DEVELOPING A SUSTAINABILITY ASSESSMENT TOOL TO AID ORGANISATIONAL LEARNING IN CONSTRUCTION SMES

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Organisations engage with sustainability for a number of reasons, often implementing standards to demonstrate commitment to sustainability or benchmark performance. However, many scholars discuss sustainability from an operational or administrative perspective, largely neglecting the role of individuals making up the organisation. Central to organisational development are the learning processes of these individuals and how these translate into organisational learning. Although research into organisational learning is abundant, relatively little is known about how construction organisations, particularly those classified as SMEs, undergo learning processes in order to increase their knowledge. Furthermore, organisational learning requires high absorptive capacities (ACAP) and previous research has linked this with successful standard implementation. SMEs are often pressurised by customers to obtain certification to multiple standards, yet often lack the necessary expertise, and financial and time resources to implement these. This research argues that organisational learning is a key limiting factor in successful sustainability standard implementation. Specifically, the development phase of a sustainability self-assessment tool to identify environmental and social aspects most relevant to an organisation's operations is presented. Following this, the tool then enables the level of organisational knowledge held about each of these aspects to be determined such that learning approaches are informed to increase learning and knowledge and hence absorptive capacities. The main components of this assessment tool are presented and rules for its operation and development established. Next steps for the assessment framework and suggestions for its applicability to construction product manufacturers are also offered.

Keywords: absorptive capacity, corporate social responsibility, organisational learning, sustainability assessment, sustainability standards.

INTRODUCTION

Demonstrating commitment to sustainability and enacting positive change to incorporate greener behaviours at the organisational level is often evidenced via certification to sustainability standards. Standards are adopted to demonstrate the performance of the organisation or their products against specific areas. They are voluntary and comprise a list of statements providing guidance and requirements on commonly accepted norms under these specific areas. Many studies have considered the role that these have from an operational or administrative perspective, such as how certification to ISO 14001 (BSI, 2004) for environmental management impacts on

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organisational performance (e.g. Link and Naveh, 2006). While certification to standards has been found in many cases to hold significant benefits, such as improved legitimacy (Bansal and Hunter, 2003), cost savings (Raines, 2002) and increased trade opportunities (Prakash and Potoski, 2007) in the case of ISO 14001 (BSI, 2004), it is also argued that the expense associated with implementing them and the intensive demands placed upon staff and time resources often render them unattainable for many organisations, particularly small and medium sized companies (SMEs).

However, the increased focus on sustainability assessment in supply chains (Varsei *et al*., 2014), coupled with the growing interest in product stewardship (Schroeder (2012), for example), is creating increased demand for evidence of certification to sustainability standards within product supply chains. Consequently, 'voluntary' standards are becoming ever more 'quasi-voluntary', which SMEs struggle to engage with due to resource constraints (Cassells and Lewis, 2011). Within the construction industry, clients tend to prioritise suppliers that can demonstrate compliance with standards over those that cannot, meaning that increasingly certification is becoming a key factor in awarding supplier contracts.

Such operational and administrative issues are not the only barriers to certification however; high levels of absorptive capacity are suggested as a necessary prerequisite for sustainability certification given the learning required to comply with, and maintain certified performance under, such evolving standards. Indeed it is argued here that learning represents perhaps the most significant barrier to complying with standards, and the lack of resources that SMEs typically possess affects their ability to effectively learn. Cost-effective practical tools are therefore required to support this learning, yet there is currently a paucity of such tools available to construction SMEs. Questions remain, however, as to the form that sustainability assessment tools should follow to increase learning within construction SMEs such that they can comply with sustainability standards. This research establishes principles to support construction SMEs in establishing any gaps in compliance and in identifying learning actions to effectively manage sustainability issues. These principles can then be used to govern the design of a framework to aid in the development of a more detailed tool. It is important at this point to highlight that such principles and the tool are not confined to SMEs however and as such may be applicable to non-SME organisations. The tool is specifically targeted at SMEs in this research due to their relative struggles in complying with sustainability criteria.

IMPLEMENTING SUSTAINABILITY STANDARDS IN SMES

SMEs are often considered to have fewer than 250 employees, a turnover of less than €50 million and make up around 99% of all businesses (European Commission, 2013). Collectively they contribute to about 60% of commercial waste and 80% of pollution in the UK (Cassells and Lewis, 2011), but when considered individually, their impacts are regarded as relatively low (Brammer *et al*., 2011). Jenkins (2006) argues however, that there is growing recognition of their collective environmental and social impacts, with Russo and Perrini (2010) even suggesting that sustainability holds greater importance for them than for their larger counterparts due to their stronger links with local communities.

Much has been written in the sustainability and supply chain management literature about how SME engagement with sustainability is hampered by tight resource constraints (e.g. Ciliberti *et al*., 2008; Lepoutre and Heene, 2006). Implementing a sustainability standard is a resource-intensive process, requiring the provision of vast

financial resources (Revell and Blackburn, 2007) and commitments in time from staff who also hold other responsibilities within the business. Although there is often considerable overlap between many of these sustainability standards, such as that of ISO 14001 (BSI, 2004) and BES 6001 (BRE, 2014), they are rarely implemented in a coherent and holistic manner. Furthermore, SMEs do not possess the resource to implement multiple standards simultaneously (Tsai and Chou, 2009).

Research has also shown that customer pressure can drive adoption of standards (Delmas and Montiels, 2009), often more so than the organisation's technical capacity to implement them (Simpson *et al*., 2012). In a UK construction context, where 950,000 SMEs operate (BIS, 2014), standards are only implemented by product manufacturers at the request of customers. Hence, implementation is only considered by the SME when it has sufficient resources and demand from customers to warrant certification. However, resources and demand aside, learning is argued to be a key barrier to successful standard adoption in the SME, and implementation of standards can be linked to the organisational knowledge and learning structures that are in place.

Sustainability standards represent an important area for the SME, yet without the in-depth knowledge of how to implement such standards, they often struggle to keep up with the demands of their clients. Therefore, facilitating learning when implementing a sustainability standard is an important but rarely considered area for research.

LINKING STANDARDS AND ORGANISATIONAL LEARNING

Implementation of standards can be thought of as a change process requiring organisational learning (Maon *et al*., 2009) and the knowledge obtained from this learning can affect SME commitment to sustainability (Halila, 2007). However, the majority of SMEs are 'vulnerably compliant' according to Perrini (2006), as they do not possess sufficient knowledge to ensure full compliance with sustainability requirements. Therefore, in order to increase uptake of sustainability among the SME community, provision and facilitation of learning holds great significance.

Organisational learning has been shown to be highly dependent upon the absorptive capacity (ACAP) of the organisation (Kim, 1998). ACAP is the ability of a firm to create competitive advantages through implementation and exploitation of knowledge and new resources (Cohen and Levinthal, 1990; Zahra and George, 2002). ACAP has been linked with effective development of environmental strategies (Delmas *et al*., 2011) and sustainable performance improvement in supply chains (Sáenz *et al*., 2014), and in a construction context, green innovation and performance (Gluch *et al*., 2009). An important component of ACAP is knowledge acquisition, which is key for sustainability innovations (Halme and Korpela, 2014), as those organisations that engage in regular knowledge acquisition activities tend to exhibit greater environmental commitment (Roy and Thérin, 2007).

It is thus posited that providing knowledge acquisition opportunities can not only mobilise learning for the SME, but can also encourage a more proactive attitude to sustainability issues. Potentially, SMEs can then become effective 'transmitters' of sustainability throughout the supply chain (Ayuso *et al*., 2013); therefore ensuring SME engagement with sustainability can be important in increasing supply chain sustainability.

Through the provision of a learning tool for the SME, this increase in supply chain sustainability can be obtained. This tool should not only support meeting the requirements of standards, but also ensure SMEs have the necessary expertise to

obtain added value from implementing these standards. There are however a wealth of standards in the public domain, potentially creating a confusing landscape. Therefore a tool should also consider those issues most significant to an SME, such that performance in those areas of most significance to its operations is prioritised. The following sections of this paper will look at the development of a framework upon which such a tool could be based.

DEFINING THE PRINCIPLES FOR THE ASSESSMENT FRAMEWORK

1. Prioritising of issues based on risk

Integrating sustainability requires a systems approach with an appropriate management framework (Azapagic, 2003). Reporting frameworks, such as the Global Reporting Initiative (GRI, 2013), encourage organisations to consider different sustainability aspects depending on whether they represent material issues. Likewise, the new ISO framework (IRCA, 2014) requires an organisation to look at its context and how this governs those internal and external issues that it deems to be significant. The latest version of the GRI guidelines (G4) lists 91 sustainability indicators under 46 different aspects, split into seven broad sections. Clearly, reporting against all these indicators would constitute a considerable task, particularly for an SME. Although this is not expected by the GRI, it does highlight the wide range of issues that could be considered relevant to sustainability. It is however plausible to suggest that even conducting a materiality assessment to identify and address the list of 'material' issues would still represent a significant challenge for many SMEs. This example of GRI indicates that such a leading framework to guide sustainability reporting (Brown *et al.*, 2009) is inappropriate for SMEs, as its demands are too onerous for organisations with limited resources.

Some standards however, are rather more prescriptive in what they require compliance with. For example, anecdotal evidence highlighted the case of a construction product manufacturer that was forced to create documentation and policy statements around efficient use of water, as this was required under BES 6001 (BRE, 2014), despite the fact water did not constitute a significant issue for that organisation. In this case, the sole reason that the organisation pursued this issue was to score more 'points' under BES 6001 (BRE, 2014). De Colle *et al.* (2014) cite a similar example, where an assessment tool that was used by two oil companies was designed in such a way that high scores could be obtained by focusing on questions where it was easiest to score points, rather than where the highest risks occurred. Perversely, this could lead to an organisation scoring a 'high' level of sustainability performance against the tool, even though it may score poorly against individual 'high risk' issues.

An organisation's assessment of risk can be linked to management of its reputation (Bebbington *et al.*, 2008) and thus those issues that have a greater potential to cause reputational damage are often considered issues of higher risk. The significance of an individual aspect can be defined by how much of an impact it has on the environment, society or economy. Furthermore this significance of an aspect is directly linked to risk; poor management of individual aspects that are deemed significant might cause greater risks to the organisation's reputation, leading to potential negative or unwanted attention from stakeholders or the media.

Reputational drivers have been shown to be core reasons for an organisation to adopt the GRI (Nikolaeva and Bicho, 2011) and in a construction context, engaging with

responsible sourcing has been linked to reputational issues (Upstill-Goddard *et al*., 2013). Clearly, taking actions to protect reputation holds great significance; such a risk assessment can aid an organisation in prioritising areas for attention. Therefore, we can arrive at our first principle for our proposed framework: it must initially seek to identify sustainability aspects that are most significant to the organisation in terms of risk, such that performance improvement against 'high risk' aspects is prioritised.

2. Developing the modular approach

Once significant aspects have been identified, the organisation can then begin to address each of these in a systematic way. By setting a uniform framework for the assessment of each sustainability aspect, a standardised approach to obtaining management and performance improvements for each aspect can be developed. Such a framework should focus on breaking down the requirements of management system standards to render them more approachable for an SME, as many such standards are developed with the aim of targeting primarily big businesses (Enderle, 2004). For this reason, the framework will take a 'modular' approach, with different aspects each representing one module.

Clearly, the first step for any assessment tool is to establish the current position of an individual organisation with regard to individual aspects. Methods such as gap analyses (used at the start of a BES 6001 (BRE, 2014) implementation project, for example), use of maturity matrices (used to guide development of BS 8903 (BSI, 2010) for sustainable procurement), and baseline data collection (such as an initial environmental review used in an ISO 14001 (BSI, 2004) environmental management system (EMS)) can all be used to establish current performance level. Operational controls can then be set, which could be formalised through the setting of control procedures and objectives and targets to strive for performance improvements. BES 6001 (BRE, 2014) sets requirements for organisations to develop a 'documented management system' for many of the environmental and social aspects covered by the standard. This requires an organisation to set a policy, metrics and objectives and targets for specific issues, enabling effective management of each aspect. In this proposed framework, such documentation is concerned with developing and designing the management processes for each aspect.

Once the 'Design' stage has been completed, and procedures are in place for managing each aspect, the organisation can then begin to implement these. This should ensure that all procedures are fully embedded within the organisation, data are collected, monitored and measured and training and awareness raising activities are conducted (see Azapagic, 2003). Organisations could also use this stage to implement auditing activities to ensure procedures are correctly being carried out and data collected are accurate. These activities should be termed the 'Implementation' stage of the framework. Full engagement at this stage should cause the organisation to have fully operational robust processes to manage different sustainability issues.

However, in order to set further improvement targets and strive for these on an ongoing basis, the proposed framework should also include a 'Review' stage, where all data are reviewed and any necessary corrective actions emanating from audits are advised. This can then contribute towards a 'continual improvement' culture, as advocated by many of the ISO management systems.

It is therefore suggested that each 'module' is based upon this 'Design, Implement, Review' process, which is similar to the 'Plan-Do-Check-Act' approach suggested in the ISO 14001 (BSI, 2004) standard. Therefore, the second principle for the proposed

assessment framework has been determined: it must address all significant aspects in a modular way following a systematic approach, as outlined above.

3. Prescribing learning approaches to improve sustainability management

A criticism often levied at standards is that they tend to encourage a 'box-ticking' approach to compliance, where specific clauses are implemented with little consideration as to how they bring a wider benefit to the organisation (De Colle *et al*, 2014). This can directly lead to standards actually failing to improve performance (Simpson *et al*., 2012), which somewhat contradicts the reasons behind their implementation. As such, our assessment framework should seek to avoid prescriptive actions that could potentially cause a 'box-ticking' approach to any tool that is developed out of it. Given the links already made between sustainability standards and organisational learning, it is suggested that this framework should look to prescribe learning actions for each aspect by determining what knowledge the organisation possesses about the requirements of the sustainability standards.

Considering the systematic nature of the modules as discussed previously, learning actions should focus on the design, implementation or review of a particular module. It is suggested that by formulating a question set for each module that considers those topics core to complying with that module, any tool could determine the gaps in the organisation's knowledge about that specific module and as such, can highlight areas where further learning might be required. This will ensure that organisations can implement standards in a way that adds value to their operations. As such, ACAP can be increased, as organisations are essentially 'learning-by-doing', which aids in increasing their transformation of knowledge (see Zahra and George, 2002). The third principle for the development of the framework is thus set: it should relate the knowledge gaps of the organisation to the requirements of the sustainability standard and prescribe learning actions where these gaps exist.

Figure 1 shows how these rules fit within the high-level design of the framework. This framework can then be used to guide development of the assessment tool.
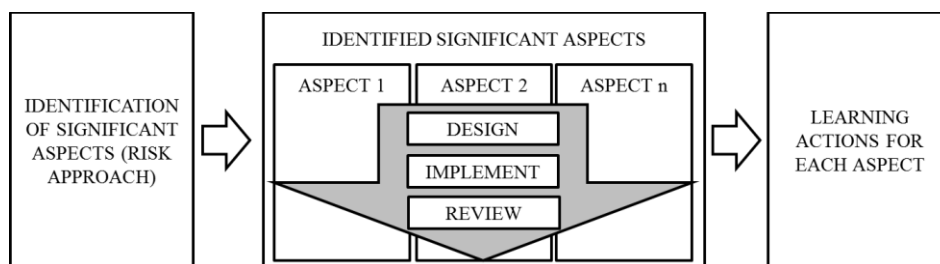

Figure 1: The high level framework according to the development principles established.

APPLICATION OF THE TOOL: A LEARNING DIMENSION

The high-level framework developed above can be used to guide the development of a sustainability assessment tool, which can be used by an organisation to address either the requirements of a specific sustainability standard or to address broader corporate responsibility requirements. As explained in the previous section, the final stage of the framework (labelled as 'learning actions for each aspect' in figure 1) will need to understand what the organisation is required to do and their awareness around these requirements. This will enable the prescription of learning actions for the organisation such that it can obtain sufficient knowledge to address the requirements of the

modules it is addressing. Implicit in the framework is that organisations need to adopt a 'learning organisation' form (Senge, 1990). The type of learning that an organisation undergoes is dependent upon its culture (Love *et al*., 2000); therefore an organisation's learning is dependent upon the level of individual learning. Management system standards, such as ISO 14001 (BSI, 2004), stress the significance of training programmes, but it is imperative that such activities are fully implemented and their importance fully recognised, as Tennant and Fernie (2013) report that ad hoc delivery of management-led training does not maximise the potential for learning.

If this framework is to assist in the delivery of effective learning for employees, it must ensure that full commitment is given to the learning activities prescribed within the framework. These should be planned, and organisations using the framework will need to set aside time for employees to undergo any learning activities. However, given the tendency for the SME to possess limited time resources (Lepoutre and Heene, 2006), such learning activities developed as part of the tool will need to focus on short 'bitesize' activities, such that the effect of time constraints is minimised.

CONCLUSIONS AND RECOMMENDATIONS

This research paper has presented the principles and some components of a learning framework, which will be used to guide the development of a sustainability assessment tool. The framework rests on three principles: Firstly, the tool must identify those sustainability aspects most significant to an organisation's activities such that resources can be concentrated on key aspects; secondly, the framework should follow a modular design, with each individual aspect representing one 'module', so significant aspects are addressed in a systematic way; and finally, the framework should establish knowledge gaps and link these to the requirements of sustainability standards, thereby prescribing learning actions that will aid in the organisation complying with standards. This enables an SME to undergo learning to ensure that the requirements of sustainability standards are complied with. It also enables an organisation to increase its learning and knowledge and hence absorptive capacities (ACAP).

These principles also govern the three high level components of the framework under which the detailed modules and questions will be developed. Next steps will consider the development of individual modules using the principles presented by establishing what is required by different standards against specific aspects. Within each of these individual modules, question sets to understand the knowledge held about each aspect will be developed according to the modular principles established. The framework must however also seek to be free of any limitations, and as such, development must focus on avoiding a 'box-ticking' approach to compliance. This will be addressed by extracting the organisational performance intricacies for different aspects and setting bespoke learning objectives in order to provide added value to the sustainability standard being implemented.

Finally, the development of the framework presented here contributes specifically to literature linking learning and ACAP with improved sustainability performance in supply chains. An assessment tool developed by use of this framework will enable an organisation to set proactive sustainability strategies by focusing on learning and development outcomes which lead to increased organisational learning and hence ACAP. Furthermore, by considering the ability of SMEs to 'transmit' sustainability through the supply chain (Ayuso *et al*., 2013), this framework can provide a useful starting point for wider sustainability adoption.

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