

A Model for Managing Corporate Sustainability

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ABSTRACT

The world is faced with unprecedented global economic, environmental, and social challenges. Sustainable development has emerged as an organizing principle for addressing these issues. Corporate social responsibility (CSR) is seen as the business contribution to sustainable development. The article defines CSR as an organization's efforts to secure resources and legitimacy for survival or competitive advantage by managing nonmarket and nonregulated issues arising from complex social and environmental problems. Supporting this definition, the "sustainability issue management" (SIM) model is presented to help managers and researchers assess and manage CSR issues. Based on ecological economics, the tool originated from a larger study. The model is used to explain and discuss how the UK Government's National Indicator 185 (requiring carbon reporting from Local Authorities) shaped the action of a supplier to Local Authorities. The case illustrates how the SIM model can help both managers and researchers understand and manage CSR issues.

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The world is faced with unprecedented global economic, environmental, and social challenges. How do we equitably satisfy the hunger of over 7 billion people for economic development, and nourishing food and water? The key is managing critical economic and life supporting resources. These are a unique collection of resources produced by ecosystems. Ecosystems provide us with resources or services we take for granted: water, food, trees, climate regulation, etc. For the most part, corporate management has historically ignored ecosystem resource management (Gladwin et al. 1995). A small number of progressive companies are beginning to look at managing ecosystems (Confino 2011). This article looks at the challenge of making this a norm, rather than the exception.

Sustainable development has emerged as an organizing principle for addressing economic, environmental, and social issues. However, at the corporate level, there is a weak understanding of how to operationalize sustainable development (Bansal 2005). To help address this weakness, a definition for Corporate Social Responsibility (CSR) linked to sustainable development is proposed. The definition considers the three major obstacles to implementing CSR: (1) CSR seen as a voluntary activity; (2) CSR issues are complex social and environmental problems; and (3) CSR issues lack markets and regulation. In addition, the “sustainability issue management” (SIM) model is introduced to help managers and researchers overcome these obstacles.

The SIM model provides a method for understanding the institutional process of assessing and managing CSR issues, where markets and regulations are missing. The model draws on ecological economics to build a management tool. The tool originated from a larger study (Macagno 2007). Here, the model is applied to a case analyzing how the UK Government’s National Indicator 185 shaped the behavior of a supplier to Local Authorities. The case illustrates how the SIM model can help both managers and researchers with understanding and managing CSR issues.

THE NATURE OF CSR

CSR is a contested concept (Matten and Moon 2008). Garriga and Melé (2004) categorize the major theoretical areas of CSR

as (1) instrumental—achieving economic objectives through social activities; (2) political—using business power responsibly in the political arena; (3) integrative—integrating social demands into business; and (4) ethical—doing the “right thing” to achieve a good society. These traditional views of CSR encourage atomistic views (e.g., profit only) of business contribution to society (Buchholz and Rosenthal 1997) missing the fact that companies are embedded in broader social and environmental systems (Kleef and Roome 2006). This article proposes the following definition for CSR:

CSR is an organization's efforts to secure resources for survival or competitive advantage by managing non-market and non-regulated issues arising from complex social and environmental problems.

The origins of this definition are explored in the context of the major obstacles to corporate sustainability: (1) CSR seen as a voluntary activity; (2) CSR issues are complex social and environmental problems; and (3) CSR issues lack markets and regulation.

CSR Seen as a Voluntary Activity

CSR is seen as voluntary and disconnected from primary business activities (Demirel and Kesidou 2011; Matten and Moon 2008). In contrast, Porter and Kramer (2011) place CSR at the heart of companies as a source for innovation and competitive advantage. Thus, this article focuses on CSR as a means to secure resources to support innovation and competitive advantage. Management theory has ignored the constraints of the (biophysical) environment (Gladwin et al. 1995; Shrivastava 1995). The limits and challenges presented by the natural environment will be “one of the most important drivers of new resource and capability development” in firms (Hart 1995). Starik and Rands (1995) connected the ideas of resource dependency theory to managing CSR. The essential arguments of resource dependency theory (Pfeffer and Salancik 1978) are (1) organizations require resources to survive; (2) organizations will respond to demands made by external stakeholders upon whose resources they are heavily dependent; and (3) organizations will try to minimize that dependency when possible

(Pfeffer and Salancik 1978). Hess and Warren (2008) suggest resource dependency theory is a predictor of companies uptake of CSR.

Viewing CSR as a source of innovation or competitive advantage aligns with emerging practice. Consider Pepsico's declaration: "our commitment to protect natural resources and mitigate business risks through innovation and more efficient use of land, water, energy, and packaging" (Carbon Disclosure Project 2012). Similarly, Marks & Spencer sees water stewardship as a way to develop "ethical market advantage" (Marks & Spencer and World Wildlife Fund 2010).

Resource dependency theory equally applies to intangible resources (Frooman 1999). In the beginning of 2012, corporate reputation was estimated at £520 billion of market value across the Financial Times and Stock Exchange (FTSE) 350 (Clews 2012). A firm's intangible resources includes: relationships, reputation, knowledge, capabilities, and attitudes (de Wit and Meyer 2005). To access or utilize intangible assets depends on relationships and reputation. Hence, companies manage their social legitimacy to keep access to resources (Suchman 1995). CSR is seen an important way to manage intangible legitimacy (Hess and Warren 2008; Waddock 2004; Wheeler and Davies 2004). For example, a company may hold a patent, but is only able to put it to effective use by attracting capable scientists or engineers.

Companies need resources to survive. In the most basic terms, CSR is a management technique to help secure critical resources and drive innovation and competitive advantage. Viewed from this perspective, CSR is part of a well-managed organization not a voluntary activity.

CSR Issues are Complex Social and Environmental Problems

Sustainability Science

Ultimately, "sustainability science focuses on problems rather than disciplines" (Batie 2008). Using CSR to access critical resources requires managing complex social and environmental problems. This suggests that there needs to be new approaches to management science drawing on sustainability science. The idea of sustainability is rooted in sustainable development that looks to achieve long-term human well-being by managing complex

social and environmental problems facing society. In this article, CSR is viewed as the business contribution to sustainable development (e.g., corporate sustainability and sustainable business) with the discussion focusing on environmental issues.

The core questions of sustainability science revolve around environment–society interactions (Kates et al. 2000; Schmandt 2006). This interaction affects the delivery of ecosystem resources (Munang et al. 2010). In this context, CSR looks to manage corporate impacts on ecosystems and assure access to ecosystem resources. This is supported in literature as CSR and environmental sustainability gradually start to converge (Babiak and Trendafilova 2011). As a sustainability science, CSR becomes a problem-driven activity seeking to bridge practice and theory (Bruce et al. 2004; Costanza 2003; Norgaard and Baer 2005).

Ecological Economics

To manage complex social and environmental issues, CSR can draw on ecological economics. According to Daly (1992), ecological economics looks at the scale of the economy relative to the ecosystem in which it is embedded. It looks at both environmental and social aspects. Environmentally, ecological economics measures how ecosystems provide services and resources (Daly 1992). The key assumption of ecological economics is “an awareness of the human dependence on well-functioning ecosystems which provide the basic life support for human societies” (Ropke 2005). Ecosystem services and resources are seen as having physical limitations affecting the scale of economy activity. Ecological economics’ view of ecosystems supports resource dependency theory (Marshall 2010).

Ecological economics is grounded in the physical sciences. However, it “works to understand and predict human behavior in the context of natural ecosystems” (Ropke 2005). Thus, ecological economics incorporates social aspects of sustainability, including institutional approaches. “The motivations and behavior of human beings are moulded by social structures, institutional arrangements, cultural norms, and ethics” (Ropke 2005). Thus, ecological economics supports the use of institutional methods for managing and predicting behaviors. This enables CSR to use ecological economics for managing complex human ecosystem interactions where markets and regulations are weak or nonexistent.

CSR Issues Lack Markets and Regulation

Institutions as Tools to Shape Behaviors

The major challenge of managing CSR issues is the lack of (1) markets and (2) regulation (complete or partial). For example, “[m]any of the most important ecosystem services provide values which are not reflected in market prices (e.g., clean and regular water supplies, outdoor recreation, climate regulation)” (UK National Ecosystem Assessment 2011). Additionally, UK National Ecosystem Assessment (2011) found that legislation has contributed to progress on ecosystem issues, but new areas (e.g., pollution and land management) continue to arise.

Institutions provide an alternative to markets for coordinating economic activity. Institutions are formal or informal patterning (e.g., norms, customs, practices, laws, best/standard practices) of behavior for recurrent situations (Tool 1993) (Scott 2008). The basic institutional explanation of economic behavior is illustrated in Figure 1.

Williamson’s (1979) early work on transaction cost, which explains why institutions are preferable to markets for certain economic activities, is applicable to ecosystem services. Williamson (Scott 2008) saw transaction cost increasing under the combined conditions of:

- 1. Individual rationality faced with complexity and uncertainty. This condition aptly applies to ecosystems.
- 2. The propensity for some actors to lie and cheat. Greenwashing is an example of opportunistic behavior in relation to CSR.

FIGURE 1 Basic Institutional Explanation of Economic Behavior, Adapted from Tool (1993).



3. A lack of alternatives to achieve the same end. This last condition applies well to resources from ecosystem services (e.g., fresh water provision).

Two characteristics make institutions attractive tools for managing economic behavior—their ability to convey legitimacy and information. Scott (2008) identifies the “three pillars of institutions”: regulative, normative, and cultural-cognitive (see Table 1). He argues each pillar offers related yet different explanations of legitimacy. Regulative legitimacy focuses on following rules. Normative legitimacy emphasizes moral foundation for assessing appropriateness. Finally, cultural-cognitive views legitimacy as conforming to what is accepted as “common sense” or “normal.” For example, *Fairtrade* certification is an example of a regulative and normative institution. *Fairtrade* is undertaken voluntarily in response to social expectations yet, it has very specific rules to meet. By following institutions, companies are signaling their likely “legitimate” actions to others (Dequech 2005) when price information is lacking (Schotter 1981).

Institutions also convey “technical” knowledge (Dequech 2004) when “prices do not carry sufficient information” (Schotter 1981, p. 109). For example, sustainable wood certification schemes, such as the Forest Stewardship Council (FSC), act as a “learning and technology transfer mechanism” (Overdevest and Rickenbach 2006). Institutions allow actors to make sense out of information, communicate with others, which in turn, supports action (Hodgson 1998). In summary, for addressing CSR issues institutions provide (1) information on how to improve performance on an issue and (2) establish and communicate the basis for legitimacy.

Eco-Innovation as a Measure of CSR

Eco-innovation is a way for CSR to measure and manage environmental performance. It is seen as a way to “describe [companies’] contributions to sustainable development” (Machiba 2010), aligning with the view of CSR suggested here. Eco-innovation is “the creation or implementation of new, or significantly improved, products (goods and services), processes, marketing methods, organizational structures and institutional arrangements which . . . lead to environmental improvements” (OECD 2009).

TABLE 1 Three Pillars of Institutions

	Regulative	Normative	Cultural-Cognitive
Basis of compliance	Expedience	Social obligation	Taken for grantedness, shared understanding
Basis of order	Regulative rules	Binding expectations	Constitutive schema
Mechanisms	Coercive	Normative	Mimetic
Logic	Instrumentality	Appropriateness	Orthodoxy
Indicators	Rules, laws, sanctions	Certification, Accreditation	Common beliefs, shared logic of action
Affect	Fear guilt/innocence	Shame/honor	Certainty/confusion
Basis of legitimacy	Legally sanctioned	Morally governed	Comprehensible, recognizable, culturally supported

Adapted from Scott (2008).

Critically, “eco-innovation is a change in economic activities that improves both the economic performance and the environmental performance of society” (Huppes et al. 2008). For companies, this is a meaningful way to measure CSR activity. Ekins (2010) suggests measuring eco-innovation by looking whether both economic and environmental performance has improved and measuring the extent.

In contrast, an environmental innovation demonstrates environmental improvement, but not economic (ibid.). He argues environmental innovations may sometimes be justified based upon “social judgments” when economic measures are missing. For example, early adopters of renewable energy may be responding to stakeholder pressures rather maximizing economic returns.

To measure eco-innovation, firms must consider complicated environmental criteria beyond economic viability and legal compliance, which may be beyond their capabilities (Huppes et al. 2008). For example, these assessments are likely to require “non-economic assessment methodologies” (ibid). Eco-innovation will require new capabilities in companies like ecological economic methodologies which (1) support both economic and non-economic approaches and (2) look at ecosystem functionality as a basis for performance evaluation. Eco-innovation is a way to measure CSR performance.

DESCRIBING THE SIM MODEL

The SIM model was constructed from original research looking at implementing CSR in organizations (Macagno 2007). The research employed a pattern-modeling methodology using case studies (Wilber 2004; Wilber and Harrison 1978). The method is described as:

... a logically consistent ‘story’ that details the institutional structure of a particular socioeconomic system and thus facilitates an understanding of why people living in the system behave as they do. (Radzicki 1988)

Pattern-modeling (also called “pragmatic models” according to Robert Costanza, personal communication) is a methodology used in institutional economics and other social sciences. For example,

pattern-modeling was used to support decision-making in the case of dam removal on the Elwha River (Gowan et al. 2006).

Data for the SIM model were collected through participant-observations, interviews, and document analysis from three case studies (a university and two multinational corporations [MNCs]). In addition, the CSR reports of the top 100 brands were examined. Data were analyzed using content analysis and grounded theory (a method for developing theories of explanation from data analysis) to identify patterns (i.e., categories). Patterns were then defined as an institution or part of the institutional process using Neale’s (1987) identification characteristics for institutions. Observations were then validated by senior managers from the MNCs. From this research emerged the SIM model in Figure 2 (Macagno 2007).

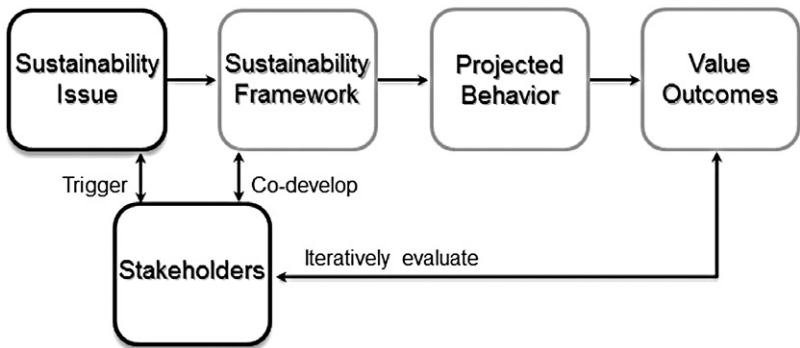
Parts of the Model

The SIM model provides a narrative for understanding the institutional process and participant behaviors in assessing and managing CSR issues. It builds on the basic institutional explanation (this is indicated by the gray boxes—see Figure 1). The parts of the model are summarized in the following.

Sustainability Issue

CSR management is problem driven (Kleef and Roome 2006). The process starts with identifying the issue. The issue is the focus,

FIGURE 2 Sustainability Issue Management (SIM) Model.



not stakeholders, because stakeholders form around issues (Hoffman 1999). For example, non-governmental organizations (NGOs) (e.g., World Wildlife Fund) focus on issues, such as deforestation. To apply the SIM model, the issue needs to possess the following characteristics: (1) stakeholders want the issue addressed (Ekins 2010; Hoffman 1999); (2) pricing and regulation mechanisms for the issue are weak or do not exist (Ekins 2010; Huppel et al. 2008); and (3) the issue results from exceeding an ecosystem capacity (Costanza 2001; Daly 1990, 1992, 2003).

Stakeholders

The SIM model views stakeholders as supporting creation of intangible value and “granting” organizational legitimacy (Wheeler et al. 2003; Wheeler and Davies 2004). Resource dependency theory explains companies respond to stakeholders to maintain access to critical resources (Pfeffer and Salancik 1978). The model describes how the process works through the institutional process.

Stakeholders play three roles in the model: (1) Creating urgency to trigger firms to act (DiMaggio and Powell 1983; Jawahar and McLaughlin 2001). (2) Defining or identifying frameworks (for addressing issues) that shape behavior (Potoski and Prakash 2004). Stakeholders “help frame the problem, determine goals, and implement the desired change” (Batie 2008). Partnering with key stakeholders (e.g., government or civil society) to solve problems contributes to the “moral legitimacy” of companies (Vidaver-Cohen and Brønn 2008). (3) Evaluating outcomes. (Bansal 2005; DiMaggio and Powell 1983; Oliver 1991). Different stakeholders can value different outcomes making normative or objective evaluation. For example, environmental innovation is a normative evaluation which NGO stakeholders support because it meets societal values (Ekins 2010). Whereas, eco-innovation is normative and monetary evaluation tied to environmental and financial performance supported by investors.

Sustainability Framework

Institutions (i.e., frameworks) develop in response to specific issues (Hoffman 1999; Young 1999b). These frameworks then set the rules of the game for meeting stakeholder expectations. Frameworks shape behavior by setting “principles, norms, rules and decision-making procedures around which actor expectations

converge in a given issue-area" (Krasner 1983). The concept of frameworks can be applied to a range of institutions, from internal strategies, to eco-labels like FSC (Jordan et al. 2005; Waddock 2008). Frameworks have the following characteristics: (1) are an agreed "solution" with stakeholders (Costanza 2001; Daly 1992; Ekins 2010); (2) define the standards to improve the issue (Huppel et al. 2008); (3) set targets requiring full public disclosure/reporting (Sethi et al. 2011); and (4) shape participant values and perception of accepted behaviors (Munda 2004; Vatn 2005; Vidaver-Cohen and Brønn 2008). A good example is the Marine Stewardship Council, which is an eco-label and certification process for sustainable sourcing of fish.

Projected Behavior

The model uses Young's (1999a, 1999b) concept which asserts behavior is dependent on frameworks, and the challenge is to understand how frameworks influence behavior. To this purpose, he identified six behavior mechanisms through which frameworks shape behavior (see Table 2). This is significant because it allows framework architects (e.g., managers, stakeholders) to better understand or predict potential changes in behavior (Young 1999a).

Young, like Hoffman (1999), sees successful frameworks resulting from a combination of mechanisms. Those employing frameworks need to think broadly and realize success may take several iterations. For example, eco-labeling will attract some customers by aligning with their values (Peloza and Shang 2011), thus creating legitimacy in Young's words. In contrast, some customers are not willing or able to forgo functional or price attributes of a product for an eco-label (Devinney et al. 2010).

Value Outcomes

As discussed, the challenge is to define outcomes for issues which are not priced or regulated. The SIM model looks at two aspects of value (1) changes in behaviors and (2) improvement in environmental performance.

The model views value as an outcome formally or informally negotiated with stakeholders through an iterative process (Ekins 2010; Jordan et al. 2005; Ropke 2005). Value is formed through a deliberative social bargaining process (Howarth and Wilson

TABLE 2 Framework Behavior Mechanisms applied to FSC

Behavioral Mechanism	Shape Behavior by	Example of FSC Certification
Cost/benefit modification	Lowering transaction cost, Create incentive for current cooperation	Participants using FSC follow guidelines to work toward sustainable forestry. This has the effect of lowering transaction costs and increasing transparency. Firms achieving FSC certification can earn higher profits or minimize risks to their reputation.
Cooperation enhancement	Imposing sanctions for noncooperation, Increasing transparency	The FSC process creates legitimacy for participants to act on sustainable forestry. The process facilitates learning to systematically manage forests sustainably. Forestry companies' role expands to include conservation.
Legitimacy creation	Enhancing authoritativeness/legitimacy	The FSC process is now used by many banks as a basis for lending related to the forestry sector.
Learning facilitation	Fostering social learning, encouraging routinization	
Role redefinition	Redefining roles and/or interests	
Influence realignment	Shifting power, altering political processes	

Adapted from Young (1999a, 1999b).

2006; Sagoff 1998). For example, the FSC certification process develops and modifies global standards for sustainable forestry “through a participatory process involving environmental, social and economic stakeholders” (Taylor 2005). A key outcome analyzed by the model is the shaping of values and preferences of participants as they iteratively go through the process described. One way to measure this is looking for changes in behaviors that led to the problem in the first place (Young 1999a).

The SIM model is issue driven, thus value must include issue improvement. Ekins (2010) offers two ways of measuring value—eco-innovation and environmental innovation. Eco-innovation is an improvement in both environmental and economic performance. In contrast, environmental innovation is only improvement in environmental performance. The latter can still create value, if stakeholders judge the act favorably. Under this scenario, environmental innovation contributes to a company’s reputation or creates goodwill, as explained by resource dependency theory.

One of the challenges with environmental or eco-innovation is judging the significance. To help, Charter and Clark (2007) provide a ranking of eco-innovation:

- Level 1—Incremental: incremental or small, progressive improvements to existing products or services
- Level 2—Re-design: major redesign of existing products or services
- Level 3—Functional or Product alternatives: new product or service concepts to satisfy the same functional need (e.g., teleconferencing vs. travel)
- Level 4—Systems change: design for a sustainable society.

Ranking innovations guides the company and stakeholders on the significance and direction of the improvement. This information can feed into future frameworks, strategies and organizational design. In summary, using the view of value presented, managers can work with stakeholders to define how environmental performance will be improved.

APPLYING THE SIM MODEL TO A CASE

This section uses the SIM model to explain how National Indicator 185 (NI-185) affected the measurement and management of

carbon reduction in a company. The model is discussed from both a manager's and researcher's perspective. In a unique research opportunity, the author was able to gather data through participant-observation by applying the model in practice, while acting as the head of sustainability for a British Construction and Engineering firm—to be called *the Company*.

Background

The Company employed over 5,000 people in the United Kingdom, helping Local Authorities (LAs) deliver services to citizens. The services included road maintenance and waste/recycling collection. LAs awarded service contracts for (typically) 5 years based upon a competitive bid process. The market was very competitive with price being the primary concern and issues like sustainability as secondary concerns.

Beginning in April 2008, the UK Government required LAs to report on a set of NIs. One of the indicators being NI-185, which required LAs to measure, monitor and reduce CO₂ emissions, including emissions from key suppliers such as *the Company* (Department for Communities and Local Government 2008). NI-185 reporting was standardized through a purpose built Excel spread sheet (Department of Energy and Climate Change 2008). Although reporting for LAs was mandatory, in practice, for *the Company* (and all suppliers), it became voluntary. This happened because many suppliers claimed not to understand the requirements, and LAs lacked the power to mandate compliance.

The UK Government's (Department for Communities and Local Government 2008) rationale on NI-185 was: action by local authorities was likely to be critical to the achievement of the UK Government's climate change objectives. The public sector was in a key position to lead on CO₂ emissions reduction by setting a behavioral and strategic example to the private sector and the communities they serve. The aim of NI-185 was to measure the progress of local authorities to reduce CO₂ emissions and to encourage them to demonstrate leadership on tackling climate change. *The Company* voluntarily reported on NI-185. In the next section, the SIM model is used to explain how NI-185 affected *the Company's* management of carbon reduction.

Analysis

Each area of the SIM model is discussed in terms of how it contributes to facilitating management and assessment of CO₂ reduction at *the Company* (Figure 3).

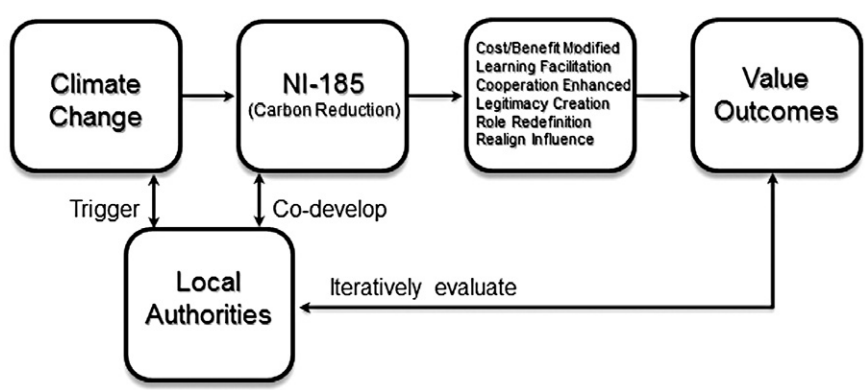
Sustainability Issues

The issue was climate change or carbon reduction, which met all three characteristics for triggering action on an issue. (1) LA as stakeholders (i.e., customers) wanted the issue addressed. (2) Pricing and regulation mechanisms for the issue are weak or did not exist. Prices for carbon were established, but no mechanism required *the Company* to pay for carbon. (3) Climate change is a well-known example of an environmental issue exceeding ecosystem capacity. By meeting all three characteristics, climate change was clearly a CSR issue for *the Company* to manage.

Stakeholders

The model's initial development included two multinational corporations, one with strong consumer brand recognition. That study found that the more an organization depends upon their brand

FIGURE 3 Sustainability Issue Management (SIM) Model Applied.



for success, the more responsive it is to stakeholder pressure (Macagno 2007). In this case, *the Company* did not depend upon a consumer brand. Hence, there was little pressure for the company to act. At one point, the author contacted one of *the Company's* institutional investors (another typically influential stakeholder group). However, due to the size of *the Company* and lack of consumer brand recognition, the investor was uninterested in encouraging *the Company* to address sustainability issues. For similar reasons, NGOs had no interest in pressuring *the Company* to act.

Ultimately, the primary pressure came from LA customers. *The Company* felt being seen to manage carbon reduction would give them a competitive advantage in bidding for LA contracts. Prior to NI-185, *the Company* lacked a clear understanding of carbon reductions and how it linked to LA expectations. This changed when NI-185 went into effect. Looking at the model, this supports the idea that stakeholders trigger management of issues.

The other role stakeholders play is to help identify or define the framework for measuring and managing issues. In this case, LAs used NI-185. As will be discussed in the next section, NI-185 clearly defined the issue and how it was to be measured.

Sustainability Framework

NI-185 acted as a framework, setting clear definitions around carbon reductions. The key definitions (Department for Communities and Local Government 2008) were:

- NI-185 required LAs to report on the percentage CO₂ reduction from LA operations to assess a year-on-year measured reduction of CO₂ emissions.
- CO₂ emissions: the total amount of direct and indirect CO₂ emitted as a result of LA operations.
- Indirect emissions were emissions that were a consequence of the activities of the LA, but occur at sources owned or controlled by another entity (e.g., outsourced activities).
- LA operations defined as the delivery of the relevant functions of a LA which result in the emissions of CO₂ into the atmosphere. Even if the services were being provided by an external body (e.g., a private company) they remain the function of the LA.

The data were to be reported and used to set targets and evaluate LA performance.

For *the Company*, NI-185 gave clear definitions on how its activities affected the LA's performance. LAs asked suppliers like *the Company* to report. In practice, many had difficulties. *The Company* proactively reported, and according to client LAs, was one of the few able to deliver data.

Projected Behavior

The model helps analyze the various impacts NI-185 had on *the Company's* behavior. Three combinations of behavior mechanisms are discussed: (1) cost/benefit modification and learning facilitation; (2) cooperation enhancement and legitimacy creation; and (3) role redefinition and realign influence.

Cost/Benefit Modification and Learning Facilitation For the Company, these two behavior mechanisms worked together. NI-185 helped *the Company* to gain a clear understanding of the cost of CO₂ emissions. It was first necessary to calculate *the Company's* entire carbon footprint. This initiated a learning process related to (1) how to collect reliable data and (2) how to convert this data into the carbon equivalent to establish the footprint. After establishing the footprint, *the Company* realized to manage reductions required monthly monitoring versus annual. The next step of establishing monthly carbon footprint data was triggered. Once established, monthly reporting was provided to the executive management team. It quickly became apparent they did not appreciate the significance of data expressed in terms of CO₂. This discovery led to presenting data in terms of CO₂ and financial value for the fuel used to produce the CO₂. Once translated to financial terms, senior management realized that carbon reduction could have a significant impact on profits. Translating CO₂ into management's current language helped gain support for specific initiatives targeted at reducing emissions (e.g., driver training and the purchase of video conferencing equipment). Thus, NI-185 facilitated the process of learning technical aspects of carbon reporting and identifying the cost benefits of acting.

Although more difficult to measure, *the Company* could also make a calculation as to the benefit of winning or losing new contracts. Management saw highlighting *the Company's* activities

on carbon reduction as a way to gain a competitive advantage in the bid process. Evidence of this can be seen in the author's increased contribution to bidding new contracts, including writing sections and presenting to potential clients.

In a final example, NI-185 played a key role in facilitating learning in *the Company's* Industry Association. Because all companies in the industry faced the same request, NI-185 set a common item on the agenda of meetings. In one example, the industry association asked members to calculate their carbon footprint. This request was motivated by the requirement placed on the industry by NI-185. Because LAs were a key customer group, members were motivated to learn.

Cooperation Enhancement and Legitimacy Creation These behavior mechanisms are intertwined. This can be seen in three different areas—LAs, competitors, and internally. Cooperation between LAs and *the Company* on climate change was enhanced by NI-185. It gave a clear format and grounds for discussion, creating legitimacy for addressing the issue. Prior to NI-185, the relationship with LAs was dominated by focus on costs and safety issues. Increased cooperation could be measured or judged by the number of emails and meetings on climate change between *the Company* and LAs.

Similarly, NI-185 helped facilitate cooperation between *the Company* and competitors in "industry associations." Competitors were facing the same NI-185 request. This triggered mutual cooperation to understand the requirements and help those members lagging. NI-185 helped participating companies relax competitive concerns to work together and share information on carbon reduction. For example, members shared information on "best practice" for reducing CO₂.

Lastly, NI-185 helped justify actions on carbon reductions internally. The majority of *the Company's* management focused on a cost strategy. The view being that the company with the lowest price would win the most work. NI-185 added a quality element to LA management of suppliers, implying suppliers reducing carbon and offering a competitive price would win new work. Internally, this view gained cooperation from management to support carbon reduction programs (e.g., company-wide employee training). At the same time, NI-185 created legitimacy for management to

address carbon reduction. However, most managers justified the new action on carbon reduction in terms improving performance of costs rather than the environment. Justifying the new action in terms of old values demonstrates many had not embraced the new values (Bush 1987) or organizational identity (Hess and Warren 2008) associated with climate change. This implies NI-185 would need to remain in place for the value/identity change to take place.

NI-185 indirectly supported broader efforts to change attitudes in *the Company*. For example, the senior management from one division of *the Company* competed to see who could get the best vehicle mileage. Similarly, *the Company* made a significant investment to produce a video promoting carbon reduction. The video was shown to all employees as part of a company-wide training on carbon reduction. In addition, the video was used to communicate *the Company's* approach to sustainability with external stakeholders. NI-185 can be seen as part of the evolutionary process of shaping and forming new values around carbon reduction.

Role Redefinition and Realign Influence As with the previous behavioral mechanisms, these two worked in concert. NI-185 modified the role of the head of sustainability. The change can be seen in external and internal functions. Externally, the role and its influence changed from being seen as an expert sitting in a “dark office,” into engaging with LAs and industry. For example, the author’s role expanded from only engaging selected employees at LA, to including senior directors and councilors. The change was in part a function of the legitimization of carbon reduction due to NI-185. In general, sustainability was seen as an important issue. However, NI-185 helped to make it more concrete (creating legitimacy and facilitating learning).

Internally, *the Company* needed the role to acquire more information (facilitate learning) and work with internal parties (enhance cooperation) to implement reductions plans. For example, due to NI-185 and the newly generated data, carbon reduction became a requirement for 5-year strategic plans and the head of sustainability was responsible for guiding that process. Similarly, sustainability training was added for all managers. Thus, NI-185 helped facilitate the role, becoming more engaged and influential across the company.

Value Outcome

The SIM model views value as socially constructed and measured by (1) changes in company behavior and (2) performance improvement related to the issue.

NI-185 motivated *the Company* to voluntarily measure its carbon footprint. This is seen as a critical first step for an organization to begin to reduce emissions. At the same time, the carbon footprint created transparency into *the Company's* activity, which had the effect of creating trust with LAs. In this context, trust relates to LAs' expectations (realized or not) about possible future behavior on reducing carbon by *the Company*. NI-185 facilitated the process of constructing intangible value in the form of reputation.

Did NI-185 achieve eco-innovation (i.e., improvement in economic and *the Company's* environmental performance) on carbon reduction? *The Company* reduced CO₂ by 18 percent and saved over £1 million. This result must be explored to arrive at a clearer judgment of performance. Key areas to explore are (1) level of innovation and (2) *the Company's* capabilities.

Applying the eco-innovation classification (Charter and Clark 2007) introduced earlier, it is clear that *the Company* achieved a level 1 innovation. Assigning levels to eco-innovation is a transparent method for ranking the potential impact achieved, and also possible improvements remaining. Level 1 indicates *the Company* made progress, but did not radically change services or approaches causing carbon emissions. However, looking at levels 2–4 it is probable that *the Company* did not have the capabilities to achieve the next steps in innovation. In some cases, this type of analysis could inform *the Company's* strategy to build capacity. In fact, *the Company* did start testing hybrid commercial vehicles because it realized current “fuel saving” initiatives had limitations. Thus, level 2 of innovation was explored through research and development.

Ranking eco-innovation can highlight potential limits of individual firms. “[T]he development of radical eco-innovations . . . requires competencies which differ from those used to manage incremental eco-innovations” (Chadha 2011). For example, the author was asked to give evidence to the UK Department for Transportation on fuel efficiency. Other participants were major British companies including a supermarket chain, a postal firm,

energy provider, and others. The panel reached the conclusion that no single company, or in fact even the United Kingdom, could directly influence the designs of global vehicle manufacturers. The point is, regardless of size, some companies may lack the means of innovation—that is, “the necessary resources (e.g., technical, creative, financial) that need to be in place for innovation.” (Baregheh et al. 2009)

In conclusion, NI-185 did create value through incremental eco-innovation and reputational enhancement of *the Company*. It also triggered steps toward level 2 eco-innovation. However, it is likely that *the Company* lacked the skills/capabilities to achieve beyond a level 2 eco-innovation. To draw additional conclusion requires an analysis over a longer period of time.

CONCLUSION

Did NI-185 achieve lasting change? A critical learning from this case is frameworks like NI-185 must stay in place until the desired value change takes hold. Soon after coming to power in 2010 the UK Coalition Government repealed all NI reporting requirements. Subsequently, without NI-185, actions on carbon reduction by LAs dramatically reduced. For *the Company*, the primary stakeholder pressure for acting on climate change was removed. In addition, NI-185 did not create a fundamental value or identify change. (Hess and Warren 2008) Removing stakeholder pressure and failing to achieve value change had the effect of slowing or stopping much of *the Company's* proactive action on climate change. Thus, the UK Government sent mixed messages on the legitimacy of addressing carbon reduction.

It is interesting to look at the company's progress in the near term. According to their annual report, normalized carbon emission increased in 2011/12. There may have been unique circumstances which were not noted in the annual report.¹ However, the company's performance needs to be considered in a broader national context. “The UK cut greenhouse gas emissions by more than any other European country last year” (Harvey 2012). These decreases are widely seen as being facilitated by the United Kingdom and global economic recessions that impact emissions by slowing economic growth and pressuring for cost control. No

conclusion can be drawn, but clearly without NI-185 the company's behavior has moved counter to national trends.

The SIM model developed as part of a bigger study (Macagno 2007), then applied in practice to a single company. The model is a tool for (1) analyzing institutional effects and outcomes on organizational behavior when managing CSR issues and (2) helping managers manage and measure CSR issues. The NI-185 case presented supports the model's approach.

A definition for CSR was offered as an attempt to help move CSR management to the heart of business activity. This view of CSR draws on ecological economics. First, it sees the economy as a function of ecosystems. Ecosystems are seen as critical resources for companies because all life—economic or otherwise—depends upon them. Second, ecological economics is a sustainability science which focuses on managing society's interactions with ecosystems. Third, it is a transdisciplinary field focusing on issues supporting multiple methodologies. Thus, institutional approaches can be used when the primary methods of favored by business—markets and regulations—are missing. The work presented here opens up the possibility of future management research incorporating ecological economics.

Importantly, the SIM model tackles CSR issues head on, recognizing them as complex, urgent, and value loaded. They are complex because there are still great uncertainties surrounding our understanding of them. (Francis and Goodman 2010) The model reduces uncertainty by identifying frameworks as a source for defining (1) acceptable behaviors of participants; (2) expected outcomes; and (3) technical information for addressing issues. Finally, stakeholders are seen as the ultimate judges of value. The article highlights the need to recognize value differences among stakeholders while defining success for CSR issues.

As a practitioner, I found the model useful for making sense out of a complex situation. It helped keep the whole in mind, while working on the parts. I used the model to facilitate building *the Company's* sustainability strategy. This began by identifying the key issues and stakeholder for *the Company*. This analysis actually led to the discovery of NI-185 as a framework. Exploring and understanding NI-185 helped to build a closer relationship with LA stakeholders. The behavior aspect of the model suggested the likely internal behavioral responses to NI-185. This knowledge

guided me to establish programs that reinforced the behavioral influences of NI-185. For example, in terms of cost benefit, a monthly report showed senior management and the board the financial impacts of carbon reductions. I also used NI-185 to create legitimacy and facilitate learning around climate change.

For practitioners, the SIM model contributes to managing issues and stakeholders. It offers a mechanism that helps participants construct a shared narrative around CSR issues. The narrative contributes to evolving participants values around ways to view and manage an issue. For researchers, it is a methodology facilitating an understanding of why people addressing CSR issues act as they do (Radzicki 1988). The model advocates and practices transdisciplinary approaches by being a tool for both managers and academia.

Thus, based on ecological economics, the SIM model offers opportunities for developing new approaches to managing CSR. In absence of markets and regulations, the model is a methodology for managing and measuring CSR impacts. By focusing on issues and using frameworks the model helps (1) reduce uncertainty surrounding sustainability issues; (2) reduce the cost of information; (3) support processes for value change in the organization; and (4) measure value in terms of behavior change and eco-innovation. The hope is that this article will contribute to further exploring the benefits of using ecological economics in management science.

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NOTE

1. By this time, the author had left the company and no longer had the benefit of an insider's perspective.

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