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How ‘Strong’ is Sustainability?
Development of a Framework for Assessment and Intervention

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ABSTRACT

In this paper we refine consideration of the topic of ‘sustainability’ through an analysis of its ontological and epistemological assumptions. The concepts of ‘Strong’ and ‘Weak’ sustainability are defined, compared and contrasted in terms of their respective emphases on Complexity and Humanism, and on Reductionism and Rationalism. A model for assessment of these emphases is presented. It is suggested that this model will assist in the comparison, development and evaluation of sustainability strategy and policy initiatives, and may also serve as an intervention tool to assist in planners, strategists and policy makers in reflecting on and comparing their assumptions in the development of sustainable solutions.

Keywords: Sustainability, Policy Development, Rationalism, Reductionism, Humanism, Complexity

INTRODUCTION

The purpose of this paper is to develop an approach that can be used to assess policy/strategy initiatives in relation to concepts of sustainability that vary from ‘Weak’ (of limited scope) to ‘Strong’ (that take a wider perspective in terms of system definition and timeframe). To achieve this assessment, the paper builds a model that surfaces meta-level themes, and that can be used to assess sustainability initiatives and to allow learning and assisting in the understanding of sustainability objectives in different contexts.

From a review of literature, the model is developed using four meta-level themes that are presented as two continua that can be used to consider how approaches for sustainability are considered. These are: (1) ‘Rationalism’ through to ‘Humanism’; and, (2) ‘Reductionism’ through to ‘Complexity’. An initial assessment of the use of the model to compare published works is reported and it is argued that the meta-level themes may be used to develop a coding system for further content analysis of papers, reports and other texts on sustainability.
Defining Sustainability. Different definitions and assumptions of the term sustainability are dependent on philosophical positions surrounding this topic. For example, the dominant school of economics, neoclassical economics, equates human welfare with the level of consumption of market goods and sees the natural world merely as an input into the economic process. Under these assumptions, sustainability means sustaining economic output and this is known as ‘Weak Sustainability’ due to the limited perspective it adopts. Ecological views take a broader perspective recognising that the essential features of the earth’s life support systems must also be taken into account (Gowdy, 2000). For example, in 1987 the United Nations World Council for Economic Development identified that sustainability was to be achieved by seeking development which meet the needs of the present generation, without compromising the ability of future generations to meet their own needs. It should refer to specific criteria around maintenance, renewal or restoration of resources for the concept to be meaningful.

This view of sustainability has important implications in the definition of system boundaries, requiring broader ecosystem-based approaches when considering, developing or implementing strategy and policy (Hart, 1997). It provides a definition for ‘Strong Sustainability’ and enables ecological footprint analysis (taking into account the wider costs of the production of goods and services over time) for precautionary decision-making to be employed, which also allows for more democratic and participatory forums (Phillis and Andriantiatsaholiniaina, 2001). To do this requires moving the focus of interventions beyond individual organisations, regions or groups to a global scale (Gray & Milne, 2002).

This range of definitions presents a conundrum for managers and policy makers in terms of positioning initiatives alongside the possible range of objectives. It is the intention of this paper to provide a framework for understanding policy/strategy and management initiatives in order to allow assessment and further clarification of approaches. This framework is based on meta-level considerations to help locate policy/strategy/management issues in terms of sustainability through identification of the thinking that underpins them, and so to enable reflection and learning.

Meta-level Considerations. To address these wider issues around ‘sustainability’ we argue that there needs to be a shift in the state of mind (Munoz, 2000) that has governed policy research and design. We
suggest that such a shift may be assisted through understanding and locating existing policy initiatives from ‘Weak’ to ‘Strong Sustainability’, and by developing initiatives with a view to stronger sustainability. First, we consider how systems appear to behave in our world – issues of ontology – and then how we consider these behaviours – issues of epistemology. We argue that issues of ontology that affect the strength of sustainability policy concern two key and oppositional themes: Reductionism and Complexity.

Theme 1 – Reductionism. Reductionism is the grasping of the underlying principles that produce change in systems allowing one to make them into a ‘concept’. This allows the system to become an object that can be understood by a concept, metaphor or unit. This may then be manipulated, thus reducing complexities to simplicities, allowing the prediction of future system states (Prachett, 1994). Much of organisational theory, economics and social science are based on a cybernetic framework and are thought about so to attempt to understand the rules that govern systems and then adapt them by manipulating their characteristics (see Mathews, White & Long, 1999). Reductionism relies on measurement to attempt to predict future system states. It is very difficult, if not impossible, to move measurement from a tool for control to a tool for prediction, as prediction requires certainty.

Reductionism has been found to work particularly well in terms of technology, especially when the simplicities of the world are perceived on a mechanistic level with limited system boundaries. However, the danger is that the approach smoothes over some of the more complex issues (Prachett, 1994) and attempts to divide what is really indivisible and unite what is not really ‘unitable’ (Bohm, 1996). In addition, this view of systems has been found to be inadequate in explaining organisational phenomena and so ideas are being borrowed from the ‘complexity sciences’ (Stacey, 2000).

The nature of complex systems (which reflect the behaviours surrounding issues concerned with Strong Sustainability) moves from having certainty as a building block, because in this wider perspective certainty is not a characteristic of the world. Therefore having to deal with uncertainty is a basic condition that needs to be coped with (Scoones, 1999) and points to the second emergent theme, ‘Complexity’ which we now consider.
Theme 2 - The World as a Complex and Dynamic System. Complex non-linear systems, which include ecosystems and organisations, are characterised by multiple levels of interaction that are both ordered and chaotic. This internal complexity allows random disturbances to produce unpredictable events and relationships that reverberate through the system(s) creating novel patterns of change. Despite this unpredictability, coherent order (patterns) may be seen to emerge out of the randomness (Morgan, 1997). The complexity sciences encourage us to understand how change occurs through circular patterns of interaction and must be understood in the wider perspective of the process of everything being in the context of becoming something else (Morgan, 1997). From this viewpoint, systems stability may be seen as a temporary state of ‘dynamic equilibrium’ where paradoxes often form as an irreconcilable manifestation of the system state.

If this view were accepted, the development of meaningful policy for complex systems over longer timeframes would appear to require a shift from mechanistic concepts of systems, to those containing the characteristics of complex adaptive systems. For example, uncertainty is regarded as a fundamental characteristic making prediction no better than a guess, except in short time frames (Ormerod, 1998). Coping with complexity and uncertainty is a fundamental condition that has to be accommodated in order build or attain ‘Strong Sustainability’. This indicates that balance, stability and predictability should not necessarily be regarded as relevant concepts for thinking about dominant system states over longer time periods.

Concepts and their Nature. In addition to these issues of ontology, we argue that characteristics required for sustainable development are generated through epistemology – how we consider the world and the nature of the concepts that we develop about it. We argue that two further themes have particular relevance to epistemology in terms of how it is manifested in sustainability policy: Rationalism and Humanism.

Theme 3 – Rationalism. Rationalism may be seen as the separation of philosophy from real events for it is an approach that moves the individual out of the world and sees ‘thought’ as a separate activity to the world the thinker inhabits (Scoones, 1999). Under rationalism lies the implication of certainty and truth:
every question has a right answer, making relativism, humanism, common sense and moral beliefs irrelevant because they assume doubt (Saul, 1992).

While mainstream management theory tends to use rationalist and reductionist epistemological and ontological frameworks, rationalism has been questioned from many directions. For example, as Bion (de Board, 1978, p.37) found, the rational workings of the group are profoundly affected by the emotions and irrational feelings of its members and so the full potential of the group is only realised when these emotions are recognised. In addition, the idea of absolutes and of the world existing independent of the observer has been undermined through recognition that language helps to characterise the way someone is experiencing the world (Peacock, 1995) and of the self-referential nature of the observer (Morgan, 1997). Further, while rational approaches to organisational theory see organisations as open systems in constant interaction with the environment and suggest that social change originates in the environment, newer closed system approaches view change being driven internally and challenge the validity of drawing distinctions between the system and its environment (Morgan, 1997). Even truth itself is seen to be an effect of the exercise of power that, in turn, is brought to bear on the world through the extraction, appropriation, distribution or restraint of knowledge (Foucault, 1969, in Rabinow, 1997). This use of knowledge is judged appropriate in terms of its relation to ‘truth’, but deceit can only be objectified as a lie at an individual level and then only within certain system boundaries (Bailey, 1991).

Thus, in addition to being driven by their environments, human systems are also shaped by human knowledge and formed by the group, in turn shaping how we see and interact with them. In short as Bohm (1996, p. 9) states, what is needed in a relativistic theory is “to give up the notion that the world is constituted of basic objects or ‘building blocks.’ Rather, one has to view the world in terms universal flux of events and processes.” This removes the emphasis from theory as absolute truth and theory becomes, instead, merely an insight (Bohm, 1996).

**Theme 4 – Humanism.** To enable Strong Sustainability, decision makers need to move beyond rationalist tools that attempt to control behaviour and to harness the positive use of power. To do this they need to
cultivate systems and develop environments where socially constructed learning can occur (Bradford, 1999). To do this ‘freedom’ needs to be exercised through the development of a ‘common sense’ (Saul, 2002) and this common sense has to be established to allow appropriate decisions to be made. It is about the inclusive forming of common assumptions that may be encouraged through ideas of citizenship, democracy and the dismantling of supposed boundaries (Yeatman, 2002). This approach may be seen as a meta-level prerequisite of ‘Strong Sustainability’, for humanist thinking holds the human race rather than the individual as its core concern. It places man [sic] in terms of being a responsible and progressive intellectual being and emphasises the importance of human needs (Saul, 2002).

A MODEL OF STRONG AND WEAK SUSTAINABILITY

We suggest that these four themes can be presented as two continua that can be used for the placement and comparison of sustainability initiatives. First, and in terms of ontology, Reductionism may be contrasted with Complexity. Second, and in terms of epistemology, Rationalism may be contrasted with Humanism in terms of how we think about the world. In Figure 1, we present these continua and summarise our argument by suggesting that Strong Sustainability is associated with the meta-level assumptions of Complexity and Humanism while Weak Sustainability is associated with Reductionism and Rationalism.

By distinguishing among sustainability initiatives, we suggest that this model offers the potential to complement existing popular initiatives such as the Balanced Score Card (Kaplan & Norton, 1996) and
Triple Bottom Line (Elkington, 1999). Although each of these initiatives deserves fuller assessment than we are able to give here, both use objective-setting and measurement, implying that by understanding the causes and behaviours of systems we can understand their rules and avoiding complexity by approaching the world from a mechanistic viewpoint. In terms of the model they are both based on assumptions of balance and are both examples of ‘Weak Sustainability’.

A TEST OF THE MODEL

In an initial test, we have used the model as the basis for developing a content analysis of published management articles that include an emphasis on sustainability (reference suppressed). Using an approach for thematic analysis developed by Boyatzis (1998), we developed a coding manual that included identification of several indicators for each theme. A sample of articles was selected by using the keyword ‘sustainability’ to search three popular management databases (Emerald Fulltext, Wilson Business Abstracts, and Proquest). A sample of 21 papers was obtained by taking the first seven titles presented. From this sample it was possible to gather full text versions of 15 of these articles, which were then coded on a three-point scale for presence of each indicator of each of the four themes and plotted against the model presented in Figure 1.

Although this was an exploratory analysis that needed further work in terms of the reliability of the coding procedures, it showed that even in an initial analysis of published materials within the management field there was quite a degree of variability in the coding of the articles. For example, those papers considering issues of sustainability at an abstract level, for instance economic sustainability in the banking system or modeling carbon outputs, paid scant attention to the dynamics associated by a human perspective. Articles reflecting the themes of ‘Weak Sustainability’ centred around modelling carbon emissions through regression analysis (Sarkis, 2001) and economic theory (Stewart, 2001). None of the articles directly addressed the nature and effects of complexity – a dynamic that concerns this paper; although it was mentioned in passing in by Sarkis (2001) in his paper on ‘Manufacturing’s Role in Corporate Environmental Sustainability, Concerns for the New Millennium’. Importantly, those papers concerned
directly with spatial planning (e.g., town planning, sustainable development and disaster mitigation) reflected humanist themes and tended to recognise the need for inclusiveness, consultation and the development of shared views in terms of policy development (e.g., Naess, 2001). This approach takes into consideration longer time scales and greater diversity in the development of policy. This is done through community wide consultation, which according to the findings presented, more closely meets the challenges presented by the concepts of (1) ‘emergence’ (a characteristic of ‘Complexity’) and (2) that ‘truth’ and knowledge resides in the dynamics of the group, rather than being externally present and fixed. These approaches therefore more closely meet the requirements of ‘Strong Sustainability.’ In summary, this sample of management literature appears to confirm the discriminatory power of the meta-level themes in distinguishing determining sustainability approaches within the published articles. With further refinement and testing, we suggest that the model and coding proforma can be further developed as a valuable tool for the content analysis of sustainability themes in a wider range of influential texts, including policy and strategy documents and reports.

**CONCLUSION**

Although the term *sustainability* is increasingly important within management studies and policy, it has various definitions and emphases. In this paper, we have presented a model to conceptualise different definitions of the term, and to distinguish the categorisations of ‘Strong’ and ‘Weak’ Sustainability’. While this distinction is highly normative and based within complex systems theory, we suggest that it has explanatory power and may assist in the comparative assessment of various approaches to sustainability. In addition to assessment, we would also like to suggest that the model may also form the basis for an approach to intervention that can assist strategists and policy makers in increasing their awareness of meta-level assumptions that may be guiding their thinking on sustainability initiatives – and perhaps in strengthening their repertoires.
REFERENCES