsultCo has taken a strategic decision, led by the Board to incorporate sustainability into its business. However, the ongoing re-framing of sustainability in each project is led at a lower level in the organisation. Thus, there needs to be a clear connection between these nested frames.
If the tension is not re-framed, it will persist. This will create trade-off problems wherever in the organisation the material impacts of the tension might be felt	Interviewees' comments that client support of sustainability makes it easier to include social and environmental considerations in particular projects suggest that tensions that are not addressed in other projects persist.
If the tension is reframed, it still exists, but decision-makers may have been given a broader repertoire of ways to manage the competing commitments they face.	The change programme at ConsultCo has led to a greater focus on win/win as a logic for decision-making, through resource efficiency. This suggests that the corporate level reframing and (and subsequent reframing of sustainability in projects) is enabling decision-makers to use a broader repertoire of approaches.
Simply re-framing sustainability is not sufficient if the organisational systems which 'bound' decision-making are unchanged.	ConsultCo's change management approach was initiated with a reframing process, but was followed with organisational changes, specifically changing the 'decision-to-bid' process, the introduction of the PES role, and the establishment of sustainability networks to link groups across the organisation. This has made a contribution to the inclusion of sustainability thinking in the organisation.
There needs to be complementarity between these systems. Simply changing one factor (for example, changing the availability of information without changing the criteria by which decisions are made) will not improve decision-making.	ConsultCo's changes have broadly worked within the existing cultural and organisational norms of the company. There remain some tensions between organisational elements that have not adapted to the needs of sustainability (eg. performance management), and these do lead to tension for decision-makers.

However, the case study also extends the emerging theory by providing insights into the second of my two research questions: 'What are the points of intervention to change these [organisational] systems?'. The case study reveals a series of findings that address this question:

1. The process of re-framing the tension between the external pressures on the company and the internal responses (described in Section 4.3.6) does not only influence the logics that can be applied to individual decisions, but can be used to drive a broader change programme. At ConsultCo, this framing of sustainability was a critical first step in their work towards changing their way of working.
2. This process of re-framing changes the nature of decisions made in the company, by re-directing executives' attention. In ConsultCo's case this resulted in a greater consciousness of the implications of 'operational decisions', while reducing the number of 'wicked problems'. This means that the decision support (described in Section 4.2.3) needed to change in response to the new types of decision – particularly 'engineering efficiency' and 'messy situations'.
3. The change in decision-types led to a demand for new types of knowledge within the organisation. This, in turn, had implications for the types of organisational systems – including both formal systems, such as linkage mechanisms, and social systems such as a culture of sharing – to enable better management of knowledge.
4. At an individual level, a new, and fundamental tension became salient. Including social and environmental considerations in decision-making meant that the decisions became more time-consuming. However, the fundamental business model at ConsultCo is based on billable hours. Thus, the micro-level tensions revealed a system-level problem, that could only be addressed in collaboration with organisations beyond ConsultCo.

This cascading set of actions and reactions is illustrated in Figure 16 (above). The findings also suggest a series of principles about the points of intervention for companies trying to incorporate social and environmental considerations in their decision-making:

1. The framing of sustainability at the corporate level is not only important for individual decision-makers, as evidenced in Chapter 4 (Section 4.3.6). It may also

have a role in shaping the overall change programme as a company adopts sustainability. Thus, it is can be a point of intervention for companies planning to change.

2. This corporate framing then needs to be made salient for the particular decisions at hand. This may mean creating a 're-framing' for a particular group of people, or organisational locus.
3. The point of intervention in the organisational system will depend on the most pressing issues for the organisation. However the ConsultCo case suggests first that this will require some type of organisational learning as the company requires new types of decision support, and second that the interventions will be iterative.
4. This is a dynamic process, with unforeseeable consequences: each change may be a reaction to the uncovering of the broader system.

These principles are of course based on a single case study. In Chapter 6, I will introduce Study 3, in which a group of senior executives from a broader selection of companies reviewed the emerging findings from both Study 1 and Study 2.

6: STUDY 3

6.1 Introduction

The objective of the Study 3 was to test and extend the theories developed in the earlier two studies by talking with practitioners about how they are actually operationalized in companies, in the spirit of ‘engaged scholarship’. This was an iterative process (Van de Ven, 2007 p.102) consisting of three workshops held during the course of the data gathering and analysis process, in November 2017, June 2018 and October 2018, in which a small group of executives discussed their own experiences of the issues arising from the research. The method is described in Chapter 3.3.2. Although there was a theme and structure for each workshop, the facilitation process was not strongly directive, and the discussion therefore followed the interests of the participants. This means that there is not an equal coverage of all topics – subjects that were important to the executives were discussed in more depth. Several of the participants drew on examples either from their own companies or from public domain information about other companies to illustrate their points. Where the information is from the public domain, I have reported the name of the company, but I have not named the companies whose executives participated in the discussions.

The chapter follows the structure of the findings from Chapters 4 and 5. In section 6.2, I review the discussion about tension between the external and internal environments and the way companies can frame this tension constructively. This builds on the findings reported in Section 4.3.5. Section 6.3 ‘zooms in’ to look at the classification of decisions and decision support methods and capabilities needed to make them, building on 4.2.3 and 5.5.5. In Section 6.4, I review the way in which the elements of the organisation work together with the individual decision-makers to form a system. This all contributes to deepening the answer to Research Question 1: ‘How do the formal, behavioural and social structures of an organisation interact to influence the inclusion of sustainability criteria in decision-making in incumbent businesses?’. Section 6.4 also provides a link to the second Research Question: ‘What are the points of intervention to influence these systems?’. This idea is expanded further in section 6.5, which reviews the executives’ discussion on changing companies. The chapter concludes in section 6.6 with a commentary on the overall findings from the executive workshops.

6.2 Reframing the corporate-level tension

The framing of the tension arising between businesses and their social and environmental context to influence the way people make decisions was an important theme in this research, and is explored in Chapter 4.3.5 and again in Chapter 5.4. It was also a topic that the executives discussed several times during the course of the workshops, and which they saw having an important role in introducing sustainability criteria to decision-making – as one participant commented: *“Reframing is, in my view, critical.”*

The workshop participants took the view that reframing at the business level was almost always triggered by a tension between the external and internal environments, rather than simply a desire by leaders to reconsider their position on sustainability. Consumers, regulators and competitors were all suggested as potential triggers or constraints on the company. For example, changes in regulation (such as the Finance act or the gender ratio reporting regulations) have been influential in directing managerial attention to the importance of social and environmental sustainability. Reputational problems for competitors or at a sectoral level can also drive some companies to take a pre-emptive approach to try to find ways to separate their own approach from others. As well as the regulatory drive towards transparency, the rise of social media has also led to some consumer pressure on companies – most recently in respect of their use of plastics. This has two implications: first, it suggests that corporate framing of sustainability needs to be somewhat dynamic in order to respond to the changing external environment; second, companies may need to be thoughtful in their response to consumers’ demands – one executive pointed out that sometimes these were not an appropriate response to current science. Finally, one participant commented that:

“It is often underestimated just how costly it is to reframe because so much has to change... so companies will do this very rarely unless they’re forced to. External pressure, customer pressure, financial pressure, I would have thought would do it”.

This reframing can start to drive a new sense of identity within the organisation – as one participant said, *“it helps us answer the ‘who we are’ questions”*. Identity can be a touchstone for decision-making. One participant contrasted two possible framings for an example company: a company that frames their role as ‘a supplier to big brands’ will

approach problems in a different way from one that identifies itself as ‘a company with deep expertise in sustainable manufacturing’. Decisions are informed by – and reinforce – executives’ understanding of this corporate identity. Identities are multi-dimensional and tensions between these dimensions may produce challenges for companies over time. One participant gave the example of Nordic companies, some of which have a deep cultural interest in sustainability but also operate globally, for example Carlsberg is trying to re-emphasise its Danish traditions and values while maintaining a strong international business. Framing this sense of identity gives people a strong signal about how people should make decisions. As one executive said: *“We make these decisions because we know who we are”*.

This question of identity also has important implications for decision-makers. Some groups have clashes between their professional identities and the corporate identity, which surface in decision-making, for example one participant quoted a group saying: *“We are engineers, but that is a political decision”*. Thus, the corporate framing needs to be expressed throughout the organisation and brought to life in a way that is relevant for each group. This can help people find new ways of seeing their roles, the nature of the decision at hand, and interpreting their own permission to act. As one participant said:

“The big, tricky decisions aren’t necessarily fixed by better data, systems and tools. It is more about helping people to have the confidence to make the decisions.”

Another commented:

“The reframing opens up a new space for people to explore.”

A third participant made the connection between the act of reframing and the effect:

“There’s a leadership moment, when the business reframes, but this gives permission for people to take a decision, and people can then sell in their decision based on their framing.”

Although the act of reframing is powerful, it is also deeply problematic. One participant said:

“The act of reframing is immensely powerful, but also challenging, requiring a new way of thinking”

Furthermore, it requires a very high level of organisational legitimacy. The participants agreed that this would be a suitable role for the board:

“This is a great job for a new CEO, as you need to be both close enough to the business to understand the fundamental tensions it faces, and distant enough to be able to re-think these.”

Finding new ways to see the business and so provide a credible framing requires thought and creativity - as one participant, referring to the different logical approaches to managing competing commitments, said: *“the act of reframing is a synthesis”*.

The participants see reframing not only as a way to initiate a change in the ways of seeing sustainability in the organisation, but also a phenomenon that challenges people personally.

“Reframing is likely to create a case for change, but also creates some very fundamental cognitive dissonance. We naturally feel a desire to reduce this – especially with decisions that have been made. We find ourselves saying ‘if we do it that way, then everything I’ve been doing has been wrong’.”

Reframing therefore requires a nuanced cultural understanding, in order to avoid being rejected as ‘too difficult’ before the work of introducing sustainability to decision-making starts.

Thus, the process of reframing is an important step in shaping an environment to include social and environmental considerations in decision-making. Not only can it initiate change, but it also shapes two important social processes. First, it is a visible step for leadership and so can start to re-set some elements of the organisational context. Second, it can shape people’s interpretation of decisions by influencing their attitudes and their permission-space. This means that there is at least some social mechanism by which this high-level framing can influence the decisions taken within the business. The executives therefore affirmed the findings about reframing tension from Chapter 4 and Chapter 5.

6.3 Decision properties and process

While the framing of the tension between social, environmental and economic considerations can influence the way decision-makers understand the nature of their decisions, it may also create new demands in terms of process. The workshop participants all agreed with the segmentation of decisions and recognised the four archetypes. However, they extended these ideas in two ways. First, they commented

on the situational characteristics of decisions that may affect the way in which choices are made; and second, there was an extensive discussion of a particular decision type – messy situations – and the organisational capabilities that might be required to deal with these decisions.

Although the group agreed with the classification of the four archetypes, their view as practitioners was that the clarity of the archetypes and the logical resolution of decisions (discussed above in Chapter 4.3.4) do not capture the messiness of the decision-making process. One participant who had been involved in complex decisions pointed out that during the process, people may try more than one of the logical approaches described in Chapter 4.3.2 (for example, starting with win/win business cases, and then trying other approaches until they find a solution that works). This means that synthesis approaches – which are often the most demanding for decision-makers – may well only be used when other approaches have already failed.

As well as changing the type of logical approach over time, the group made an important observation about the properties and process of decisions, which is that there is some dynamism between the four archetypes (this was also observed in the ConsultCo case). Specifically, three situational factors may change the way decision-makers may approach their decisions. First, decisions that need to be made urgently require rapid processes that may mean excluding some information – for example, as one participant said:

“One of the ways of turning a messy problem into something more technical is to ignore some stakeholders. For example, an organisation may decide that their action will annoy one group, but will allow them to solve a technical problem in order to move forward.”

The executives commented that the need for speed has partly arisen from the rise of social media, which can mean that external groups (customers, consumers or NGOs) can create an immediate need for communication about sustainability (or other) issues. Thus, decisions are under a new form of scrutiny, and this has implications for a number of important processes, such as strategy formulation. This need for immediacy is a property of the process, rather than the inter-temporality that may be a feature of the decision.

Second, some decisions that are initially one-off situations may become repeated (and repeatable) over time. Situations that start as ‘messy’ may recur. One participant gave an example of exposure to risk in infrastructure financing, which is often treated as a single decision. However, in a portfolio of recurrent decisions, there is a significant cumulative effect of these choices, and so there is a need to develop stronger processes for managing the decisions. At this point, the decisions may begin to adopt the characteristics of ‘engineering efficiency’ choices as the company develops the knowledge and methods for managing these.

Finally, there is frustration in many organisations about the information that is available for decision-making. This situation is improving in some companies, particularly in response to the need to include sustainability data in annual reports, which has brought this to the attention of the finance department. However, this is not always the data that is necessary for decision-making, and many companies are still struggling to build the information infrastructure that they need. As one participant commented:

“Some information also can’t be monetised, and this also causes problems in some decision-making as there is, in effect, no single currency to capture all the information needed.”

Because for many companies, sustainability is a relatively new area, the data is sometimes more useful to shape thinking than to demonstrate a track record, as historical data may not be available. For many organisations, developing the right information infrastructure is a long process – they need to act, create the data, and then track. This can then be used as a tool for measurement and to create transparency. Initiating a sustainability strategy can be very problematic, as the data will not necessarily be available, and activities such as measuring environmental footprints (thus creating helpful data for future decisions) happen after the fact.

Some methods for processing data for decisions – such as life-cycle analysis – can be very labour intensive, and there is some interest in how companies build the skills and resources to manage the new data needed. The group took the view that the right information is important because it helps people see things differently. This can thus change the nature of the problem companies are solving in their decision-making. For example, companies that are unaware of stakeholder needs may be treating ‘messy situations’ as ‘engineering efficiency’ problems, and causing difficulties elsewhere in the

system. However, there was also a clear view that companies need to adopt new data and methods as well as focusing on behavioural change. Unless both are in place, there is a risk that the company will not achieve any change in their decision-making – as one participant said:

“I think the balance between the efforts on method and on behavioural change is wrong.”

Because this was clearly a topic of interest, decision-making processes were the main focus of the second workshop.

In this workshop (the second of the three described in Chapter 3.3.2), the participants were invited to comment on their experience of ‘messy situations’, and comment on the capabilities that are needed to manage these. Messy situations were chosen as they are non-routine decisions in which the decision is clear, but it is complicated by the fact that there are many stakeholders (who may have different views of the problem), they are important to the business, hard to reverse, and have some uncertainty. Although the initial segmentation data was not intended to measure the frequency of any particular type of decision, messy situations were reported by a broad range of interviewees, and the workshop participants all had experience of them.

One specific problem created by messy situations is that they are usually unprecedented, and so there is not an established set of rules for managing them. A corollary of this, as one participant pointed out is that:

“Messy situations are those decisions where being right doesn’t count.”

This puts new demands on the decision-making process, requiring what one participant described as “*working out loud*” and introducing transparency and engagement in the process. Organisations that acquire this capability become effective at stakeholder management.

The workshop participants took the view that decisions arising in messy situations have more in common with other messy situations than they do with day-to-day activity. As a result, in some situations where they are likely to arise with frequency, organisations

create specialist teams to handle them: one participant gave the example of the UK Government's major project leaders. This allows them to build capabilities at scale in order to deal with the challenges arising. There is, of course a consequence to this: for example the group gave was that at IBM it became clear that participating in a 'red team' was a good path to promotion. As one participant said: *"the problem with these situations is that they're just so sexy"*. This actually creates a problem for organisations, as attention is diverted away from the day-to-day operations towards incidents that might be a crisis, and so can increase the number of potential problems as they receive more managerial attention.

One suggestion that a decision-maker made for a way to manage these messy situations without removing the problem from its 'natural owners' is to introduce a change-agent role. This means that the messy situation can be more structured, and the change agent can facilitate a process to create clarity about the decision and stakeholders. This re-defines the role of the original decision-maker as a subject-matter expert, and allows them to focus on applying their expertise and judgement to the problem while the change agent *"holds the mess"*.

These interventions depend on correctly identifying that a messy situation is actually messy and that it is not simply a technical problem. The group gave examples of when this could be a problem. For many executives, the temptation is to focus on the technical aspects of the decision and to view it as an engineering problem. One approach taken by the UK Government was to use the management information systems to identify projects that were likely to involve complex stakeholders and take a pre-emptive approach to managing these. These approaches work very well for project-based organisations. However, messy situations also arise in line jobs – for example the decision and management of a product recall for a factory. One example the group discussed was Nike's response to finding child labour in a 3rd tier supplier. Their immediate reaction was to see this as a legal problem: a contract was being broken. However, this was a technical solution to what was actually a more complex stakeholder problem. After 18 months, they finally developed a new approach to supply chain management, and have become a beacon company for this.

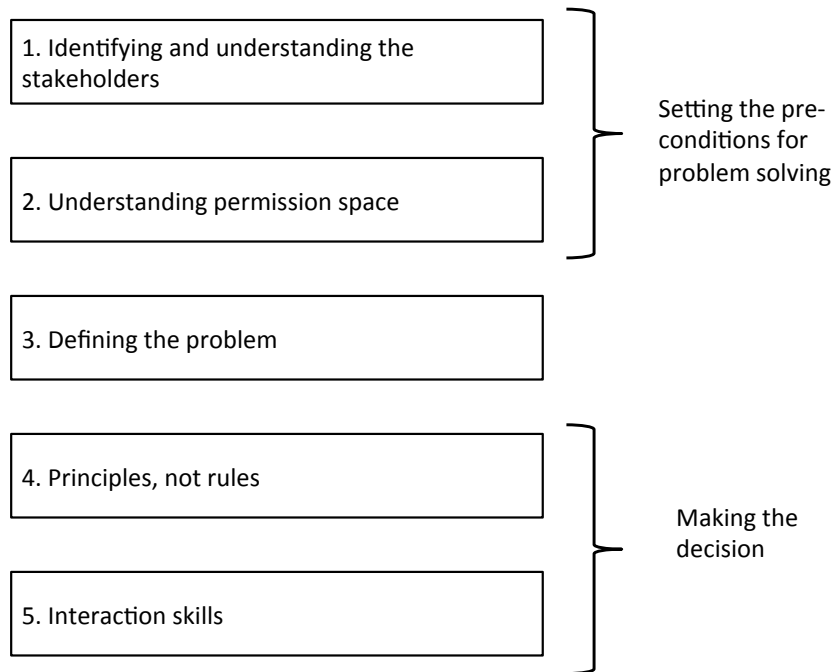
The group agreed that the key to recognising these problems is to identify them pre-emptively by understanding that there are significant stakeholders that do not see the

situation from the company's point of view. These situations may take time to crystallise as problematic decisions, but the roots may be in place early. This can be described as 'political', for example: *"we thought we had a technical problem, and it became political"* – this language is often indicative of the presence of complex stakeholders. This arises when a company has spent a lot of time developing a technical solution, but has not recognised that the community might see it in completely different terms. So in one case, the team had solved the problem on its own terms, but not in the environment in which they were operating.

The challenge with these pre-emptive approaches is that they are expensive, compared with technical problem solving. There is a real trade-off in deciding whether to allocate time to technical problem solving or to building a deep understanding of all the stakeholders – something that was identified not only by the workshop participants, but also by the interviewees at ConsultCo. This is a decision about how to approach the problem, and is not often framed deliberately as a trade-off. Different executives and different companies will vary in their habitual and contextual approaches to this balance between technical and stakeholder focus, partly depending on their approach the risk inherent in the context.

The group identified five specific capabilities that they considered to be important in managing these situations, based on their own experience. These are shown in Figure 17:

Figure 17: Five capabilities needed for making decisions in 'messy situations'



Identifying and understanding the stakeholders

One participant pointed out that problems arise when groups spend a lot of time denying who the stakeholders are (eg. *"it's just not relevant for that group"*). There is a real skill in defining the full set of stakeholders and their relative influence in the decision, and then in understanding their point of view. This understanding in turn shapes the understanding of both the permission space and the ways of interpreting the problem. It is therefore a key part of the decision-making, but is also not without cost, so decision-makers need to be able to judge how much effort is commensurate with the complexity of the situation and the importance of the stakeholders.

Understanding permission space.

Executives need a very clear understanding of the permission space, which may be re-shaped depending on the constellation of stakeholders. Some of this is cultural, and so organisations may need to reconsider their risk tolerance. The group discussed the case of the very slow change in the cement industry, in which executives have taken the view that: *“we don’t do radical – it’s not in our permission set”*, leading to collective inertia. This framing also led to the slow pace of change in the Nike case: for the first 18 months, their view was that the problem lay between their 2nd and 3rd tier suppliers. It was only when they extended their own understanding of their remit by reviewing their stakeholders and permission that they actively engaged with the problem.

Defining the problem.

Understanding the stakeholders and permission space lets executives start to discuss what a good decision would look like in this context. This is challenging as stakeholders may have very different ideas of an effective outcome. Companies may find it difficult to make decisions that raise issues of co-ordination or governance. As one participant observed:

“It may be easier to make a business case for new equipment than to convene a group of people to agree to change their behaviour”.

One way to manage this is to take a phased approach to problem solving – for example taking smaller and less controversial decisions first. This may help manage the problems caused by the irrevocability of some decisions.

Principles, not rules

Messy situations may exist outside the scope of the normal system of rules within an organisation, and therefore create stresses on rule-based system. By working with principles, rather than rules, it is possible to address these in a new way. While this is happening in some cases, it is by no means ubiquitous.

One important aspect of principles-based decisions is the legitimacy of the principles. If these can be agreed with stakeholders early in the process, and do not appear to be

developed in response to crisis, they can be very helpful. However, there needs to be integrity both in the principles and in their use. Principles-based approaches may work well with 'working out loud', but this often creates a requirement for new interaction and personal skills.

Interaction Skills

The group identified several skills that are important in working in this way. In an environment where 'being right is not the point', executives require very different personal qualities and ways of working. The four skills that the group discussed were:

1. The confidence to work out loud. In order to introduce transparency to the process, and enable healthy debate, executives need to 'work out loud'. This is not a typical *modus operandi*, and requires confidence and an ability to be wrong in public.
2. Managing healthy conflict as a source of creativity. Some organisations (and some teams) are able to manage conflict effectively to resolve issues rather than personalising issues.
3. A healthy approach to failure. A consequence of 'working out loud' and healthy conflict is that some positions people will adopt during the decision process will not prevail, and might be 'failures'. Companies that have adopted a higher tolerance of the risk of failure find that this helps them to make progress faster, and potentially to be more innovative.
4. Tenacity and personal energy. All of this requires tenacity, and sufficient personal energy to invest in the process for the long term. The group's view is that this is a teachable skill, and also one that can be supported through the organisation.

These skills need to be supported through the social aspects of the organisation (leadership, culture). Peer mentoring has been introduced in the UK Civil Service to create permanent action learning sets and help leaders who are working on developing the skills for managing messy situations.

These capabilities are, of course, shaped by the broader organisational environment and by the decision-makers themselves. These were recurrent themes during all three of the workshops.

6.4 Organisational influences on change

During the workshops, the participants reviewed the framework describing the organisational influences on decision-makers (Figure 8). While this was originally developed as a static, descriptive framework in response to Research Question 1 (How do the formal, behavioural and social structures of an organisation interact to influence the inclusion of sustainability criteria in incumbent businesses?), the workshop participants were also interested in the way it could be used to drive change in an organisation, addressing Research Question 2: 'What are the points of intervention to influence these systems?'

Ultimately, decisions are made by individuals (sometimes acting in groups), and it is clear from the discussion that the context – the sector, external pressures (from customers, suppliers or others), the organisation's identity and governance structure all create pressures that direct and shape their choices. Therefore, much of the discussion was about the ways in which companies can influence this system to drive individual behaviour change.

6.4.1 Individual attributes and behaviour

Chapter 4.5 describes the three attributes of individual decision-makers that shape their decision-making: their knowledge; attitudes and biases; and permission space. These three are interconnected: a decision-makers' attitudes and biases will shape the way they interpret the knowledge available to them; their permission space will shape the set of actions that they perceive as available. These are effectively the boundaries on rational decision-making that arise in this research. To change the behaviour of decision-makers, organisations therefore need to shape their access to knowledge and information; the way they interpret it; and their permission space.

Although many of the organisations involved in this research use training programmes as a way of building knowledge among individual decision-makers, this is usually part of a broader organisational system of stocks and flows of knowledge. The discussion about individual behaviour change focused more on influencing attitudes and permission space.

Influencing attitudes

The group was interested in the ways in which the personal history and professional identity of decision-makers shapes their attitudes and biases, skills and capabilities. In particular, they were interested in how to shape this to build effective decision-makers and in the role of different functions. They made two particular observations about the connection between the organisation and the individual: first, the nature of the workforce; and second the importance of professional affiliation.

One executive pointed out that different companies have different workforce profiles. Low levels of employee turnover can create cultural stability, which can be very effective for maintaining good practices, but is also difficult to change. One company in the research was taking advantage of a particular phase in its history as a generation of managers were retiring and being replaced. Others were finding ways to create experiences that would build commitment among decision-makers (for example being put in a position where they would need to speak publically about sustainability). This suggests that managers attempting to intervene in the organisation's decision-making can identify particular times or particular people to be a focus for intervention and change.

Several workshop participants suggested that another area that impacts decision-making is people's professional discipline. This was first tested experimentally in 1958 (Dearborn & Simon 1958). The group pointed out that finance professionals have very well established protocols (for example about reporting) which can be difficult to change. The reframing of sustainability as a problem of risk can be a helpful way of engaging financiers, but does not address the opportunities or solutions presented by acting more sustainably. HR people may approach the question from an entirely different angle, for example considering the way in which sustainability can be built into an employee value proposition. Marketers will engage from a customer point of view.

The group were interested in the way in which different professional functions can be engaged constructively in decision-making.

Permission Space

The workshop participants were interested in permission as an interpreted space: the way in which executives feel empowered to think creatively about solving a particular problem. Based on the discussion, the group saw the potential of new information and reframing as ways to help executives interpret their permission-space, but also see it as an area which has been under-explored. They observed that decision-making requires knowledge not only of the subject matter, but also of the degree of informal permission available. One participant observed that:

“Senior people tend to know quite well what their permission might be and how to negotiate it.”

One factor shaping permission space is the decision-makers’ understanding of the expectations of other people (which may be different from the people’s actual expectations). For example, Boards will tend to assume that shareholders are looking for financial results. This will shape the assumed decision-space. One participant reported on work they had done by looking back at earlier decisions, and observed that problems often arise from a misplaced understanding of expectations, and thus an incorrect interpretation of the permission space for a decision. This can be improved by inviting people to talk more openly about the nature of the permission space for a complex decision, and being prepared to be explicit about it.

There are barriers to permission. Sometimes these can be individual leaders who are reluctant to delegate or corporate cultures or regulatory environments that are focused on maintaining a certain status quo, which limits the degrees of freedom available to decision-makers. Similarly, some cultures are more effective at pushing people outside their comfort zones and encouraging them to take a broader permission space.

Professional roles can also limit permission-space, for example finance professionals who see their role as creating shareholder value will interpret their range of options differently from those who see their role as enabling the responsible use of resources. Finally, some industry standards (eg. BREEAM), while well intended, create a tick-box

mentality which can lead people to do things which are less effective. While standards give people the reassurance of having done ‘the right thing’: there is the risk that this gives a false sense of confidence.

One manager pointed out that because different people interpret their roles in different ways, change agents need to take quite a tailored approach to identifying the leaders who are making decisions and influencing them – often by showing them good examples of people using their permission space effectively. This involves not only building the decision-making processes, tools and ways of doing things, but also a deep understanding of the decision-makers themselves. Permission space is thus a malleable, negotiated area that can be shaped by the broader organisation to encourage (or discourage) the inclusion of social and environmental considerations in decision-making.

Both of these points start to suggest that interventions in companies can be quite nuanced and require a targeted approach to particular audiences for behaviour change. This potentially adds considerable complexity to change programmes, and thus suggests that companies need to conduct a careful diagnosis to identify the decision makers whose work drives the most material social and environmental impacts.

6.4.2 Organisational factors

The four organisational factors identified in Chapter 4.4 are: leadership, culture, organisation design, and performance management. As the discussion of permission space above shows, these do influence individual behaviour. However, the organisation is not only the environment for decision-making, it also provides the conditions for change.

Given the workshop participants’ focus on the social structures of organisations – their leadership and culture – it is not surprising that they saw these as a very important mechanism for changing decision-making. Leadership in particular was described as a critical way of shaping the interpretation of sustainability, and directing attention to it. The initial step of reframing sustainability was clearly seen by the group as a critical act

of leadership. In order to do this, some companies were working to influence their leaders. As one participant said:

“We work with the new young leaders and try to understand them to influence change. They are all known for different ways to make change happen, so everyone needs to make it happen in a different way – and this gives the examples.”

However, while everyone agreed that leadership was critical for change, the interdisciplinary nature of sustainability meant that many of the participants saw the problem as ‘too big’ for an individual leader, and requiring a much broader organisational consensus to shift.

Leaders influence, and are influenced by, the culture of their organisations. The organisational culture tends to set norms, particularly about interaction – one participant gave the example of confidence in handling conflict. Thus, in order to build the capabilities that the group described for managing some decisions, there may need to be some cultural changes. Culture is also influential in shaping permission space. The group therefore saw the ability to understand a culture as a critical prerequisite to manage change, and observed that some of the change methods that have been effective in some contexts would be problematic in others:

“Pushing people out of their comfort zone [described as a process for change] is very specifically cultural”

“There are cultures – including sub-cultures within companies – that want to preserve the status quo, so there is a time and a place for change”

However, cultures are at least partly malleable and can be shaped. One participant gave an example of how their organisation had changed its attitude towards failure to encourage higher levels of innovation and learning. As one person commented *“a key skill is tenacity”*, and this is both teachable and culturally supportable.

Organisation design was not described as a direct enabler of sustainability by any of the workshop participants. Rather, they reinforced findings from the interviews that there were some structural tensions in their organisations. As one participant commented:

“There are people barriers, there are process barriers”.

Some level of conflict seems to be inevitable when the different tensions in a decision are held at different places in the organisation (for example when procurement, engineering and finance have different objectives), and so these can only be resolved at a senior level, or by creating cross-cutting networks. Many of the workshop participants had experience of creating networks to mobilise people within companies and across companies. These networks need to operate within the existing structures and systems, to augment them by creating linkages. These then become conduits for knowledge and for influencing behaviour change.

The formal systems – organisation design and performance management – have a role in the transfer and sharing of knowledge, and in embedding the change. They can also provide support for some of the cultural and leadership interventions, for example the structural support for formal mentorship schemes, or developing performance systems that do not punish certain types of failure. The combined effect of changing formal systems is to ratchet the change as it is harder to undo the embedded changes. One executive commented on the way that the company had managed a multi-year programme to embed sustainability in the business:

“It was like a rugby line. We’d move forward, then reinforce, and then try to move forward again.”

Although performance management was emphasised by some of the interviewees (see Section 4.4.4) it was seen only as a way of directing attention and reinforcing social norms – even in companies that are quite target-driven.

One of the participants who had been deeply involved in managing sustainability-related change in their organisation concluded that effective change required working with formal and social elements of the organisation simultaneously:

“You have to play all of these things at the same time, because we have processes, we have tools, we have ways to make decisions, and then we have ways to invest in people.”

6.4.3 The critical role of knowledge and learning

Although knowledge appears in the framework of influences as an individual factor (see Section 4.5.1), the discussion in the workshop developed this idea further, showing how knowledge at both the individual and organisational level also has a critical role in changing the way decisions are made. As one participant said:

“How can we use data to open someone’s mind, or to see a different perspective, or to understand the system better?”

Although this is powerful, there is a cost to developing this type of knowledge, particularly for companies that are leading in their industries. As one workshop participant observed: *“If you are a sustainability pioneer, there is a learning cost”*. In some sectors, the cost of this extra knowledge seems to have inhibited individual companies changing. The group took the view that organisations learn how to acquire and support these skills, but often as a result of a bad experience (examples given: Nike, Brent Spar). This may inspire other companies to learn the skills pre-emptively, as part of building a strategy of resilience in the face of change.

Not only do companies need to change the way they manage knowledge, they also need knowledge to manage the change. Effective monitoring of the change process will create a feedback loop. As one executive said: *“If there isn’t a feedback loop... then there is no process for evolution”*. This is the process by which the knowledge may be translated into organisational learning. Thus, knowledge has multiple roles in shaping the way organisations adapt to include sustainability considerations in their decision-making. This suggests that knowledge has a dual role in the framework, as both an individual factor and as an organisational factor.

6.4.4 Influences beyond the boundaries of the organisation.

As well as extending the framework to encompass a dual role for organisational and individual knowledge, the workshop participants also explored the role of the environment beyond the boundaries of the organisation as a driver of change.

One feature of the ConsultCo case is that ultimately, collaboration beyond the boundaries of the organisation was necessary to start to effect the system changes that could solve ConsultCo's problems. This theme arose in the workshops. Several companies had been involved in external networks as part of their drive towards sustainability. These external networks took two specific forms: first, groups of peer-like organisations working on specific issues; second, companies working with their supply chains or suppliers working with their customers to improve sustainability in the production system.

Many of the participants in the workshops had been involved with issue-focused industry networks. There were two main reasons for this. First, the costs of the organisational learning for sustainability seem to be high (although they are also difficult to quantify as they are not held at a single point in the organisation). This means that for many companies, there may be a first mover disadvantage. The group discussed the example of the cement industry, where there are known opportunities for improvement in energy efficiency, but no individual company is taking leadership. Companies temper 'first mover advantage' with considerable risk aversion, and so some changes move at a sectoral level. One participant commented:

"It's actually easier if the whole sector moves, even if you lose first mover advantage"

This is comparable with changes in health and safety, in which companies often move in parallel.

Second, there are advantages of sharing voice and resources to effect change. One participant gave an example from an industry where a major player had been facing a series of financial and reputational problems, and '*they went underground on sustainability*' in order to regroup, but other industry players took over the lead in a series of industry-level initiatives (such as working to reduce deforestation in the supply chain). This allows the major players in the sector to share resources to drive change. As the executive involved said:

'We've done our bit, they can do their bit... then, between us all within 20 years we'll keep that energy up and keep that leadership'.

The group observed that this approach of convening within and across industries is being used to tackle a range of problems, from the reduction of plastics in the food supply chain to Ellen MacArthur's approach to convening groups of companies to solve problems in the circular economy.

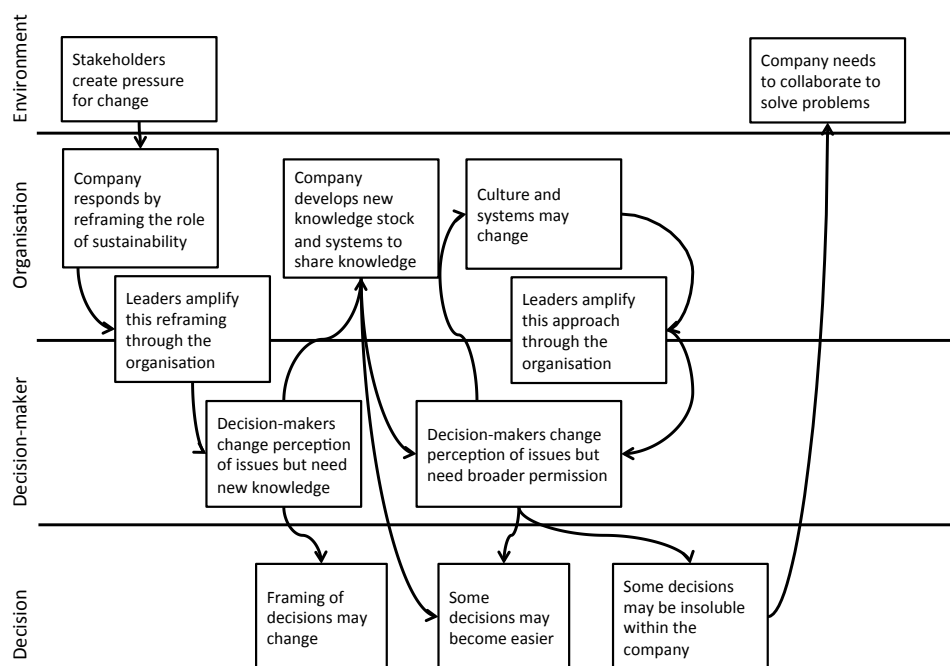
As well as sectoral level networks, the group discussed the role of supply chains in influencing companies to act sustainably. The relative power of businesses at different points in a supply chain may be an important determinant of the way they can take decisions. Group members gave examples of suppliers wanting to drive change, but this alters traditional relationships, and some companies act conservatively in order to avoid destabilising a relationship with an important customer. We discussed an example from the apparel industry, where manufacturing margins are very tight but at the same time some manufacturers would like to take an active leadership role in introducing sustainable manufacturing to the brands they serve – for example by setting standards, KPIs, and reducing audits. The problem this presents is that it is only possible to lead a customer in a direction that is interesting for them: again, this is an example of a tension between the internal and external contexts.

This is further complicated in industries where peer companies become suppliers (for example, the pharmaceutical industry). These different approaches to working and decision-making are highlighted when a company works as a supplier in one context and a controlling company in another. There are real differences in activities such as collecting sustainability in different relational set-ups, as one participant said *"It's as though the left hand and the right hand are not talking at all"*. This suggests that managing effective external collaboration for sustainability also requires high levels of internal co-ordination.

6.4.5 Implications for change

This discussion points towards the phenomenon of nested tensions described in the ConsultCo case (Chapter 5.7). Figure 18 shows a very simplified version of the ways in which actions in the different organisational layers can create pressure for change over time:

Figure 18: Organisational dynamics shaping decisions over time



There are two feedback loops in this model. First, as the company develops new knowledge, some decisions become easier – the results of these decisions may then feed back into the knowledge stocks. Second, as decision makers' changing perceptions of the issues influence social (and sometimes formal) system changes, which reinforce the new understanding of issues.

This suggests that there are two layers of learning loops involved in starting to introduce sustainability criteria to decision-making. First, there is a cycle of learning between the decision-maker and the organisation – this is often managed through behavioural change efforts and organisational shifts (such as the introduction of sustainability networks to share knowledge). Second, and not shown in Figure 18, there

is a cycle of learning between the organisation and the external environment, as the company tests and senses the impact of decisions on external stakeholders. Thus, the process of behavioural change is nested within a broader context of systemic change.

6.5 Nested change and the whack-a-mole approach

The finding from this discussion about the organisation and change, which extends the findings from Studies 1 and 2 is that the organisational systems that are usually used to drive behavioural change are nested within a broader process of systemic change, that is shaped by the decision-making within companies. Many of the interventions that are made as part of a traditional change programme to introduce sustainability to companies address one of these levels (the behavioural or the systemic), but not both. To explore the relationship between these two levels of change, I dedicated the whole agenda of the third workshop to a discussion of the ConsultCo case, in which both types of change are evident. The discussion explored three main themes: first, the features of the ConsultCo case (to see if the ideas could be applicable in other contexts); second, the properties of 'whack-a-mole' change; and third the nature of nested change.

6.5.1 Conditions of this case

The executives identified four features of this case that make it a helpful analogy for other industries, and so suggest that some of the findings may be generalizable. These were:

1. Inconsistent customer behaviour. While the clients are interested in sustainability, they are actually contracting based on time and efficiency. This phenomenon is similar to consumer behaviour in other industries, where consumers want sustainable products, but don't want to change their habits of consumption. There is a question about how far the company's client engagement process can go in changing this behaviour (for example: in competitive bids, the bids are evaluated using the same criteria, and so everyone needs to bid in the same way).
2. Challenges of incumbency. Whereas a start-up, or niche player can potentially offer a new way of working, the incumbents are too large to simply change the

rules unilaterally – it creates too much risk. One possibility that the group suggested was the idea of having multiple business models (eg. An internal start-up) in order to try out new ways of working.

3. The ability to make some changes also depends on the locus in the supply chain. In this case, the engineering consultants are part of a very complex group of organisations (clients, consultants, builders, communities...) involved in the development and delivery of large infrastructure projects. There are some changes that cannot be made unilaterally as they require the rest of the group to shift. This occurs in other industries: for example, buyer power is concentrated in some retail contexts, and so companies trying to offer sustainable products might not have sufficient power to influence supplier behaviour.
4. There is a cost associated with being a pioneer in sustainability, as systems may need to be set up from scratch. In ConsultCo's case, this is the investment in new knowledge, including both databases and the processes and networks for improved knowledge exchange. In other companies, these systems are expected to include a combination of business systems (such as changing the supply chain) and the costs of learning.

The participants in the workshop were all recruited from organisations that had some or all of these features. This meant that they were able to relate the ConsultCo experience to their own experience, and their commentary is based on this.

6.5.2 The whack-a-mole metaphor

In chapter 5.7, I introduced the metaphor of the game 'whack-a-mole' to describe the problems ConsultCo faced in managing its change programme. There are three main principles underpinning this metaphor:

1. As one problem is solved, a second (and sometimes more) becomes apparent.
2. Each problem is a symptom of an underlying systemic problem (there is actually a machine under the whack-a-mole game).

3. This systemic problem is not soluble using the same methods that are used for the presenting problems.

While the metaphor is a new one, the executives in the workshop recognised the phenomenon from their own experiences of introducing change in systems that had similar characteristics to the ConsultCo situation. The group identified four specific problems presented by this type of change.

Solving the wrong problem.

One problem that the 'whack-a-mole' situation presents is that it is possible for people to misdiagnose the systemic problem. One participant gave the example of the current high level of public pressure to reduce plastics from their business. This is distracting attention from more pressing problems – particularly de-carbonisation. This gives the managers a problem of competing commitments: while they are deeply committed to meeting the demands of customers, sometimes these demands are at odds with their commitment to acting based on scientific priorities (for example their most material impacts). Given that there is limited resource in a company for managing these problems, the decision of what to prioritise is managed as a trade-off.

This raised a question for broader discussion, which is whether it is actually possible to see the systemic problem at all before going through the process of addressing the presenting problems. The group took the view that 'whack-a-mole' situations create opportunities for organisational learning for two main reasons. First, many organisations (and people) are relatively inexperienced with sustainability, and so tackling the presenting problems is a way of learning about the system and the sustainability issues. Second, because system problems are so challenging, people either avoid these or are reluctant to believe that they are a priority: for example, grid decarbonisation will help address a range of sustainability problems, but requires policy change and will radically disrupt several industries. As one participant said:

"People get to a point where they are saying 'Someone [else] needs to do something differently', which suggests a need for a broader change."

One of the workshop participants observed that the idea of learning is a part of the whack-a-mole metaphor:

“If you have played whack-a-mole, you know that the system will continue to present problems, but if you are new to it, you need to actually play the game for a while before you understand how it works.”

This suggests that this type of change calls for an experienced cadre of leaders and strong organisational learning processes. This led the group to consider the second challenge they identified for this type of change.

Delegating change to the wrong people.

One problem is that often the people put in charge of these changes are people who are ‘good at hitting moles’ rather than people who are able to understand and address the broader systemic issues. As one person said:

“If you have a whack-a-mole problem in sustainability, you probably haven’t understood sustainability.”

Often, sustainability is encouraged in companies through informal networks, which can be effective in identifying and challenging problems, but may not have the resources or authority to address fundamental problems. One executive gave an example of the problem of bringing in new recruits to sustainability:

“They say ‘of course we can recycle things, we just need to work harder’.... And that’s what’s happening in carbon and climate change at the moment, where you’ve got businesses thinking ‘we can solve it, that’s OK’. But you need grid decarbonisation and new regulation for that... rather than just tinkering around with a little bit of innovation and thinking we can solve it.”

Very senior coalitions may be effective in driving change, as they are potentially positioned to make or influence system level interventions.

Change management process

These problems of staffing and tackling the wrong problem led the group to suggest that the challenge companies face is one of specification: of identifying the point at the system to intervene, the resources needed to do this, and the feedback loops to help monitor progress. However, problems are generally specified in terms of current norms, which tend to be effective for specifying an approach to a presenting problem, rather than a deeper systemic problem.

Effective organisational learning is a critical part of the type of change process that is described in Figure 18, above. This means that the organisations undertaking this type of change need two quite different forms of new knowledge. First, they need to introduce new stocks and flows of knowledge to help decision-makers make better-informed decisions. This may involve not only improving data and sharing in the business, but also improving the sensing of the external world – for example, through clearer identification and understanding of stakeholders. Second, they need an effective process for learning about the change itself. As one of the workshop participants said:

“If moles are the way we learn about the system, then perhaps my job is to set a lot of moles running so that we can accelerate the process.”

This is a relatively sophisticated form of double-loop learning (Argyris 1976), requiring a high level of reflection by the managers of the change, effectively forming a layer of activity (or cost) that needs to be designed into the programme.

Governance

The group suggested that ultimately the ‘whack-a-mole’ problems surface issues of governance. Resolving these requires different structures either within or beyond the organisation. These problems may be so difficult that it is people will prefer to keep dealing with symptomatic ‘moles’ rather than address the underlying challenges.

There are two aspects to this. First, the de-centralisation and complexity of many large organisations creates problems of governance. The recent scandal at Volkswagen is a good example of this (Elson et al. 2015). However, creating the control systems that can manage this problem and are flexible enough to respond to a dynamic problem of sustainability creates new problems of organisation design. Much of the work to date – both by academics and practitioners – has focused on developing social, rather than formal approaches to change and it may be that this is a new field for development. Second, the workshop participants took the view that these may need to be collaborations at the sector level, rather than the business level. This also raises problems of governance, as the oversight of these change processes needs to be shared between several groups, or delegated to a co-ordinating organisation.

6.5.3 Nestedness

Just as the choices made by individual decision-makers are nested within the context of a business, the businesses themselves are not isolated from the broader societal context. Although the unit of analysis for this research is a single business, we can observe some of the same problems emerging at a societal level. For example, the current public focus on plastic is an example of a symptomatic problem, which is not necessarily addressing the deeper systemic issues. This nestedness means that companies will not be able to solve the complete problems without referral to the broader system. As one participant said:

“Whatever problem we’ve tried to solve, eventually, we’ve hit a limit.”

The multi-dimensional nature of sustainability that causes tensions and trade-offs in companies is also visible at a societal level, for example in city government, where resources and energy are limited. Solving these problems requires governments with a willingness to collaborate and an understanding of the underlying systems.

Despite some real progress by some companies, no company can fully claim to be sustainable, because everyone has to engage with some part of a system that is not: for example, almost every company requires some access to power generation that is not entirely renewable. This means that all companies will need to learn how to manage

these ‘whack-a-mole’ processes in order to achieve the change needed. This requires improved approaches to learning, effective external collaboration, and a determination to direct resources to the management of difficult, systemic problems.

6.6 Conclusions

Study 3 has reaffirmed several of the earlier findings of this study and formed connections between the findings in the first two studies. Specifically:

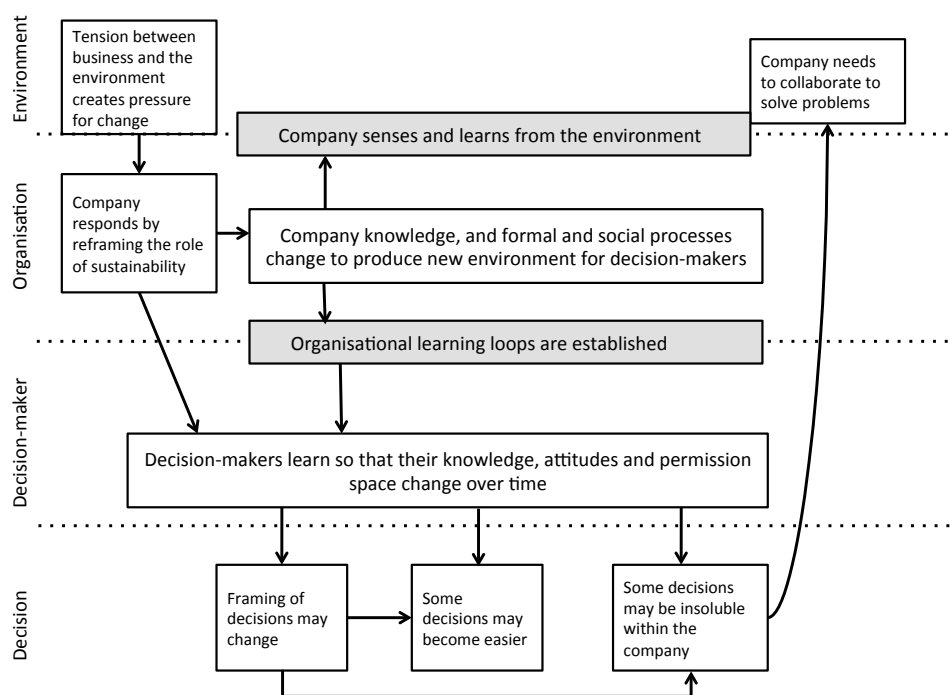
1. The discussions confirmed both the importance and the difficulty of the reframing process in setting a direction for companies to adopt social and environmental sustainability in their decision-making.
2. The discussions confirmed that the archetypes of decisions are recognisable, but they can be dynamic. That is to say, decisions that have the characteristics of one archetype can be treated with approaches that are suited to another archetype. This is typically to simplify and accelerate decision-making, but may lead to unintended consequences (for example, a failure to manage stakeholders well if a ‘messy situation’ is treated like an engineering problem, or a failure to improve efficiency if an engineering problem is treated as a routine decision).
3. The workshop participants broadly agreed with the structure of the framework of organisational influences on decision-makers, but expanded this by showing not only how this can describe the factors that influence decision-making, but also how these can be engaged in change processes. In particular, the participants emphasised: the significance of the social aspects of the model (leadership and culture) in influencing decision-makers; the ratcheting effect that changing the organisation can have on embedding change; and the importance of knowledge transfer and learning at both an organisational and individual level.
4. Knowledge and learning have an important role in shaping the dynamics of the system over time, and require particular organisational capabilities.
5. The connection between the organisation and the external environment is an ongoing one, and does not simply stop after the initial tension between the business and its social and environmental operating context has been re-framed. This connection can either be used as a source of information and learning to improve decision-making (for example by bringing knowledge about

stakeholders into the business), or can be a process of engagement and collaboration with other organisations to drive system-level change. This is an expansion of the original, static model.

6. The type of change required to embed social and environmental considerations into business decision-making is thus complex. It requires multiple, sometimes experimental, points of intervention (including several formal and social organisational systems). It needs to incorporate learning loops both between the individual decision-maker and the organisation, and between the organisation and the environment. And finally, it may eventually require system-level change, which can only be achieved by action beyond the boundaries of the organisation.

Figure 19 shows how these different ideas are related to each other, to show a process of influence and change. The two sets of learning loops are shown in grey boxes.

Figure 19: Learning loops for nested change



Here, we see that while the process of changing approaches to decision-making is initiated by a reframing of the tension between the external context and the company's approach to value creation, this is followed by a series of iterative changes as the organisation learns first from the effect of its internal processes on the decisions people

make, and second from the broader external environment. There is also a feedback loop between these two levels: some of the decisions made by the company will in turn change the external environment, and some can only be resolved in collaboration beyond the boundaries of the organisation.

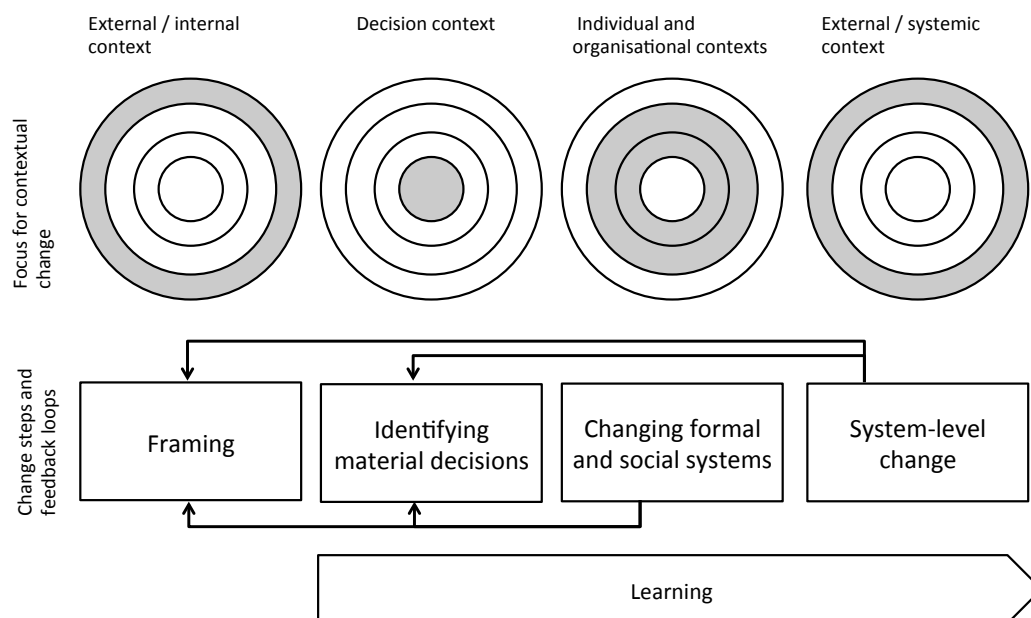
This diagram suggests that there are five critical points of intervention to influence systems. First, companies need to create a framing of the relationship between their business, society and the environment, and they need to ensure that this can be interpreted throughout the organisation (Zollo et al. 2013). Second, they need to identify the decisions that have the most material social and environmental impacts (Epstein & Widener 2011), and assess the need to change – for example, the work that needs to be done to re-think heuristics in a context where the major impacts are largely incurred through routine operations will be very different from the work that needs to be done in a business where there are a smaller number of messy situations requiring a particular set of skills in a leadership team. Third, they need to ensure that the people making these decisions have access to tacit and explicit knowledge (Fortis et al. 2018) and the permission space to be able to bring social and environmental considerations into their decisions. This is achieved through a range of social and formal organisational processes, which depend on the organisational context. Fourth, the organisation needs to enable a series of reflexive learning processes: for individual decision-makers; for the organisational change; and to bring in ideas from the external environment (Raisch et al. 2018; Fortis et al. 2018). These become the engine of the change programme. Finally, the organisation needs to be prepared to co-operate externally to work on system-level issues when they reach a point where the problem cannot be solved within the boundaries of the firm (Schad & Bansal 2018).

These five ‘foundational’ approaches to change form the supporting framework for change in the formal, behavioural and social aspects of the organisation described in Chapter 4. I therefore propose a theoretical distinction between ‘foundational’ and ‘contextual’ interventions, in which the contextual interventions are those changes that the organisation makes to its formal and social structures (described in Chapter 4), and the foundational interventions are the more fundamental processes driving the change. This model brings together concepts from across the fragmented literature described in Chapter 2 to create an integrative view of the system influencing decision-makers, and

the points of intervention that are needed for change. The relationships between these are shown in Figure 20.

Figure 20 shows a simplified model of the contextual layers framework (from Figures 1, 8, 9 and 10) in which the contexts that are the main focus of change at each stage are highlighted in grey. Beneath that, I show the five foundational changes described above, with the feedback loops shown in a very simplified as arrows. The 'learning' box is shown supporting the changes – again, this is an interactive process (the interactions are omitted from the diagram for simplicity).

Figure 20: Foundational and contextual change



Thus, the processes of 'zooming in' and 'zooming out' - identified by Nicolini (2009) and Schad and Bansal (2018) as the work of researchers – are also important activities for practitioners of change as they work through the different contextual layers of the organisation in parallel with the foundational change steps, reinforced by learning and feedback loops.

7: CONCLUSIONS

7.1 Answering the Research Questions

My aim in this study was to understand how businesses can adapt their decision-making systems to incorporate social and environmental considerations by answering two research questions:

Q1: How do the formal, behavioural and social structures of an organisation interact to influence the inclusion of sustainability criteria in decision-making in incumbent businesses?

Q2: What are the points of intervention to influence these systems?

I find that the formal, behavioural and social structures of companies are complex and dynamic, and that they are configured to respond to the particular circumstances of the business. The 107 factors identified from the literature review (described in Chapter 2 and listed in Appendix 1) appear in different combinations in different organisations. Nevertheless, they can be generalised into a descriptive model building on the work of Dean et al (1991). This is developed in Chapter 4 and illustrated in Chapter 5. Behavioural structures (or cognitive frames) are influenced by the organisational framing (and reframing) of sustainability, but this is then reinforced through social processes (leadership and culture) and formal structures, particularly those that are responsible for the accumulation and transmission of knowledge.

Intervening in this structure is difficult, and the points of intervention for companies reflect both the most material and paradoxical issues that they face, and the types of decision that predominate in their organisation. Changes present consequences, and so the points of intervention change and mature over time. Nevertheless, based on my initial findings from Chapters 5 and 6, I find an important distinction between the foundational practices needed to 'zoom in' and 'zoom out' to drive system change, and the contextual changes that a particular company needs to make to its formal, behavioural and social structures in order to bring sustainability considerations into decision-making. While several of these steps have already been identified in the literature, this synoptic view –illustrated in Figure 20 – is novel.

7.2 Limitations of the research

This work is, of course, not without limitations. There are two particular constraints on this work. First, each of the qualitative methods I have adopted has some limitations, which I describe in detail in Chapter 3.4. Although I took steps to mitigate these methodological and sampling limitations, the findings of the research are still interpretations by a single researcher of data that was provided in a specific interview or focus group setting. This therefore raises questions about the generalizability of the findings. Here, I take the approach of Gioia et al (2013), and depart from the purely interpretivist view that every situation is specific (and thus, not generalizable). This study does propose some new principles (described in the contributions to knowledge section, below) that may form the basis for generalizable knowledge and set a direction for future research.

The second limitation of this study arises from its breadth. One of the problems identified in the review of the literature in Chapter 2 is that the scope of many previous studies has been narrow. This has led to a fragmented literature, which has limited the basis for theory development (Shepherd & Rudd 2014; Shepherd & Suddaby 2017) and has also led to a focus on tools or analytical methods, rather than organisational interventions to support practitioners. However, in order to avoid these problems, the study itself is wide-ranging, encompassing a very wide range of decisions (described in Chapter 4.2) and organisational elements (described in Chapter 2.7). This means that there are findings that could be tested and developed in greater detail – again, this provides a direction for future research.

7.3 Contributions to Knowledge

Despite these limitations, this study advances knowledge in two fields: our broad understanding of decisions; and paradox theory.

7.3.1 Contributions to the study of decision-making

This study makes two distinct contributions to the study of decision-making. First, the classification of sustainability-related decisions into four distinct types (described in

Chapter 4.2) is novel. By showing that decisions have different properties, this allows us to contextualise the fragmented literature: we can see that the literature on stakeholders (for example) addresses different types of decisions from the literature on analytical methods. Because I find that different types of decision co-exist in companies, and that the mix of decision types changes over time, I argue that the ‘single lens’ approach to decision-making that we find in the literature means that we do not have a clear basis for theorising about the full set of situations in which companies have to respond to social and environmental factors. Bringing together three strands of sustainability-related literature (the analytical, cognitive and organisational perspectives), this framework offers a basis for further theorising about the means by which companies can bring social and environmental thinking into their business systems.

Second, this research highlights the complex relationship between the executive and the organisational environment initially set out by Herbert Simon (1945). This study develops the contextual framework proposed by Dean et al (1991) in two ways. First, it identifies the specific characteristics of each of the four layers of the framework (described in Chapter 4.4) and then it explores the connections between these layers (in Chapter 6). By doing this, I bring empirical evidence and detail to a discussion that has been fragmented and conceptual, and so create a basis for further theoretical development (Shepherd & Rudd 2014) specifically in the context of decision-making related to sustainability.

7.3.2 Contributions to Paradox theory

Several authors have proposed paradox theory as a lens to examine the many tensions that arise in the context of corporate sustainability (Hahn et al. 2017). This study contributes to that growing body of scholarship in three specific ways.

First, I propose six possible logical approaches to managing competing demands in decision-making. My analysis suggests that many people use a repertoire of approaches, and that this is not simply driven by the presence or absence of a ‘paradox mindset’ (Hahn et al. 2014; Miron-Spektor et al. 2017), but is also influenced by the properties of the decision itself and the organisational influences on the decision-maker. This is potentially an important shift in the literature as it suggests that, rather than focusing

exclusively on individual cognition, organisations can create a system that leads to better inclusion of social and environmental criteria in decision-making. It therefore suggests that interventions for change can be built into the organisation, rather than focusing on the individual.

Second, the data suggest that this choice of logics is influenced by the corporate-level framing of the tension faced by the business between social, environmental and economic outcomes over the long and short term. This adds evidence to two concepts: first, the idea that paradoxes are nested within organisations (Sheep et al. 2017) and that tensions occur and reinforce each other at multiple levels; and second, the idea that a change in the organisation's dominant logic can precipitate a dynamic process of change (Jay 2013). This also provides evidence for practitioners: change processes need to include this step of reframing the relationship between the company, society and the environment in order to influence the behaviour of decision-makers.

Third, I demonstrate how this process of change can work through the organisation. The 'whack-a-mole' view of change builds on Schad and Bansal's (2018) proposal that to resolve tensions in a system, people need to 'zoom in' to understand the micro-level tensions, and then 'zoom out' to address the problem at a system level. It does this in two ways: first, the case study in Chapter 5 gives empirical evidence that this happens; second, my analysis of this evidence proposes that this process is augmented with a process of organisational learning, similar to that described by Raisch et al (2018). The combination of these three contributions to paradox theory sets a new frame for companies working to create changes in their organisation: the focus can be on steps to change the organisation, rather than individual mindsets, and this is achieved by setting a high-level framing of the problem, and then using this to start to uncover the details of tensions within the system, learning from these and so identifying the points of systemic intervention.

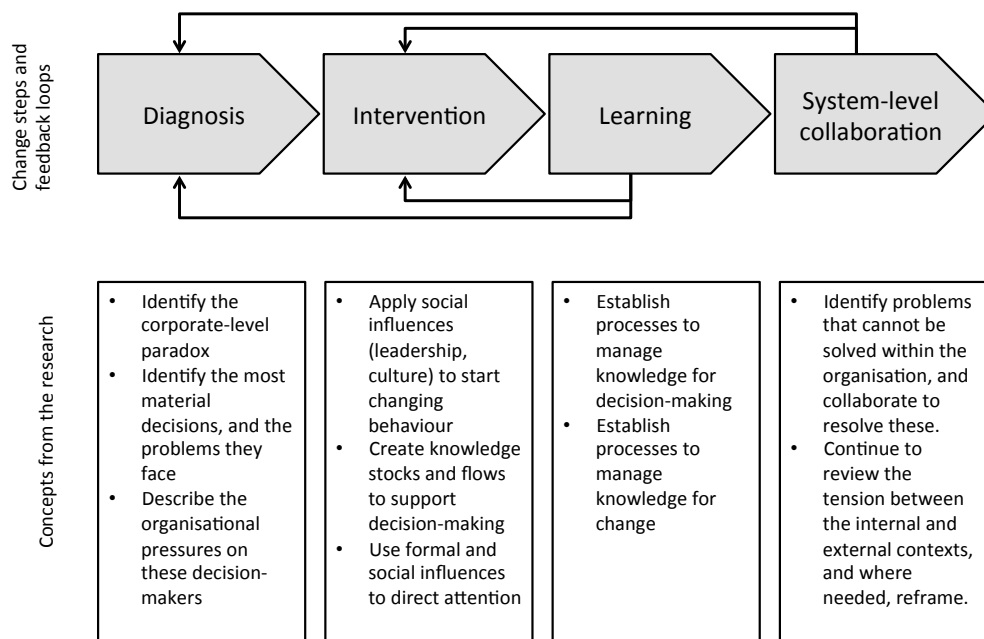
7.3 Implications for Practice

These contributions to knowledge also have implications for practice, which surfaced during the discussions held as part of Study 3. The research suggests that companies

can improve the way in which they include sustainability criteria in their decision-making, but that this may require substantial change.

By using the classification of decision types (Chapter 4.2) and the framework of organisational contexts (Chapter 4.4) as diagnostic lenses, practitioners can identify the critical areas for change. The main steps for this process of change from a practitioner perspective – starting with reframing the corporate level tension, working through organisational change, building a learning system, and leading to broader collaborations – are illustrated in Figure 21:

Figure 21: Change steps for companies to incorporate sustainability into decision-making



These depend on five fundamental capabilities beyond a generic organisational change ability: reframing, identifying the areas for intervention, intervening formally and socially, building methods for organisational learning, and industry-level collaboration. These are described in Chapter 6.

7.4 Future directions

The research leaves some interesting questions open for further development. There are two aspects to this: first, areas where the initial qualitative findings could be tested quantitatively; and second, areas where there is an opportunity for further theoretical development.

The two findings meriting further quantitative testing are:

1. The classification of decisions. This initial classification was developed based on a sample of 45 decisions, and has been tested with executives (who did not propose a fifth type of decision). However, testing with a larger sample of data collected specifically for this purpose might produce more robust results, and might enable further development of the concept.
2. The logical approaches for resolving competing commitments. The initial finding that people use these logical approaches as a repertoire and are influenced by their context is a novel one, and could be tested more robustly. This could be done either through further analysis of decisions, or potentially through experimental methods.

There are also four findings that merit further testing qualitatively.

First, the process of changing decision-making in organisations can be initiated by creating a reframing of the tension between the organisation and its social and environmental context. While reframing tension is a recurrent theme in the literature (Smith 2014; Zollo et al. 2013), there is relatively little written about the actual process by which this is achieved at the organisational level. This would be a helpful development for practitioners.

Second, the ways in which permission is both given and interpreted are unclear and merit further investigation. Many of the decisions involving social and environmental impacts are made by non-specialist managers who are unclear about the extent of their responsibility in this field. While managerial discretion has been considered as a factor in adopting sustainability (Sharma 2000), the tension between managing risk and

failures of compliance while also enabling positive action for sustainability is not one that has been fully explored.

Third, the distinction between foundational and contextual interventions for the type of change needed to build sustainability considerations into the organisation is a novel one that could be tested with further case studies to explore the process of change. Much of the existing empirical work on change has tended to focus either at the level of sense-making ((Angus-Leppan, Metcalf, et al. 2010), and the work connecting these processes to system-level change has tended to be conceptual.

Finally, this research raises questions about the role of professionals in the sustainability field. In Chapter 4.4.2, I describe a specific problem for sustainability managers, which is that their organisational locus is often separated from the major social and environmental impacts of the business, and therefore they need to find ways to create cross-cutting linkages in the organisation so that they can create influence. As Sadhu and Kulik (2018) note, these roles are changing over time. Thus, understanding the capabilities and influence these managers need to shape an environment where decisions incorporate social and environmental ideas into their decision-making will be important.

This is important work. Unless businesses learn to make decisions that take account of social and environmental impacts over the long and short term, we will be unable to make the changes needed to meet the commitments of the Paris Climate Agreement and the Sustainable Development Goals. It is clear from this research that the change is difficult, but that through a nuanced understanding of an organisation and its material impacts, and an ability to view these in a new light, it is possible to make the changes we need.

Appendix 1: Key organisational concepts from the literature

Framework section 1: Environment

Framework section	Concept from literature	Reference
Environment	Regulation	Sharma, S. (2000). <i>Academy of Management Journal</i>
	Geopolitical tension	Eccles, R., Ioannou, I., & Serafeim, G. (2012). <i>National Bureau of Economic Research, White Paper</i>
	Materiality	Epstein, M. J., & Widener, S. K. (2011). <i>Business Strategy and the Environment</i>
	Munificence	Aragón-Correa, J. A., & Sharma, S. (2003). <i>Academy of Management Review</i>
	Competitive intensity	Ford, R. C., & Richardson, W. D. (1994). <i>Journal of Business Ethics</i>
Environment	Customer demand	Grewatsch, S., & Kleindienst, I. (2018). <i>Long Range Planning</i>
	Market demand	Muñoz, E., Capón-García, E., Laínez, J. M., Espuña, A., & Puigjaner, L. (2013). <i>Journal of Cleaner Production</i>
	NGO influence	Bowen, F. E., Bansal, P., & Slawinski, N. (2018). <i>Strategic Management Journal</i>
	Shareholders	Aragón-Correa, J. A., & Sharma, S. (2003). <i>Academy of Management Review</i>
	Board Governance	Hyman, M. R., & Curran, C. M. (2000). <i>Journal of Business Ethics</i>
Competitiveness		Stubbbs, W., & Cocklin, C. (2008). <i>Organization & Environment</i>
		Aguinis, H., & Glavas, A. (2012). <i>Journal of Management</i>
		Ardichvili, A., Mitchell, J. A., & Jondle, D. (2009). <i>Journal of Business Ethics</i>
Competitiveness		Aguinis, H., & Glavas, A. (2012). <i>Journal of Management</i>
		Arruda, L. R., Lameira, V. D. J., Goncalves Quelhas, O. L., & Pereira, F. N. (2013). <i>Sustainability</i>
Competitiveness		Ford, R. C., & Richardson, W. D. (1994). <i>Journal of Business Ethics</i>

	Corporate goals
	Corporate identity
	Firm size
Environment	History
	Mission, Values and purpose
	Theory of the Firm

Framework section 2: Organisation

Framework section	Concept from literature
Organisation	Accountability Accounting policies, reporting and triple bottom line

- Hahn, T., Preuss, L., Pinkse, Jonatan, & Figge, F. (2014). *Academy of Management Review*
- Meyers, C. (2004). *Science and Engineering Ethics*
- Victor, B., & Cullen, J. B. (1988). *Administrative Science Quarterly*
- Aguinis, H., & Glavas, A. (2012). *Journal of Management*
- Ford, R. C., & Richardson, W. D. (1994). *Journal of Business Ethics*
- Aguinis, H., & Glavas, A. (2012). *Journal of Management*
- Bowen, F. E., Bansal, P., & Slawinski, N. (2018). *Strategic Management Journal*
- Weber, J. (1990). *Human Relations*
- Schrettle, S., Hinz, A., Scherrer-Rathje, M., & Friedli, T. (2014). *International Journal of Production Economics*
- Ardichvili, A., Mitchell, J. A., & Jondle, D. (2009). *Journal of Business Ethics*
- Aguinis, H., & Glavas, A. (2012). *Journal of Management*
- Stubbbs, W., & Cocklin, C. (2008). *Organization & Environment*
- Hyman, M. R., & Curran, C. M. (2000). *Journal of Business Ethics*
- Hahn, T., Preuss, L., Pinkse, Jonatan, & Figge, F. (2014). *Academy of Management Review*
- Lozano, R., Carpenter, A., & Huisingh, D. (2015). *Journal of Cleaner Production*

Reference

- Ardichvili, A., Mitchell, J. A., & Jondle, D. (2009) *Journal of Business Ethics*
- Brown, J. (2009) *Critical Perspectives on Accounting*
- Lüfß, R., & Hahn, R. (2014). *Organization & Environment*
- Arruda, L. R., Lameira, V. D. J., Goncalves Quelhas, O. L., & Pereira, F. N. (2013). *Sustainability*
- Stubbbs, W., & Cocklin, C. (2008). *Organization & Environment*

Approach to problem resolution	Attitudes	Howard-Grenville, J. A. (2006). <i>Organization & Environment</i>
	Beliefs	Howard-Grenville, J. A. (2006). <i>Organization & Environment</i>
		Gioia, D. A. (1992). <i>Journal of Business Ethics</i>
Climate		Meyers, C. (2004). <i>Science and Engineering Ethics</i>
		Lüfß, R., & Hahn, R. (2014) <i>Organization & Environment</i>
	Code of conduct	Victor, B., & Cullen, J. B. (1988) <i>Administrative Science Quarterly</i>
Communication		Wylß, D. C., & Jones, C. A. (1997) <i>Journal of Business Ethics</i>
		Meyers, C. (2004) <i>Science and Engineering Ethics</i>
		Ardichvili, A., Mitchell, J. A., & Jondle, D. (2009) <i>Journal of Business Ethics</i>
Complexity of bureaucracy		Blome, C., & Paulraj, A. (2013) <i>Journal of Business Ethics</i>
		Lüfß, R., & Hahn, R. (2014) <i>Organization & Environment</i>
		Blome, C., & Paulraj, A. (2013) <i>Journal of Business Ethics</i>
Control system		Weber, J. (1990) <i>Human Relations</i>
		Nijhof, A., & Rietdijk, M. (1999) <i>Journal of Business Ethics</i>
		Verbeke, W., Ouwerkerk, C., & Peelen, E. (1996) <i>Journal of Business Ethics</i>
Cooperation and collaboration		James Jr., H. S. (2000). <i>Journal of Business Ethics</i>
		Stubbs, W., & Cocklin, C. (2008) <i>Organization & Environment</i>
		Hyman, M. R., & Curran, C. M. (2000) <i>Journal of Business Ethics</i>
Cooperative conflict resolution		Aguinis, H., & Glavas, A. (2012). <i>Journal of Management</i>
		Wylß, D. C., & Jones, C. A. (1997). <i>Journal of Business Ethics</i>
		Meyers, C. (2004). <i>Science and Engineering Ethics</i>
Corporate affairs department		
Corporate policy		

Firm commitment to CSR	Aguinis, H., & Glavas, A. (2012). <i>Journal of Management</i>
Guidelines for decision-making	Nijhof, A., & Rietdijk, M. (1999). <i>Journal of Business Ethics</i>
Heroes & role models	James Jr., H. S. (2000). <i>Journal of Business Ethics</i>
	Ardichvili, A., Mitchell, J. A., & Jondle, D. (2009). <i>Journal of Business Ethics</i>
	Blome, C., & Paulraj, A. (2013). <i>Journal of Business Ethics</i>
	Wylde, D. C., & Jones, C. A. (1997). <i>Journal of Business Ethics</i>
Historical antecedents	Verbos, A. K., Gerard, J. A., Forshey, P. R., Harding, C. S., & Miller, J. S. (2007). <i>Journal of Business Ethics</i>
HR processes	Nijhof, A., & Rietdijk, M. (1999). <i>Journal of Business Ethics</i>
	Blome, C., & Paulraj, A. (2013). <i>Journal of Business Ethics</i>
	Meyers, C. (2004). <i>Science and Engineering Ethics</i>
	Verbos, A. K., Gerard, J. A., Forshey, P. R., Harding, C. S., & Miller, J. S. (2007). <i>Journal of Business Ethics</i>
Organisation	
Incentives and rewards	Nijhof, A., & Rietdijk, M. (1999). <i>Journal of Business Ethics</i>
	James Jr., H. S. (2000). <i>Journal of Business Ethics</i>
	Hyman, M. R., & Curran, C. M. (2000). <i>Journal of Business Ethics</i>
	Verbos, A. K., Gerard, J. A., Forshey, P. R., Harding, C. S., & Miller, J. S. (2007). <i>Journal of Business Ethics</i>
	Ardichvili, A., Mitchell, J. A., & Jondle, D. (2009). <i>Journal of Business Ethics</i>
	Aguinis, H., & Glavas, A. (2012). <i>Journal of Management</i>
	Blome, C., & Paulraj, A. (2013). <i>Journal of Business Ethics</i>
	Lülfes, R., & Hahn, R. (2014). <i>Organization & Environment</i>
Inclusion and participation	Hyman, M. R., & Curran, C. M. (2000). <i>Journal of Business Ethics</i>

Independence	Victor, B., & Cullen, J. B. (1988). <i>Administrative Science Quarterly</i>
Influence of external norms (eg. Professional bodies)	Victor, B., & Cullen, J. B. (1988). <i>Administrative Science Quarterly</i>
Instrumentalism	Aguinis, H., & Glavas, A. (2012). <i>Journal of Management</i>
Job design	James Jr., H. S. (2000). <i>Journal of Business Ethics</i>
Knowledge management	Howard-Grenville, J. A. (2006). <i>Organization & Environment</i>
Knowledge transfer, training and capabilities	Blome, C., & Paulraj, A. (2013). <i>Journal of Business Ethics</i>
Language	Schrettle, S., Hinz, A., Scherrer-Rathje, M., & Friedli, T. (2014). <i>International Journal of Production Economics</i>
Equally distributed authority	Arruda, L. R., Lameira, V. D. J., Goncalves Quelhas, O. L., & Pereira, F. N. (2013). <i>Sustainability</i>
Ethical awareness	James Jr., H. S. (2000). <i>Journal of Business Ethics</i>
Leadership	Ardichvili, A., Mitchell, J. A., & Jondle, D. (2009). <i>Journal of Business Ethics</i>
Ethical code	Blome, C., & Paulraj, A. (2013). <i>Journal of Business Ethics</i>
Ethical culture	Verbos, A. K., Gerard, J. A., Forshey, P. R., Harding, C. S., & Miller, J. S. (2007). <i>Journal of Business Ethics</i>
Leadership (supervisors)	Stubbs, W., & Cocklin, C. (2008). <i>Organization & Environment</i>
Leadership (support from managers)	Ardichvili, A., Mitchell, J. A., & Jondle, D. (2009). <i>Journal of Business Ethics</i>
	Aguinis, H., & Glavas, A. (2012). <i>Journal of Management</i>
	Nijhof, A., & Rietdijk, M. (1999). <i>Journal of Business Ethics</i>

Leadership and communication	Ardichvili, A., Mitchell, J. A., & Jondle, D. (2009). <i>Journal of Business Ethics</i> Marlow, D. R., Moglia, M., Beale, D. J., & Stenstromer, A. (2012). <i>Journal - American Water Works Association</i>
Learning	Stubbs, W., & Cocklin, C. (2008) <i>Organization & Environment</i> Hymn, M. R., & Curran, C. M. (2000). <i>Journal of Business Ethics</i> Verbos, A. K., Gerard, J. A., Forshey, P. R., Harding, C. S., & Miller, J. S. (2007). <i>Journal of Business Ethics</i>
Long-term perspective Managerial interpretations of CSR	Stubbs, W., & Cocklin, C. (2008). <i>Organization & Environment</i> Ardichvili, A., Mitchell, J. A., & Jondle, D. (2009). <i>Journal of Business Ethics</i> Aguinis, H., & Glavas, A. (2012). <i>Journal of Management</i>
Myths and stories	James Jr, H. S. (2000). <i>Journal of Business Ethics</i>
Norms and values	Ardichvili, A., Mitchell, J. A., & Jondle, D. (2009) <i>Journal of Business Ethics</i> James Jr, H. S. (2000). <i>Journal of Business Ethics</i> Blome, C., & Paulraj, A. (2013). <i>Journal of Business Ethics</i> Victor, B., & Cullen, J. B. (1988). <i>Administrative Science Quarterly</i> Nijhof, A., & Rietdijk, M. (1999). <i>Journal of Business Ethics</i> Ardichvili, A., Mitchell, J. A., & Jondle, D. (2009). <i>Journal of Business Ethics</i> Meyers, C. (2004). <i>Science and Engineering Ethics</i> Stubbs, W., & Cocklin, C. (2008). <i>Organization & Environment</i> Lülf, R., & Hahn, R. (2014). <i>Organization & Environment</i> Weber, J. (1990). <i>Human Relations</i>
Operating procedures	

	Organisation structure	Victor, B., & Cullen, J. B. (1988). <i>Administrative Science Quarterly</i> Varma, V. A., Reklaitis, G. V., Blau, G. E., & Pekny, J. F. (2007). <i>Computers and Chemical Engineering</i>
	Organisational epistemology	Aguinis, H., & Glavas, A. (2012). <i>Journal of Management</i>
	Organisational routines	Blome, C., & Paulraj, A. (2013). <i>Journal of Business Ethics</i>
	Organisational script	Lüfß, R., & Hahn, R. (2014). <i>Organization & Environment</i>
Organisation	Peer groups	Howard-Grenville, J. A. (2006). <i>Organization & Environment</i> Lüfß, R., & Hahn, R. (2014). <i>Organization & Environment</i> Meyers, C. (2004). <i>Science and Engineering Ethics</i> Gioia, D. A. (1992). <i>Journal of Business Ethics</i>
	Performance management	Victor, B., & Cullen, J. B. (1988). <i>Administrative Science Quarterly</i> Wylß, D. C., & Jones, C. A. (1997). <i>Journal of Business Ethics</i> Verbos, A. K., Gerard, J. A., Forshey, P. R., Harding, C. S., & Miller, J. S. (2007). <i>Journal of Business Ethics</i>
	Processes	James Jr., H. S. (2000). <i>Journal of Business Ethics</i> Stubbs, W., & Cocklin, C. (2008). <i>Organization & Environment</i> Ardichvili, A., Mitchell, J. A., & Jondle, D. (2009). <i>Journal of Business Ethics</i> Hallstedt, S., Ny, H., Robèrt, K.-H., & Broman, G. (2010). <i>Journal of Cleaner Production</i> , 18 Arruda, L. R., Lamiera, V. D. J., Gonçalves Quelhas, O. L., & Pereira, F. N. (2013). <i>Sustainability</i> , Ardichvili, A., Mitchell, J. A., & Jondle, D. (2009). <i>Journal of Business Ethics</i> Verbos, A. K., Gerard, J. A., Forshey, P. R., Harding, C. S., & Miller, J. S. (2007). <i>Journal of Business Ethics</i>

Removal of emotional content	Gioia, D. A. (1992). <i>Journal of Business Ethics</i>
Rituals	James Jr., H. S. (2000). <i>Journal of Business Ethics</i>
Rules	Blome, C., & Paulraj, A. (2013). <i>Journal of Business Ethics</i>
Socialisation	Victor, B., & Cullen, J. B. (1988). <i>Administrative Science Quarterly</i>
	Verbos, A. K., Gerard, J. A., Forshey, P. R., Harding, C. S., & Miller, J. S. (2007). <i>Journal of Business Ethics</i>
Organisation	Blome, C., & Paulraj, A. (2013). <i>Journal of Business Ethics</i>
Stakeholder relations	Nijhof, A., & Rietdijk, M. (1999). <i>Journal of Business Ethics</i>
	Stubbs, W., & Cocklin, C. (2008). <i>Organization & Environment</i>
	Ardichvili, A., Mitchell, J. A., & Jondle, D. (2009). <i>Journal of Business Ethics</i>
	S., Ny, H., Robèrt, K.-H., & Broman, G. (2010). <i>Journal of Cleaner Production</i>
	Aguinis, H., & Glavas, A. (2012). <i>Journal of Management</i>
Sustainability mind-set	Stubbs, W., & Cocklin, C. (2008). <i>Organization & Environment</i>
Traditions	Nijhof, A., & Rietdijk, M. (1999). <i>Journal of Business Ethics</i>

Framework section 3: Decision-makers

<i>Framework section</i>	<i>Concept from literature</i>	<i>Reference</i>
	Ability to seek assistance	Aguinis, H., & Glavas, A. (2012). <i>Journal of Management</i>
	Attitude	
	Belief	James Jr., H. S. (2000). <i>Journal of Business Ethics</i>
	Career orientation and time perspective	Lülf, R., & Hahn, R. (2014). <i>Organization & Environment</i>
	Decision-rights	Victor, B., & Cullen, J. B. (1988). <i>Administrative Science Quarterly</i>
	Desires	James Jr., H. S. (2000). <i>Journal of Business Ethics</i>
	Extent of identification with the organisation	Verbeke, W., Ouwerkerk, C., & Peelen, E. (1996). <i>Journal of Business Ethics</i>
	Focus of attention, priorities	James Jr., H. S. (2000). <i>Journal of Business Ethics</i>
	Habits	James Jr., H. S. (2000). <i>Journal of Business Ethics</i>
		James Jr., H. S. (2000). <i>Journal of Business Ethics</i>
		James Jr., H. S. (2000). <i>Journal of Business Ethics</i>
		Verbos, A. K., Gerard, J. A., Forshey, P. R., Harding, C. S., & Miller, J. S. (2007). <i>Journal of Business Ethics</i>
		Gioia, D. A. (1992). <i>Journal of Business Ethics</i>
		Lülf, R., & Hahn, R. (2014). <i>Organization & Environment</i>

Framework section	Concept from literature	Reference
	Information available	Nijhof, A., & Rietdijk, M. (1999). <i>Journal of Business Ethics</i>
	Attitude	Gioia, D. A. (1992). <i>Journal of Business Ethics</i>
		Lülf, R., & Hahn, R. (2014). <i>Organization & Environment</i>
	Intention, commitment and values	Lülf, R., & Hahn, R. (2014). <i>Organization & Environment</i>
		James Jr., H. S. (2000). <i>Journal of Business Ethics</i>
		Weber, J. (1990). <i>Human Relations</i>
Decision makers	Level of independence / isolation	James Jr., H. S. (2000). <i>Journal of Business Ethics</i>
	Moral code	Weber, J. (1990). <i>Human Relations</i>
	Moral maturity	Ford, R. C., & Richardson, W. D. (1994). <i>Journal of Business Ethics</i>
	Seniority	Lülf, R., & Hahn, R. (2014). <i>Organization & Environment</i>
	Perceived level of control	Lülf, R., & Hahn, R. (2014). <i>Organization & Environment</i>
	Skills and capabilities	Meyers, C. (2004). <i>Science and Engineering Ethics</i>
	Social approval	Gioia, D. A. (1992). <i>Journal of Business Ethics</i>
	Stress	Ford, R. C., & Richardson, W. D. (1994). <i>Journal of Business Ethics</i>
	Training	Gioia, D. A. (1992). <i>Journal of Business Ethics</i>
	Workload	

Framework section 4: Decisions

<i>Framework section</i>	<i>Concept from literature</i>	<i>Reference</i>
Decision	Decision-criteria (eg. Cost-benefit)	Gioia, D. A. (1992). <i>Journal of Business Ethics</i>
	Dynamics of team decision-making	de la Torre-Ruiz, J. M., Aragón-Correa, J. A., & Martín-Tapia, I. (2015). <i>Business Strategy and the Environment</i>
	Degree of active participation in teams	de la Torre-Ruiz, J. M., Aragón-Correa, J. A., & Martín-Tapia, I. (2015). <i>Business Strategy and the Environment</i>
	Complexity	Pirson, M., & Turnbull, S. (2018). <i>Business and Society</i>
	Ambiguity	Hahn, T., & Figge, F. (2018). <i>Journal of Business Ethics</i>
Variety of stakeholders	Inter-temporality	Bansal, P., & Desjardine, M. R. (2014). <i>Strategic Organization</i>
	Variety of stakeholders	Slawinski, N., & Bansal, P. (2015). <i>Organization Science</i>
		Haffar, M., & Searcy, C. (2015). <i>Journal of Business Ethics</i>

Appendix 2: List of Decisions

<i>Decision</i>	<i>Description</i>	<i>Logical approach</i>
1	Choosing projects to include in a capital investment programme in a global beverage manufacturer	Win-win
2	Setting targets for sustainability to balance carbon, water and high production volumes	Win-win
3	Whether to invest in a particular new production technology under conditions of uncertainty	Win-win
4	Setting standards for supply chain factory conditions in different countries where social norms varied very much	Separation (Geographical)
5	Selection of packaging that would be suitable for very high volume of shipments	Win-win
6	Decision about whether to accept an order from a major customer that would involve working with a supplier that did not meet high environmental standards.	Trade off
7	Decision to start a corporate responsibility programme in a situation where there was not an immediately obvious business case.	Win-win
8	Choosing the areas of focus in creating a sustainability ambition for an engineering company	Win-win
9	Decision to incorporate social and environmental sustainability into overall business strategy	Win-win
10	Decision to adopt science-based targets, even though these were potentially problematic for the company	Integrative
11	Including sustainability assessment in the asset acquisition process	Win-win
12	Adopting new energy saving technology across large estate of buildings.	Win-win
13	Changing design of new buildings to reduce embedded carbon	Win-win
14	Setting the sustainability aspiration in a real estate company	Win-win
15	Decision to create a social inclusion programme that would engage and support vulnerable communities.	Integrative
16	Design decisions about road location on a city masterplanning project	Trade off
17	Decision about use of pumping in significant wastewater management system	Trade off

18	Decision about routing of a railway line to encourage switching from road transport (decided to develop in stages)	Separation (Temporal)
19	Selection of building cladding material for a large development	Trade off
20	Specifying and procuring new equipment in industrial manufacturing (example 1: focus on capital budget has led to poor lifecycle management)	Trade off
21	Specifying and procuring new equipment in industrial manufacturing (example 2: value engineering has led to reduced environmental performance)	Trade-off
22	Materials selection problem in an industrial manufacturing setting: the choice was between two materials both of which created different environmental problems.	Trade-off
23	Setting the tax policy for an online company operating in several countries. Decision was between tax efficiency and social license to operate	Trade off
24	Creating a new product to engage consumers with social issues	Win-win
25	Setting a policy to use renewable energy for company operations	Trade-off
26	Creating a business model for a renewable energy business	Win-win
27	Setting staff management policies in a sustainable business	Win-win
28	Adopting a policy for responsible investment in a bank	Integrative
29	Decision about funding a pipeline in an ecologically sensitive area with large number of stakeholders	Synthesis
30	Decision to fund a very large infrastructure project	Win-win
31	Decision to adopt renewable energy for a large facility	Win-win
32	Evaluating acquisitions in an energy portfolio (in an energy company that was seeking to exit fossil fuels)	Win-win
33	Evaluating investments for the company's innovation portfolio	Win-win
34	Making decisions about asset network to ensure security of supply of electricity (when/whether to include fossil fuels)	Trade off
35	Decision about how to communicate the environmental policy of a company to investors (choice was between emphasising environment	Synthesis

	or emphasising risk)	
36	Decision to build a 'green factory', even though the costs were relatively high and this was an innovation in the sector and the region.	Win-win
37	Decision to change fuel supply (from fossil to non-fossil fuel) in a large operational factory setting.	Win-win
38	Choice about whether to use air transport in a company with a 'green' brand or to face a significant supply problem	Trade off
39	Decision-making during a transition from plastic packaging to recycled packaging.	Trade off
40	Re-organising logistics network in order to reduce vehicle use.	Win-win
41	Decision to recycle product (which included introducing reverse logistics) before all technical problems were resolved.	Integrative
42	Decision about whether to install emissions monitoring equipment on the factory chimneys	Trade off
43	Choice of technology to implement recycling.	Trade off
44	Adopting new standards for building and construction to provide higher energy efficiency and lower embedded carbon.	Win-win
45	Deciding to change the financial reporting system to integrate ESG data.	Integrative

Appendix 3: Data structure from interviews and literature

<i>Aggregate dimension</i> External context	<i>Second order themes</i>	<i>Concept from interview</i>	<i>Concept from literature</i>	<i>Example source</i>
	Industry characteristics	Regulatory concerns	Regulation	(Sharma 2000)
		Geopolitical tensions	Geopolitical tension	(Eccles et al. 2012)
		Material sustainability issues	Materiality	(Epstein et al. 2015)
		Margins	Munificence	(Aragón-Correa & Sharma 2003)
		Complexity	Bureaucratic complexity	(Weber 1990)
		Competitor pressure.	Competitive intensity	(Ford & Richardson 1994)
		Needs of local community	Local ownership	(Stubbs & Cocklin 2008)
		Demand from a specific customer	Customer demand	(Grewatsch & Kleindienst 2018)
		Market demand	Market demand	(Muñoz et al. 2013)
		Influence of NGO	NGO influence	(Bowen et al. 2018)
Internal context	Mental model of the Firm	Influence of shareholders		
		Shareholders		
		Theory of the Firm	Theory of the firm	(Lozano et al. 2015; Bento et al. 2017; Hahn et al. 2016)
		Ownership structure	Ownership	(Stubbs & Cocklin 2008)
		Business model	Sustainability Business Model	(Stubbs & Cocklin 2008)
		Board Governance		
		Board Governance		
		Board Governance		
		Board Governance		
		Board Governance		
Characteristics of the business		History		
		Size of the Firm		
		Corporate identity		
	Size of the Firm		Size of the Firm	(Victor & Cullen 1988)
	Brand		Corporate identity	(Ford & Richardson 1994)
				(Aguinis & Glavas 2012)

<i>Aggregate dimension</i> Internal context	Path dependency (Schrettle et al. 2014)		
	<i>Second order themes</i>	<i>Concept from interview</i>	<i>Concept from literature</i> <i>Example source</i>
	Company direction	Vision Purpose Strategic Direction	Vision and mission Worthy purpose (Ardichvili et al. 2009) (Hyman & Curran 2000)
		Company priorities	Corporate goals Commitment to sustainability (Hahn et al. 2010; Meyers 2004; Victor & Cullen 1988)
	Sustainability Strategy	Sustainability ambition Starting sustainability Science-based target Sustainability plan Sustainability strategy	(Aguinis & Glavas 2012) (Lülfes & Hahn 2014)
	Influencing power	Influence on suppliers Influence on customers Influence on employees Convening power Investor relations	
	Specific strategic issue	Operations strategy Opportunity creation M&A - opportunity and integration	
	Paradox	Conflicting priorities	(Lewis 2000)
		Optimising multiple objectives Conflicting success criteria Inter-temporal tension	(Slawinski & Bansal 2015)

<i>Aggregate dimension</i>	<i>Second order themes</i>	<i>Concept from interview</i>	<i>Concept from literature</i>	<i>Example source</i>
Organisation Design	Locus of sustainability	How the sustainability function is organised		
		Degree of centralisation		
		Relationship to corporate affairs		
		How embedded is sustainability in operations		
		How does sustainability work with finance		
		How does sustainability connect to engineering		
	Linkages	Organisational co-ordination	Isolation vs. independence of units	(Weber 1990)
		Cross cutting group	Linkages between planning and operations	(Varma et al. 2007)
		Teamwork	Rules of engagement	(de la Torre-Ruiz et al. 2015)
		Formal/ informal communications channels	Openness of communication	(Blome & Paulraj 2013)
			Co-operation	(Stubbs & Cocklin 2008)
			External collaboration	(Stubbs & Cocklin 2008)
Processes / policies / standards		Procedure	Guidelines for decisions	(Nijhof & Rietdijk 1999)
		Organisational routine		
		Process for managing dissent		
		Process for resolving conflict		
			Codes of conduct	(Ardichvili et al., 2009; Blome & Paulraj, 2013; Lülfs & Hahn, 2014; Meyers, 2004; Victor & Cullen, 1988; Wyld & Jones, 1997)
		Company policies		

<i>Aggregate dimension</i>	<i>Second order themes</i>	<i>Concept from interview</i>	<i>Concept from literature</i>	<i>Example source</i>
Organisation Design	Structural tensions	Conflict between organisational silos Credibility of the sustainability function Different institutional treatment of risk and opportunity		
	Organisation structure	Organisational complexity Business model Fragmentation Degree of centralisation Governance structures		
	Job descriptions	Roles Employee value proposition Career path	Attraction / Selection / Attrition Promotion Training	(Verbos et al. 2007; Ardichvili et al. 2009) (Meyers 2004) (Ford & Richardson 1994)
	Performance management	Performance targets (individual / collective) Key performance indicators Alignment of objectives with strategy		
	Targets			

<i>Aggregate dimension</i>	<i>Second order themes</i>	<i>Concept from interview</i>	<i>Concept from literature</i>	<i>Example source</i>
Culture	Incentives	Financial incentives Status and recognition for action / expertise	Incentives	(Aguinis & Glavas, 2012; Blome & Paulraj, 2013; Hyman & Curran, 2000; James Jr., 2000; Lütfs & Hahn, 2014; Verbos et al., 2007)
			Fairness of compensation CEO compensation Formal rewards Process integrity	(Ardichvili et al. 2009) (Aguinis & Glavas 2012) (Nijhof & Rietdijk 1999) (Ardichvili et al. 2009)
	Conflicting priorities	Conflict between different objectives Perverse incentives		(Epstein et al. 2015; Mitchell et al. 2016; Pirson & Turnbull 2018)
	Control	Individual performance management Control systems in the organisation	Control	(Nijhof & Rietdijk 1999; Verbeke et al. 1996; James Jr. 2000) (James Jr. 2000; Gioia 1992; Meyers 2004)
Culture	Attitudes		Shared beliefs Pro-social attitude Pro-environmental attitude Caring attitude Attitude towards time	(Howard-Grenville 2006) (Howard-Grenville 2006) (Victor & Cullen 1988) (Howard-Grenville 2006)
	Norms		Referent groups Top-management norms External norms (eg. professional bodies)	(Ford & Richardson 1994) (Blome & Paulraj 2013) (Victor & Cullen 1988)

<i>Aggregate dimension</i>	<i>Second order themes</i>	<i>Concept from interview</i>	<i>Concept from literature</i>	<i>Example source</i>
Culture	Norms	Does the organisation have particular social concerns	Norms and values	(Nijhof & Rietdijk 1999; James Jr. 2000; Blome & Paulraj 2013; Victor & Cullen 1988; Ardichvili et al. 2009; Stubbs & Cocklin 2008)
	Values	What are the corporate values	Values	(Meyers 2004)
		Organisation's commitment to science		
		How does the organisation see its responsibility?		
		What are the organisation's moral obligations		
		Organisational tradition of philanthropy		
		Ethics	Ethical climate	(Ford & Richardson 1994; Verbeke et al. 1996; Verbos et al. 2007; Blome & Paulraj 2013)
	Signals and precedents	Role models	Heros and role models	(James Jr. 2000; Ardichvili et al. 2009; Wylde & Jones 1997; Blome & Paulraj 2013; Verbos et al. 2007)
		Stories Myths	Stories	(James Jr. 2000; Ardichvili et al. 2009)
			Rituals Traditions	(Blome & Paulraj 2013; James Jr. 2000)
			Language	(Nijhof & Rietdijk 1999) (Blome & Paulraj 2013; James Jr. 2000; Ardichvili et al. 2009)

<i>Aggregate dimension</i>	<i>Second order themes</i>	<i>Concept from interview</i>	<i>Concept from literature</i>	<i>Example source</i>
Culture	Self-determination	What are people's motivations		
		How hierarchical is the organisation		
		Levels of autonomy and independence		(Weber 1990)
	Inclusiveness	Levels of inclusiveness	Inclusion and participation	(Hyman & Curran 2000)
		Emphasis on teamwork		
		Levels of trust		
Leadership	Minority cultures	Attitude towards consensus		(Blome & Paulraj 2013; Verbos et al. 2007)
			Socialisation mechanisms	al. 2007)
			Moderation of emotion	(Gioia 1992)
	Leaders' beliefs shaping action	Specialist cultures for expertise	Relative power of different groups	(Howard-Grenville 2006)
		Leaders making 'acts of faith'		
		Individual interests of particular leaders		
Power	Leaders as enablers	Leaders' perceptions of sustainability	Leaders' attitudes towards sustainability	(Aguinis & Glavas 2012)
		Leaders setting an example		
	Power	Leaders conferring an authority or mandate	Supervisor or manager support	(Aguinis & Glavas 2012)
		Leaders looking for status/recognition	What leaders reward	(Ford & Richardson 1994)
		Leadership ambition		

<i>Aggregate dimension</i>	<i>Second order themes</i>	<i>Concept from interview</i>	<i>Concept from literature</i>	<i>Example source</i>
Leadership	Leadership development	Learning and training programmes How people are promoted Who are the role models		
	Leadership style		Authentic leadership	(Verbos et al. 2007)
Knowledge	Better data	Choosing measurement standards Providing helpful accurate data Creating 'complete' data (eg. lifecycle analysis)	Information available	(Gioia et al. 2013)
			Accountancy processes	(Brown 2009)
	Better analysis	Life cycle analysis Multi criteria decision analysis	Life cycle analysis Multi-criteria decision analysis	(Shrivastava & Hart 1995) (Hallstedt et al. 2010)
	Organisational learning	Information sharing Building a knowledge management system Codifying experience (eg. case studies)	Ability to seek assistance	(Aguinis & Glavas 2012)
			Formality of knowledge capture and sharing Types of learning (single / double loop)	(Blome & Paulraj 2013) (Marlow et al. 2012)
	Building understanding	Showing managers what is really happening Learning programmes Creating transparent data	Training / capability building	(Arruda et al. 2013)
	Organisational epistemology	Creating a framework for thinking	How problems are solved	(Howard-Grenville 2006)

<i>Aggregate dimension</i>	<i>Second order themes</i>	<i>Concept from interview</i>	<i>Concept from literature</i>	<i>Example source</i>
Permission space	Formal authority	Role descriptions Mandate	Formality of decision rights	(James Jr. 2000)
	Inferred authority	Culture of autonomy / independence Level of decentralisation	Empowerment	(James Jr. 2000)
	Informal authority	Sphere of influence Credibility of the team	Perceived amount of control	(Lülf's & Hahn, 2014)
			Interdependence Inclusion / participation	(Victor & Cullen 1988) (Hyman & Curran 2000)
Attitudes of decision-makers	Intrinsic		Desire	(James Jr. 2000)
			Moral maturity	(Weber 1990)
			Moral code	(James Jr. 2000)
			Personal code of conduct	(Ford & Richardson 1994)
			Career orientation	(Verbeke et al. 1996)
			Attitude to environment	(Victor & Cullen 1988)
			Pro-social attitude	(Victor & Cullen 1988)
			Intention towards sustainability	(Lülf's & Hahn, 2014)
			Time perspective	(Howard-Grenville 2006)
			Beliefs	(James Jr. 2000)
			Commitment to a topic	(Lülf's & Hahn, 2014)
	Attitude	(James Jr. 2000)		
		Skills, capabilities	(Lülf's & Hahn, 2014)	

<i>Aggregate dimension</i> Attitudes of decision-makers	<i>Second order themes</i>	<i>Concept from interview</i>	<i>Concept from literature</i>	<i>Example source</i>
	Situational		Stress Workload Focus of attention Seniority in organisation	(Gioia 1992) (Gioia 1992) (Gioia 1992) (Ford & Richardson 1994)
	Conflicting viewpoints	Some people have irrational concerns Some people argue from opinion, not fact Clashing perceptions of sustainability		
	Perceptions of sustainability	Sustainability is quite vague Sustainability is a cost Sustainability is all about compliance Sustainability is all about risk Sustainability makes us efficient Sustainability differentiates our brand Sustainability is an opportunity Sustainability is a responsibility Sustainability is a value - something we care about		

<i>Aggregate dimension</i> Properties of decisions	<i>Second order themes</i> Why the problem is difficult	<i>Concept from interview</i>	<i>Concept from literature</i>	<i>Example source</i>
		Complexity Centrality Irrevocability Ambiguity Inter-temporality Variety of stakeholders	Complexity Ambiguity Inter-temporality Variety of stakeholders	(Pirson & Turnbull 2018) (Hahn and Figge 2018) (Bansal & Desjardine 2014; Slawinski & Bansal 2015) (Haffar & Searcy 2015)
	Decision process	Define the problem Engage people Generate Options Evaluate options	Level of involvement in process	(de la Torre-Ruiz et al. 2015)
	Decision characteristics	Type of decision Repeatability of the decision		

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