Implementing sustainability in small and medium-sized construction firms: The role of absorptive capacity

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Abstract

Purpose – Construction organisations are becoming increasingly aware of the impacts of their operations, from both an environmental and, more recently, a social viewpoint. Sustainability standards can enable an organisation to evidence a benchmarked level of performance against a particular issue. To date, research on standards has largely focused on the operational and administrative aspects of their enactment, rather than how they might affect – and be appropriated by – organizational actors. This research examines how capacity for learning can affect the success of implementing standards within two construction SMEs.

Design/methodology/approach – Taking an organisational learning and absorptive capacity (ACAP) perspective, this research uses the case study approach and abductive logic to understand what role learning plays with regard to sustainability standard implementation.

Findings – The results reveal that strong communication channels and commitment to training programmes increase the capacity for implementing standards, but that SMEs tend only to approach standards if they see immediate financial benefits stemming from their implementation.

Practical implications – SMEs provide a challenging context for the implementation of sustainability standards unless there are significant external levers and extrinsic motivation for them to be embraced. Care should be taken in incorporating these aspects into the future design of standards that are more aligned with SME needs.

Social implications – Stakeholders should seek to apply pressure to firms to positively influence engagement with sustainability standards.

Originality/value – The role and importance of ACAP is an underdeveloped debate in the certification field. This study is the first that links the process of implementing a standard with the ACAP of an organisation.

Keywords – Absorptive capacity, corporate social responsibility, organisational learning, responsible sourcing, sustainability standards.

Paper Type – Case Study.

List of abbreviations used

ACAP – Absorptive Capacity

APRES – Action Programme for Responsible Sourcing

BREEAM – Building Research Establishment (BRE) Environmental Assessment Method

CEEQUAL – Sustainability, Assessment, Rating and Awards Scheme for Civil Engineering

CSR – Corporate Social Responsibility

EMS – Environmental Management System

EPSRC – Engineering and Physical Sciences Research Council

FAME – Financial Analysis Made Easy

PACAP – Potential Absorptive Capacity

RACAP – Realised Absorptive Capacity

RS – Responsible Sourcing

SCM – Supply Chain Management

SME – Small and Medium-sized Enterprise

TA – Trade Association

Introduction

Corporations are increasingly recognising the importance of sustainability (Caprar and Neville, 2012), particularly given its potential as a driver to help reduce costs, manage risks, engage in innovation and drive internal change (Azapagic, 2003). Traditionally environmental issues (e.g. waste reduction, energy efficiency and carbon) have been at the forefront, influenced by legislation and numerous industry and government commitments. As a result, the sustainability and supply chain management (SCM) literature is relatively rich in its coverage of environmental issues (Ashby et al. 2012). Lehtonen (2004) recognises that the social dimension has the least coverage; perhaps because devoting sufficient attention to this represents a challenge (Klassen and Vereecke, 2012); Seuring and Müller (2008) also report that integration of the three sustainability pillars is rare.

Engagement with the sustainability agenda can be evidenced through effective SCM strategies, borne out of the need to comply with sustainability standards. These can take the form of formal, certifiable management systems, such as ISO 14001 (BSI, 2004) for environmental management systems, or guidance standards that demonstrate performance against a specific issue, but for which certification is not possible. Certification to ISO 14001 (BSI, 2004), for example, has been the subject of numerous studies (e.g. Brammer *et al.*, 2012; Daddi *et al.*, 2011; Hofmann *et al.*, 2012; Uhlaner *et al.*, 2012), and others have linked ISO 14001 (BSI, 2004) with effective SCM (Asif *et al.* 2013; Curkovic and Sroufe, 2011; Darnall *et al.* 2008; Delmas and Montiel, 2009). However, as Schweber (2013) remarks, research tends to focus on the technical features of assessment tools or standards, and hence little attention is devoted to the people or processes responsible for using them; this despite the need for learning and absorption of new knowledge over time (Maon *et al.*, 2009).

The research reported in this paper addresses this lacuna by investigating the relationship between sustainability certification schemes and organisational learning. In line with the approach advocated by Schweber (2013), implementation of standards within the firm will be considered as a process.

We aim to determine how organisational learning drives this process by considering absorptive capacity (ACAP) (Cohen and Levinthal, 1990; Gluch *et al.* 2009; Zahra and George, 2002). ACAP focuses on how knowledge is interpreted, used and implemented into organisational processes, and so will provide clarity on how new knowledge is appropriated such that it facilitates implementation of standards. This approach will therefore determine the role for organisational learning in successful standards implementation.

Sustainability in the construction industry

Sustainability for the construction industry can be termed ‘sustainable construction’, which comprises many processes to deliver built assets to enhance people’s quality of life and stakeholder satisfaction (Adetunji *et al.*, 2003). An organisation can be said to be embracing sustainability in a holistic manner

when it has taken appropriate actions to address environmental, social and economic issues (Lozano and Huisingh, 2011), although the environmental pillar is often prioritised at the expense of economic and particularly social issues (Klassen and Vereecke, 2014). This is surprising given that neglecting these can represent a considerable risk to the organisation, and that standards and schemes focusing on the social aspects of an organisation's operations (e.g. ISO 26000; BSI, 2010) do exist. However, Ahi and Searcy (2013) report a shift in this focus, perhaps due to highly-publicised stories in the media. For example, exposure of companies such as Nike (e.g. DeTienne and Lewis, 2005) and Primark (e.g. Jones *et al.,* 2009) in the 1990's and more recently Apple (Garside, 2013) for use of child labour and sweatshops in Asian manufacturing sites, caused negative press and unwanted attention from stakeholders, leading to tarnished reputations and public condemnation of their actions.

Given the degree of negative attention these organisations received, it is surprising that similar issues have gone relatively unnoticed and unreported in the construction sector, traditionally an industry with a track record of poor sustainability performance (Glass, 2012; Myers, 2005; Shen *et al.*, 2007). Although UK imports of raw construction materials remain relatively low, they are still substantial, with aggregate influxes reported at c.3.1 million tonnes (Highley, 2005) and Indian sandstone imports reported to average around 280,000 tonnes per year (Ethical Trading Initiative (ETI), 2013). Furthermore, the average monthly UK trade deficit in the year to May 2014 was £2.4 billion (Office for National Statistics, 2014), implying significant material inflows. Hence, environmental and social factors associated with such products represent a considerable risk, yet instances of the industry's lack of adherence to ethical codes and social norms (beyond exposure for poor health and safety practices) are rarely found in the public spotlight. Potentially, this could be a major risk to companies operating within the industry, so arguably should form part of an organisation's risk management strategy.

Incorporating sustainability into risk management processes is a relatively straightforward task for larger organisations, where often time, staff and financial resources are readily available. However, for the SME, these resources are often less abundant and so sustainability measures are viewed as a costly (Revell and Blackburn, 2007) and time-consuming outgoing. Furthermore, they tend to regard themselves as 'invisible' and so are unlikely to regard corporate social responsibility (CSR) as something that could cause potential reputational risks (Jenkins, 2006). However, SMEs typically make up 99% of all firms (EC, 2013) and there is growing recognition of their collective social and environmental impacts (Jenkins, 2006; Morsing and Perrini, 2009). Around 950,000 SMEs are in operation in the UK construction industry (BIS, 2014), and hence their aggregated impacts are substantial. This implies potential challenges with engaging the construction sector in CSR activities; as such a large number of firms may suffer the aforementioned resource access issues. Supply chain pressure can motivate SMEs to formalise CSR or implement standards (Ciliberti *et al.*, 2009) as companies include CSR requirements in their purchasing specifications or in supply contracts (Ayuso *et al.*, 2013). This means SMEs are more likely to engage in CSR activities when pressured by

organisations in the upstream supply chain (Baden *et al.*, 2009) and as these larger organisations seek to demonstrate responsibility throughout the supply chain, the pressure tends to increase. Previous work has also linked supply chain power as a means of diffusing CSR along the supply chain (Amaeshi *et al.*, 2008; Ciliberti *et al.*, 2009) as larger organisations use their power to dictate environmental and social criteria to their smaller suppliers (Ayuso *et al.*, 2013). Therefore CSR activity becomes an important activity for SMEs that operate in such global supply chains.

A recognised means of demonstrating sound CSR performance in the construction industry is by engaging with the concept of responsible sourcing (RS), which can be defined as the management of social and environmental issues within the supply chain, often from an ethical perspective (Glass *et al.*, 2012). Around 70 firms in UK construction have obtained RS certificates (BRE, 2014b), such is its perceived value in demonstrating CSR. The next section will consider why the RS agenda is so significant to a construction organisation wanting to demonstrate good social and environmental practice.

A focus on responsible sourcing

The joint government and industry strategy for sustainable construction (HM Government, 2008) set, as part of its targets, that by 2012, 25% of construction products should be procured from schemes recognised for responsible sourcing (RS). Attention to this agenda has been accelerated by the publishing of the BES 6001 (BRE, 2009) framework standard and numerous other industry targets and commitments (e.g. UK Contractor's Group (UKCG), 2012). For example, around 92% of UK concrete (SCF, 2010) and 90% of UK brick (BDA, 2012) is available with an RS certificate. Construction contributes around 7% of GDP in the UK (BIS, 2013), and so a significant volume of material is now available through RS approved schemes. In addition, RS is seen as market-driven through points that are available in sustainability assessment schemes (such as the Building Research Establishment Environmental Assessment Method; BREEAM (BRE, 2014) and CEEQUAL, the sustainability assessment, rating and awards scheme for civil engineering; CEEQUAL (2015)). It is also viewed as a quasi-voluntary agenda, given that a lack of engagement with the standard may limit business opportunities, with customers opting to buy products from certified competitors. Glass (2011) reports that the absence of a common definition of RS means that understanding varies widely, with the term apparently often used interchangeably with terms such as ethical sourcing and sustainable procurement. This research will therefore use RS as a lens, given its relatively wide coverage of holistic sustainability issues within the construction supply chain.

RS is rooted within the CSR literature (Upstill-Goddard *et al.*, 2012); currently debated as representing anything from corporate philanthropy, to a means by which an organisation can increase revenue (Murray and Dainty, 2009). Broadly, CSR considers how sustainability issues are integrated into business strategies and practices (Jones *et al.*, 2006), and, given increasing public interest in

sustainability, companies recognise that demonstrating good ethical and sustainable performance can maintain positive relations with stakeholders. For construction companies, where social and environmental impacts tend to be significant, there is perhaps the greatest emphasis to focus on CSR issues (Murray and Dainty, 2009). Therefore, given the potential of RS to be seen as an indicator of sustainability at product and organisation level, engagement with RS should be prioritised. Furthermore, the structure of BES 6001 (BRE, 2009) suggests a focus on environmental, social and economic objectives across the life cycle of a product and effective auditing of constituent materials in the supply chain (Glass, 2011).

There is however a weak research agenda around RS (Glass, 2011), with literature largely limited to research carried out through the Engineering and Physical Science Research Council (EPSRC) funded APRES (Action Programme for Responsible Sourcing) network (APRES, 2014) and related works (Glass, 2011; Glass *et al,* 2012; Upstill-Goddard *et al.*, 2012, 2013 and 2015; Young and Osmani, 2013). RS certification can only be awarded to a construction product manufacturer (i.e. construction contractors cannot be awarded a BES 6001 (BRE, 2009) certificate), yet research on its implementation in an organisation is a notable omission. Schweber (2013) suggests that considering implementation as a 'process', and focusing on the individuals within the organisation, can yield an understanding of the extent to which employees and the 'process' interact, and if any inertia is present. It can be inferred from this that a degree of learning is required in order to effectively implement standards, and the next section considers the link between sustainability standard implementation and organisational learning. Furthermore, by considering implementation as a 'change process', we might better understand how employees adapt to new fields of knowledge, cited by Gann (2001) as having potential to upset the established order.

Organisational learning and sustainability implementation

Introduction of sustainability policies and processes can be considered as organisational change processes, involving a degree of learning over time (Maon *et al.,* 2009). Senge (1990) introduced the concept of the learning organisation: fundamentally, organisations can only learn once there is collective individual learning. Learning processes of organisations are inherently different from those in individual learning as they are reflected in organisational culture (Love *et al.,* 2000). Despite this, organisations themselves cannot learn per se (Love *et al.,* 2000), as knowledge is bound within individuals making up the organisation. It can thus be inferred that organisations must provide resources to their employees for supplementing knowledge, such as training programmes.

Effective organisational learning is said to be dependent upon high absorptive capacity (ACAP) (Kim, 1998). Absorptive capacity is defined as the ability of a firm to create competitive advantage through implementation and exploitation of knowledge and new resources (Cohen and Levinthal, 1990; Gluch *et al.* 2009; Zahra and George, 2002). Zahra and George (2002) identify two types of ACAP:

- Potential (PACAP): the ability of a firm to acquire and assimilate knowledge;
- Realised (RACAP): the ability of a firm to transform and exploit acquired knowledge.

ACAP facilitates the development of proactive environmental strategies (Delmas *et al.*, 2011), and in a construction context, it has been shown that its operationalization into a change management approach can improve capability-based competitiveness (McAdam *et al.*, 2010). Hofmann *et al.* (2012) link environmental management practices with underlying capabilities and suggest firms should develop certain competencies prior to engaging with sustainability initiatives. Sustainability standards are one means of improving sustainable performance, which itself is dependent upon ACAP (Saenz *et al.*, 2014); their implementation requires changes in organisational structure, processes and norms, so relies on effective organisational learning. Importantly, Gluch *et al.* (2009) revised Zahra and George's (2002) model of ACAP in light of 'green' innovation within construction (see figure 1), determining knowledge acquisition, assimilation and transformation to be central to an organisation's capacity and its business performance. The transformation and exploitation of knowledge is core to developing a firm's innovation potential (Cepeda-Carrion *et al.*, 2012). Such innovations are highly dependent upon employee attitudes and support (Chawla and Kelloway, 2004) and employee motivation (Sexton and Barrett, 2003a and 2003b); arguably, in the absence of positive employee attitudes, implementation of sustainability standards may not be straightforward. Furthermore, attitudes may limit the transformation and exploitation of knowledge that sustainability standards provide and hence also ACAP. Indeed this is implied in the Gluch *et al.* (2009) model, where social integration mechanisms are direct antecedents of RACAP. Social integration mechanisms lower barriers for information sharing and exploitation and include communication and top management support which are suggested to influence attitudes and motivation among employees.

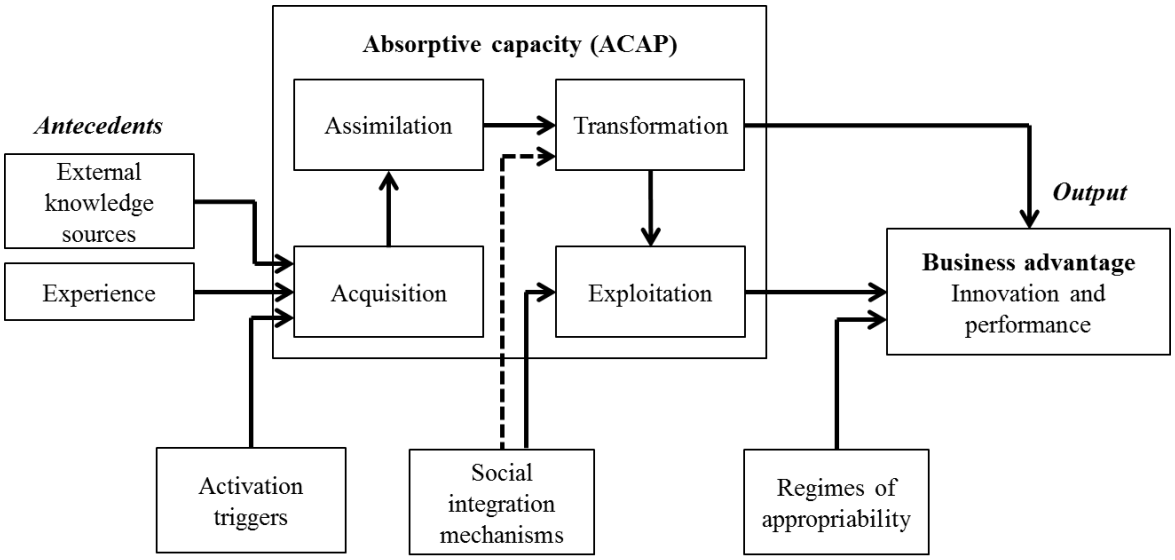

Figure 1: Model of green ACAP in the construction industry (adapted from Gluch et al. 2009)

Gluch *et al.* (2009) also suggest external knowledge sources of RS and experience in broader CSR initiatives can drive knowledge acquisition activities, and the effect of those events that compel a company to respond to specific stimuli, termed activation triggers (Gluch *et al.*, 2009). These are termed as the three antecedents to ACAP (Gluch *et al.* 2009; Zahra and George, 2002). Stewart and Gapp (2014) have linked learning, CSR and improved performance in a SME context, and although research into SME engagement with CSR and environmental performance is relatively common, Morsing and Perrini (2009) argue that much of it lacks a focus on 'how' and 'with what impact' SMEs engage with CSR. Therefore this research will focus on testing the Gluch *et al.* (2009) model to determine how the social integration mechanisms of ACAP can provide insights into 'how' organisations (specifically SMEs) use new knowledge to engage with CSR. As uptake of RS increases within construction and becomes important in the context of a construction organisation's SCM activities, it appears germane to focus on this as the case specifics, with the aim of generalising any theory to broader issues within SCM. This research will focus on the implementation of RS within two UK-based construction SMEs, and fundamentally will answer two interrelated research questions:

RQ1: *What role do standards play in driving sustainability?*

RQ2: *To what extent is ACAP an enabler of embracing sustainability standards?*

Methodology

The research methodology was based on the case study approach due to its examination of contemporary events (Yin, 2009) and its unique ability to aid theory development through consideration of in-depth insights of empirical phenomena and their contexts (Dubois and Gadde, 2002). Here, implementation of sustainability standards, as exemplified by RS, is assumed to represent a 'complex issue', given its limited research, literature and generated related theory.

Two UK-based SME construction product manufacturers of differing sizes and structures that were working towards certification to the standard were selected. A multiple case (embedded) design was developed through a case study protocol and a series of aims and research questions (Yin, 2009). Central to this was a 'systematic combining' approach grounded in abductive logic (see Dubois and Gadde, 2002), which considers the case study not as a linear process, but rather as an intertwined method. Using this method a constant switching between empirical observations and theory generates a greater level of understanding of both empirical phenomena and theory. In this case, although research into organisational learning and ACAP has been widespread, coverage of this in a construction SME context is non-existent to our knowledge therefore rendering an inductive or deductive approach to this research problem unsuitable.

Although Eisenhardt (1989) reports difficulties with generating robust theory with fewer than four cases, Yin (2009) argues otherwise, stating that using at least two cases is appropriate to generate useful results. Furthermore, Dubois and Gadde (2002) suggest that any advantages gained by increasing the number of cases are countered by certain disadvantages; particularly that researching a greater number of cases with the same resources will result in greater breadth yet reduced depth of analysis. Therefore it was felt that two cases would provide ample empirical data to generate valuable findings. Furthermore, uptake of BES 6001 (BRE, 2009) among construction SMEs has been limited; for example, Upstill-Goddard *et al.* (2015) show that in a sample of 114 BES 6001 (BRE, 2009) certificate scores, only 15 were from SMEs. Therefore, organisations that were eligible and willing to participate in this study were not abundant in number.

Central to conducting a case study, and indeed any form of social research, is ensuring that the research design follows a logical method. Yin (2009) postulates that the quality of a research design can be judged by applying logical tests to the research framework. Four tests (construct validity, internal validity, external validity and reliability) were conducted to ensure that a robust methodology and compelling results were generated.

Data were collected predominantly via conducting semi-structured interviews. However, formal meetings were observed on a participatory basis and observation of more informal social interactions were made possible by supervised factory tours. Participatory meetings tended to concern the development of documentation required to comply with the standard and observations concerned the day-to-day tasks carried out on the office and factory sites. Prior to collecting these data, analysis of the FAME (Financial Analysis Made Easy) database provided key financial and employment figures for the most recent financial year available. Twelve interviews were conducted (six for each case), with two employees selected from each of three broad categories of staff (i.e. units of analysis); top management, office-based staff dealing with sales and marketing, and factory/production staff. By selecting respondents from different job roles the research was able to generate a representation of data from a cross-section of each company. Very little attention has been paid to the role that production staff have with regard to introduction of sustainability policies (Bolis *et al.*, 2012). As the implementation of BES 6001 (BRE, 2009) can be considered a change process, interviews with such staff focused on change processes within each organisation and the sources of internal and external knowledge that drove these changes. Interviews were recorded and transcribed such that the data collected could be reviewed. Finally, findings were mapped onto the Gluch *et al.* (2009) adaptation of Zahra and George's (2002) model of ACAP to determine the extent of applicability of their model to the context considered here.

Table 1 gives a brief overview of the main characteristics of each of the cases used in this study.

	Company A	Company B
Turnover	£11.9 million (2014)	£5.1 million (2013)
No. of employees	41	60
Gross Profit	£2.1 million	£1.6 million
Profit/employee	£26,293	-£6,598
Year of incorporation	1965	2008[1]
Sustainability management systems in place	ISO 14001	None

Table 1: Key characteristics of two construction SMEs that form this case study. All financial figures are approximations due to rounding.

Research findings

Company A: Precast concrete products manufacturer

The BES 6001 (BRE, 2009) certification process was successfully completed with the organisation obtaining a 'Very Good' BES 6001 (BRE, 2009) certificate rating, awarded in early 2013. The company had also held certification to ISO 14001 (BSI, 2004) for environmental management systems (EMS) for a number of years. Therefore, reflecting on the ACAP model in figure 1, it is clear that this represents an element of the 'experience' antecedent. Many policies and environmental procedures were already in place within the company because of its ISO 14001 (BSI, 2004) certification; BES 6001 (BRE, 2009) only required minor changes or cross-referencing. The 'experience' gained in implementing BES 6001 (BRE, 2009) directly benefited the company in its pursuit of BES 6001 (BRE, 2009).

Interviewees also demonstrated an openness to change processes, recognising that standards were introduced for the better. Once external knowledge had been acquired and assimilated by the company, all employees were informed of the need for the change and the reasons for it. External knowledge sources were deduced to come primarily from the trade association (supplemented by the consultancy engaged to help them through the project), who were openly driving uptake of RS through their members. Due to the size of the company (see Table 1), any required changes can be actioned quickly. It was deduced that this openness to change was due to well-functioning communication structures which indicate the presence of social integration mechanisms. Furthermore, the Managing Director of Company A exhibited a high level of support for the standard; it was noted that the majority of sustainability standards are *'set up with the larger companies in mind'* and so, as an SME, certification was felt to be a struggle for Company A. The Managing Director took responsibility for implementing and maintaining the standard as he felt that he needed to

[1] Company B became part of a Holdings Company in 2008; as a standalone organisation, year of incorporation was 1955.

fully understand the requirements and implications of certification before delegating. This then enabled the Managing Director to exhibit high knowledge levels which can then be communicated to other employees, which further enabled the company to effectively transform external knowledge through social integration mechanisms.

The company had also witnessed increasing demand for evidence of certification to BES 6001 (BRE, 2009) from its customers and had even experienced loss of work, prior to implementation, due to not holding a BES 6001 (BRE, 2009) certificate. From an ACAP process perspective, the element of customer demand for certification is clearly aligned to activation triggers; this customer demand was a key reason for Company A initiating the BES 6001 (BRE, 2009) implementation project. It was also stated that although such 'change processes' are not necessarily influenced by the practices of competitors, it was also remarked that in instances where certification affected competitiveness, the actions of competitors would become an important activation trigger.

Company B: Natural stone producer

In contrast to Company A, the implementation of BES 6001 (BRE, 2009) in Company B was delayed by a number of problems which resulted in the eventual failure of the project. The initial driver for implementing BES 6001 (BRE, 2009) was that it had been identified as an opportunity to become a market leader, which represents the main activation trigger from an ACAP perspective. However, a large factor in the failure of the project was that Company B perceived that clients and customers were not asking for evidence of the certificate, so implementing the standard was not prioritised. Similar to Company A, this indicates that activation triggers play a major role in driving the knowledge acquisition process; although this opportunity to become a market leader cannot be said to have the same effect on knowledge acquisition activities as customer pressure, as without this pressure the organisation does not prioritise knowledge acquisition activities. Furthermore, external knowledge sources appeared to be rather limited, with Company B only appearing to source external knowledge from the consultancy that were assisting them with the implementation. As a result, limited external knowledge was sourced and hence there was little evidence of awareness of BES 6001 (BRE, 2009) among staff not directly involved in the project. However, this is also indicative of a lack of communication from top management (similar to Company A, the Managing Director had assumed responsibility for running the project), as external knowledge sources were not completely absent which would lead it to be plausibly assumed that some level knowledge would be apparent among these staff. This also suggests that tasks were not being delegated to production staff as had been agreed in meetings. From an ACAP perspective, this translates to a lack of social integration mechanisms within the company, which limits the conversion of potential ACAP into realised ACAP. Indeed many interviewees were openly critical of the communication structure between the sales and production staff, indicating awareness that communication was an issue in need of improving.

In contrast to the results obtained from Company A, although some interviewees recognised that change was important and that it was necessary for employees to approach change in an open manner, it was also remarked that there tended to be widespread opposition to any change within the organisation. It was widely cited that a lack of drive from top management was synonymous with limited care for enacting such change. From an ACAP perspective, this again highlights a lack of social integration mechanisms within the company. An example of this was the meetings held between sales and production staff, where it was stated that *'there probably aren't enough meetings'* and that *'they're* [management staff] *probably not bothered, so why should I be'.* Despite this, the Managing Director remarked that the BES 6001 (BRE, 2009) certification process did not represent a big change in their current activity, but rather that it could help with 'housekeeping'. It is inferred from this that the Managing Director had not communicated this to employees within the organisation, again demonstrating a lack of social integration mechanisms.

Discussion

The contrasting experiences within the two cases suggest that organisational structures and norms have a significant role to play in implementing sustainability standards. Our results especially highlight the importance of effective organisational communication as a key enabler of positive attitudes to change.

Gluch *et al.* (2009) suggest three antecedents of what they term 'green ACAP' as predictors of the knowledge acquisition phase; external knowledge sources, experience and activation triggers. Activation triggers are a direct predictor of knowledge acquisition (Gluch *et al.*, 2009), yet Zahra and George (2002) show them to be a moderator of acquisition activities. Our results tend to support Gluch *et al.* (2009), although we redefine 'activation triggers' as 'stakeholder pressure'. Our results show that when implementing sustainability standards in construction SMEs, in the absence of stakeholder pressure, knowledge acquisition activities will not be initiated as there is limited business risk if certification is not obtained. Huang (2013) highlights that SMEs are often required to comply with large organisations' CSR policies, with a failure to do so potentially resulting in a loss of business. This supports the findings from Company A, where it was very apparent that certification to BES 6001 (BRE, 2009) was only considered for this reason. Indeed this was the also the case when they implemented ISO 14001 (BSI, 2004); it was recognised across the company that ISO 14001 had brought many benefits, particularly with access to projects they would not otherwise have had the opportunity to supply to. Revell and Blackburn (2007) show that if clients do not prioritise environmental issues, there is little perceived value in differentiating on environmental performance. Stakeholder pressure has the greatest direct influence on knowledge acquisition activities (Gluch *et al.*, 2009), and if this pressure is not present then acquisition of new knowledge is diminished, as it does not become an organisational priority. This was the case with Company B, where although activation triggers were present in the form of ambition to lead the market, the limited customer

pressure to obtain BES 6001 (BRE, 2009) meant that the implementation project was not prioritised. Not engaging with the standard posed no immediate business risk, and so Company B focused its resources and efforts elsewhere. A major concern of the SME, particularly those in construction, an industry characterised by low barriers to entry and low profit margins (Revell and Blackburn, 2007), is keeping afloat and generating sufficient business. As sustainability has become a key enabler of business generation, it is only pursued by the SME for this reason; if holding certification will make a positive impact on business opportunities then it will be considered. On the other hand, if customers are not actively requesting evidence of certification, then its value is perceived to be low. Brammer *et al.* (2012) show that the smallest companies consider engagement with environmental issues conducive to limited benefits, which further supports our findings that SMEs only engage with sustainability standards if not doing so poses an immediate threat. Furthermore, subsequent to this research, Company A have allowed their BES 6001 (BRE, 2009) certification to expire, citing a lack of customers and clients requesting evidence of the certification. As such, we therefore suggest that for the construction SME, when considering implementation of sustainability standards, other activation triggers are not important for stimulating knowledge acquisition activities. In our results, 'customer pressure' is the antecedent to knowledge acquisition but we suggest the term 'stakeholder pressure', should replace the term 'activation triggers' as this can include pressures from other sources, such as local communities and trade associations (both of which were evident to some degree in our research).

External knowledge sources, such as trade association (TA) support and the guidance provided by the consultancy engaged by both organisations were core to the initiation of the implementation process. Both organisations obtained similar levels of support from a consultancy in developing policies and procedures, advising on data collection and supplier assessment, but TA support varied. Existing literature makes a clear connection between knowledge acquisition activities and TA (Roy and Thérin, 2008) and networks (Christopher and Gaudenzi, 2009). Klewitz and Hansen (2014) propose that external interaction, such as participation in TA events, can increase innovative capacity within the SME. Our findings also indicate differing levels of TA support however, with guidance on BES 6001 (BRE, 2009) provided to Company A (SCF 2010 and 2012) recognised as a major aide in the implementation process. One Company A employee stated that some individuals within the organisation view many standards as being set up with larger companies in mind, so such documentation helps to increase uptake among SMEs. Similar support documentation was not made available by the TA that Company B held membership with; it could be inferred from this that a lack of guidance from the TA rendered the implementation task considerably more cumbersome for Company B. Jenkins (2006) shows that SMEs favour networking as a means of increasing learning, and the greater the level of TA involvement, the greater the opportunities for networking. We infer that the differing levels of support from each TA represent differing levels of new knowledge for each

case. Gann (2001) highlights the importance of such institutions due to the access to knowledge they can provide, and Lin (2012) also alludes to the importance of professional institutions in addressing the CSR agenda due to the uncertainty surrounding standards. Our findings also suggest that TA support is a key source of external knowledge in implementing standards. However, we suggest that external knowledge sources represent a 'secondary antecedent' in this context; these are important in affecting the acquisition activities of an organisation once the decision has been made to work towards certification, but in isolation do not represent as important a driver as stakeholder pressure.

The third antecedent proposed by Gluch *et al.* (2009), experience, was also found to be a factor in the success of a sustainability scheme implementation project. Company A had held ISO 14001 (BSI, 2004) certification for a number of years which rendered them compliant (to some extent) with many of the environmental requirements within BES 6001 (BRE, 2009). A pre-existing sustainability standard aids implementation of further standards as far as ACAP is concerned, as employees are more familiar with the processes required. Firms not only need to acquire knowledge of standards, but they also need to learn how to build up processes that enable them to absorb this knowledge (Delmas *et al.*, 2011). ACAP is generated using the prior knowledge of the organisation to facilitate uptake of new knowledge (Cohen and Levinthal, 1990); combining of both prior and new knowledge can aid creation of competitive advantages. The presence of an EMS in Company A can be defined as a source of prior knowledge of a sustainability standard that was not present in Company B, and it could be suggested that this had enabled it to 'build up the processes' as suggested by Delmas *et al.* (2011). ISO 14001 (BSI, 2004) certification also gave Company A experience of operating a management system, and as such many of the requirements to collect, monitor and measure data and report for annual review, for example, were already in place, with minor changes required to collect additional data or slightly modify data collection process. For Company B, there was no such system, and as such no mechanisms in place for data collection and measurement. Therefore, the need to integrate the requirements of BES 6001 (BRE, 2009) into day-to-day roles and responsibilities was a much bigger challenge for Company B because it had no prior experience of operating a management system. Again, we suggest this is a 'secondary antecedent' to stakeholder pressure. These secondary antecedents support the primary antecedent of stakeholder pressure, as they themselves increase acquisition activities but are not sufficient in themselves to encourage acquisition and assimilation of standard-related knowledge. Figure 2 shows our revised model of green ACAP when considered from a standards implementation perspective.

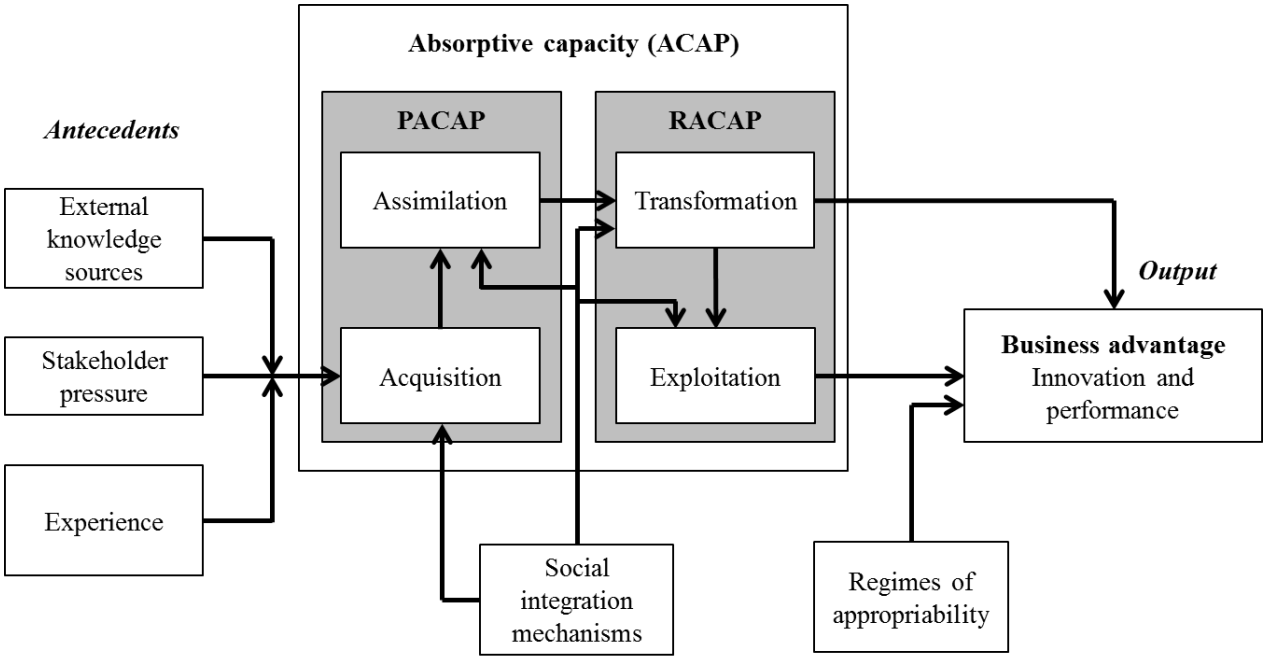

Figure 2: A revised ACAP model for sustainability standard implementation within construction SMEs.

The three antecedents identified by Gluch *et al.* (2009) directly affect the knowledge acquisition phase; it is widely accepted in the literature that this precedes the assimilation phase (Easterby-Smith *et al.*, 2008; Gluch *et al.*, 2009; Zahra and George, 2002). Assimilation of knowledge is typically actioned through training programmes, which open up learning opportunities and hence can influence employee values and beliefs (Linnenluecke and Griffiths, 2010) as well as the organisation's ACAP (Gann, 2001). Training is therefore integral to sustainability ambitions (Quinn and Dalton, 2009), and forms a core part of relevant management systems standards, such as ISO 14001 (BSI, 2004). However, as mentioned above, neither organisation evidenced significant commitment to investment in training beyond that which was required immediately. Nevertheless, Company A did exhibit higher levels of ACAP than Company B, and this may be due in part to Company A holding certification to ISO 14001 (BSI, 2004). Gluch *et al.*, (2009) found that fully functioning assimilation mechanisms are important for both sustainability assessments of a product and as a predictor of sustainability performance. Although it cannot be stated explicitly that assimilation mechanisms are functioning in Company A, it was found that assimilation of knowledge appears to be more successful in Company A than in Company B, and so mechanisms for assimilating knowledge are synonymous with higher sustainability performance in this study.

Social integration mechanisms, such as the support of top management for the sustainability standard and robust communication structures, facilitate the sharing and exploitation of knowledge (Gluch *et al.*, 2009). They are identified as key facilitators of knowledge sharing and exploitation (Zahra and George, 2002), yet Gluch *et al.* (2009) found little evidence to support this in their study. However,

our results suggest that social integration mechanisms, such as support from top management and robust communication structures, play central roles in sustainability implementation across all four ACAP activities (see Figure 2). Ensuring good practice and compliance with the standard across the organisation requires good communication to ensure that all employees are aware of the change process and their roles and responsibilities. Differing attitudes to change were observed in the case organisations, although these were influenced by the communication structures in place. Where there was evidence of good communication (i.e. awareness of the implementation project across the organisation), attitudes to change were generally more positive and employees were more receptive to the change. It is true that these organisations are flexible to change – the small size of our case organisations was an advantage – but in the absence of strong communication channels, explaining what the 'change' is, as opposed to only why it is happening, is core to obtaining positive attitudes. Intra-organisational communication represents a form of second hand learning, which hence aids competitiveness (Kim, 1998), as it is a means of communicating new information through the organisation. It also influences the assimilation and transformation of knowledge processes that are recognised as core to ACAP (Pinkse *et al.*, 2010), so it can be strongly concluded that communication structures are a key enabler of implementation of sustainability standards and increasing ACAP.

Gluch *et al.* (2009) also suggest top management support is an important social integration mechanism, with this linking directly to management knowledge. The model suggests, that top management support is a predictor of knowledge transformation and exploitation activities, and thus is core to putting acquired and assimilated knowledge (PACAP) into practice. In both our cases, the Managing Director took overall responsibility for the BES 6001 (BRE, 2009) implementation process. In the case of Company A, this was because it was felt by the Managing Director that for the scheme to be enacted effectively, it was important for him to understand it in the first instance before delegating responsibility to someone else within the company. In Company B, although the Managing Director also took overall responsibility; the main tasks associated with implementation were delegated to another employee, who also held responsibility for other management systems, namely quality, environmental and health and safety. It became clear that this workload presented a major problem; the employee reported that health and safety issues were the prime concern, and took up most of his time. Therefore perhaps this is another reason for the lack of progress within Company B. Cassells and Lewis (2011) report that a lack of action by the firm does not necessarily reflect the personal attitude of owner-managers in SMEs; a finding that appears to resonate with Company B. During meetings, the Managing Director was always positive about reasons for pursuing the standard and held strong beliefs that certification would benefit the company. However, for Fenwick (2007), a low focus by management on sustainability issues can hinder adoption, so perhaps it can be inferred that although the Managing Director of Company B appeared to hold a proactive view of sustainability, this was not translated into practice. If we link this back to our findings around

communication structures, and consider Gloet's (2006) link between dialogue and effective leadership, it can also be suggested that Company B did not have robust leadership in place to effectively enact such change. Gluch *et al.* (2009) suggest that perhaps the influence of the Managing Director is not significant enough to positively affect an organisation's ACAP in instances such as this. This is supported by our findings, which also evidenced discontent among the workforce with how the company was being managed. This is a particularly interesting finding, as it is suggestive of a lack of influence by management in some cases when it comes to 'secondary priorities' such as sustainability. This warrants further research as it is somewhat beyond the scope of this study.

Conclusions

The findings of this study suggest that working to a given standard can enable a company to benchmark performance and improve 'housekeeping' on site. The sustainability agenda is a core concern of many organisations and industries, and as such, being able to demonstrate positive engagement with this agenda is likely to become increasingly important in being awarded contracts or meeting customers' criteria. Certification to standards is the most tangible means of demonstrating engagement with sustainability (Upstill-Goddard *et al.*, 2012). They can enable an organisation to demonstrate a benchmark level of performance, and standards themselves can help to promote commonly accepted processes and practices (De Colle *et al.*, 2014). They also evidence engagement with sustainability while opening up business opportunities and hence competitive advantage. As RS is a key indicator of sustainability at the product and organisational level, achieving a 'benchmark' level of performance can provide assurance to customers that sustainability has been considered holistically within the organisation and its supply chain. For the SME, a key concern is generating enough business to keep afloat. Pursuing the sustainability agenda can act as an enabler to generating more work, often rendering sustainability compliance crucial to the success of the business. Despite this, particularly in the case of the SME, sustainability certification will only be considered if it will have a positive financial impact on the business. In short, unless the SME is asked specifically for evidence of a given certificate, it may be viewed as a costly and unnecessary activity. The argument for CSR engagement as corporate philanthropy (cf. Murray and Dainty 2009) does not appear to be true in the case of the SMEs investigated here, who are motivated by the extrinsic reward that achievement of standards can generate.

Our findings also support the model proposed by Gluch *et al.* (2009) for green innovation in construction, with the key predictors of knowledge acquisition (external knowledge sources, experience and activation triggers) all being particularly important in building absorptive capacities. However, we suggest that the term 'stakeholder pressure' should replace 'activation triggers' and that this has the most influence on whether firms pursue sustainability, with the other antecedents (experience and external knowledge sources) proposed by Gluch *et al.* (2009) more representative of secondary antecedents. Underlying the implementation of sustainability standards is a good

communication structure, which also acts as a means of transporting knowledge through the organisation as it results in a greater understanding among the workforce of what the change is, and why it is happening. This tends to result in employees being more receptive to the change and holding more positive attitudes about it, therefore leading us to conclude that poor communication, both internally and with other organisations, represents a major barrier to implementation of sustainability standards. As noted by Hotho *et al.* (2012), interaction through communication is important to increase absorptive capacities (ACAP). We suggest that communication, coupled with top management support, acts to increase all four ACAP activities as these help to promote change and stimulate positive attitudes within the workforce. Finally, having a pre-existing management system in place appears to provide the organisation with a helpful resource. This research has highlighted that the ways in which construction organisations source and use knowledge is important, and it can be concluded that learning activities should be present throughout the organisation in order to increase ACAP and support the successful implementation of standards. Our findings have a number of potential applications within research and can be generalised to other sectors. Firstly, we have found support for the premise that organisations must ensure full buy-in throughout the company because, without employee support, transfer of knowledge internally is unlikely to occur. Involving employees in decisions to work towards standards and informing them of the implications for the company (as well as their own responsibilities) can help provoke positive attitudes towards both the standard and the subject matter to which it pertains. The latter point is particularly relevant because ongoing compliance may rest on employee diligence and operational effectiveness. Secondly, RS tends to be construction-specific, yet from the perspective of implementing standards, our findings may have applicability in sectors where RS principles are evident and strived for through supply chain practices, such as the fashion and food industries. However, further research would be needed to determine whether a 'standards-based approach' to interpreting ACAP is appropriate, on a sector-by-sector basis.

It is clear that the role and importance of ACAP is an underdeveloped debate in the certification field. There are no studies that consider the process of implementing a standard from an ACAP viewpoint, despite this study showing that ACAP is an important concept to understand in this context. Future research could also consider the implementation of more widely used and recognised certification schemes, such as ISO 14001 (BSI, 2004) and could consider the implementation of these in other sectors or among larger organisations to generalise our findings. This might be especially timely in future years given the revision process that ISO 14001 has been undertaking, with the revised standard published in late 2015 (IEMA, 2015).

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