Local variants of mobile sustainable building assessment models: the marketization and constrained mutation of BREEAM ES

JAMES FAULCONBRIDGE[*] AND SERCAN YALCINER[†]

[*]*(corresponding author) Lancaster University Management School, Lancaster, LA1 4YX, UK*
j.faulconbridge@lancaster.ac.uk

[†]*Manchester Architecture Research Centre, School of Environment, Education and Development, The University of Manchester, Oxford Road, Manchester, M13 9PL, UK*

Abstract *The globalization of sustainable building assessment models is now a familiar topic, as are related debates about the degrees of local sensitivity of such models. The contribution of this article is to examine empirically the way marketization affects the mutation of models as they travel, and the implications of this for local sensitivity. By marketization, we mean the effects when both a market for models emerges, and the adoption of a model acts as a means for an organization or city to gain competitive advantage over rivals. Using the case of one sustainable building assessment model, the Building Research Establishment Environmental Assessment Model (BREEAM), and its movement from the UK to Spain and transformation into BREEAM ES, the article reveals the important ways that marketization can constrain mutation. Using Callon's ideas about translation, we show that the model was translated in a way designed to minimize adaptations to local context in order to maximize the comparability of buildings assessed using BREEAM ES with buildings assessed using other variants of the BREEAM model. This suggests, we claim, that marketization is a significant reason for the outcomes of the mobility of BREEAM being the opposite of that observed in many previous studies where a model's name stays the same but its content and the practice of implementation varies.*

Keywords BREEAM, GLOBALIZATION, SUSTAINABLE BUILDING, MARKETIZATION

The globalization of knowledge and practice relating to buildings is now a familiar topic. For example, from the steel frame building and concrete technology (Cody 2003), to the bungalow (King 1984), there is a well-documented tendency for design

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types to travel. There are also well-documented concerns about the local impacts of such mobility on vernacular architecture (Moore 2013). Most recently, such debates have honed in on questions of sustainable building design. Starting from the position that sustainable design challenges and solutions are 'plural' and context specific (Guy and Moore 2007), studies have questioned the desirability of the global circulation of either sustainable design (Cole and Lorch 2003; Faulconbridge 2013) or assessment models (Cole and Valdebenito 2013; Faulconbridge 2015). In this article, we consider the mobility of sustainable assessment models in particular. Here, the main controversy relates to the potential for local adaptation, with some identifying opportunities for local variants of models to emerge (Cidell and Beata 2009), but others argue that high levels of context insensitivity arise from the use of mobile models (Schweber 2013).

In this article, we explain how the insensitivity identified in some of the literature (Cole and Valdebenito 2013; Sev 2011; Wallhagen and Glaumann 2011) emerges, and results from the imperatives underlying the globalization of assessment models. We examine, empirically and theoretically, the way one global sustainable building assessment model – the Building Research Establishment Environmental Assessment Model (BREEAM) – had its mutation restricted as it travelled to Spain, thus reducing the extent to which people could respond sensitively to local design practices and needs. Mutation is used to refer to a situation in which models 'are not, after all, merely being transferred over space; their form and their effects are transformed by these journeys' (Peck 2011: 793).

In particular, by examining how BREEAM travelled to Spain and became BREEAM ES (the ES denoting España), the article reveals the important ways that *marketization* can, in the case of assessment models, constrain the transformations highlighted by the idea of mutation. By marketization, we mean the effects when both a market for models emerges and the adoption of a model acts as a means for an organization or city to gain competitive advantage over rivals (cf. McCann 2013; Peck and Tickell 2002). Theoretically, this is significant because it reveals that, under conditions of marketization, the translation processes that others have suggested lead to mutations can also restrict mutation. We show how an analysis informed by Callon's (1986) characterization of translation, involving *problematization*, *interessement*, *enrolment* and *mobilization*, can show the reason for restricted mutation, which is a paradox in the case of BREEAM. We also show how, when the label of the model changed, the degree of change in terms of the content of the model was constrained, which is the opposite of the situation commonly observed in previous studies (for example, Boxenbaum 2006; Czarniawska and Sevón 2005). We characterize the paradox here as a case of isopraxism rather than isomorphism, the latter generating pressure only to adopt the model (and its title), the former creating pressure to adopt practices of implementation (Erlingsdóttir and Lindberg 2005). The article is, therefore, important because it reveals how mobile sustainable building assessment models such as BREEAM potentially become insensitive to local challenges and practices due to pressures of marketization, even if this was not the intention of those mobilizing the model.

In the rest of the article, which consists of five further sections, we first review existing theorizations of mobility and mutation and outline the way ideas about translation frame our analysis. We then introduce the BREEAM model, before considering its mobilization and conversion into BREEAM ES in Spain. We then analyse the effects of marketization on this mobility before concluding with reflections on the insights gained from the analysis.

Mutating models

In the literature on global building assessment models and in wider social science studies of mobile models, an important stream of work has sought to counter tendencies to assume that globalization equals processes of diffusion. For instance, Peck and Theodore (2010a: 173), writing on mobile policy models, conclude that 'even the "same" policies tend to be associated with different effects in different places, by virtue of their embeddedness in, and interactions with, local economic, social, and institutional environments.' Often described as mutation (McCann 2011; Peck 2011; Quark 2013), globalization, according to such authors, reproduces rather than replicates models in different institutional contexts. Czarniawska and Sevón (2005) thus suggest that only the name of a global model remains consistent as it travels; its meaning, content and impact all vary from place to place.

Studies have accounted for mutation in a range of ways. Boxenbaum (2006) suggests that the frame of interpretation will vary from place to place and, hence, the meanings associated with a model and promoted to potential adopters need to change if mobilization is to succeed. McCann (2011) associates this type of mutation with the effects of the story telling used to mobilize models. Eick (2012) draws attention to the way the specifics of the institutional (regulatory, normative and cultural) environment of a place render a mobile model more or less implementable, with changes made when institutional differences prevent a model from being adopted in a form that exists elsewhere (see also Peck and Theodore 2010b). For Faulconbridge (2013), mobility often involves making a model work in a particular local context through a process of bricolage.

Theoretically, scholars have conceptualized such mutation through work on processes of translation. Alcouffe et al. (2008), drawing on ideas from actor–network theory, understand translation as the process that assures a model's successful globalization. Callon (1986) defined translation as involving processes of *problematization*, *interessement*, *enrolment* and *mobilization*. *Problematization* is relevant here because it relates to convincing others that the model in question is a solution to a recognized problem, thus making the model indispensable. *Interessement* means gaining the interest of different actors and building connections to the model as a result. *Enrolment* consists of forging alliances with others who play interrelated roles in moving a model. *Mobilization* refers to the monitoring necessary to achieve the desired outcome. Those studying mutation have drawn attention to how models evolve during translation, especially since problematization and interessement imply making concessions to local contexts (Czarniawska and Sevón 2005). In this article,

we discuss how marketization influences processes of translation, the implications of this for mutation, specifically in relation to a sustainable building assessment model, and the implications of marketization for the local sensitivity of global models.

Marketization and mutation

The market imperatives underlying mobility are all too apparent for those studying both building assessment models and parallel processes of knowledge and policy mobility. Sklair (2006: 36) suggests that the need 'to keep people spending to maximize profits for the transnational corporations and their affiliates' in the building industry underlies the globalization imperative. Peck and Theodore (2010b) highlight how mobile policy models provide 'fast' solutions. Such solutions are crucial in a context in which policy makers are encouraged to engage with the market. This engagement means both seeking cost savings by replicating policies implemented elsewhere, and gaining legitimacy and competitiveness for a city through the adoption of a global model.

Such market influences point to the need to consider two important factors when analysing mobile models. First, it is important to recognize that the desire to sell solutions is what makes models become mobile. As Peck (2011) argues, since interested parties seek to promote their models and profit from the advice given, mobilization involves selling rather than telling. Prince (2013) observes that this means that consultants deliberately assemble models in ways that will sell around the world, with different groups competing against one another in a way that creates a market for models. These 'sellable' models have particular market friendly characteristics, which we explore further in our analysis below.

Second, those buying models do so with particular market related imperatives in mind. As Peck and Tickell (2002) observe, clients appropriate global models as part of 'extrospective' efforts to become competitive. This involves adopting models that will allow comparison with (McCann 2013) and benchmarking against competitors (Larner and Le Heron 2004) as organizations and cities seek advantage in global neoliberal markets. This second form of market influence dovetails with the first to create a situation in which both those 'pushing' and 'pulling', selling and buying global models do so in ways influenced by market priorities. We need to understand these priorities to reveal their influences on translation and to explore their implications for mutation. In particular, the double movement of buyer and seller market priorities has the potential to lead in the translation process to approaches that result in either positive or negative outcomes for local sensitivity. Below, we examine the nature and consequences of such market imperatives in relation to the case of the translation processes associated with the production of BREEAM ES.

The case of BREEAM ES

BREEAM originates in the UK. The Building Research Establishment (BRE) initially developed it as a model to assess the sustainability of UK buildings, primarily in the commercial sector, though it has recently expanded into other domains, including

schools and communities. Here we focus on the original commercial version. BRE (in BREEAM 2014a) describes the BREEAM model as being:

> the standard for best practice in sustainable building design, construction and operation and [it] has become one of the most comprehensive and widely recognised measures of a building's environmental performance. It encourages designers, clients and others to think about low carbon and low impact design, minimising the energy demands created by a building before considering energy efficiency and low carbon technologies.

There is a large literature on the technical specifications of BREEAM and other similar models (see for instance Bunz et al. 2006). Here, given that our interest is in processes affecting mutation, we are less concerned with technical specificities than with the effects of mobilization strategies on the potential for local sensitivity. To summarize (and necessarily simplify) BREEAM's approach, we note three core features. First, the model sets performance criteria (with credits awarded for meeting them) for things such as modelled energy and water consumption, waste produced in the construction process, and impact on local environment. Second, the model also awards credits for following 'best practices' in design and construction, and for providing certain forms of sustainable infrastructure within a building. For instance, a significant example in our case study relates to credits awarded for providing facilities for cyclists. Third, the model provides a rating for a building according to the number of credits scored. For BREEAM, this is a rating from 'pass', through 'good', 'very good', 'excellent' and 'outstanding'. Our focus here is, therefore, on the way mutation occurs in relation to the first two features, and the extent to which a BREEAM rating reflects locally sensitive sustainable building design.

BREEAM is widely recognized as one of the first sustainable building assessment models and, from an early stage, BRE embarked on a project to globalize the model. In his review of the evolution of the BRE organization, Courtney (1997) notes that a crucial motivation for this was the transformation of BRE from a government research institute into an independent foundation with a commercial arm. Because the commercial arm would fund the foundation, it became necessary to sell the BREEAM model and other products nationally and internationally in order to generate the required revenues and profits. However, the rise of competitor schemes has led to BREEAM facing a battle for global competitiveness. Taking inspiration from the BREEAM model, green building councils and private organizations around the world have developed rival models, such as Green Star in Australia, LEED in the USA and VERDE in Spain (see Bunz et al. 2006 for a review of different schemes). BREEAM has had some success and, by 2014, buildings in more than 50 countries had adopted the model. BRE thus proclaims that 'BREEAM is an internationally recognized brand across the world, setting the standard for sustainability in the built environment' (BREEAM 2014b). Nonetheless, that BREEAM operates in a market in which building owners can choose from multiple models is significant in our analysis, for this axis of marketization affects mutation as the model travels.

BREEAM in Spain

The BREEAM ES variant is one of several nationally specific schemes developed from the original UK BREEAM model. In the early stages of globalization, BREEAM functioned as a so-called 'international' variant of the scheme, with a view to it providing the 'flexibility of recognising local best practice codes and standards' (BREEAM 2014c). As BREEAM won the battle to become the dominant model in several European countries, a series of more specific national schemes spun off from the international model, BREEAM ES being one such example (others existed for Germany, the Netherlands, Norway, Spain, Sweden and Austria). To date, BREEAM ES has served to assess 134 buildings, with 57 assessors in Spain providing the advice and assessments needed to gain a BREEAM rating (BREEAM ES 2014). The international scheme remains in place and countries use it in the absence of a nationally specific variant.

We describe below the process through which BREEAM ES emerged. Initially, in 2012, we conducted 24 semi-structured interviews to ascertain what motivated the globalization of BREEAM International. One of us (Yalciner) held the interviews in the UK, Belgium, Spain and Turkey, to look into the emergence of BREEAM International and its application in various contexts. The development of the BREEAM ES model, which began in 2010 and ended with the launch of its first manual in mid-2011, provided an opportunity to focus on the process of producing a national variant – insight gained into this being the focus of this article. In the analysis below, we therefore restrict our focus to the time (2010–11) and processes associated with publishing the first BREEAM ES manual and do not consider the model 'in use' in the design and construction of buildings since its launch in mid-2011. As such, our analysis is of the socio-economic processes affecting the production of the first BREEAM ES manual, which sets out the assessment criteria used, the technical mutations enabled or prevented, and the implications for sensitivity to the context of the Spanish built environment. As a result, in the analysis below, we use a subset of interviews that relate directly to the making of BREEAM ES.

We use insights from eight interviews in our analysis. Three of these were with BREEAM executives (of whom two were BRE Group executives and one was from the partner organization responsible for BREEAM ES). The other five were 'green building professionals' in Spain (of whom four were assessors who actively participated in producing the BREEAM ES manual, and the fifth was a Spanish architect with direct experience of both BREEAM International and its new ES variant). As such, we present insights from a limited number of key informants, but ones who played a central role in producing the first BREEAM ES manual, so could provide crucial insights into the process. The interview schedule focused on the pitfalls and advantages of adapting a global assessment tool, on how the process of adaptation occurred, and on the outcomes in terms of mutations and implications for those involved in BREEAM ES assessed building projects. We recorded and transcribed all the interviews, in English, and each lasted between 60 and 90 minutes.

The mobility of BREEAM to Spain

Moving BREEAM to Spain through the construction of BREEAM ES was a multi-actor process in which BRE was heavily involved. As we note below, this was primarily to ensure recognition of the imperatives that marketization imposed on the process of producing BREEAM ES. However, BRE's involvement was also a result of the organization's belief that it had gained valuable expertise from developing BREEAM in the UK and, latterly, BREEAM International, which it could reuse in other countries. As one BRE Group executive noted, 'we [BREEAM] looked at what was working and not working. We have gone through a lot of negative stages in [the] UK while improving our system, and our efforts can … [help] other countries that are further behind [move forward] faster than they could … on their own.'

BRE could not, however, act alone to produce the BREEAM ES model. As with all national BREEAM variants, it *enrolled* a local partner organization to facilitate the movement of BREEAM into Spain. For BREEAM ES, this was the Instituto Technológico de Galicia – known as ITG for short. ITG, under the supervision of BRE, had the task of producing the BREEAM ES manual and supporting infrastructure. At one level, which is relevant to questions of mutation, ITG played a key role in identifying the changes needed to make the model applicable to the host country, in this case Spain. This shows that BRE recognized the need for mutation as an outcome of the translation process. As a BRE Group executive noted:

> The construction process shows differences in relation to the changing market, culture, regulations and materials in that particular location regardless [of] the primary purposes of the building. If you make a core on what parameters make a building good, then all the cultural and local differences may shape the rest of the manual without interrupting the core. The BREEAM manual [is] designed with a common technical heart (approximately 60 per cent of the whole manual) and this core is valid to be applied globally.

At another level, ITG's role in gaining legitimacy for BREEAM ES in Spain was important. A distinctive feature of sustainable building assessment models is that they build their success on support from planning officials, building developers and occupiers. For example, studies show that using a model such as BREEAM to assess a building as part of the planning approval process significantly increases its legitimacy (Cole 2005). ITG thus played an important role in the *problematization* process, namely ensuring that the relevant actors in Spain recognized and valued BREEAM ES as a solution to the sustainability problem. As an ITG representative noted, 'if the authorities don't like the tool they won't use it, so we have to have a dialogue with them.'

In addition, a further group of actors was involved in the translation process. This group, which we call the 'green building professionals', is comprised of individuals drawn from professions traditionally associated with buildings – such as architects, building service engineers and quantity surveyors – who are especially interested in

sustainable design. Some new actors in this group have emerged in tandem with the rise of interest in 'green' buildings and models such as BREEAM, which include sustainability consultants and, most importantly, the assessors who determine the BREEAM rating of a building. These new actors are now important intermediaries and have a significant influence over the building designs ultimately adopted, even though models such as BREEAM are not supposed to be design tools (Schweber 2013). They particularly support *problematization*, providing the means to transform a model such as BREEAM into something building owners can recognize and use, through providing technical specifications for buildings, construction materials and services provision. BRE thus *enrolled* green building professionals by consulting them widely during the process of producing BREEAM ES, and then provided extensive training on the use of the BREEAM ES model. As an ITG representative noted, 'assessor trainings are carried out within BREEAM ES now. Main BREEAM is still controlling BREEAM ES of course.'

The comment about BRE controlling the training, which is consistent with the story below of BRE controlling the overall process of producing BREEAM ES, is indicative of the forms of *mobilization* used in the translation process. ITG was *enrolled* as a hired ally in the translation process, whereas green building professionals were *enrolled* through the incentives provided by the profits they could make from clients once trained, certified and capable of using BREEAM ES. However, at all times, BRE deployed tactics of *mobilization* to ensure that the competitiveness of the model was not threatened, this implying a direct and, as we describe below, interventionist role in the production of BREEAM ES.

Mutation

The role of ITG, at its simplest, related to linguistic issues – reproducing manuals in Spanish. However, it recognized from the outset, thanks to the experience of implementing BREEAM International in Spain, that some degree of content change would be necessary and that ITG would have a role in this. As a BRE Group executive outlined:

> We look at the metrics such as regulations, materials and techniques in the UK and Spain to compare and to understand what caused the buildings in these two countries to be different. We cannot credit buildings in other countries based on our UK knowledge, otherwise many of them will keep failing and this will de-encourage [*sic*] them.

As such, ITG played an important part in making BREEAM ES a model that would have traction in Spain. After all, *problematization* would only be possible if the model appeared to address Spanish sustainability concerns. Green building professionals had a similar role. This related to transforming performance criteria set by BREEAM ES into specifications for building design, construction materials and service provision that are implementable in Spain; otherwise, those commissioning buildings would not

see the model as useable. For example, a BRE Group representative observed the following about the role of BREEAM ES assessors. 'This is where innovation comes in. There are multiple ways of gaining credit and it is up to the assessor and developer to try. Our ideas are giving space [for] people to innovate. We drive innovation and change.' On the surface, then, the *enrolment* of ITG and green building professionals and their centrality in *problematization* created significant potential for change as BREEAM International became BREEAM ES. However, to understand the potential for mutation, it is essential to consider the effects of *mobilization*. Callon (1986) described this as a means of control in the translation process. In this case, *mobilization* is important because, despite the rhetoric on the need to adapt to a local context and innovation, the process of moving BREEAM into Spain actually involved placing significant restrictions on change. Indeed, it emerged from interviews that both ITG and the green building professionals had a number of reservations in this regard. For example, an ITG representative and a BREEAM ES assessor involved in the development of BREEAM ES, respectively, noted that:

> BRE wants to keep … [its] methodology [the] same in all the countries, so only [allows] small revisions … for BREEAM ES adaptation. BRE kept the parameters, issues and credits [the] same [in order] to keep … [its] methodologies [the] same.
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> The manual is created in such a way [as] to cover all types of buildings and locations. We have given our ideas during the adaptation process, but we have been told that it cannot change. They didn't consider much. They want all the buildings to have [a] similar assessment method.

These comments show BRE's desire to minimize change in the substantive content of BREEAM ES compared with BREEAM and its international version. Indeed, it was notable that the interviewees repeatedly represented BRE's agenda as sensitive to local sustainability needs and practices, but not at the expense of a 'best practice' agenda, thus seeing BREEAM as a best practice that brings benefits to other countries when imported. Exemplifying this tendency, a BRE Group executive suggested that:

> We prefer to make it accessible and achievable. We [BRE] want … our partners all around the world to develop that knowledge locally. We [BRE] are not trying to tell any organization what to do in its own location *but we are producing knowledge and allowing this knowledge to transfer between countries and continents* (emphasis added).

The result of this was BRE control of ITG activities, which BRE's *enrolment* of ITG as a contracted service provider enabled. Hence, as one interviewee familiar with ITG's work noted, it involved 'negotiations between the two sides. We examined the categories and sent our work to BRE Group UK. Our demands [were] reviewed by BRE Group; however, most of our suggestions [were] rejected.' Indeed, an ITG

representative even went so far as to say that 'many issues [in non-UK manuals] are directly copied from BREEAM UK.' As such, the contractual relationship prevented ITG making changes of which BRE did not approve.

For green building professionals, *mobilization* controls took a subtly different form. The training programmes set up during the creation of BREEAM ES were the green building professionals' main encounters with the final model. By monitoring the content of training and ensuring that it promoted approaches that the organization favoured, BRE was able to control how green building professionals understood sustainability and the BREEAM model. Consequently, our interviewees saw BREEAM ES not just as one, but perhaps *the only*, model of building sustainability. In particular, this put an end to questions about what sustainability meant or how to achieve it. As an architect in Spain noted, 'I have been trained by BREEAM so I am aware of what it does. However, trying to apply sustainability measures without really knowing what it [sustainability] means is difficult. People involved in the industry should have at least the basis of the sustainable building information.' Underlying this concern was a sense that, while 'assessor trainings are now carried out within BREEAM ES, BRE is still of course controlling BREEAM ES' (Spanish green building professional). As such, the suggestion was that, in Callon's (1986) terms, BRE was using training to control *problematization* and to minimize adaptations. Problematization in this sense refers to how BRE frames the problem addressed and, in particular, how it presents a model, in this case BREEAM ES, as a solution to or 'obligatory passage point' in this problem. BRE thus maintained its control over green building professionals through controlling the definitions of, and solutions to, sustainability presented at training events and hence determined that they understood BREEAM ES as a solution to these problems. As a local architect put it, 'the fame of the codes stopped one questioning their content and "wisdom" on "sustainability".'

We reflect further on how this was achieved below, given that it acted as a means of governance through which its 'best practice' claims were established. When combined with control of ITG, the governance of green building professionals meant that, as a BREEAM ES assessor in Spain put it, 'BRE Global was involved in the adaptation process, which in a way did not let the tool become too Spanish.' As another assessor put it, 'there are some differences between BREEAM International and ES, but … very few recalculations occurred in the credit arrangements.' That translation occurred in the context of pressures of marketization helps explain why such a situation arose.

Marketization, interessement, and the priorities of translation

The theoretical starting point for understanding why BRE so carefully controlled the translation of BREEAM International into BREEAM ES is a discussion of *interessement* in the translation process – namely, the process of generating shared interests between those selling and buying a mobile model to ensure that mobility occurs. To understand this, it is important to begin by reiterating that, as an organization, BRE changed significantly in the late 1990s when it became independent from

government and developed a profit-making arm and agenda. The commercial imperative that the BREEAM model must deliver a constant revenue stream was (and still is) one consequence of this. Hence, international recognition and adoption is crucial. As a local Spanish architect noted, 'BREEAM International was born to meet the demand of "green building assessment" in Europe. BRE considered its fame and money in the first place and released an international version.' BRE's need to act responsively to both local and other global competitor models thus motivates control of the translation. This has been necessary because, as the same Spanish architect explained, 'there was an obvious gap in the sector and BREEAM clearly filled it temporarily. As the green building assessment tools sector developed, marketing got competitive.'

In the Spanish context, local competition came from the VERDE model that the Green Buildings Council España operated. Global competition came principally from the LEED model; the US Green Building Council, which owns this model, has similar globalization ambitions and priorities as BRE. Describing the implications of these two forms of competition, a green building professional in Spain said that 'BREEAM has the UK market and they are too relaxed on other markets. BREEAM is not doing good in marketing, so I am sceptical whether BREEAM ES would be [a] permanent tool in Spain or not.'

As BREEAM ES operates in a market for models in which clients choose the model they consider most competitive, it is vital to control how the model translates so as not to undermine the key features that provide competitive advantage in the market. This has meant, in particular, emphasizing how BREEAM ES offers comparability and an international profile, for a desire to be able to benchmark their building against others worldwide often motivates those buying BREEAM ES. As such, adopting BREEAM ES because of its international profile and comparability, allows an organization or city to gain a competitive advantage over its rivals if the building in question is judged as being on a par with or better than its rivals elsewhere. Hence, as an ITG representative noted, 'the manual is created in such a way as to cover all types of buildings and locations. We gave our ideas during the adaptation process, but they told us it could not change. They did not consider much. They want all the buildings to have a similar assessment.' As such, BRE managed the translation process to ensure that its international identity and comparability were not lost, thus both giving it a competitive advantage over VERDE and being similar to what LEED offers. *Interessement* thus meant aligning the interests of BRE, which was selling the model, with those of the building owners who were buying BREEAM ES assessments in Spain. To achieve this, in its production of BREEAM ES, BRE prioritized those outcomes aligned with the building owners' desires for international comparability and profile. Representative of this, and identifying an issue that BRE arguably failed to address, is the following comment from a green building professional in Spain who honed in on the plaque that a BREEAM accredited building can display: 'BREEAM plaques are simple and ugly. LEED plaques are more showy and that is what clients want.' The focus on the plaque is indicative of how international recognition and the symbolic nature of a BREEAM rating are crucial drivers in clients choosing (or not because the plaque is not showy enough) BREEAM ES. The international dimension

to this competitiveness is further revealed by how, as two BREEAM ES assessors in Spain independently noted:

> VERDE is a recent tool produced by the green building council in Spain. The tool did not attract many developers due to it being only local.
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> Spain has a local tool called VERDE, which means green in Spanish, but it is not well developed and is still too young. Even if it were well developed, we would not consider using it in the future due to being local and not known in the global context.

In particular, by adopting BREEAM ES, companies and cities are able to benchmark their buildings and, symbolically, their corporate or city identity, which enhances the global visibility of international competitors. As some have noted (Larner and LeHeron 2004; McCann 2011; Peck and Tickell 2002), such a focus on benchmarking and comparison is indicative of the way market imperatives affect those buying and selling mobile models. Market logics such as the relative competitiveness of the BREEAM ES model, the potential competitive benefits that the designer, owner and occupier of the building gain from a BREEAM assessment, as well as the comparability and commensurability it generates influence the selection of a model. Two green building professionals in Spain noted that:

> The demand for BREEAM grew when Sonia, an important retail promoter in Europe, used BREEAM to assess a shopping centre. That has defined the norm for shopping centre builders – to have BREEAM assessment. All shopping centre developer companies wanted to use the same tool to compare.
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> BREEAM International at the global level would give its customers, and building developers in general, the option to compare buildings all around the world under the same brand. The comparability factor is the focal point of interest from the building developers' perspective.

As a result, interested clients who wanted to benefit from its international profile and comparability brought the BREEAM ES model to Spain. However, *interessement* meant that BRE also felt compelled to use the *mobilization* tactics described above to constrain any changes that might hamper the international comparison of a BREEAM ES building with a building rated using another variant of BREEAM. As an ITG representative put it, 'BREEAM ES is the adapted and more practical version of BREEAM International to Spain. However, the clients are interested in the international version. Clients are most of the time the building developers and comparison is an important aspect for them.'

Indeed, perhaps somewhat cynically, some buyers encouraged limited mutation because they feared that BREEAM ES would develop more detailed assessments and, therefore, that assessed buildings would not only lack comparability but would also receive a lower rating than a building assessed using the International scheme. As

such, clients hoped to exploit the shortcomings of a model that had undergone limited mutation. As a BREEAM ES assessor in Spain noted, 'some clients are afraid that the BREEAM ES version will make a more detailed assessment and therefore the building will receive a lower rating.'

In Callon's (1986) terms, we see then in the case of BREEAM ES how the effects of marketization led to particular priorities in the process of *interessement*, which created constraints on mutation. Consequently, translation became a tool with which to enable mobility through a restricted set of necessary and unavoidable adaptations to a local context, rather than being a tool for producing a model that is truly sensitive to local design priorities and practices.

The contradictions of constrained mutation

The simplest effect of the pressures of marketization described above was a translation process that focused more on language than content. This created immediate challenges because those working on the production of BREEAM ES at ITG recognized a need for multi-level changes if the model were genuinely to take account of Spanish sustainability challenges and solutions. As one ITG representative put it:

> ITG proposed revisions at two levels after a set of considerations. The first level was to evaluate conflicting issues with Spanish law and regulations. The second level was the revision and adaptation of the issues to the Spanish context. This includes amendments of issues that are not suitable for Spain and the Spanish way of living.

Ultimately, there were changes in relation to the first level and adaptations to take into account Spanish building codes. Many of these changes were climate related, for Spain has higher overall average temperatures and lower rainfall than the UK. Hence, regulations on water preservation and the prevention of over-heating are tighter in Spain. One BREEAM ES assessor in Spain noted that the 'water category is only 9 per cent in the assessment but water is a more important issue for Spain and in Spanish regulations', while another highlighted the need to consider the 'heat island effect, which is required in Spain'. Indeed, it is possible to observe a layering process in the BREEAM ES manual in which BREEAM International adopts additional criteria to reflect particular Spanish regulatory concerns. Hence, the main differences between the assessment categories in BREEAM International and BREEAM ES emerge from the addition of subcategories in relation to health and wellbeing (criteria Hea 08 'Sustainable water treatment for swimming pools'); waste (Wst 03 'Urban waste management' and Wst 04 'Horizontal wall cladding'); and land use and ecology (LE 06 'Erosion control').

Adaptations in relation to regulations were unavoidable because failure to do so would have led to penalties such as fines. However, responses to the second-level adaptations that ITG identified, which addressed building design and construction norms, cultures, practices and associated knowledge bases and skillsets, were more

inhibited and this made many of our interviewees question the appropriateness of BREEAM ES. On one hand, this raised concerns in relation to pragmatic issues such as whether it was possible to comply with the demands of the model. For instance, one BREEAM ES assessor in Spain noted how, from his perspective:

> The UK is very bureaucratic and we are expected to be like them [British people]. However, it is very difficult to try to get everyone, such as the contractor, involved in the process – to be as bureaucratic as expected by the UK. Therefore, the duration of the process gets longer and longer.

Another assessor described how 'contractors had a lot difficulty applying BREEAM requirements. Spanish contractors are not used to following a list of to-dos, like the ones in UK.'

On the other hand, concerns existed about the sustainability fixes that BREEAM ES promoted, a good example being the credits given for cycling facilities. The importance of such credits in gaining one of the higher ratings created pressure to provide facilities in the same way as in the UK. In doing so, the assessors ignored the absence of the wider infrastructure for cycling needed to make such facilities effective. As one 'green building professional' actively involved in producing the BREEAM ES manual noted:

> During the adaptation of the tool, we [the assessors] agreed that installing cycle racks and building showers in the buildings was crazy and would not work in Spain. Cycling is not a common practice in Spain. … Therefore, we asked BREEAM either to reduce the credit or to replace it with something else. However, they insisted on keeping the cycling credit as it stood. They (BREEAM) think bicycle racks will encourage the public. We have been told 'if we [BREEAM] keep it as it is, and you [BREEAM ES] implement this, a building with cycle racks will be the engine to the whole system.' There is no cycling facility, no infrastructure, and lack of proper lanes in Spain. Upgrading the required facilities totally depends on the public authority.

Consequently, designers are encouraged to expend significant amounts of embodied carbon on cycling infrastructures that were unlikely to be used. As another green building professional elaborated, 'we are not a country with a high demand for bicycle use. According to the BREEAM tool, one cycle rack should be placed per ten square metres. A shopping mall is around 20,000 square metres and in that case the number of bicycle racks to be mounted is enormous.'

For interviewees, this led to a sense that 'national best practices are advised to be used in some of the parameters, but if there is no national best practice then UK national best practice will be used.' From BRE's perspective, such an approach is justified by the 'best practice' agenda described previously. In the absence of clear guidelines, or norms and cultures that promote sustainability, it treated BREEAM ES as a means of introducing new 'best practices'. As one BRE Group executive

suggested, 'BREEAM is all about market transformation.' Another BRE Group executive observed that:

> Starting from scratch [to design an assessment tool] is very difficult. It involves a massive engagement process. For instance, BREEAM communities took months and months and months engaging with architects, industry, the client, the local authority and developers. We [BREEAM] know how to create good standards so what we do internationally is knowledge transfer on best practice.

Given the apparently limited adaptation of BREEAM ES to local conditions, some green building professionals and other stakeholders in Spain naturally react to such claims with cynicism and concern. However, because of the need to respond to market pressures, BRE manages such issues through a further form of *mobilization* control. By designing the model in a way that black boxes many of its components, it becomes difficult to challenge and further adapt the model. For instance, the tracker spreadsheets used to list the criteria assessed by the BREEAM model constrain both by writing some things out but also by rendering invisible the underlying rationale behind the performance criteria set (Schweber 2013). Similarly, BRE also sets tight parameters around the materials its models can use and those it defines as delivering sustainability. The control of materials operates through the requirement for data relating to their performance (for example in terms of insulation values). However, the tests required are neither recognized nor completed in many overseas countries. Thus, outside the UK it is common to be unable to source local materials assessed in the required way. As one BREEAM ES assessor in Spain noted:

> What is used in construction varies internationally, but BREEAM demands products with very particular specifications, which may not be appropriate or available in other non-UK contexts. Globally recognized contemporary design styles have been replacing local material usage and traditional building techniques, in other words vernacular architecture, since the twentieth century in the interests of constructing a 'modern looking building'. Such global certifications have replaced the main considerations of design.

BRE is willing to listen to challenges to the model and to problems with it. As one BRE Group executive noted, 'anything [any issues] we put there [in the manual] is to increase the sustainability, reduce emissions. Some of the parameters and issues might be culturally different. … We value scientific evidence. Show me the research to change anything, including anything to do with culture and we would change it.'

However, it is difficult to produce data that BRE would regard as scientific evidence. As such, and reflecting Prince's (2013) observation that those mobilizing models use quantification to obscure difference and render models stable, despite the recognized contradictions that exist in BREEAM ES it is not easy to challenge and secure adaptations. Consequently, when assessing a building using BREEAM ES,

often the only option is to use materials listed in BRE's Green Book. The materials listed there are frequently UK or Northern European in origin, because of BREEAM's birthplace, and may not necessarily be best suited to the climates of countries such as Spain. As one BREEAM ES assessor in Spain noted, this means:

> The material category in general is challenging us in the Spanish market. The Green Book is an advantage in the UK but we do not have the materials stated in the guide here in Spain. In addition, only a few materials in Spain have the life cycle analysis. In the UK, you can choose materials; here we cannot.

The net result was that interviewees commonly suggested that BREEAM ES has a Spanish name but is still a British assessment system. This is contrary to what others have documented in cases reported elsewhere (Boxenbaum 2006; Czarniawska and Sevón 2005; Ward 2011) as the outcome of the translation process – that is the name stays the same but the content changes. Indeed, the effect of BREEAM ES is to create what Erlingsdóttir and Lindberg (2005: 58) describe as isopraxism. As a form of pressure for compliance, this involves forcing new practices that conform to the standards of the model onto the adopters. Isopraxism differs from isomorphism in that the latter generates pressure only to adopt the model (and its title), with practices of implementation being less controlled. The pressures of isopraxism associated with BREEAM ES result from the marketization constraints outlined in this article and, as the discussion above suggests, raise significant questions about the ability of BREEAM ES to promote locally sensitive sustainable building design.

Conclusion

In this article, we have examined how marketization affected the mobility and mutation of the BREEAM sustainable building assessment model when it moved to Spain. We show that mutation was constrained by the pressure of marketization and the need to make BREEAM ES an internationally competitive and comparable model. The latter was to ensure that the owners of assessed building gained international recognition and benchmarking advantages. Our story of the mobility of the BREEAM model makes three important contributions to the existing literature.

First, it explains what others (Cole and Lorch 2003; Cole and Valdebenito 2013; Guy and Moore 2007; Sev 2011; Wallhagen and Glaumann 2011) have observed, namely that mobile sustainable building assessment models tend to be insensitive to local sustainability problems and solutions. We show that insensitivity is determined not just by the intrinsic technical characteristics of the model in question but also by processes of mobility. In the case of BREEAM, the way actions driven by pressures of marketization undermined BRE's espoused recognition of the need for local sensitivity illustrates that point. As such, how a model is sold (Peck 2011) by those mobilizing it is what determines the way mutation occurs as part of the journey. BRE, like the consultants studied by Prince (2013), sought to control processes of mobility in ways that closed down possibilities for mutation. This acted, in a governmental

sense, to control the understandings of sustainability that green building professionals had developed and to black box the model to minimize challenges to its legitimacy. This implies a need to pay more attention to the specific techniques deployed to develop such control. Here we have sought to unpack these techniques by revealing the effects of the pressures of marketization on the translation processes discussed by Callon (1986). We show that processes of *interessement* seek to respond to the pressures of marketization, and result in those enrolled to enable mobility being constrained in the changes they can make and the *problematizations* they help support, this constraint being achieved through technologies of control associated with *mobilization*. There is, though, clearly more work to be done to unravel the practices and technologies of power used in forms of *mobilization* control and their relationships to questions of marketization, this being crucial given the neoliberal market context for all forms of model mobility (Peck and Theodore 2010b).

Second, the case reported here also advances our understanding of the significance of comparability (McCann 2013) and benchmarking (Larner and Le Heron 2004). As the story of marketization reveals, it is impossible to understand the mobility of policy, assessment or any other models outside the context of the global neoliberal logics that in various ways promote market-based and 'extrospective' practices (Peck and Theodore, 2010b; Peck and Tickell 2002). A significant outcome of this for BREEAM ES was the focus on an international profile and on competitive advantage. The response to this focus was to make BREEAM ES as consistent as possible with BREEAM models used elsewhere in the world. Those mobilizing BREEAM could not ignore the role of comparability and benchmarking in making the model competitive, which explains the less than expected mutation during mobility. In the case of BREEAM ES, this resulted in a change of name and some adaptations to take account of regulatory issues, but minimal adjustments to norms and cultures.

Third, and related to the second point, while it has many parallels with other models reported in the literature on mobility, the story of BREEAM ES reveals how assessment models, and the pressures of marketization they face, generate unique considerations as far as mutation is concerned. Because assessment models focus on defined performance standards, and international comparability of performance standards is crucial in fulfilling the international benchmarking and profile building that those adopting such models seek, the process of importing models into new contexts involves maintaining not only the label or name of the model, but also the practices it promotes. Adopting the BREEAM ES model implied adopting particular design practices and, to some extent, particular building materials. This suggests that assessment models generate pressures of isopraxism and not just isomorphism (Erlingsdóttir and Lindberg 2005). It would seem, therefore, that further important questions need answering in relation to the way, for different kinds of models, mutation occurs at different levels. The analysis here suggests that mutation can be at the level of name or practices, but it would be worth exploring whether it is possible to disaggregate these two categories further. For example, does the practice category need to be broken down into different dimensions such as design, implementation or assessment? It would also be worth exploring the extent to which such questions apply and

answers vary between the varieties of mobile models that consultants, NGOs and the media promote, not to mention the various business models relating to corporate social responsibility, human resource management and other issues.

In relation to the specific case of BREEAM ES, it would be useful to consider further the different levels of mutation by examining how the model has evolved since the 2011–12 period when this study was completed. Since the publication of the original manual, updated versions have appeared and it would be useful to consider the extent to which degrees or levels of mutation have changed and how these relate to marketization pressures. Potentially, actors may have developed greater local sensitivity in response to the kinds of critiques outlined in the analysis above. The analysis presented here provides a number of important insights into how scholars can use the contextual insensitivity that can emerge to track the mutation of mobile models over space and time.

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