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Barriers to MNEs green business models in the UK construction sector: An ISM analysis

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ABSTRACT

The environmental and economic benefits of green business models (GBMs) are considerable if current barriers can be identified and ways of overcoming them developed. In this study, barriers to GBMs are identified by conducting a qualitative study. Nineteen semi-structured interviews were conducted with selected UK construction sector experts from academia and industry and the results were obtained by applying thematic analysis. Five major categories of barriers emerged: government constraints; financial constraints; sector constraints; company constraints; and lack of demand. To understand the collective impact of these barriers, the interpretive structural modelling (ISM) method was used. The ISM-based model showed that government constraints are driving the rest of the barriers followed by financial and construction sector constraints equally then the by company constraints. Surprisingly, lack of demand appeared to have the least significance in hindering GBM transformation compared to the rest of the barriers. The results present a clear picture of the green construction market relevant to multinational enterprises (MNEs) intending to enter the UK. MNEs are therefore influenced by the government on strategic planning and capability building for GBMs. Effective engagement with the government will generate institutional advantages resulting in legitimacy and trust for MNEs in the UK markets.

1. Introduction

Climate change is one of the main global challenges and is critical for multinational enterprises (MNEs) in many sectors (Pinkse and Kolk, 2012). MNEs have cross-border activities that are shaped by different contextual and institutional drivers and barriers (Lundan, 2010). Therefore, an essential part of the strategic behaviour of MNEs is to identify these drivers and barriers for intended entry markets. In this paper, the UK green construction market is considered an entry market for MNEs. The UK government has a binding legal obligation to reduce carbon emissions, a major contributor to climate change, by at least 80% of the 1990 baseline by the year 2050 (HMG, 2008). The construction sector has a significant contribution in this area because buildings are responsible for 50% of total UK energy consumption of which carbon emissions is major source (Pitt et al., 2009). Regulatory means, such as building regulations, building codes, and green labelling, have been essential environmental reform instruments (Alkhaddar et al., 2012). To reduce waste creation, the government has introduced the Landfill Tax and Aggregate Levy (Pitt et al., 2009). Hence, MNEs need to be aware of the aggressive regulations and to follow them before entering the UK green construction market.

To address the multiple challenges of climate change and global sustainability, economic development will require a transformative change of different sectors towards a low carbon future. This transformative change is difficult to achieve in the construction sector because it is characterised by a complex value chain with various actors that may have conflicting interests, and hence, the responsibility to address global challenges is dispersed through the value chain (Kohler, 2008; Häkkinen and Belloni, 2011). A green business model (GBM) has the potential to effect this transformative change as it provides environmental improvement coupled with economic benefits (Sommer, 2012). The GBM describes the logic of how a construction company creates, delivers, and captures green value (Aho, 2013).

However, developing GBMs requires substantial investment and support from different parties expanding beyond a company's boundaries. The literature has identified key barriers to the

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development of GBMs (FORA, 2012) which can be broadly categorised into contextual/institutional and organisational barriers. The contextual/institutional barriers include regulatory barriers; lack of initial capital investment and lack of demand where as the organisational barriers include difficulty of GBMs to align with existing business models (BMs) and systems, lack of knowledge and capability, and dominance of short-term profit seeking (FORA, 2012, 2010). In order to address the various barriers, FORA (2012) argues that policy intervention has a major role to play by developing relevant policies, providing access to finance, and stimulating market demands. For the construction sector, the barriers addressed within the literature are focused on sustainable/green construction and buildings but not inclusively for GBMs. Typical barriers found are: affordability, lack of client awareness and demand, lack of proven successful cases, lack of business case understanding, lack of aligned standards, and regulations barriers (Pitt et al., 2009).

Previous research has explored the concept of BM as a framework for analysing and understanding sustainability in general (Aho, 2013; Mokhlesian and Holmén, 2012) and energy efficiency in particular (Al-Saleh and Mahroum, 2014), including renewable energy (Strupeit and Palm, 2015) and BM innovation for energy renovation for housing in Nordic countries (Mahapatra et al., 2013). However, research dealing with barriers to GBMs in the construction sector is not available as the development of GBMs is a relatively new proposition (Al-Saleh and Mahroum, 2014). Previous research has neither addressed the question of barriers to GBMs for the construction sector, nor whether there is a relationship between these barriers that creates a complex situation for construction value chain actors.

As a first step towards understanding the collective impact of GBM barriers, the objectives of this paper are to empirically identify barriers to GBMs in the UK construction sector and to develop a structural model by applying the interpretive structural modelling (ISM) method. ISM is suitable for this research because it analyses the interrelationship among the variables of a specific problem based on experts' judgements (Attri et al., 2013). The analysis offers novel insights into the interrelationship which exists between these barriers that has led to a complex situation where one barrier influences others. Furthermore, the method applied for structuring the relationship between the barriers provides an insight into GBMs and construction research. These insights are particularly valuable for policy makers who wish to leverage GBM development through regulatory reforms for the construction sector. They are also valuable for MNEs willing to enter the UK green construction market.

The remainder of this paper is structured as follows: the next section presents the theoretical background of the paper and has two parts. Part one reviews MNEs in construction while part two establishes the basic understanding of GBMs and their barriers. Research methods are presented in Section 3 where two qualitative methods are used: semi-structured interviews and ISM. Section 4 presents the development of ISM model. Next section discusses the findings. . In Section 6, we discuss the research implications to MNEs intending to enter the UK green construction market. The paper concludes with Section 7 which summarises the findings of the paper and reinforces the importance of further consideration of collective impact of external and internal barriers in GBM debates.

2. Theoretical perspective

2.1. Multinational enterprises (MNEs) in construction

MNEs and international construction terms are used interchangeably within construction research to describe a construction company that undertakes projects/construction-related activities outside its home-country (Ofori, 2003; Yang and Lu, 2013). In this paper, the term MNEs will be used throughout to denote the above.

According to Drewer (2001), MNEs emerged historically to satisfy the demands of a host country lacking in sufficient construction resources. For example, the construction boom during the 1970s of oil-rich countries in the Middle East was due to the ability of these countries to attract MNEs to meet the increasing construction demands of new buildings and facilities (Ofori, 2003). Haigh and Sutton (2012) investigated the role of MNEs in post-disaster buildings and infrastructure demands by conducting an exploratory qualitative study. The study showed the benefits offered by MNEs to the host country in post-disaster situations. The benefits were: efficiency; higher quality buildings within time and budgets; technological transfer to the local communities; staff development, and experience of local enterprises. However, the study showed concerns regarding MNEs using the disaster as an opportunity to enter new markets and to sustain long-term presence that can impact the ability of local enterprises to secure construction work due to imbalanced competition. Regardless of the historical necessities of MNEs, they continue to grow, owing to advances in communication, knowledge, technology, transport, open competition, and new emerging green markets (Ngowi et al., 2005; Yang and Lu, 2013).

The majority of research on construction MNEs has focused on competitiveness and performance of contractors globally. For example, Ngowi et al. (2005) reviewed the globalisation of the construction industry to suggest strategies for small companies in developing countries to benefit from the international construction market. In addition, Ofori (2003) reviewed different frameworks for analysing and comparing performance of international contractors. Ye et al. (2009) studied the international construction competition trend over the period 1981 to 2008. Furthermore, Han et al. (2010) analysed common strategies of sustainable growth of leading global contractors. However, there is no research available dealing with MNEs in construction in relation to climate change and sustainability. The current research aims to bridge this gap by identifying barriers to GBMs in the UK. Based on the results, recommendations will be made for MNEs wishing to enter the UK market. The next section reviews GBMs and their major barriers.

2.2. Green business models (GBMs) and their barriers

GBM as a term is relatively new to construction research (Al-Saleh and Mahroum, 2014), although terms sharing similar meanings with GBMs can be found in construction literature. For example, Aho (2013) used the term added value BMs to describe sustainability models. Funkhouser et al. (2015) used the term BM innovation to study community solar energy. However, most of the studies available describe GBMs through defined elements (Mahapatra et al., 2013; Selberherr, 2015; Walravens, 2015). This research follows this tradition and adopts five essential elements of GBMs as synthesised by Sommer, one of the few authors who delivered comprehensive empirical work on GBMs (Sommer, 2012). In addition, the theoretical framework of Sommer's work is well grounded in the BM construct as developed by (Osterwalder and Pigneur, 2010; Osterwalder, 2004). The five elements are: green value proposition (GVP); target group (TG); key activity (KA); key resources (KR); and financial logic (FL). These elements can be categorised based on two value perspectives: value creation and value capture. The KR and KA elements constitute the value creation perspective, while the GVP and TG elements constitute the value capture perspective. Value creation and value capture involve financial arrangements such as cost and revenues. The fifth element is: FL (Sommer, 2012).

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