Engaging With Environmental Stakeholders: Routes To Building Environmental Capabilities In The Context Of The Low Carbon Economy

Baranova, P & Meadows, M

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ENGAGING WITH ENVIRONMENTAL STAKEHOLDERS:

ROUTES TO BUILDING ENVIRONMENTAL CAPABILITIES IN THE CONTEXT OF

THE LOW CARBON ECONOMY

Abstract The transition to a low carbon economy demands new strategies to enable organisations to take advantage of the potential for 'green' growth. An organisation's environmental stakeholders can provide opportunities for growth and support the success of its low carbon strategies, as well as potentially acting as a constraint to new initiatives. Building environmental capabilities through engagement with environmental stakeholders is conceptualised as an important aspect for the success of organisational low carbon strategies. We examine capability building across a range of sectors affected by the sustainability agenda, including construction, rail, water and health care. We identify a number of emergent environmental stakeholders and explore their engagement with the development of environmental capabilities in the context of the transition towards a low carbon economy. Our conceptual framework offers a categorisation of environmental stakeholders based on their position in relation to a focal organisation and the potential for the development of environmental capabilities.

Abbreviations

CBI	Confederation of British Industry
DBIS	Department for Business Innovation and Skills
DCI	Derby Carbon Initiative
DECC	Department for Energy and Climate Change
DCLG	Department for Communities and Local Government
DEFRA	Department for Environment, Food and Rural Affairs

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EGSS	Environmental Goods and Services Sector
ERDF	European Regional Development Fund
ERP	Energy Research Partnership
GDP	Gross Domestic Product
GVA	Gross Value Added
HEI	Higher Education Institution
LCEERP	Low Carbon Economy Engaged Research Project
LCEGS	Low carbon and environmental goods and services
NHS	National Health Service
OFGEM	The Office of Gas and Electricity Markets
OFWAT	The Water Services Regulation Authority
RBV	Resource-Based View
SME	Small or Medium Enterprise
TA	Thematic Analysis
UKTI	UK Trade and Investment

Introduction

The low carbon economy, defined as the activities which generate products or services which themselves deliver low carbon outputs (DBIS, 2015), is critically important to governments across Europe. The European Commission (2016) has a 'low-carbon economy' roadmap which states that by 2050, the EU should have cut emissions to 80% below 1990 levels. A study entitled 'Europe's Next

Economy' (IPPR, 2012) noted that 'the debates about climate change and the level of the EU's ambition are similar throughout the continent' (p. 2).

Targets for carbon emission in the UK are in line with those wider ambitions across Europe. The low carbon economy is significant and growing rapidly in the UK. The low carbon sector accounted for a third of the total economic growth in the UK during 2011-12 (CBI, 2012). Its turnover was estimated at £121.7 billion in 2013 with 45% of the turnover or $ 56.4 billion generated in the waste processing, energy from waste and biomass sector (DBIS, 2015). The Gross Valued Added (GVA) of the low carbon economy has grown by 28.4%, turnover by 24.7% and employment within the low carbon economy grew by 12% during 2010-2013 (DBIS, 2015). The UK Government estimates that the low carbon economy provides employment for 460,600 people in the UK, which is around 1.6% of all national employment.

The competitiveness of the economy is a critical factor in ensuring the low carbon transition, according to a number of low carbon strategy and regulatory documents at the European and national levels (DECC, 2013; DEFRA 2013, 2014a, 2014b; European Commission, 2010, 2014; Scottish Government, 2010). In this context, stakeholder engagement can be seen as a valuable resource for building the environmental capabilities of a firm to take advantage of 'green' growth. Kujala (2010) notes that "the number and speed of changes in the business environment have accelerated and many industries face growing expectations from different stakeholders" (p. 14). The natural environment is increasingly being discussed as a salient stakeholder for firms (e.g. Norton, 2007; Thompson and Driver, 2005; Takala and Pallab, 2000).

Much of the existing literature that explores the role of stakeholders in influencing a firm's environmental strategies appears to start from the position that the key issue is the pressure that stakeholders bring to bear to on the focal organisation (e.g. Ramanathan, Poomkaew & Nath, 2014). A number of studies take the view that firms tend to adopt environmental strategies as a result of stakeholders' demands, and they are therefore concerned with evaluating the extent to which stakeholders put pressure on organisations to adopt environmental practices (Delmas, 2001; Henriques

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and Sadorsky, 1996, 1999; Sharma and Henriques, 2005). Not only the influencing strategies of direct stakeholders are considered, but also the role of indirect stakeholders, i.e. those that do not control resources but may have an impact on the focal organisation via other significant stakeholders (Henriques and Sharma, 2005). Eesley and Lenox (2006) focus upon the issue of action by "secondary" stakeholders (i.e. those that do not have formal contractual arrangements with the focal firm) and its impact on a firm's environmental responses. Murillo-Luna, Garces-Ayerbe and Rivera-Torres (2008) propose four types of environmental response pattern (ranging from the least to the most proactive) depending on configurations of both the scope of environmental objectives and allocation of internal resources; this study seeks to understand the impact of stakeholder pressure on the choice of environmental response pattern. The relationship between managers' perceptions of stakeholder pressure and the degree of proactivity of a firm's environmental strategies appears to be moderated by managers' perceptions of environmental issues as competitive advantage opportunities (Garces-Ayerbe, Rivera-Torres and Murillo-Luna, 2012). In addition, the moderating effects of firm size is observed in Darnall, Henriques and Sadorsky's (2010) study, which suggests that the relationship between stakeholder pressures and environmental strategy tends to vary with the size of the firm.

In this study we seek to go beyond a 'stakeholder pressure' approach (e.g. Murillo-Luna *et al*., 2008; Garces-Ayerbe *et al*., 2012) by viewing the role of stakeholders in a firm's environmental strategies from a different perspective. We treat stakeholder engagement as a mechanism through which an organisation develops new capabilities to form environmental responses. Some authors (Di Stefano, Peteraf and Verona, 2010; Teece, Pisano and Shuen, 1997) refer to such capabilities as second-order capabilities or dynamic capabilities through which organisations reconfigure their resource base to better match the external pressures and challenges they face. In the context of a low carbon economy such challenges arise as a result of pressures from government and regulators to reduce carbon and minimise 'environmental' impact (Climate Change Act, 2008; European Commission, 2010, 2012 Scottish Government, 2010); from customers as the demand for environmentally-friendly goods and services is increasing resulting in 1.5% growth in environmental goods and services sector (EGSS) in

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the UK during 2010-12 (Office for National Statistics, 2015); and from competitors as the 'sustainability agenda' is seen as a source of differentiation (Orsato, 2006; Reinhardt, 1998).

We combine elements from stakeholder theory (with a particular interest in categories of environmental stakeholders) with a resource-based view (RBV) perspective to understand how stakeholder engagement could lead to building environmental capabilities. In doing so, we review the typology of environmental stakeholders against the well-established frameworks (Fineman and Clarke, 1996; Henriques and Sadorksy, 1999) and more recent developments in the field (e.g. Buysse and Verbeke, 2003; Murillo-Luna *et al*, 2008; Darnall *et al*, 2010). The purpose of this study is to explore the role of environmental stakeholders in building environmental capability and to understand the significance of such a role in the context of transition to a low carbon economy. This perspective goes beyond the technical processes of accumulating and combining resources that have value-creating features, and explores the role of stakeholder engagement in building environmental capabilities. It advances the understanding of the role of environmental stakeholders as not just parties that apply pressure to which the focal organisation must respond, but also as a vital resource for building a firm's capabilities to succeed in the transition to a low carbon economy.

Environmental capability: definition and capability building through stakeholder engagement

Considerable research has been undertaken to explore the role of firm-specific capabilities in the pursuit of competitive advantage. The vast majority of existing research considers internal sources such as skills and routines (Nelson and Winter, 1982) as the main sources for capability building in organisations. External sources have also been explored to an extent, including consideration of the role of formal and informal relationships with other firms (Gulati, Norhia & Zaheer, 2000); the degree of network density that affects the capability building of the firm (Coleman, 1990; Burt, 1992; McEvily and Zaheer, 1999; Ahuja, 2000); and the effects of different types of network ties on capability acquisition by individual members and through interactions with each other (McEvily and Marcus, 2005; Mahmood, Zhu & Zajac, 2011).

For the purpose of this study, we develop a definition of the environmental capabilities by utilising the concept of 'ecological footprint' (Hart, 1997). Thus, a firm's environmental capabilities are capabilities that allow a firm to reduce its ecological footprint. As a part of a firm's strategic capabilities, they are significant for the success of the firm's environmental strategies (Rugman and Verbeke, 1998; Klassen and Whybark, 1999; Aragon-Correa and Sharma, 2003; Buysse and Verbeke, 2003) These capabilities can include, for instance, environmental management skills and routines, product/service design with a focus on sustainability, waste management, resource efficiency skills and practices and others that focus on the reduction of the ecological footprint of the firm. We would also note that the concept of ecological footprint could be defined sufficiently broadly to include the impact of the firm's activities in supporting a reduction in the ecological footprint of key stakeholders such as its customers.

The existing literature on capability building is dominated by studies which emphasise capabilities as being internally generated, with heterogeneity primarily arising from imperfections in factor markets (Barney, 1986), distinct organisational skills and routines (Nelson and Winter, 1982), causal ambiguity and uncertain imitability (Dierickx and Cool, 1989) and deliberate investment in learning and making improvements (Zollo and Winter, 2002). In this study we argue that, while an internal focus on capability-building is critical, it has to be inclusive of the external perspective on capability building. A better understanding of the role of stakeholder engagement as a mechanism through which opportunities for capability building are realised contributes to strengthening the perspective of 'externality' on capability building and further empirical insights into dynamic capabilities (Di Stefano, Peteraf and Verona, 2010; Teece, Pisano and Shuen, 1997).

In considering the role of stakeholders in the development of environmental capabilities, we focus our attention on the part played by environmental stakeholders, which are traditionally categorised into four main groups (Fineman and Clarke, 1996): (1) groups whose manifest mission is to care for the planet (national and local green pressure groups and individual champions); (2) regulators and government; (3) stakeholders within various green interests (financial stakeholders, customers, suppliers and the media); (4) internal stakeholders. While a number of variations on the above four categories have been suggested (see Garces-Ayerbe *et al*. (2012) for an overview), Fineman and Clark's categorisation

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remains a widely adopted typology, including recent citations in some of the most influential papers on the topic of stakeholders and the environment (e.g. Eesley & Lennox, 2006; Murillo-Luna *et al*., 2008; Darnall *et al*., 2010; Garces-Ayerbe *et al*., 2012).

In order to understand why Fineman and Clarke's (1996) framework remains central to current debates around environmental stakeholder types, we introduce Table 1 (below) which summarises the main frameworks found in the existing literature. In Fineman and Clarke's typology, three of the four categories represent stakeholders that are all external to the organisation, while internal stakeholders are grouped together in a single category. Reflecting on the three external categories, Fineman and Clarke's typology: (1) recognises the importance of regulatory pressures, (2) recognises the importance of societal pressures, such as lobby groups, and (3) suggests that the remaining stakeholders (suppliers, customers, shareholders etc.) can, for the purposes of creating a useful yet straightforward typology, be placed in single group with indirect or largely economic interest in the focal organisation. Despite a number of recent developments in the typology of environmental stakeholders, all of them bear some strong resemblances to Fineman and Clarke's original typology. For instance, all have a category that emphasise regulatory stakeholders, and a category that recognises some form of societal pressure on the focal organisation. Variations around these core themes, and any modifications introduced, are summarised in Table 1. In summary, we suggest that the debate around a typology of environmental stakeholders has not moved on significantly since the categories proposed by Fineman and Clarke (1996). In this study, we seek to move the conversation forward by viewing environmental stakeholders as sources for building the environmental capabilities of the focal organisation, and by highlighting emerging groups of stakeholders now playing a role in capability building that have received little discussion in the literature thus far.

INSERT TABLE 1

This study considers the current relevance of such categorisations of environmental stakeholders to the shifting focal organisation-environmental stakeholder interactions as a result of the increasing regulatory pressures towards the transition to a low carbon economy. In the recent call to renew the

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focus on stakeholders interaction in pursuit of environmental strategies, Buysse and Verbeke (2003) urge "not to take mainstream classifications of environmental strategies or relevant stakeholder groups found in the academic literature for granted" (p. 468); they call upon researchers to investigate the profiles of the firms concerned and their stakeholder groups. We argue that it is time to re-consider the most widely cited groupings of environmental stakeholders in the existing literature, and to explore the need to enhance such frameworks in the light of new empirical data, to bring a "temporal dimension" to stakeholder management (Verbeke and Tung, 2013, p. 529).

Our preliminary conceptual framework of the role of environmental stakeholders in building a firm's environmental capabilities is shown in Figure 1.

INSERT FIGURE 1

From this perspective, environmental stakeholders are seen as significant parties in building the environmental capabilities of a focal organisation. Capability building can take place as a result of engagement between a focal organisation and a variety of stakeholders. This approach opens up opportunities for broader consideration of capability building, including via organisations that do not have direct ties with the focal firm yet are critical to capability building, for example governmental agencies and funding institutions in the context of the transition to a low carbon economy. Such considerations may contribute to the on-going debates about the possible origins of capabilities (Ethiraj *et al*, 2005).

We do not suggest that every instance of stakeholder engagement will result in building environmental capabilities. For example, the duration, scope and impact of engagement with various environmental stakeholders need to be considered. However, we suggest that environmental capabilities have the potential to impact upon the firm's environmental strategy and thus support the transition to a low carbon economy. Although this view provides a useful framework for the study, a number of possible limitations should be borne in mind. First, the concept of environmental capability needs to be better understood to allow a stronger focus on the firm's capabilities in supporting sustainability initiatives. Second, existing typologies of environmental stakeholders need to be revisited in the light of recent

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growth in the low carbon economy (DBIS, 2015; Carbon Trust, 2014a; European Commission, 2016). Third, the relationships between the constructs need to be better explored and conceptualised to account for the diversity of environmental stakeholders and their patterns of engagement with a focal organisation.

The study makes two significant contributions to the existing literature on stakeholders and capability building. The first contribution is the identification of a number of emerging environmental stakeholders in the context of the accelerating transition towards a low carbon economy. Alongside providing confirmation of some well-established categories of environmental stakeholders (Fineman and Clarke, 1996; Henriques and Sadorsky, 1999; Buysse and Verbeke, 2003), we identify the emergence of the following groupings: local government; environmental management accreditation companies such as the Carbon Trust; funding institutions, for instance ERDF (European Regional Development Fund); HEIs and training companies; competitors and the public. We also observe that other stakeholder groups are becoming less prominent, for instance lobby and green pressure groups.

The second contribution of this research is that we explore the role of stakeholders in building the focal firm's capabilities, specifically environmental capabilities. Our research finds examples of environmental capabilities of focal organisations developed as a result of engagement with a variety of environmental stakeholders. We develop a typology of environmental stakeholders based on patterns of stakeholder engagement for capability building.

Research Approach and Methods

This study was carried out as part of the Low Carbon Economy Engaged Research Project (LCEERP), a collaborative research project between Derby Business School (University of Derby, UK), Derby City Council and Derbyshire County Council, UK. A multiple-case research design has been adopted in this study (Yin, 2003). A multiple-case design has distinct advantages when compared to a single case design, as it allows the researcher to gather and work with rich materials across multiple cases, gain greater insights into the phenomena under investigation and reflect on the limitations presented by the various contextual settings of the cases studied (Herriott & Firestone, 1983).

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The data was gathered in six UK companies operating across a range of sectors at the heart of the transition to low carbon: construction and design (2 companies), water (1 company), rail (1 train operator and 1 passenger rolling stock manufacturer) and a health services provider. Four of the six companies operate both in the UK and internationally. For reasons of confidentiality, we refer to them here as ConstructCo, DesignCo, WaterCo, TrainCo, PRSMCo and HealthCo respectively.

The sector selection was motivated by a high degree of governmental and regulatory involvement in supporting carbon reduction and energy efficiency sector strategies and the demonstrable progress towards reduction of the environmental impact in the sector. For instance, the rail sector reported 10% reduction in its carbon footprint in 2013-14 compared to 2010/11 (Network Rail, 2014). In the recent water sector strategy review, Ofwat (2016) confirms a significant progress of cutting greenhouse emissions by 11% during 2010-2014 and sets targets to achieve a further £1.3 mln cost reduction including energy efficiencies by 2021 (Ofwat, 2016). The NHS has recently reported reduction of 12% in carbon emission between 1990 and 2015. In line with the sector Sustainable Development Strategy (NHS, 2013), it identifies a further 28% reduction by 2020 on the 2013 baseline (NHS, 2016). The construction sector reports the increase in energy efficiency for new homes and new building by 2.2 percentage points during 2008-2013 and a reduction in domestic carbon emissions by 9% and by 18% in industrial, commercial and public sector emissions (DCLG, 2015).

The research was carried out over a five month period (January-June 2013) during which a series of semi-structured interviews were carried out in the case study organisations. We have carried out six main interviews, one in each of the six case study organisations, and each of them was followed up by a secondary interview carried out either face-to-face or over the telephone. This was also supported by e-mail exchanges to clarify the information given in interviews and to gather additional information required to understand the organisational approach to low carbon orientation and specifics of the stakeholder management practices in the context of transition towards the low carbon economy.

All but one of the main interviews were recorded and transcribed. The interviews typically lasted between 45 minutes and 1 hour. Of the secondary interviews, one was recorded and transcribed. When

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an interview was not recorded, notes were taken and written up immediately after the interview. The secondary interviews typically lasted between 30 and 45 minutes. A brief description of the interviews carried out, including the number of interview participants and their position within the case organisation, is presented in Table 2.

INSERT TABLE 2: LIST OF INTERVIEWS

The individuals selected for interview occupied senior positions within the organisations studied, with particular responsibility for managing sustainability initiatives and projects and overseeing the sustainability agenda at a strategic level within their respective organisations. As Table 1 shows, the interviewees held a wide range of positions within their organisations, from Managing Director of the company studied to Health and Safety and Sustainability Manager with a broad remit including carbon management and carbon reporting. All the research respondents were briefed about the aims and the scope of the project prior to the interviews taking place. The respondents were asked for permission to record the interviews. When permission was given, a digital recorder was used to record the interviews.

The interview schedule was designed to encourage open-ended responses that allowed interviewees to elaborate on low carbon and sustainability strategies in their organisations, successes and failures to date and issues around stakeholder networks and stakeholder management in addressing the challenges presented by the transition to a low carbon economy. Topics covered in the interviews were:

1. Challenges and opportunities presented by the transition to a low carbon economy;

2. Organisational responses to low carbon initiatives at local, regional and national levels;

3. Past, present and future sustainability and low carbon projects;

4. Stakeholder management, in the context of sustainability and low carbon projects;

5. Capability building practices and opportunities.

The above research process generated over 140 pages of transcribed interview materials and over 50 pages of interview notes. Analysis consisted of searches for themes relating to stakeholder management and low carbon strategies, both within-cases and across-cases. This allowed for cross-case syntheses (Yin, 2003) to surface more complex and broader issues than simply analysing single features of each

case. We have used thematic analysis (TA) (Braun & Clarke, (2006) as a method of identifying, analysing and reporting patterns (themes) with the data. In our approach to data analysis we have followed the stages of TA which are: data review; data coding; theme development; and refinement of key themes (Braun & Clarke, 2006).

Results

One of the first research avenues in the study was concerned with the notion and categorisation of environmental stakeholders of a focal organisation. A key theme that emerges from all of the cases studied is the variety of environmental stakeholders they engage with.

Variety of environmental stakeholders

Our results show the emergence of a number of groups of environmental stakeholders within the widely accepted categorisations offered by the existing literature (Fineman and Clarke, 1996; Henriques and Sadorsky, 1999; Buysse and Verbeke, 2003). In the interests of simplicity, we use the above four categories as the initial basis against which we discuss our results. We consider each category in greater detail below. We began our analysis by considering any instances where our data provides on-going support for existing frameworks. Table 3 provides examples of quotations from our interviewees, discussing their experiences of working with stakeholders in the four categories that Fineman and Clarke (1996) put forward.

INSERT TABLE 3: ENVIRONMENTAL STAKEHOLDER GROUPINGS IN LINE WITH FINEMAN AND CLARKE'S (1996) CATEGORISATION

Our study provides evidence for the continued importance and impact of these four broad environmental stakeholder groupings:

(1) **Green pressure groups/lobbyists**: interestingly, this was the group that was least discussed by our interviewees. As shown in Table 3, our interviewee from PRSMCo noted that there could be tensions between the agenda of the 'green lobby' and the agenda of his firm, although he felt that both were intending to pursue the same ends of reducing damage to the environment.

(2) **Central government and regulators**: the importance and power of this group emerged strongly from the data we gathered. Our interviewees felt that their activities were closely observed by central government and regulators; performance targets had to be met, and business plans were closely monitored.

(3) **Stakeholders with various green interests**:

Fineman and Clarke (1996) identify the stakeholders in this group as those who have an indirect interest in industry's environmental performance: 'they do not sponsor environmental protection, but are happy to enjoy the rewards of greener services, processes or products, if they serve their needs or profits' (1996, p.717). Fineman and Clarke observe that in this group they found financial shareholders (speculators and banks), customers, suppliers and media. In relation to these categories our findings confirm:

   a. **Financial shareholders:** this group was confirmed to be important by organisations whose shares exposed them to the financial markets. Payback period is a major criteria for capital investment in green initiatives. TrainCo and WaterCo commented that the industry benchmark for green investments is a payback period of two and a half to three years.

   b. **Customers and suppliers:** our interviews provided a rich array of data to support the importance of this group. The managers interviewed stressed the need to put customer desires around environmental improvement at the heart of their organisations' activities; to work closely with suppliers to meet the needs of customers and the environment.

   c. **Media:** the importance of relationships with the media was discussed throughout the interviews. Use of the media to create a positive image by communicating 'green' credentials was particularly important for companies working in the rail, water and construction industries. For these companies, positive public relations exercises were seen as a means to secure the attention of the key stakeholders in bidding processes, i.e. central and local government in the case of these industries.

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(4) **Internal (management and staff):** we have gathered a rich array of data supporting the importance of this stakeholder category. Our interviewees talked about the important role of senior management in leading change on environmental issues. They pointed to the need for good ideas to emerge and to be supported at all levels in their organisations, commenting at length on the enthusiasm of many employees for taking on the roles of 'environmental champions'. Appointment of environmental champions to lead the sustainability initiatives was evident in five out of six case organisations studied:

Emerging groupings of environmental stakeholders

Going beyond the established categories of environmental stakeholders, our data provides evidence of the importance of a number of additional stakeholder groupings which are not explicitly covered by existing frameworks (such as Fineman and Clarke, 1996; Henriques and Sadorsky, 1999; Buysse and Verbeke, 2003). In line with Verbeke and Tung's (2013) assertion that "a firm's relationships with its stakeholders evolve over time" (p. 540), our interviewees confirmed their engagement with a greater variety of environmental stakeholders than ever before:

"It's not just customers. There is also the wider stakeholders and the reputation of the company because a lot of investors and others look at how you manage climate change. What is your impact on climate change and impacts of climate change on you as a reputational issue and as a proxy for the risk management" (Sustainability Change Project Manager, WaterCo).

Table 4 illustrates quotations from our interviewees that draw attention to the emerging stakeholder groupings. The importance of these groups has not been explored in the existing literature. These stakeholder groupings range from local government (including city and county councils), through a range of bodies that provide funding, environmental accreditation, research, consultancy and training, to the members of the public more generally.

INSERT TABLE 4: EMERGING GROUPINGS OF ENVIRONMENTAL STAKEHOLDERS

We now comment on the significance of each of the stakeholder groupings identified in the context of the transition to a low carbon economy.

- **Local government, city and county councils**: It was perhaps unsurprising to find (as illustrated earlier) that central departments of the UK government are important stakeholders for the case study companies (as suggested by Fineman and Clarke, 1996). However, we also observed increasing involvement from local government (such as city and county councils). The role of local authorities is also seen as one of stewardship and a 'figure ahead' in adopting and supporting the transition to a low carbon economy: "…by doing that and the council engaging in it, then I think people will get on board if they think the council's all for this and I think they'll start to work with the council towards sustainability" (Sustainability Change Manager, HealthCo).

- **Environmental management accreditation bodies**: our data provides strong evidence of the importance of working with this group of stakeholders. The case companies worked with a range of institutions on ISO14001, as well as other providers of environmental management accreditation. The Carbon Trust is seen as well recognised by business practitioners for their accreditation service which allows companies to achieve a Carbon Trust Standard (Carbon Trust, 2014b).

- **Higher education institutions (HEIs), and other research institutions and training providers**: universities and other training and research institutions are increasingly taking part in low carbon debates, providing degree-level qualifications, engaging in research opportunities and forming partnerships to build competences in low carbon. The managers interviewed provided examples of their companies working with HEIs and other organisations as providers of training, consultancy and research on issues related to the transition to the low carbon economy. Such institutions are now valued partners in the provision of relevant research and training.

- **Funding institutions:** A range of European and UK institutions such as ERDF provide funding streams to support low carbon economy growth at national and regional levels. Our interviewees commented on the importance of green credentials for successful bid applications, for instance: "Bidding processes - it's not just about the price anymore. So, without specifically asking us for things they're driving a green agenda by writing it into, well, you're going to get scored better

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points if you do more green stuff than the competitor who doesn't, so they don't tell us what but they do look at what you do and they kind of want to see improvements so we get driven that way" (Health, Safety and Environment Manager, PRSMCo).

- **Competitors:** this category was not explicitly identified by Fineman and Clarke (1996) as one of the groups in the category of 'stakeholders with various green interests'. Our data confirms that in all cases, the competitors were seen as an important group in the formulation and implementation of low carbon and sustainability initiatives. In the railway industry, for instance, the train operators are actively collaborating with their competitors, either to lobby central government and regulators to ensure support for their initiatives or to develop collaborative projects to improve performance and their 'green' credentials.

- **The public:** The managers interviewed stressed the importance of being a "good corporate citizen" of the city and region in which their firms are based. They also discussed the need to consider the safety and convenience of the general public more widely, whether the individuals concerned were likely to consider themselves to be "customers" of the organisation in question in any direct sense or not: "Our future as a business, our credibility within the community we live in is at stake…our credibility as a citizen of Derby is at stake" (Health, Safety and Environment Manager, PRSMCo).

This extension to the recognised set of environmental stakeholder groupings offers an important development in the categorisation of green stakeholders proposed by authors in the existing literature (such as Fineman and Clarke, 1996; Henriques and Sadorsky, 1999; Buysse and Verbeke, 2003). Table 5 provides a summary of the groups of environmental stakeholders identified in the study and emergent trends in the context of the transition towards a low carbon economy.

INSERT TABLE 5: ENVIRONMENTAL STAKEHOLDERS: EMERGING TRENDS IN THE CONTEXT OF TRANSITION TO A LOW CARBON ECONOMY

The identification of emerging groups of stakeholders provides an important opportunity for more refined consideration of the role that these groups play in the transition towards a low carbon economy.

In particular we note that for the six case organisations studied, the increasing variety of environmental stakeholders presents opportunities for building environmental capabilities.

Building Environmental Capabilities via Stakeholder Engagement

Our data reveal that engagement with stakeholders can lead to the development of low carbon-related capabilities. In the case of ConstructionCo, an initial order from a well-known supermarket chain to design and project-manage a build of 'sustainable' store format resulted in the development of major capabilities in sustainable building solutions. The initial project, requested by a customer, resulted in the development of strategic capabilities in sustainable building solutions, which allowed the company to become a major player in the sustainable construction sector in the UK. Thus, working with customers, as one of the stakeholder groupings, has allowed ConstructionCo to develop their sustainable-build capabilities over-time and not just as a one-time occurrence.

> "We've just finished our biggest store we've ever done… that's a massive 800 cubic metres of timber in that one and we came in at minus 356 tonnes, awesome figure to be you know. Okay and then (*name of supermarket*) is up there so (*name of second supermarket*) is never far behind. So what (*name of second supermarket*) said they are doing timber stores, we want timber stores so we said oh yeah course we can, yeah we'll go for that. And we went from doing one store which has rocketed and steel went down and timber went up. And we even changed the name of our company, we used to be called (*former company name involving steel*) and we changed it to (*new company name*). We could easily call it just X Timber now because we sell, well say 2008 we sold 10,000 tonnes of steel and last year we sold 22,000 tonnes" (Head of Safety and Sustainability, ConstructCo).

In the case of WaterCo, partnership working with universities resulted in the development of award-winning sewage treatment technology:

> "We have partnerships with [name of university]…. specific people on R&D, and there was one recently that won an award, this is because of a sewage treatment works, we have to blow air into the sewage to help it to be digested. That's a very energy intensive thing to do and it's working with somebody, they've designed a way to do that more efficiently" (Sustainability Change Project Manager, WaterCo).

The technology developed is now used by the water company to build capabilities in sustainable water treatment. The company has since established a business unit that oversees the use of this technology within the company and offers sustainable water treatment solutions on to other water companies in the UK on a commercial basis.

As for TrainCo, as a result of a contract to upgrade lighting systems at the stations that are leased from Network Rail and operated by the TrainCo, a new lighting control system was installed across the six stations to reduce energy use and cut energy costs to the business:

> "We've said okay, we are going to invest £100,000 of our own money in 6 stations. Some of their stations, the one extreme, [name of the station] is our biggest single electricity user out of our stations. We use a quarter of a million units of energy every month, our energy bill is about £20,000 a month, so it is a big cost to our business. The lighting control system does not work. …We've just said, you know what, we are going to rip your control out and put one in that we want. Which Network Rail still has to sign off and approve because it is their stations. That will massively improve the controls of the station. So across all of these six sites our £100,000, as well as saving us money and reducing our carbon emissions and those sorts of things will allow us to learn an awful lot" (Head of Environment, TrainCo).

Throughout the interviews our respondents referred to a wide range of practices that their companies adopt to support a sustainability orientation and low carbon projects through the environmental stakeholder groups identified earlier. Table 6 presents illustrative accounts about the engagement with various stakeholders resulting in capability building of a focal organisation.

INSERT TABLE 6: ENVIRONMENTAL CAPABIILTY BUILDING AND STAKEHOLDER ENGAGEMENT

Whilst the interview data illustrates the many potential benefits of stakeholder engagement, our study also offers some insight into the potential downsides associated with it. These pressures, articulated in a number of our interviews, are illustrated by these two comments: "We're measured on those [carbon performance targets] by lots of different people, Environment Agency, Drinking Water Inspectorate and everybody …" (WaterCo) and

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> "So our relationship with [our parent company] is good. They set us some high level objectives and will
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> let us get on and try and deliver them. To deliver them we have to interact with lots of other organisations.
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> Network Rail … the rolling stock companies, government, local authorities, there's lots and lots of
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> different stakeholders that all have an influence over what we do and sometimes make it easier to do
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> things, but most of the time adds complication to getting stuff done. This is one of the sort of frustrations
>
> that we have" (Environmental Manager, TrainCo).

Our data illustrate the tensions that can develop whilst engaging with environmental stakeholders
(alongside the potential benefits) as a by-product of the increased complexity of working with a range
of other parties. Our interviewees found themselves facing a wider set of influences and demands, and
under pressure to meet a broader range of performance criteria. It appears that these potential constraints
on "getting things done" should also be borne in mind by organisations working with multiple
environmental stakeholders.

Discussion

Environmental stakeholders: emerging trends

It has been argued that due to current societal shifts, "the roles that the government, business, and civil
sector organizations play in society, and the way in which functions and responsibilities are distributed
between them, have to be considered in depth" (Fifka, 2013, p. 352). An increase in the variety of
environmental stakeholders requires a fresh look at their categorisation, and at their relationship to a
focal organisation. Fineman and Clarke's (1996) categorisation which includes the four groups of
stakeholders discussed earlier, provides the basic typology; as mentioned above, more recent authors
have made some adaptations to it. Existing frameworks do not, however, reflect the growing complexity
of the environmental stakeholders and stakeholder engagement dynamics in the context of the transition
to a low carbon economy.

Our study reveals a temporal dimension in conceptualising stakeholder engagement. Some types of
stakeholder are developing into stronger groupings; they are emerging over time as more influential
stakeholder types, whilst others may be losing their dominant position. We have identified a number of

emergent groupings, including local government; environmental management accreditation companies such as the Carbon Trust; funding institutions, for instance ERDF; HEIs and training companies; competitors and the public. Other stakeholder groups, on the other hand, are perhaps becoming less prominent, for instance lobby and green pressure groups. Originally identified by Fineman and Clarke (1996) as one of four categories of environmental stakeholders, these groups have less of a presence in our respondents' considerations for successful green strategies and capability building. In their view, lobby and green pressure groups are still an important part of the green agenda and socio-political landscape for sustainability, yet they are now less prominent when compared to other environmental stakeholders. Thus, our study provides evidence of the temporal nature of stakeholder engagement, which supports Verbeke and Tung's (2013) temporal perspective on stakeholder management theory. If "a firm's competitive advantage fundamentally depends on its capacity for stakeholder management related, transformational adaptation over time" (Verbeke and Tung, 2013, p. 529), then it is important to explore further how the focal firm's new capabilities are built with the support of stakeholder engagement.

Environmental capability building through stakeholder engagement

Stakeholder engagement is seen as a mechanism for environmental capability building. Our analysis suggests that in all the cases studied, there is evidence for environmental capability building which is more than a one-time occurrence; this is illustrated in Table 6. We conceptualise that from the point of view of a focal organisation, stakeholders can be categorised in terms of how the focal organisation can engage with stakeholders to build their environmental capabilities. This is particularly relevant in the context of the growth of the low carbon economy (DBIS, 2015) where the access to capabilities for technology development, low carbon innovation, green skills, environmental management, funding and other aspects are becoming increasingly important for the success of sustainable business strategies.

The conceptual framework developed in this study groups environmental stakeholders in relation to the layers that a focal organisation can access to build environmental capabilities (Figure 2). This framework provides a range of insights with regard to the proximity of the stakeholder groups to a focal

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organisation, approaches to stakeholder management and capability building. It offers a nuanced perspective on stakeholder engagement, where it is no longer viewed simply as a range of connections of a focal organisation with a variety of stakeholders; stakeholders can now be considered in layers, depending on the capability building potential that they may offer.

INSERT FIGURE 2 HERE

A range of internal stakeholders can be identified in the *internal capability layer* of a stakeholder network of a focal organisation. Although these groups are often defined as managers and employees (Fineman and Clarke, 1996; Harvey and Schaefer, 2001), possible categorisations for stakeholders in this category could reflect functional or divisional specialisation. Throughout the study, the involvement of managers and employees in sustainability and low carbon initiatives was seen as critical to the success of these initiatives. These stakeholders offer a vital opportunity for capability building, whereby their skills, knowledge and practices are developed to meet the priorities of sustainability and the organisation's low carbon initiatives.

Environmental stakeholders in the *immediate capability layer* are at close proximity to a focal organisation, enabling them to draw on customers for business continuity; on suppliers for resources and competencies; and on competitors for opportunities to develop a collaborative advantage (Dyer, 2000). These groups of environmental stakeholders are becoming increasingly important; our respondents acknowledged that the success of low carbon initiatives depends on these stakeholders in a variety of forms. For instance, the case organisations were responding to customer demands for green products and services in the case of ConstructCo and DesignCo; they needed to work closely with suppliers to support low carbon initiatives in the case of HealthCo, TrainCo and PRSMCo; and they were building co-operation strategies with competitors to support green innovation in the case of TrainCo and WaterCo. In addition, they were also scanning competitor initiatives around sustainability, in order to stay ahead of the competition.

Our analysis confirms that competitors, as one of the environmental stakeholders in this layer, are becoming increasingly significant. Our findings on relations between the focal organisation and its

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competitors appear to correspond with the results of other recent studies (Wang and Krakover, 2008: Dari, 2010; Kylanen and Rusko, 2011) which all point to a complex set of emerging relationships where competition and collaboration/coopetition sit alongside one another. The capability building opportunities with this emergent stakeholder grouping are associated with the collaborative practices at a sector/industry or regional levels resulting in joint development of 'green' technologies and/or lobbying of the regulator in relation to 'green' initiatives.

The immediate capability layer of stakeholders is very close to a focal organisation; interactions with these stakeholders are frequent and feedback is fast (it could be termed as 'immediate'). This layer is also critical to the day-to-day operations of the focal organisation, and this can present frequent opportunities for capability building. Stakeholders in the immediate capability layer have a high degree of influence over the success of the low carbon initiatives of a focal organisation due to the intensity of interactions and criticality of these relationships to business continuity and hence the success of sustainable business strategies.

A number of important stakeholders form the *outer layer* of the environmental stakeholders. In general, the relationships with stakeholders in this group lack frequency and intensity when compared to the relationships with the stakeholders in the immediate layer. They are seen as less critical to the business continuity of a focal organisation when compared with stakeholders in the immediate layer such as customers or suppliers. Yet, they can be important with regard to building 'niche' environmental capabilities to take advantage of 'green' growth. We have identified a number of emergent groups of stakeholders in the outer network layer that fit with Fineman and Clarke's (1996) categorisation of environmental stakeholders with various green interests. Our data revealed that the case organisations studied are increasingly interacting with funding institutions, environmental management accreditation companies, HEIs and training providers ensuring skills development for the low carbon sector.

The nature of interactions between the focal organisation and its stakeholders in the outer layer differs from the immediate layer. Relationships in the outer layer are often ad hoc, one-off partnership agreements/contracts or project-based activities. Despite these characteristics, the interactions in the

outer layer are often formed when a company's strategic intent has a strong sustainability orientation. The engagement with stakeholders in this layer can place significant resource allocation and management demands on the focal organisation, and thus it needs to be a part of the strategic focus of the organisation supported by considerable buy-in from senior management.

This layer hosts the majority of the emerging environmental stakeholders identified in the study, including funding institutions, environmental management accreditation and consultancy firms, HEIs and other research institutions. The capability building patterns in this layer are: developing competences in managing carbon emissions and entering 'green' supply chains through environmental management accreditation; developing green products/services and technologies in collaboration with HEIs and other research institutions; accessing funding and project expertise to support development of supply and demand side of the LCEGS market.

The stakeholders in the *conditions for capability layer* are those who play an important policy-making and regulatory role in setting the conditions for building organisational capabilities towards the low carbon transition. Such conditions are set by the UK government and regulatory bodies through a range of key policies, regulations and initiatives that have driven public and private companies to invest in low carbon and sustainability initiatives. Examples of these policy-making and regulatory documents include: The Renewable Obligations (2002), The Climate Change Act (2008), National Renewable Energy Action Plan (2010) and The Carbon Reduction Commitment Energy Efficiency Scheme (2010), amongst others. Alongside the central governmental institutions which provide regulatory frameworks for carbon reduction (e.g. DECC, DEFRA), local government organisations are becoming increasingly important for setting and supporting regional low carbon strategies.

Our study confirms the importance of local councils (city and county) in supporting carbon reduction strategies for transport, infrastructure, water supply, construction and public services. In this layer of environmental stakeholders, the emerging significance of the local councils, the public and media is observed. The patterns of capability building through engagement with local councils include the

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council-business-public interaction around the delivery of public services (bus routing, waste collection and recycling schemes) and the construction projects with emphasis on low carbon and sustainability.

The public and media form an important part of this network layer as their support and 'buy-in' into the low carbon and sustainability agendas are critical conditions for successful formation and development of low carbon markets in the UK and globally (Green Alliance, 2013). The capability building patters through engagement with the public include a better understanding of the preference for green product and services and responding to these demands through products, services and business models which support the sustainability agenda. The patterns of capability building though engagement with media are observed around positioning, brand development and brand recognition with emphases on sustainability credentials and the development of company's reputation to support bidding for governmental contracts and franchises, as for instance in rail and rolling stock industries.

Our study confirms the importance of setting the right conditions to raise awareness about the opportunities presented by 'green' growth, as well as to provide regulatory frameworks, access to funding and expertise necessary for companies to engage with the low carbon agenda. In theoretical terms, conditions for capability building have an important impact on how well companies recognise and exploit the capability building opportunities present in their environment. In the context of the transition to a low carbon economy, such conditions are fundamental to the 'greening' of the economy in the UK and beyond.

In our view, the capability building process does not need to be sequential; a focal organisation can tap into each of the four layers to engage in capability building. In the case organisations studied, capability building to support sustainability and low carbon orientation often started in other layers, rather than the internal capability layer. For instance, in the case of ConstructCo, the environmental capability building was prompted by a customer request, and started in the immediate layer of the environmental stakeholder network. WaterCo developed a waste treatment technology and subsequent capabilities as a result of engagement with a university. TrainCo worked with a sector regulator to develop capabilities for managing railway stations in a more sustainable manner.

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Conclusion

In this paper we bring together two perspectives, stakeholder management and the resource-based view of strategy, to advance our understanding of how organisations build environmental capabilities in the context of the transition to a low carbon economy. The contribution of this study is twofold. First, having noted calls to challenge the established groupings of environmental stakeholders in the existing literature (e.g. Buysse and Verbeke, 2003), we both find support for some well-established categories of stakeholder, and point to the importance of a range of emerging groupings of environmental stakeholders, not previously discussed in the literature. Second, we go beyond a simple listing of stakeholders to establish what a 'managing for stakeholders' approach (Harrison *et al*, 2010; Freeman *et al*., 2007) might mean in the context of the transition to the low carbon economy. We see that new capabilities are developing as the focal organisations make key strategic decisions including substantial allocations of resources across multiple domains. We find evidence of organisations moving away from an essentially reactive approach to managing their environmental stakeholders, as they develop their environmental capabilities. This perspective of focusing on a wider range of stakeholders, and the opportunities they can offer in terms of building environmental capabilities, can lead to a more proactive approach to environmental management (Buysse and Verbeke, 2003). As Harrison *et al*. (2010) suggest, sustainable competitive advantage can be drawn from an approach that actively builds trust and information-sharing between the focal organisation and its stakeholders, as well as a more sophisticated approach to resource allocation and the fostering of innovation.

Our framework (shown in Figure 2) highlights the layers of environmental stakeholders that can be used by organisations as they build their environmental capabilities. Many organisations have learnt to pay attention to the capabilities offered by their internal stakeholders (first layer, 'internal capability') and some of the more proximate players in their immediate external environment (second layer, 'immediate capability'). However, our study suggests that as the focal organisation broadens its sustainability agenda to include the players listed in the third and fourth layers ('outer capability' and 'conditions for capability'), managers seek to build their organisation's environmental capabilities by working with this wider set of stakeholders, many of which are less familiar to the focal organisation. Moreover, new

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ways of working with these stakeholders will be required in the future if the full potential of the opportunities presented by the transition to the low carbon economy are to be realised.

Future research should consider the temporal dimension of emerging stakeholder networks, as our study suggests that the role of environmental stakeholders in capability building is changing over time. Our analysis suggests that for some focal organisations, certain categories of stakeholder may have become less prominent over time (e.g. 'green lobby' groups, for some interviewees in this study) while other groupings are becoming more important (such as a range of funding bodies and local government organisations).

Further research is also required to build on the framework shown in Figure 2. We recommend more qualitative work to explore in greater depth how the range of stakeholders identified can contribute to capability building in the focal organisation; to understand more about the role that each player can take, and how they support capability building in more than one 'layer' of the framework; and how such a picture develops over time for a particular focal organisation, e.g. it is unlikely to develop in a sequential manner from the first layer to the fourth, but in an organic and iterative way.

Our study has a number of limitations as our data is from a small number of case studies; our geographic coverage and our sector coverage is also limited. Future research should focus on a deeper exploration of our main findings – the emergent patterns of environmental groups and their effect on environmental stakeholder networks; the capability building opportunities presented by each layer of environmental stakeholder; the nature of such opportunities; types of stakeholder engagement practices and stakeholder management approaches. A study to explore collaborative strategies for environmental capability building to take advantage of 'green' growth could be of particular interest, in order to strengthen theoretical and empirical developments and provide evidence of the importance of collaborative strategies in supporting green growth.

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Figure 1 Building environmental capabilities for success in a Low Carbon Economy
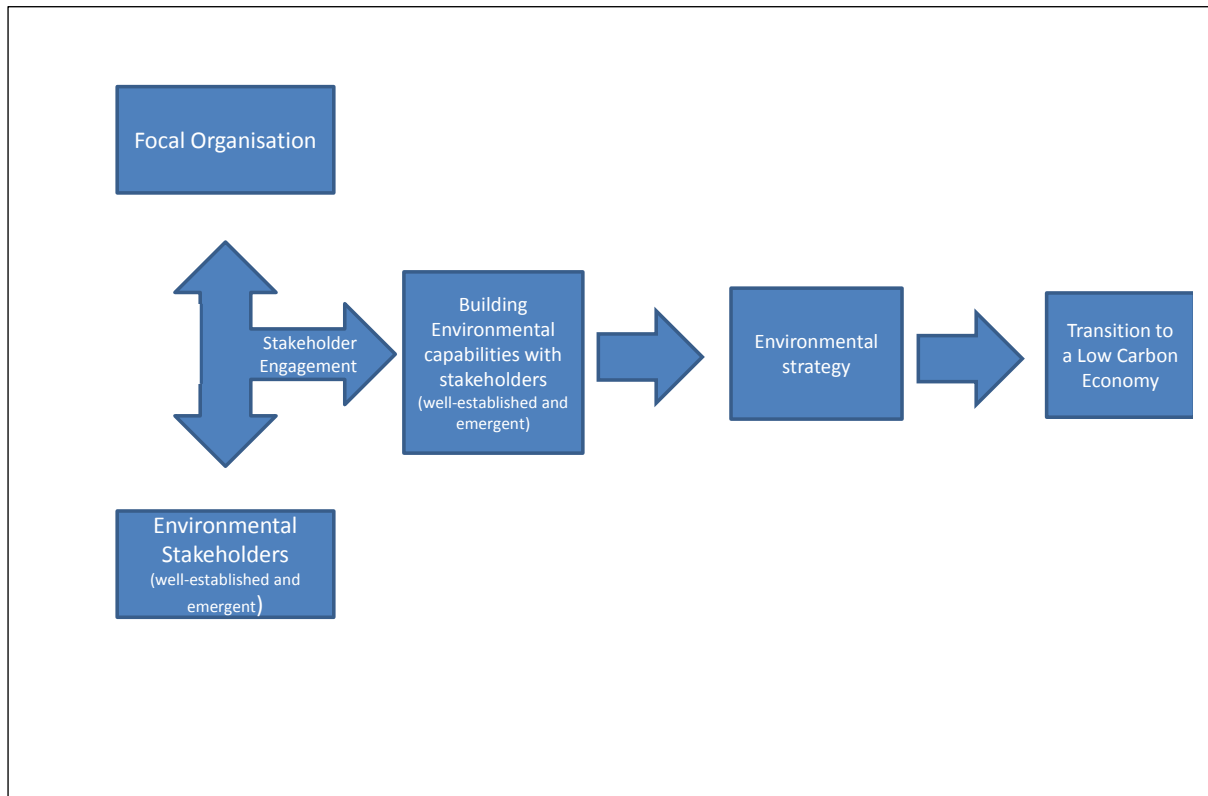
Figure 2 Layers of Environmental Stakeholders

Conditions for Capability Layer

(e.g. Governmental institutions – DEFRA,DCLG, UKTI, Regulators – Environmental Agency, OFWAT, OFGEM, Public, Media)

Outer Capability Layer

(e.g. Environmental Management Accreditation, Consultancy, HEIs and other research institutions)

Immediate Capability Layer

(e.g. Competitors, Suppliers, Customers)

Internal Capability Layer

(e.g. Managers, Employees)
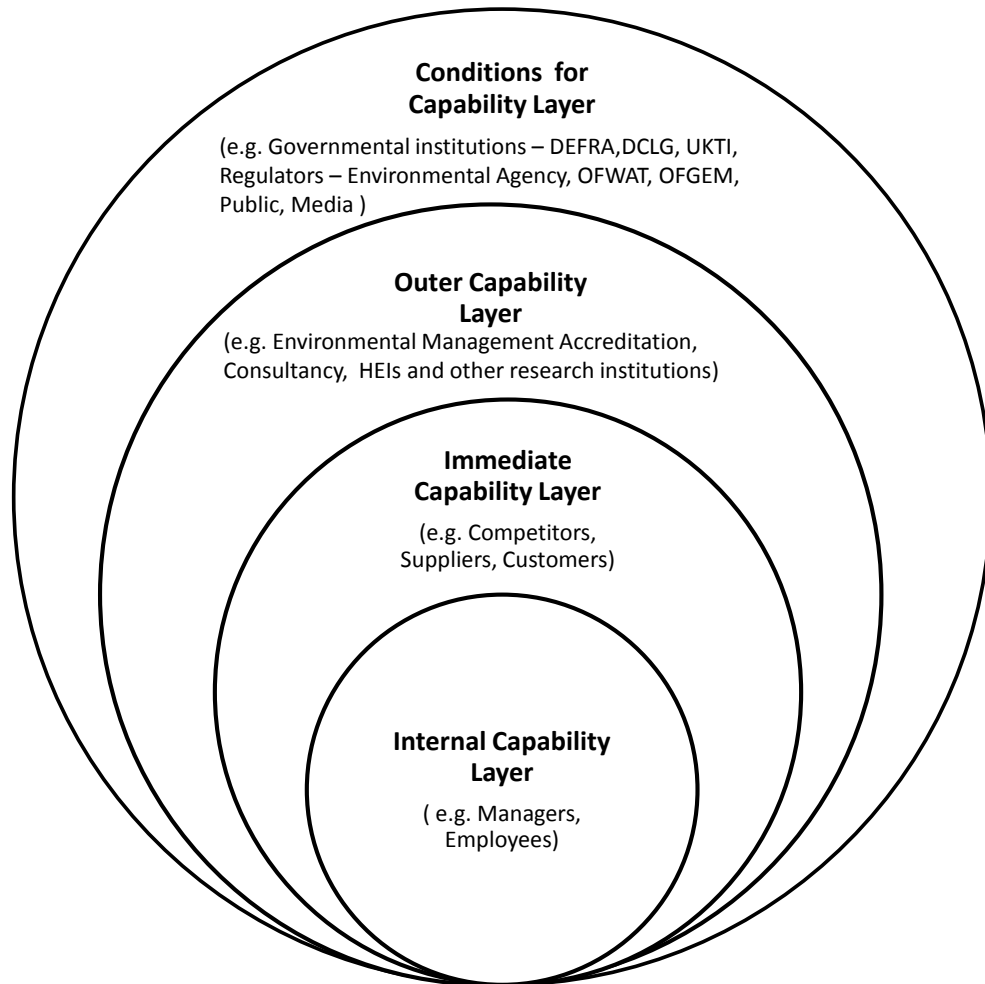
Table 1: Overview of environmental stakeholder typologies

	Fineman & Clarke (1996)	Henriques & Sadorsky (1999)	Buysse & Verbeke (2003)	Murillo-Luna et al. (2008)	Darnall et al. (2010)	Current discussion
Treatment of Internal Stakeholders	A single category	Employees are merged with other "Organisational stakeholders" (see below)	"Internal primary stakeholders" include employees and shareholders	"Internal economic stakeholders" includes employees and unions, but managers are grouped under "Corporate government" (see below)	Internal stakeholders are identified as management and non-management employees	Internal stakeholders are defined as managers and employees
Treatment of External Stakeholders	Regulatory stakeholders as a separate category	Regulatory stakeholders as a separate category	Regulatory stakeholders as a separate category	Regulatory stakeholders as a separate category	Regulatory stakeholders as a separate category	Regulatory stakeholders are broken down at national and local levels
	Acknowledgement of societal pressures, such as lobby groups	"Community stakeholders" includes lobby groups, etc.	"Secondary stakeholders" includes the media, etc.	"Social external stakeholders" includes the media, etc.	"Societal stakeholders" include environmental organisations	"Societal stakeholders" include environmental lobby groups, the public and the media
	All other stakeholders in a single category (suppliers, customers, shareholders etc.)	Suppliers, customers, shareholders are merged with employees as "Organisational stakeholders"	"External primary stakeholders" includes suppliers, customers, etc.	"External economic stakeholders" includes customers and suppliers, while "Corporate government stakeholders" includes managers and shareholders/owners	"Primary stakeholders" include buyers, consumers, suppliers	Other stakeholders in a single category – but with differentiation between "traditional" stakeholder groups (e.g. customers, suppliers) and "emerging" stakeholder groups (e.g. funding institutions, HEIs, environmental accreditation bodies, consultancy firms).

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Table 2: List of interviews

Case organisation	Interviews	Recorded and Transcribed, Yes/No	Number of interviewees	Position within case organisation
ConstructCo (SME)	Main interview	Yes	2	Managing Director, Head of Safety and Sustainability
	Secondary interview	No	1	Head of Safety and Sustainability
WaterCo (Large national water utility company)	Main interview	Yes	2	Director of Property Services, Energy and Climate Change Manager
	Secondary interview	No	1	Energy and Climate Change Manager
DesignCo (SME)	Main interview	No	2	Associate Partner and Sustainability Champion, Architect
	Secondary interview	No	1	Associate Partner and Sustainability Champion
TrainCo (Large national train operator)	Main interview	Yes	1	Head of Environment
	Secondary interview	Yes	1	Managing Director
PRSMCo (Global company)	Main interview	Yes	1	Health, Safety and Environment Manager
	Secondary interview	No	1	Health, Safety and Environment Manager
HealthCo (Large NHS hospital)	Main interview	Yes	5	Transport and Sustainability Officer, Sustainability Change Manager, Estates Manager, Waste Management Contractor, Environmental Advisor
	Secondary interview	No	1	Transport and Sustainability Officer

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Table 3: Environmental stakeholder groupings in line with Fineman and Clarke's (1996) categorisation

Groupings of environmental stakeholders	Illustrative quotations
Groups whose manifest mission is to care for the planet	"What the UK needs is it needs more railways but then you get into the green lobby because the green lobby will then say you're building it through the green belt and you're causing you know all sorts of problems" (PRSMCo) "Well you call it adverse publicity, see this here, Greenpeace, okay, now if you are ever unfortunate enough to watch day time television you will see adverts that say £2 a month will save a polar bear. And people say well how the hell does £2 a month save a polar bear. It goes to Greenpeace, and what Greenpeace does is attack people who are endangering the climate". (ConstructCo)
Central government and regulators	"By December we have to submit… our WaterCo's business plan to OFWAT and what's been published now is all of the commitments that we're saying are there and actually saying what the impact on customers' bills of meeting those commitments" (WaterCo) "TrainCo does not decide whether to put the fares up, that is set by Government. So every time you might see in the media about rail fares are going up by x per cent, it is the Government who have made that decision and the Government take the extra money… those are negative things that damage our brand" (TrainCo) "We have the Office of the Rail Regulator, which essentially is the Government's office which makes sure the railway delivers what the Government has asked it to …they set up a business called Network Rail who are responsible for looking after the assets and infrastructure of the railway. Network Rail also have the long term view …they are specifically asked to make sure that the railway develops for the long term…" (TrainCo)
Stakeholders with various green interests (financial stakeholders, customers, suppliers and media)	*Financial Shareholders:* "We produce a carbon footprint every year as part of the group, the group produce their carbon footprint for the organisation which is a part of the FTSE for Good Index, Times Stock Exchange, Corporate Responsibility Index. We also are in the Carbon Disclosure Project so that means we declare our carbon footprint every year and exactly what it is made up of and what we've done to achieve it" (TrainCo) "We're WaterCo PLC and the majority of the company is WaterCo but then we also have other companies. Now a non-regulated company will have different business criteria but the bottom line is that any investment we make, be it on investing in generation or investing in efficiency, has to meet the payback criteria that we apply" (WaterCo) *Customers:* "Our company works in close partnership with the clients to guarantee that the sustainability agenda is built from the initial stage, understanding their objectives and providing advice as to how sustainability can be achieved"(DesignCo) "That's what we'll change because our customers require this environmental thing" (PRSMCo) "Everything we do is really driven by the customer but the context for us is twofold, one is about reducing our costs because if we can reduce our costs that has a positive impact for customers in their bills… the other aspect is that it's part of a whole raft of our commitment to the wider environment" (WaterCo) "So they're [patients] our drivers really you know, one is the patient care, and central government, but money will always play a part in it" (HealthCo) *Suppliers:* "What we do is supply the very basic building materials which are sustainably sourced…*(name of firm)* are in the middle" (ConstructCo) "Anybody who's in our supply chain, we would be expecting them to work with us to help us achieve our targets" (WaterCo) "We have lovely procurement statement in this plan here…we say the biggest target for improvement this year is around our low carbon procurement goal" (HealthCo)

	"Let's talk to the supply chain. So we need a procurement guy in, so a procurement guy will join the work group and say, ok, the mission is we're going to reduce waste arriving at site, ok, how do we do that" (PRSMCo)
	Media:
	"But it [positive environmental performance and sustainability initiatives] does, it gives us a positive customer relationship. A lot of media interest saying what's this, our readers want to know about what you are doing so we do get an awful lot of positive PR about it and I think that is something you can't financially quantify but is a real boom to an organisation." (TrainCo).
Internal Stakeholders (managers and staff)	"So it starts at the top with the company and they drill that down, the company wants to be seen as the best [on sustainability]" (HealthCo)
	"Real change in the organisation has to come from the top, if they don't believe in it, it won't work" (PRSMCo)
	"We introduced a car scheme where an employee can do what they call salary sacrifice so you can give up part of your salary per month and cars had to be environmentally friendly cars" (PRSMCo)
	"We say we want an energy champion there's actually a battle because everybody wants to be an energy champion" (PRSMCo)
	"Within our team everyone is encouraged to make a contribution to whatever their position whatever their role and no idea is frowned upon or seen as a daft idea" (WaterCo)
	"We have ISO 14001 international standards … it also talks about how we encourage staff to be more environmentally conscious, not just in work but also at home" (TrainCo)
	"The behaviour change bit has to be recognising that some people do it for the right reasons, the environmental reasons but an awful lot of people don't and you have to find what makes them tick to get them to do it" (TrainCo)
	"We don't own any assets, we rent everything we've got and the only asset we have got that we can mobilise ourselves, truly mobilise ourselves is the people that work in the business and there's …just over 2000 of them…spread across quite a few square miles and 90 odd different stations and …so how do you motivate all of those people?" (TrainCo)

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Table 4: Emerging groupings of environmental stakeholders

Groupings of environmental stakeholders	Illustrative quotations
Local government, city and county councils	"For us the big things the local authorities can do is engage all the different transport providers, look at the infrastructure that is in place… and say, ok, how do we make all this work well together…" (TrainCo)
	"There's lots of opportunities for local authorities to support businesses and the community to reduce its carbon emissions. From a business point of view there is still a bit of a gap in terms of technical skills, to understand what is a good lighting control system … and all those sorts of things…" (TrainCo)
Environmental management accreditation bodies	"So we have to have ISO 14001 accreditation, that's an environmental management standard internationally recognised, so (without it) you can't bid, you're precluded from the bidding process. You then have to demonstrate year-on-year improvements to your consumption of energy…more and more customers are asking for that information…" (PRSMCo)
	"…they have to fill in something called a BREEAM, it's the British Research Establishment Environmental Assessment Method … for a start the building frame is going to be made of cross laminated timber so that is a massive tick" (ConstructCo)
	"(we) are also registered to the Carbon Trust Standard so there are obligations there about demonstrating that we've reduced our emissions year-on-year and so on…and we get audited and data gets validated…" (TrainCo)
HEIs and organisations providing training	"We've measured how much electricity we use … it cost us £10,000 for (*name of university*) to put it together" (ConstructCo)
	"As regards training, I did something called IEMA (Institute of Environmental Management and Assessment), that started me off. I just read an awful lot. The internet has been fantastic" (ConstructCo)
Funding institutions	"I go to the Carbon Initiative group… and also I've just gone onto another group now, the sustainable transport group which is all part of having this (ERDF) bid as well …I've sort of got us in now, try and get what we can and also again for the better transport links to here and also into the city centre from other areas in the city" (HealthCo)
Competitors	"Like a lot of the companies we already offer services to other people on a competitive basis so the other companies that I refer to (*name of company within the same group*) runs the sewage and water aspects of the (*name of client*)" (WaterCo)
	"We lease our stations off Network Rail…we operate stations but we have essentially a lease agreement with them…We lease the maintenance depots where the trains go overnight… We lease the trains, although it is usually our staff who maintain them… that becomes important because when we come to carbon emissions, our emissions from our diesel trains are a massive proportion of emissions…every time you have one organisation trying to work with another organisation you have some issues, you have some good stuff, you have some bad stuff, you have delays, you have costs, you have all sorts of things when two organisations try and work together." (TrainCo)
The public	"We're a citizens' city and it's, you're giving something back, you know, our corporate social responsibility statement is all about that because we've got a whole department that looks after CSR and they talk about, you know, being a citizen of the city" (PRSMCo)
	"So the responsible business is things like the charity, community work that we do, the liaison we have basically with the local people who live around and about our stations and use our services…" (TrainCo)
	"We are working with schools in order to address the "green" challenges and embark on retrofits of current properties to increase energy efficiency. We deliver seminars in schools for teachers and children to promote sustainability and sustainable use of buildings" (DesignCo)
	"We're doing the junior environmental champions…we're looking to do it with an older age group of school…we're trying to look for schemes with scout groups and places like that that, we can try and interact with them and try and develop some links" (HealthCo)

Table 5: Environmental stakeholders: emerging trends in the context of transition to a low carbon

Environmental Stakeholder Groups		Categorisation		Trends
		Fineman and Clarke, 1996	**This study**	
National and local pressure groups		identified	Confirmed	Recognised as an important stakeholder that can impact upon an organisation's image, reputation and public relations
Central government and regulators		identified	Confirmed	Described as powerful and highly influential
Local government			emergent group	Seen as increasingly powerful due to their role as 'gatekeeper' for sustainability projects, funding and stewardship of low carbon initiatives in the regions.
Shareholders with various 'green' interests	Financial shareholders	identified	Confirmed	Seen as important and influential in relation to 'green' capital investments
	Customers, Suppliers	identified	Confirmed	Recognised as increasingly important and influential, e.g. in new product development and 'greening' of supply chains
	Media	identified	Confirmed	Seen as important and influential in communicating 'green' credentials, creating a 'green' image or generating adverse publicity
	Competitors		emergent group	Seen as important and potentially influential, e.g. in access to resources and 'green' innovation
	Funding institutions		emergent group	Recognised increase in the influence of these institutions as their reach widens at the national and supranational (EU, international, global) levels
	Environmental accreditation		emergent group	Recognised increase in influence through provision of accreditation of sustainability efforts
	HEIs and other research and training organisations		emergent group	Increasing participation in collaborative 'green' projects
	The public		emergent group	Seen as important due to the strengthening of public demands on companies to be a 'good corporate citizen'

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Internal Stakeholders	identified	Confirmed	Seen as 'critically' important to the success of green and low carbon initiatives

Table 6: Environmental Capability Building and Stakeholder Engagement

Engagement with various stakeholders:	**Illustrative quotations**
Government and regulators	"The government will give us a pinch … and it will be a financial impact which will force us… it'll force us at grass roots level from the Department of Health, from the government… the innovation will come from financial pressure… we will find a solution" (HealthCo)
Local government	"A big area for us is making our train stations more accessible, not just accessible in terms of disabled access and so on but accessible to everybody. A number of our passengers do and will continue to want to use the car to get to a train station so we will continue to provide car parking spaces and all those sorts of things but a growing number now start to walk, use a bike, get on the bus, all sorts of different ways because the car is becoming more and more expensive. So for us the big things the local authorities can do is engage all the different transport providers" (TrainCo)
Customers, suppliers and competitors	"our company works in close partnership with the clients to guarantee that the sustainability agenda is built from the initial stage, understanding their objectives and providing advice as to how sustainability can be achieved"(DesignCo) "What I try and do is work with the **other** train operators, it's an organisation called the Association of Train Operating Companies, ATOC. With my colleagues and other train operators we get together and we go to government ...... Using Department for Transport which is the Government's department that looks after us, using them, using the Office of the Rail Regulator, using the train companies we try and find a way" (TrainCo)
Internal stakeholders on change management programmes with a sustainability focus	"You can put the best (environmental management) system in place that you like but if the train manager, if the train driver or likewise the station manager and individual does not use it, it won't be as effective. So we have done a lot of the technical stuff. The next stage we will be moving in with the drivers and building into their training, building into their reviews and assessments that they have to demonstrate they are still competent to safely drive the train in a fuel efficient ways.... Some of the other train operators have done that and found their overall fuel economy improves by anything between 5 and 12%." (TrainCo)
	"I've got motivated environmental champions at all of my stations but if they don't get the management support the effect is not the same. So in terms of organisational approach to behaviour change it has to come down the line management structure." (TrainCo)

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	"A big chunk of what I have to do is by working with the different managers around the business and the different people in the business is actually saying no this is about you working at your station and doing these small simple things. Yes we as a business will make the big investments, we will put the infrastructure in place, we will do everything we can to support you to do it, but fundamentally it is down to your decision to flick that light switch when you walk out the room and turn your computer off when you are finished, and, and report the lighting controls aren't working correctly. That is you, we need you to do that on an everyday sort of basis" (TrainCo)
	"We are restricted to what we can do in our head office due to its being a (*period stated*) church. We however work with our team and the tenants of this building to save energy cost and recycle. I am a man who goes around and reminds everybody to switch off the lights and computers at the end of the day. We have recycling stations and even our photocopies are using vegetable die instead of chemical cartridges" (DesignCo)
Environmental management accreditation bodies	"Being certified with the Carbon Trust Standard is proof that (*name of organisation*) has taken genuine action to reduce its impact on climate change, though they have cut down their emissions by 4%. The hospital is benchmarking their performance against some of the best NHS Trust Foundations who lead on low carbon initiatives, e.g. (*names of two other leading institutions*) which cut emissions by 20% year-on-year, reducing their energy bill by £1.7million per year" (HealthCo)
	"So we have to have ISO 14001 accreditation, that's an environmental management standard internationally recognised. So (without it) you can't bid, you're precluded from the bidding process. You then have to demonstrate year-on-year improvements to your consumption of energy…more and more customers are asking for that information" (PRSMCo)
HEIs, other research and training organisations	"We had (*name of university*) come in …they put something across there with sensors on to measure the deflection…because we had to simulate wind loading …we had to simulate 100 mile an hour wind" (ConstructCo)
	"The R&D teams have links with the various universities…the industry as a whole has a lot of partnership working that's going on because there's a UK water industry research which is funded by all of the companies … so there's a lot of sharing…and co-funding of research and things" (WaterCo)
Funding institutions	"*DesignCo* actively work with Derby Carbon Initiative (DCI) to increase local companies' awareness about methods and funding available to reduce carbon emissions and energy use. Specifically, it provides advice to SMEs, as part of the DCI project funded by the European (Regional) Development Fund, regarding grants and energy surveys to support energy efficiency improvements… This they identify as particularly valuable for the local SMEs as they often lack time, money and expertise to reduce the energy bills and to adopt the low carbon orientation" (DesignCo)
The public	"The responsible business is things like the charity, community work that we do, the liaison we had basically with the local, people who live around and about our stations and use our services, it also improves how we manage our environmental risks" (TrainCo)

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Media organisations	Most importantly we can go out and we can use it as a demonstration when the group is bidding for new franchises. We can use it publicity wise, with our passengers and our customers, with our stakeholders so the local authorities, passenger groups, passenger transport executives and so on. It's a good demonstration, it is a good PR, there's Public Relations benefit to it as well as the environmental and the financial and everything else. And that, we know that adds value to our business because it makes people feel better about us" (TrainCo)