Systems Research and Behavioral Science
Syst. Res. **25**, 397–411 (2008)
Published online in Wiley InterScience
(www.interscience.wiley.com) **DOI**: 10.1002/sres.902

■ *Research Paper*

Managerial Applications of Corporate Social Responsibility and Systems Thinking for Achieving Sustainability Outcomes

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There is a gap between organizations' *intentions* to adopt corporate social responsibility (CSR) policies and their provision of a clear strategy and management tools for practically *realizing* such intentions. In particular, the literature to date has not yet developed a pragmatic, descriptive summary of firms' designs for CSR adoption, along with a practical menu of ways to implement their designs in organizational systems. To address these gaps, this paper aims to make three principle contributions. First, it defines CSR, sustainability and their relationship in practical terms. Second, it develops a typology of CSR standpoints that incorporates a number of other classifications. Third, it offers a menu of practical methods and measurement metrics based on interpretive and complex adaptive systems perspectives. The result is a hands-on guide to the process of achieving sustainability goals and objectives from a variety of ideological positions and systems designs, thereby contributing to both managerial practice and sustainability theory. Copyright © 2008 John Wiley & Sons, Ltd.

Keywords systems; sustainability; complex adaptive systems; strategic process; environmentalism

INTRODUCTION

There is a marked, upward trend of increased business involvement in corporate social responsibility (CSR) today, including increased reporting and the establishment of a broad corporate social norm to do good (Kotler and Lee, 2005). By the same token, corroborating evidence of widespread benefits of CSR to the firm is also accumulating, including increased employee engagement and satisfaction, enhanced reputation, increased market share and brand positioning, decreased operating costs, and improved legitimacy and clout with government and third

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parties (p. 10–11). Despite the many normative prescriptions and instrumental assessments of CSR and sustainability that exist, however, there still lacks a simple description of the types of ways firms actually go about implementing their CSR intentions, and a clarification of how they do so in different kinds of operational systems designs. The result is a great deal of confusion about ways of realizing sustainability intentions, leading to what may be ineffective implementation of otherwise strong firm commitments to CSR.

Firms vary in the degree to which CSR is incorporated into their principle strategy, and in the approaches taken to practically incorporate and track sustainability implementation. There is no one best way. Still, we can make sense of this underspecified topic with some simple distinctions on the levels of strategic intentions and systems assumptions. This paper begins from the premise that not only is there a wide variety of types, but also that *all* types of CSR intentions are strategic for the adopting firm, whether they aim only to do the minimum for legal compliance or to go all the way into a full commitment on every level. Similarly, it assumes no monolithic type of systems design in organizational theory. In particular, it aims to supersede traditional top down, functionalist systems approaches in favour of both interpretive and complex systems alternatives (Porter and Cordoba, in press). Making sense of CSR intentions and implementation in these ways can make a practical contribution to management practice, as well as advancing both CSR and systems theory.

The following sections of the paper define CSR, sustainability and systems perspectives on implementation, present a classification scheme that integrates these concepts, and provide several practical methods of realizing different CSR intentions, first through interpretive systems perspectives and then through perspectives of complex adaptive systems (CAS).

CSR AND SUSTAINABILITY

Current definitions of CSR include the notions that it is 'a commitment to improve community well-being through discretionary business practices and contributions of corporate resources' (Kotler and Lee, 2005: 3), and that it consists of 'voluntary firm actions designed to improve social or environmental conditions' (Mackey *et al.*, 2007: 818). The primary emphasis of these definitions is the *voluntary intentions* of the firm with regard to sustainability. Said differently, CSR represents the firm's strategic intent with regard to social and environmental initiatives, where such actions exceed what is required by law or regulation.

A well-known definition of sustainability is that it entails meeting the economic, social and environmental needs of present generations without compromising the ability of future generations to meet their needs (Brundtland, 1987). A related concept in business is the triple bottom line (Elkington, 1998), where firms' sustainability efforts are tracked along social and environmental, as well as financial dimensions. Thus, on the organizational level of analysis, sustainability refers to actually *meeting* social and environmental needs in addition to firm profitability, and therefore represents the *implementation and outcomes* of companies' CSR *voluntary intentions*. Although sustainability is admittedly an underspecified and controversial term, Kelly (2006) makes the point that its current indeterminacy need not postpone work on the conceptual and practical transitions it will require. While all three types of bottom line are crucial to a sustainable future, this paper focuses on the environmental aspect of the triple bottom line, while stressing that its arguments are readily adaptable for social aspects of sustainability as well.

The dominant approach to research on CSR intentions and sustainability outcomes compares the effects of various CSR policies and practices on financial performance. This approach privileges Donaldson and Preston's (1995) instrumental and normative approaches to sustainability, through its focus on the bottom line effects of various corporate approaches to CSR implementation. The lion's share of this work consists of large-sample comparative studies of social or environmental performance antecedents (CSP or CEP) against

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DOI: 10.1002/sres

corporate financial performance (CFP) outcomes (Margolis and Walsh, 2003). Recent meta-analyses demonstrate mixed findings in this stream of research, perhaps leaning slightly towards a positive relation between CSR factors and financial performance, but by no stretch is there a compelling business case for CSR at this time (Margolis and Walsh, 2003; Orlitzky *et al.*, 2003). In addition to its ambiguity, other shortcomings include methodological inconsistencies, the lack of a causal theory, and a circular logic to the entire undertaking: it starts with neoclassical assumptions of performance measurement and then judges CSR on its ability to perform up to these standards. According to this research, in other words, only if CSR strategies demonstrate improved CFP in addition to any CSP or CEP improvement is there a justification to adopt a CSR policy (Margolis and Walsh, 2003: 278).

The current paper builds on the call to bracket neoclassical assumptions and bottom line results (Margolis and Walsh, 2003). Specifically, it responds to two important limitations of this preoccupation with financial performance in CSR research: the near absence of operational and process-based information, and the dearth of incremental indicators of progress (Whitley, 2003). In other words, it aims to help illuminate the 'black box' of *how* sustainable outcomes can be pragmatically achieved. Taking a pragmatic, processual and descriptive approach, the paper argues that there are numerous logics for CSR implementation in addition to purely financial return, and therefore an equifinality to sustainability implementation methods. The paper presents a theoretical framework with four perspectives on CSR implementation and several practical methodologies aimed at helping practicing managers to implement and track sustainability initiatives, in addition to contributing to theory development.

Fundamental to the arguments advanced below is the idea that better understandings of organization-level strategic processes in CSR implementation are crucial to achieving improved global environmental outcomes. Although it is self-evident that ecosystem and biospheric effects are the ultimate foci of improvement, and that these vast systems far eclipse the boundaries of even the largest corporations, it nonetheless remains a fact that businesses and organizations are the entities through which most interventions and intended improvements will be manifest in today's societies. In other words, the organizational level is the primary vehicle through which the Brundtland (1987) criteria of meeting current and future generations' needs will be met. Therefore, with an eye to their far-reaching effects on environmental systems, the level of analysis for the present paper remains at the organization level, specifically on internal strategies and processes that are aimed at achieving the desired effects.

In addition to different types of CSR processes, a second key premise of the paper is that CSR must be addressed from a systemic perspective. The fundamental guiding principle behind systems approaches to sustainability is that the organization and its environment must be conceived as complex and unitary whole in order to design effective strategies and interventions (Senge, 1990; Starik and Rands, 1995; Hammond, 2003; Stead and Stead, 2004; Waddock, 2006). Systems thinking aids in appreciating the tensions and complexity of sustainability issues, and helps managers bring seemingly disparate issues together to better understand the multi-faceted impacts of firms' strategic activities (Reason, 2007). Despite their benefits, however, systems views of sustainability are underspecified in several important ways. Their chief limitation is a tendency to be 'overly simplistic' (Ulrich, 1993: 583): neither clearly defined nor systematically rigorous. Confusion stems from multiple, tacit and yet taken-for-granted values and beliefs of different stakeholders, and a more fundamental lack of consensus about how the world is conceived and how it works. In other words, different systems theories carry different assumptions about organizations, the environment and CSR strategies, all of which are too often brushed aside (Porter and Cordoba, in press). These differences often lead to 'systems' approaches that are frustratingly unclear, due to 'apples and oranges' types of conflicts. In an attempt to redress these shortcomings, the paper presents

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DOI: 10.1002/sres

two important yet theoretically incommensurable systems frameworks, those of interpretive systems and CAS theory, and shows how each approach may be profitably applied to internal processes and intermediate metrics of CSR implementation. The next section of the paper presents an integrative typology of CSR perspectives, and describes the importance of interpretive and CAS approaches in sustainability implementation processes.

TYPES OF CSR AND SYSTEMS APPROACHES TO SUSTAINABILITY

Both CSR and systems frameworks are far from monolithic in today's global economies. There are important differences in both, for instance across countries, cultures, industries and political and regulatory regimes (cf. Levy and Rothenberg, 2002; Howard-Grenville and Hoffman, 2003; Basu and Palazzo, 2008; Porter and Cordoba, in press). These macrolevel differences help to frame organizations' and individuals' interpretations of sustainability issues, which then affect the actions they take. In this paper, the frameworks and arguments presented stem from a US-based outlook upon CSR and systems theories.

CSR Standpoint of the Firm

The variability of CSR at the macrolevel of national, cultural and political distinctions suggests that firm-level strategic approaches to sustainability also vary widely. An important dimension of this variability is the relationship between the firm's CSR strategy and its primary market strategy. Some firms fully integrate the two, such as Patagonia or Interface Carpet, while others seem to talk the talk of sustainability but in their walk tend more to buffer their principle operations from any meaningful change. A number of explanatory schema have been advanced to explain what is viewed as a spectrum of CSR integration levels in firm operations. For example, Hoffman (1997, 1999) proposes that firms' CSR positions progress through a series of institutional stages that are remarkably similar from one industry to another. A second schema distinguishes 'coerced' approaches to sustainability, reflected in short term commitments and the avoidance of disruptions to core business processes, from 'strategic' routes that are characterized by longer-term commitments, more in-kind contributions of corporate resources, expertise and materials, and the search for areas of 'win–win' where both the organization and the social/environmental cause may benefit (Kotler and Lee, 2005: 9). Still other scholars have taken a more normative approach, even a moral one, arguing that paradigms of business *must* shift to a greener approach (Gladwin *et al.*, 1995; Shrivastava, 1996), and that 'weak', incremental approaches must give way to more radical, 'strong' views of sustainability that decentre the organization towards a more global and holistic appreciation of the human and the biosphere (Kearins and Springett, 2003).

While these frameworks and schemas represent very important contributions, they are neither comprehensive nor integrative by design. In contrast, this paper presents a descriptive typology that attempts to integrate many of the logics and frameworks of CSR/firm relations, while avoiding normative or instrumental overtones. Its purpose is simply to describe what is evident across a broad spectrum of companies, and to suggest that a great many approaches may be classified into four broad types along two major dimensions. These four types are described as different 'standpoints' towards CSR at the organizational level, where each standpoint refers to a firm-wide logic that encompasses strategic goals, economic rationalities, degree of integration with primary market strategy, and implications for management. No one position is 'best' or 'superior'; there is no prescribed pathway of adoption; and firms may change their position in any direction at any time. Importantly, each standpoint suggests certain strategic processes, managerial interventions, and intermediate indicators that will best apply to firms taking that standpoint. These standpoint-specific interventions and metrics are the subject of the following section of the paper on managing for sustainability. It is suggested that, since there

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DOI: 10.1002/sres

is no one single or one best CSR standpoint, managers will take different actions and monitor their progress on different rubrics depending upon the CSR position of their firm. Figure 1 presents the typology of organization-level CSR standpoints.

Figure 1 shows that firms' sustainability standpoints vary along two dimensions of value. First, the incorporation of CSR in its primary value-adding strategy reflects a lower or higher priority on CSR. Second, its adoption of shareholder or stakeholder value criteria reflects the degree to which it prioritizes social and environmental improvements in addition to financial profitability. A conventional shareholder approach elevates financial returns to shareholders above all else, while a stakeholder perspective (Freeman, 1984) considers a range of perspectives on value criteria and is generally more likely to incorporate CSR interests into its performance measurements. With these two axes of value, the table thus illustrates four broad CSR standpoints. Thus, the compliant position is aimed at shareholder value with a low priority on CSR, such that companies do the minimum necessary to meet legal requirements; the instrumental position values both shareholder return and CSR, and seeks CSR strategies that add to the bottom line; good citizen positions are genuinely interested in satisfying stakeholder concerns and so are likely to take a balanced approach to the triple bottom line; and intrinsic standpoints fully embrace social and responsibility and fully integrate these priorities into all systems and performance metrics.

Firms may adopt any of these standpoints at any time, and change standpoints gradually or abruptly in any direction. For example, Interface Carpets made a radical shift from a compliant to an intrinsic standpoint, following an epiphany in CEO Ray Anderson's ideas about the kind of world he wished to leave for his grandchildren (Rosenberg, 2005). McDonalds restaurants, on the other hand, has applied a more deliberate and gradual shift from compliant to a good citizen standpoint, stressing its culture of 'giving back' to local communities but noting that, 'results cannot be expected to happen overnight' (Anonymous, 2002). These examples illustrate that all approaches to CSR are strategic, but that the definition of the term depends upon the firm's relative commitment to sustainability and its underlying approach to performance measurement.

	Shareholder Value	Stakeholder Value
CSR Low Priority	- Minimize intrusion of CSR initiatives into core strategy and business functions - Isolate CSR as a separate function or department with little clout - Comply with legal and industry regulations with minimal change Compliant	- Seek input from external stakeholders and include their concerns in decision making - Balance financial, social, and environmental performance (TBL) - Market innovations as evidence of goodwill and good citizenship Good Citizen
CSR High Priority	-"Win – win" CSR - Implement only in ways that enhance bottom line performance -Avoid if it diminishes short term results, e.g. revenue or cash flow - Publicize all actions, perhaps leaning towards exaggeration, or "greenwashing" Instrumental	- Deep commitment to CSR - Fully integrate CSR into values, mission, strategy and operations - Focus on long term benefits even if CSR initiatives negatively affect short term performance - Marketing of CSR policy and main strategy are intertwined naturally Intrinsic

Figure 1. Typology of CSR standpoints

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Systems Orientation of the Firm

There is no single, generic 'systems' point of view for either researchers or practitioners. Definitions and assumptions vary greatly, and some systems perspectives are known to work better in certain situations than others (Mingers and Gill, 1997; Jackson, 2003). In the present context, this implies that different systems models have distinctly different implications for achieving sustainability goals. Moreover, systems frameworks in any one organization are generally tacit and taken-for-granted, yet their unexamined assumptions profoundly shape actors' mental models and strategic activities. To clarify this underdetermined state of 'systems approaches' to sustainability, this paper presents two systems theoretical approaches, interpretivism (Hatch and Yanow, 2003) and CAS (Anderson, 1999), and illustrates their application to the CSR standpoints described above. Interpretivism and CAS each represent a significant revision to functionalism, the classical reductionist and mechanistic approach to management (Donaldson, 2003). A more complete discussion of these three systems approaches to sustainability is available elsewhere (Porter and Cordoba, in press); this paper presents a brief overview below, focusing primarily on a discussion of process applications and tools in the following section of the paper.

Interpretive Systems

Interpretivism defines the organization and its environment as the social construction of embedded actors, rather than a mathematically reducible series of functions (Hammond, 2003). Among its primary principles are holism and inclusiveness, the idea that the whole is greater than the sum of its parts (Hatch *et al.*, 2003). Unlike a purely reductionist and linear approach, interpretivism is defined as '...the process by which managers... think about and discuss relationships with stakeholders... [and] their roles in relation to the common good...' and assumes that it originates 'from organizationally embedded cognitive and linguistic processes' (Basu *et al.*, 2008: 123–124). Therefore, a primary aim of interpretive CSR inquiry is to better understand the mental models and meaning-making systems of embedded actors, and the ways in which they combine to create a shared reality (Hatch and Yanow, 2003). The second objective is to engage all stakeholders in attempting to realize 'a more participatory, inclusive and truly democratic social order' (Habermas, 1971; Rabinow and Sullivan, 1979). In other words, interpretive solutions to CSR and sustainability require that different stakeholder perspectives be solicited, listened to, and openly debated in a democratic forum. Only then are decisions made and action taken.

Not every case of CSR implementation is resolvable by stakeholder dialogue and collaborative decision making alone, however. Situations frequently arise in which differences between stakeholders' positions on sustainability are extreme and seemingly irreconcilable, and in these cases critical systems thinking (CST) provides an important intermediate step between dialogue and decision making (Jackson, 1991; Ulrich, 1993). CST provides a means to unpack the implicit system boundaries behind each position, to examine who and what is being included, excluded and marginalized, and to understand who makes decisions and who is excluded from the process (Midgley, 2000; Cordoba, 2004). Following a structured, CST process of deeper inquiry into systems boundaries, stakeholders are better prepared to engage in productive discussions and just solutions to difficult sustainability problems.

Complex Adaptive Systems

As outlined above, interpretive systems thinking emphasizes holism and social constructionism in its revision of linear and mechanistic 'hard systems' designs (Hammond, 2003). Importantly, however, it presupposes that even extreme conflict among stakeholders can ultimately be addressed and incorporated into a rational, open and non-coercive discussion and solution (Bausch, 2001). In complexity theory and CAS, on the other hand, an entirely new paradigm emerges:

> 'The whole cannot be understood by being divided into or reduced to its elements... interaction and connection are non-linear and

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> non-causal determinism is the rule. Systems are open. They have the property of self-organization and self-generation' (Wulun, 2007: 398–389).

CAS operate under radically different assumptions than either interpretive or functionalist systems, and therefore challenge the time-honoured canons of management and CSR, including the notions that equilibrium is the norm, the future can be predicted and controlled, there is an ideal or 'best' way of getting things done, and rational planning will yield the desired results (Wood, 1999).

Many valuable explanations of CAS in organizations are available elsewhere (cf. Anderson, 1999; Rihani, 2002; Wulun, 2007): they are summarized here in terms of four primary characteristics. First, *self-organization* refers to the way in which a system's elements independently interact and arrange themselves with no apparent design or management (Nishiguchi, 2001). *Emergence* means that the thousands and thousands of ongoing microinteractions generate a 'copious internal variety' (Rihani, 2002) that leads to gradual microlevel coevolution and evolution at decentralized sites in the organization (Porter, 2006), which then spread and lead to aggregate shifts in the system's behaviour (White *et al.*, 1997; Wood, 1999). The third property is *bottom up change*, meaning that minor variations at the ground level are potential sources of seismic shifts of system-wide behaviour. The fourth characteristic is the arising and later subsiding of vortexes of maximum creativity that have been termed the *edge of chaos* (Langton, 1992) and the sweet spot (Clippinger, 1999). Palombo (1999) writes that the edge of chaos marks the phase transition between order and chaos, and is therefore the site of emergent innovation.

Under CAS assumptions, achieving sustainability outcomes necessitates a management regime significantly different from those of functionalist or interpretive systems. More specifically, the three primary principles guiding CAS management methods are building and empowering small groups and teams, facilitating adaptive learning at all levels of the organization but especially at the line level, and supporting innovation at the most decentralized, local sites where internal and external stakeholders have direct, ongoing contact and exchange. In other words, the emphasis shifts from top down design and control to the building and empowering of small groups of employees and stakeholders at the smallest, most local points of contact between organization and surrounding community.

To summarize, this section of the paper has outlined two systems perspectives from organization theory that each represent a significant revision of the neoclassical functionalist management paradigm (Burrell and Morgan, 1979). Interpretive and CAS models each offer alternative frameworks for managing the process of CSR implementation. In the following section of the paper, concrete managerial processes and practices are presented, as well as integrated with the four CSR standpoint lenses presented earlier. In short, the paper proceeds now to examine the four types of CSR standpoints through the lenses of interpretivism and CAS, thereby generating a broad range of implementation logics that each imply different methods and rubrics for tracking progress.

MANAGING FOR SUSTAINABILITY USING SYSTEMS AND CSR PRINCIPLES

Sustainability processes and tracking tools that can be utilized by the practicing manager are presented in this section of the paper and summarized in Figure 2. Rather than taking a contingency approach, each technique is presented along an 'implementation continuum' that roughly follows the four-part typology of CSR standpoints presented above. Contingency approaches to CSR management imply a more stable and categorical breakdown of sustainability processes than is likely to exist in today's rapidly changing marketplaces and organizational contexts. Therefore, a flexible menu of different possible approaches is offered, again without suggesting any particular normative or instrumental recommendations. The intent is to link each practical methodology with its own solid conceptual underpinnings, and thus offer

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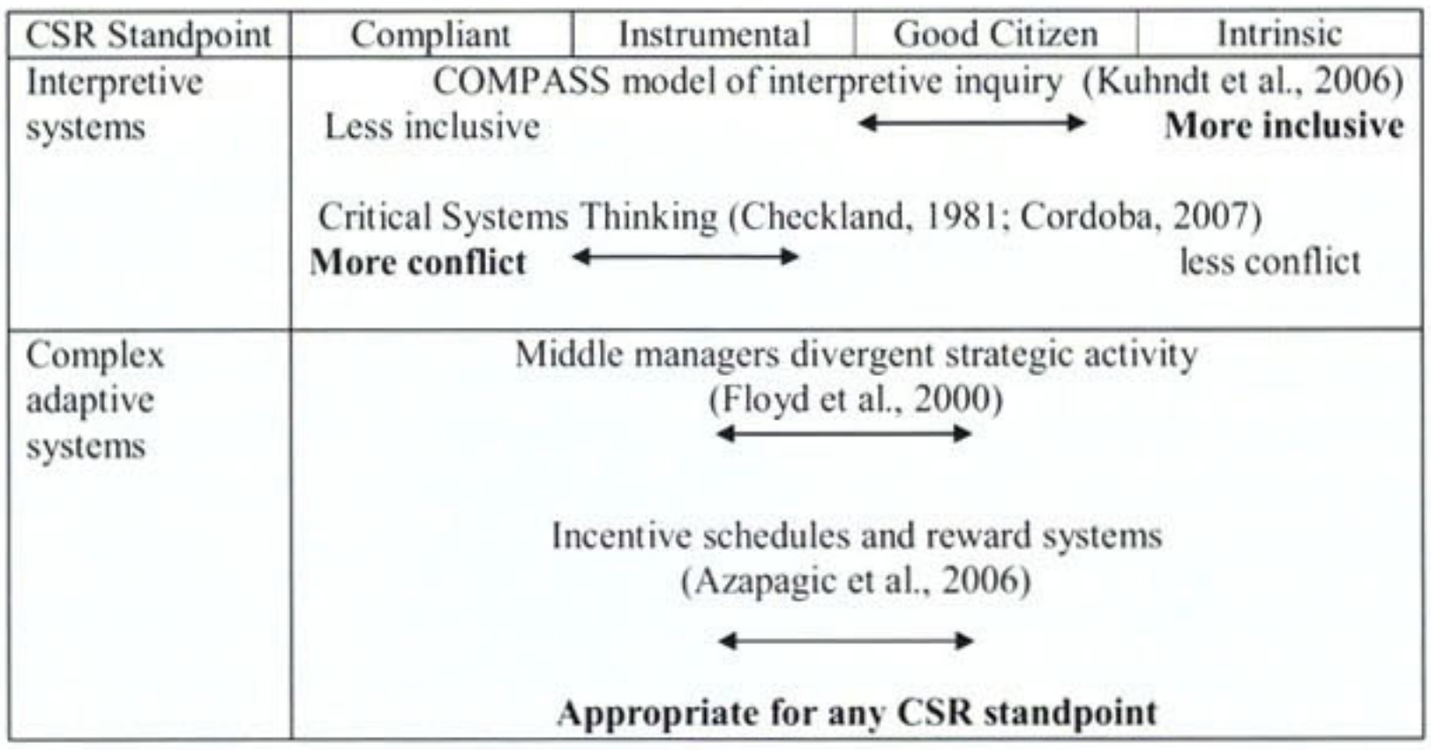

Figure 2. Continuums of intermediate process methods of assessing sustainability progress for different types of CSR standpoints. Notations in bold type indicate continuum locations of most likely application for each methodology

the manager several defensible strategies for their own unique process needs. Later in the paper, the feasibility of integrating some of these interpretive and CAS methodologies is addressed.

Interpretive Systems Sustainability Implementation

Under the constructionist and enactment assumptions that undergird the interpretive systems approach (Berger and Luckmann, 1966; Weick, 1995), sustainability is neither a self-evident nor a straightforward target (Dutton, 1993). Rather, it is based upon '...the view that people socially and symbolically construct and sustain their own organizational realities' (Gioia and Pitre, 1990: 588). Because there is no one tangible reality, the meaning of sustainability is context-dependent and must first be discovered through local and collaborative stakeholder discussions. The meaning of sustainability, in other words, stems directly from 'the processes managers are likely to adopt in coming up with their own view of what constitutes appropriate relationships with their stakeholders and of the world in which they exist' (Basu *et al.*, 2008: 124). Appreciative inquiry into one's own and other stakeholders' worldviews is one proven discovery process (Cooperrider, 2004); there are many others. Following the discovery step, ethical action proceeds, meaning full democratic participation in decision making (Bausch, 2001: 112). The entire process typically proceeds in 'iterative, cyclical and non-linear' fashion (Gioia and Pitre, 1990: 588). In sum, by using systems models to inquire into, rather than immediately attempt to solve sustainability issues, an ongoing process emerges, consisting of examination, learning, reframing and action, based upon mutually agreed upon definitions of sustainability in a particular context (Checkland, 1981).

Interpretive Inquiry

As a first example of interpretive management applications, Kuhndt and Geibler's (2006) COMPASS method provides a means of proactively involving and satisfying stakeholder interests, managing sustainability performance and increasing company or sector transparency and accountability. Its purpose is to 'help a company or sector understand its main sustainability issues and to develop an indicator set to measure and report on progress, ultimately leading to consensus-based decisions that increase credibility and facilitate action... [as well as]... optimizing processes, products and services throughout the entire value chain' (p. 37). The COMPASS approach can be adapted to the company, department or even team level, or

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coordinated as an industry wide method to share best practices.

The use of the COMPASS method is exemplified in the case example of the European aluminium sector in 2004 (Kuhndt and Geibler, 2006). Here, the first step was to identify key sustainability issues through a dialogue with all manner of stakeholders. Next, the identified issues were reviewed, again through stakeholder discussion, and additional categories were suggested for improvement (p. 39). From this point an indicator set was developed for each issue, naming the dimensions of importance to achieving sustainability in that area for the company/industry, and was again subjected to stakeholder feedback and improvement. The final step was the provision of concrete targets for each indicator, along with operations level tracking charts that described each indicator more concretely. For each indicator, a description, measurement method, data assessment and linkages to other indicators and sustainability targets were provided. The entire process was designed to be fluid and ongoing, meaning that various indicators could be implemented on different time scales, and also dictating the necessity of ongoing review and revision of the entire process. In the aluminium industry, some of the issue and indicator categories were air emissions, supply chain standards, impacts of mining, ecologically sensitive 'hands off' areas, energy use and waste recycling (p. 41). In addition to the sustainability benefits of the COMPASS approach, the target company enhanced its credibility, reputation and other intangible benefits (Kuhndt and Geibler, 2006). In sum, the COMPASS model provides a practical, step-by-step framework for an interpretive approach to achieving sustainability improvement, one that can be adapted to any industry, company or local context. Because it builds so directly from the stakeholder perspective, and seems to take for granted that stakeholders will readily engage in productive dialogue, the COMPASS method is more likely to be useful to the good citizen and intrinsic CSR standpoints discussed above. However, when stakeholders are not ready to negotiate productively, a second methodology may be more useful to start.

Critical Systems Thinking

CST is an alternative approach to interpretive sustainability processes, one designed especially for situations in which there is conflict amongst stakeholders' viewpoints and objectives (Ulrich, 1993), or where their involvement may be driven more by personal purposes and concerns than those of the common good (Cordoba, 2007). This may be particularly true in compliant and instrumental CSR standpoints, because the shareholder views toward sustainability are generally more likely to be driven by profitability than environmental or social bottom lines. In such cases, CST can be an ideal preliminary step for sustainability planners to employ, prior to instituting the COMPASS method described above. CST interventions provide a means to surface and reflect upon the underlying values, norms and meanings that stakeholders use to make sense of a problem situation. These additional explorations will ultimately result in a more open discussion and a more truly 'democratically enlightened systems practice' (Checkland, 1981: 605).

Drawing from Cordoba's (2007) systematic CST approach to planning for information systems (IS), a step-by-step process is suggested below to guide the exploration of boundary and ideological differences on sustainability issues. The first step is for the stakeholders to negotiate issues of inclusion and power. This step consists of respectful debate and reflection to increase self-awareness and develop a critical understanding of the sustainability goals of the company, including who should be involved in planning and decision making, who is affected by the decisions taken, those to be considered 'experts', and those who are possibly marginalized in the process. The purpose of this step is to reveal underlying assumptions and build a full picture of everyone's concerns. Clearly, participants need to be ready to challenge their beliefs about a situation, including their most cherished assumptions, for this to be a productive process (Midgley, 1996, 2000). The second step is to

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DOI: 10.1002/sres

conduct a 'dialogue for improvement' by engaging in one or more 'design workshops'. In these meetings, improvements are designed, indicators of progress decided upon, and underlying ethical values surfaced and subject to critical review. These workshops can stem from participants' visions of a 'best case scenario', and ideally they are repeated until there is a working agreement amongst all parties.

The use of a CST design workshop approach is no guarantee of a more sustainable corporate strategy, nor of a shift in hierarchical power relations. Participants may be 'too busy' to engage fully or unwilling to share their personal concerns in the workplace, or top management may be heavy-handed in maintaining the status quo. However, the design workshop does provide for a more transparent understanding of company policy and the personal priorities of all concerned, which can be a very valuable step on the way to deeper change. Especially in the compliant and instrumental CSR standpoints, where shareholder return dominates and there are fewer built-in mechanisms for stakeholder input, this methodology may be an important step forward.

CAS Sustainability Implementation

In CAS, sustainability processes build upon the three guiding principles discussed earlier: empowering small teams, innovating at local sites of contact with outside stakeholders (including the earth and natural systems), and facilitating learning processes at all levels of the organization. These methods are indirect; they refer to management shaping the context within which new, potentially more adaptive ideas can emerge and be circulated in the organization, rather than formulating and implementing strategic plans to be relayed down to the line level. In other words, the emphasis shifts from top down design and control to the building and empowering of employee and stakeholder groups at the smallest, most local points of contact between organization and community. A capillary metaphor may help to convey the dramatic sea change that CAS processes imply. Capillaries are the smallest unit of circulation, the micro-exchange sites of nourishment for the entire organism's or, in this case, organization's survival. There is a central core, or heart, where ongoing cycles of circulation begin and are completed, but it is microtransfers at the capillary level that represent the most fertile loci of exchange, growth and, for CAS, adaptation. In much the same way, top management can provide the organizational structure within which the circulation of ideas and information takes place, but the actual locus of change is the 'edge of chaos' (Langton, 1992), or site of line-level innovation. Promising ideas may then be championed upwards by middle managers, where top management may adopt those that are most promising and recirculate them for broader application (Burgelman, 1991; Floyd and Wooldridge, 2000).

There are arguably just two broad types of management leverage in CAS. The first, as mentioned above, is configuring or reconfiguring the organization's architecture and channels of information flow, specifically through the design and support of small group exchange and innovation at local levels. The second refers to the arranging of the incentive and reward systems under which dispersed groups develop new ideas. Local activity is shaped by the overall task and reward structure provided: if green innovations are incentivized there is a good chance they will be developed. Thus, building a reward schedule oriented towards CSR goals and objectives will establish, but not control, the direction and boundaries within which effective, improvised, self-organized solutions can evolve. Said differently, allocating performance measurement systems and their weight with each unit, in addition to tweaking the architecture of the organization, will best facilitate proactive adaptation for sustainability objectives (Anderson, 1999). The next sections present two methods for realizing sustainability goals in CAS, one for each of the management levers, adjusting system architecture and designing incentive systems.

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Middle Managers' Activity Patterns

The first management tool applies to adapting the firm's architecture to better facilitate bottom up adaptive and learning processes. It draws from the resource-based view of strategic management, particularly theories and processes of intraorganizational ecology (Burgelman, 1991), dynamic capability development and renewal (Floyd and Wooldridge, 1996, 2000), and guided evolution (Lovas and Ghoshal, 2000). In turbulent and hypercompetitive conditions (Emery and Trist, 1965; D'Aveni and Gunther, 1994), the organization has to adapt its strategy very quickly, often more rapidly than is possible with a strictly top down management system. To do so it may turn to bottom up initiative development, where employees are empowered to develop their own ideas in local contexts, and the most promising projects are championed to upper management by midlevel managers (Winn, 1995). When sustainability objectives are built into this process using appropriate incentives, it can lead to 'eco-renewal' (Shrivastava, 1995a; Russo and Fouts, 1997), where firm processes and products are purposefully redesigned and reoriented toward proactive environmental improvement.

Middle managers are key players in the strategic and eco-renewal process, as they are the linking pins between top down CSR intentions and desired sustainability results (Floyd and Wooldridge, 2000; Porter, 2006). Wooldridge and Floyd (Wooldridge and Floyd, 1990; Floyd and Wooldridge, 1997) have shown that middle managers' involvement in strategy has a positive effect on organizational performance (Floyd and Wooldridge, 1997), particularly in prospector or proactive strategies where bottom up change is more likely to be valued (Miles, 1987; Floyd and Wooldridge, 1992). The present context builds from these findings by applying Floyd and Wooldridge's (2000) empirical measure as an indicator of the extent to which CSR-focused companies are pursuing their goals through bottom up innovation processes that lead to valuable sustainability initiatives. This instrument is presented in Appendix A, where four types of middle managers' strategic activity are defined and the two divergent types—facilitating adaptation and championing initiatives—indicate the extent to which firm architecture is aligned with bottom up strategic processes. Floyd and Wooldridge's (1992, 1996) instrument is well-suited to test the level at which a company has successfully enabled a bottom-up strategic eco-renewal processes, and is therefore useful with any CSR standpoint where management wishes to examine the extent to which it has empowered bottom up change.

Creating Appropriate Incentives

The ability to gain from the second management lever for achieving in CAS hinges on designing reward schedules and systems that motivate dispersed groups' activities towards desired sustainability outcomes. Direct control is not possible, by definition, but managers can shape members' activity by providing incentives in intended areas of improvement, along with the resources and support they need to be successful. In short, the process turns on targeting specific areas for improvement (Anderson, 1999), for which, fortunately, there are many excellent templates available. As one example, Azapagic (2003) offers a list of economic, environmental and social issues that includes a number of important categories such as air emissions, biodiversity, energy use, global warming potential, noise, resource depletion, solid waste, transport, water use and emissions and others (p. 308). To make use of a list such as this, incentives would first be designed for selected categories of improvement, and then put in place with appropriate working groups (Azapagic *et al.*, 2006). Corresponding measurement indicators would also be put in place to track performance on each incentive. Panwar *et al.* (2006) report on the use of this approach with two companies in the forest products industry, showing how specific targets and incentives may be used to both shape internal activities towards intended goals, and also to comparatively evaluate companies' success in reaching selected targets.

Notably, the use of a targeting methodology such as Azapagic's is quite different from a traditional top down, command-and-control style of management. There are no outcomes,

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DOI: 10.1002/sres

initiatives or concrete plans provided by top management in CAS incentive system design. To the contrary, new innovation and initiative development is left up to small teams and groups working as far away as possible from the central administrative core of the organization. Such groups are linked, through middle managers, to the sustainability objectives of the company only by the milieu created by whatever incentives and rewards shape the process of their activities, but do not direct their contents. CAS presume the need for continual renewal and reinvention of the organization's strategy and value-adding processes, due to an environment that does not stand still. For this reason, both methods of implementing and tracking the realization of sustainability outcomes—Floyd and Wooldridge's (2000) measure of bottom up, divergent innovative activity and the incentive design approach (Anderson, 1999) are appropriate for any standpoint on CSR. The firm's CSR standpoint—whether it be for compliant, instrumental, good citizen or intrinsic purposes—is independent of the choice of systems approaches it makes in designing its internal processes.

DISCUSSION AND CONCLUSION

This paper has developed a process-based approach for managers to implement a CSR strategy at the practical level, based upon theoretical distinctions in CSR positions and in systems approaches to sustainability. Its fundamental argument is that there is no one-size-fits-all answer to CSR implementation in organizations, but that successful frameworks are organization-specific and stem from that organization's perspective on CSR (Figure 1) and their tacit approach to systems analysis (Figure 2). Specifically, four CSR standpoints have been discussed and their application exemplified through two systems perspectives that supersede the functionalist systems approach (Donaldson, 2003). Depending on the organization's CSR standpoint and their implicit approach to systems analysis, there follows a fitting logic of implementation and particular metrics for tracking progress. It was also argued that these alternative frameworks are descriptive only, implying neither a normative nor a prescriptive hierarchy. By the same token, the paper makes no pretense of privileging the organization level of analysis over that of industries, nations and ecological systems. Indeed, in defining its very scope it has set aside the question of the 'rightness' or propriety of taking the organization level of analysis versus decentreing the organization. Instead, its purpose has been to present several continua of possible strategic approaches to the question of how desired sustainability outcomes may be achieved in organizations, thereby addressing the call for processes and practices that bridge the gap between intentions and outcomes in organization level CSR implementation (Margolis and Walsh, 2003).

Two issues remain to be explored at this point, the first being the relationship of interpretive and CAS perspectives to one each other and to traditional functionalism, and the second the possibility of integrating different perspectives in the same model or application. First, interpretive and CAS approaches do not pre-empt the use of functionalist perspectives and 'hard systems' design (Porter and Cordoba, in press). Indeed, in situations where there are predefined goals, sustainability targets and indicators, and where linear solutions to concrete problems are required, the use of functionalist systems methods is ideal. In less determined contexts where engagement is preferred and sustainability is a process, the interpretive framework effectively addresses questions of issue determination, negotiation and accommodation amongst differing groups, and system-wide communication. Here, perceptions and purposes depend on the eye of the beholder(s), and reflexive skills are sharpened through processes of meaning making and negotiation. Finally, in CAS that arise in conditions of turbulence and change, where top management cannot effectively develop an a priori master plan, the use of CAS models and tools to develop bottom up initiatives and indicators is called for. Thus, each systems approach has an ideal type of application, depending on the underlying scheme of firm design in combination with external conditions.

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DOI: 10.1002/sres

Secondly, the systems perspectives and CSR standpoints developed in this paper are conceptual frameworks only: heuristic, non-exhaustive and arbitrary to a degree. The edges between them are blurry. At the same time, however, there are defensible theoretical reasons for the arrangements presented here, and different approaches cannot be combined without great care and caution. Indeed, because of the incompatibility of their underlying assumptions, any unification or triangulation of the different approaches into a single, one-size-fits-all methodology is *not* possible. However, although they are theoretically incommensurable, they are not mutually exclusive, and managers may apply them in combination, *provided they are careful not to exceed the limitations of each approach*. As one possibility, for example, a stakeholder-value standpoint such as the good citizen or intrinsic approach could incorporate extensive interpretive discussions as a mechanism of innovation at the level of dispersed and empowered groups. The overarching system structure in this case is that of CAS, while the process and indicators of progress are based in interpretive systems designs.

In conclusion, by gaining understanding and experience in working with all the approaches presented here, including learning to discern their differences and carefully combine them, managers will be empowered to create specific, sustainable solutions to CSR issues, solutions that are particularly applicable in their own company and local context.

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APPENDIX A

Floyd and Wooldridge's (2000) validated measure of types of middle manager strategic activity*.

Implementing
1. Implements action plans designed to meet top management objectives
2. Translates organizational goals into objectives for individuals
3. Communicates and sells top management initiatives to subordinates
4. Translates organizational goals into departmental action plans
5. Monitors activities within their unit to ensure that they support top management objectives

Synthesizing
6. Monitors and assesses the impact of changes in the firm's external environment
7. Proactively seeks information about your business from customers, suppliers, competitors, business publications, etc.
8. Monitors and communicates to higher-level managers the activities of competitors, suppliers and other outside organizations
9. Integrates information from a variety of sources to communicate its strategic significance
10. Assesses and communicates the business-level implications of new information to higher level managers

Championing
11. Evaluates the merits of new proposals
12. Evaluates the merits of proposals generated in their area: encourages some, discourages others
13. Searches for new opportunities and brings them to the attention of higher-level managers
14. Defines and justifies the role of new programs or processes to upper level managers
15. Justifies to higher-level managers programs that have already been established

Facilitating
16. Provides a safe haven for experimental programs
17. Encourages multi-disciplinary problem-solving teams
18. Provides resources and develops objectives/strategies for unofficial projects
19. Relaxes regulations and procedures in order to get new projects started
20. Proposes new programs and procedures in order to get new projects started

*Championing and facilitating represent bottom up change through local initiative development.

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Syst. Res. **25**, 397–411 (2008)
DOI: 10.1002/sres