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Sustainability accounting for companies: Catchphrase or decision support for business leaders?

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ABSTRACT

"Sustainability accounting" and related terms are being used with greater frequency at academic conferences and in corporate practice. This raises the question of the relationship between accounting and sustainability and the role of accounting for sustainability, as well as what could be understood by sustainability accounting. The paper reviews the literature on sustainability accounting from an information management perspective and distinguishes different interpretations of sustainability accounting.

1. Introduction

"Sustainability accounting" has become a generic term. Review of the literature reveals a blurred picture of what is covered by this and related terms, such as "sustainability management accounting" and "sustainability financial accounting". Although attempts have been made to map recent history and literature in the field (see Lamberton, 2005; Thomson, 2007) few definitions of sustainability accounting exist, even in papers with the term in their titles. Also, sustainability accounting has not been adequately conceptualized. At best a vague description can be found of what is expected from sustainability accounting. In most cases, sustainability accounting is just used as another term for environmental accounting or environmental reporting (see, for example, Lamberton's (2005, p. 8) brief history of sustainability accounting).

This morass raises a number of questions, such as:

- What fundamental lines of thought are contained in the literature on sustainability accounting? (Section 2).
- What reasons are discussed or exist for management to deal with corporate sustainability accounting? (Section 3).
- Based on the answers to these questions, what interpretations of sustainability accounting can be distinguished in the light of information management? (Section 4).

This paper focuses on the role of sustainability accounting as an approach to help support management improve corporate sustainability and responsibility. After the examination of two fundamental views related to the philosophical debate and the management approach to sustainability, the paper discusses the role of sustainability accounting in corporate responsibility and reasons for its introduction. The paper furthermore deals with interpretations and paths of sustainability accounting from a management perspective. Finally the paper discusses the need for a pragmatic goal driven path to sustainability accounting and highlights three different ways of following this path.

2. Historical development: two lines of thought

With the growing body of literature on sustainability accounting, two lines of thought are becoming evident: first is the philosophical debate about accountability and whether accounting contributes to sustainable development or whether it blurs the view and constrains management from taking the necessary steps towards sustainability. Second is the management perspective which examines the issues of dealing with the information complexities associated with varied terms and tools to help make steps towards sustainability.

2.1. The philosophical debate. Are corporate sustainability and sustainability accounting an illusion?

The first publications linking accounting with sustainability focused on the deficiencies of conventional accounting (Mathews, 1997; Schaltegger & Burritt, 2000; Schaltegger & Sturm, 1992), as well as the limits of the underlying philosophy of accounting, which conventionally focuses on monetary, quantitative measures of corporate economic activities (Gray, 1992; Lehman, 1999; Mathews, 1997, 2001; Maunders & Burritt, 1991). Sustainability accounting, as a concept, has emerged from developments in

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accounting over a period of years. First, it needs to be recognised that accounting has long been presented in a conventional way for use by management and external parties (Lesourd & Schilizzi, 2001, p. 97; Schaltegger & Burritt, 2000).

Financial accounting provides the foundation for information gathered within organisations and prepared for presentation to external stakeholders through disclosure in external reports. The information gathered relates to the financial activities of the organisation. In particular, the statement of financial position, or balance sheet, shows the financial situation of the organisation at a particular date; the statement of financial performance, or income statement, provides information about the financial inflows and outflows of the organisation in a specified period. Both are based on accrual accounting information which is designed to reflect the financial impact of transactions, transformations or external events on the assets, liabilities and equity of a company, as they occur. Separate information about cash movements in a period are reflected in a cash flow statement, which also reconciles the initial and closing cash balance, or stock of cash. Over the years, specific rules have been adopted by professional accounting bodies and regulators about the ways in which specific transactions should be accounted for in order that information about the organisation remains credible in the eyes of external stakeholders.

A second type of accounting, *cost accounting*, provided information about inventory asset values, for inclusion in the annual financial reports (Wells, 1978). Cost accounting was adapted from financial accounting to assist with management control, to emphasise performance reporting based on financial representations of both expected and actual performance of organisations, or parts of the organisations such as divisions or departments, and their comparison as the basis for management action (Fleischman & Tyson, 1998, p. 119). Since this early adaptation of financial accounting for management control, *management accounting* has developed separately to focus on information for management decision making, planning and control (Horngren, Datar, & Foster, 2005, p. 10).

The significance of these developments in accounting is that *sustainability accounting could be developed in different ways*: first, based on an entirely new system of accounting designed to promote a strategy of sustainability; and, second, as an extension of, or modification to, conventional financial, cost, or management accounting (Gray, 1994; Lamberton, 2005; Schaltegger & Burritt, 2000). The former is appealing because if sustainability accounting is developed *de novo*, it allows a complete reappraisal of the relative significance of social, environmental and economic benefits and risks and their interactions in corporate accounting systems, both for management and external stakeholders (see Houldin, 1993, p. 3).

Changes to conventional accounting have taken the form of: *environmental accounting* as the foundation for external environmental reporting. Environmental accounting has a major emphasis on environmental impacts and extended performance being expressed in physical and qualitative terms, or non-financial, terms (Schaltegger & Burritt, 2000; Yongvanich & Guthrie, 2006); *triple bottom line accounting* which introduces separate economic, social and environmental foci for organisations (Elkington, 1998, 1999; see also Gray & Milne, 2002) and sustainability accounting with a main focus on the integration of social, environmental and economic facets of organisational activities (Lamberton, 2005; Schaltegger & Burritt, 2006; Thomson, 2007). Within a decade, environmental accounting and triple bottom line accounting have filtered down as an approach from a few academic think tanks and progressive companies to corporations in just about every region of the world.

Each of these accounting systems suffers from their association with conventional accounting and its well known defects (Schaltegger & Burritt, 2000, 76ff.; Milne, 1996, 2007). Financial accounting and reporting have been heavily criticised for their production of untruthful and incomplete information (compare, for example, MacNeal (1939) and Gwilliam and Jackson (2008)) as well as for their use by management to convince stakeholders of the credibility of corporate sustainability performance when such is not the case (Dowling & Pfeffer, 1975; Lindblom, 1994). A number of specific criticisms are evident. First, the conventions of financial accounting have been the subject of criticism because they have a *narrow legal perspective on the boundary of corporate activities* (the legal entity concept). Second, '...accounting typically *adopts a set of implicit assumptions* about the primacy and desirability of the conventional business agenda...' (Gray & Bebbington, 2000), including the primacy of profits and profitability rather than environmental and social concerns. Third, Maunders and Burritt (1991, p. 12) draw specific attention to the *defects of accruals, consistency and prudence* (*or conservatism*) *conventions* in terms of their use for evaluation of corporate activities which have ecological impacts. Fourth, use of money as a common unit of account continues to be criticized because it is *based on different types of measures*—historical, current, replacement, net present value. These measures are added together in financial accounting as though they are similar. In practice however, they do not produce useful, comparable information about fair values (Chambers, 1966; Rayman, 2007; also see Hitz, 2007). An overemphasis on monetary measurement in relation to ecological impacts of an organisation can lead to an incomplete picture of opportunities and risks. Physical and qualitative environmental information may also be critical when assessing whether ecological damage is irreversible (Milne, 1996, p. 142), or when carrying capacity is exceeded through corporate activities (Schaltegger & Burritt, 2000, p. 77). Hence, conventional financial accounting is heavily criticized for not facilitating an understanding of corporate environmental impacts. Such criticism has led to calls for the additional disclosure of environmental and social performance and balancing these activities with economic performance (Figge, Hahn, Schaltegger, & Wagner, 2002; Schaltegger & Dyllick, 2002). McKernan (2007, p. 172) observes that the prioritisation of the conventions and rules of accounting seems to have sanctioned a relative neglect of the development of real shared understandings of commercial life. Such understandings are a core component of the sustainability accounting and reporting agenda to represent corporate environmental and social impacts and effects in order to encourage awareness of their relevance to commercial life.

Cost and management accounting are also the subject of criticism (Burritt, 2004). These criticisms include the arbitrary use of cost allocations, the dominance of financial accounting rules, a narrow focus on manufacturing costs, and a focus on short term decisions rather than strategic decisions. In recent years, the strategic importance of management accounting information has also been emphasised (Langfield-Smith, 1997; Kober, Ng, & Paul, 2007). Adoption of a strategic approach means that strategic management accounting places stress on the ways in which organisations match their resources to the needs of the market place, in particular to competitive pressures, in order to achieve established organisational objectives. In addition, empirical evidence suggests that management accounting is seen as shaping as well as being shaped by corporate and/or business strategy (Kober et al., 2007; Langfield-Smith, 1997).

Environmental and triple bottom line accounting and reporting have emerged in this milieu. Accountants have begun to consider the potential of *new reporting models* for business which include non-financial information (ICAEW, 2003; Illingworth, 2004; KPMG, 2003). The business case for such change is related to the cost advantages from: (1) having an integrated reporting and communications strategy; (2) the need to portray a balanced performance story that reports bad as well as good news; (3) extension to include social and environmental as well as financial information; and (4) improved confidence of boards and executives in the new reporting model and statements. These new reporting models have also been the subject of criticism. Environmental reporting receives considerable opposition from governments and businesses because its requirement, under environmental regulation, is seen as imposing unnecessary costs on business (ENDS, 2005). Frost and English (2002) find that arguments used in Australia against mandating environmental disclosures included: (1) corporations' law does not extend to non-financial issues; (2) that mandated disclosure will reduce the flexibility of companies to tailor reporting to individual stakeholder needs; and (3) that unnecessary additional costs of compliance would be incurred. Gray and Milne (2002) suggest that triple bottom line reporting remains and is likely to continue to remain dominated by financial considerations, with the social and environmental being a mere add-on. They call for the quality of social and environmental reporting to be dramatically improved.

Sustainability accounting presently represents the zenith of extended accounting and reporting. There is an emphasis on accounting for ecosystems and accounting for communities, consideration of eco-justice, as well as a focus on issues of effectiveness and efficiency (Gray & Milne, 2002). Corporate sustainability accounting and reporting is claimed by Gray and Milne (2002) to present a challenge because of the need to address the entity concept and focus on eco-systems and their carrying capacities, thresholds and cumulative effects. They suggest because it is not possible to define what a sustainable organisation would look like, the necessary accounting as the basis for sustainability reporting must also be unknown. Thus, the challenge for corporate sustainability accounting and reporting to succeed has been laid down. Its recent development and prospects are outlined below. *The key to this challenge is the need to reconsider the importance of accounting hitherto underplayed*: non-financial information; forward-looking information; and the needs of other users (stakeholders) in addition to the needs of investors (ICAEW, 2003, p. 72). Beyond these, however, is the need to adopt the conceptual underpinnings with which a new form of accounting, sustainability accounting, must engage if it is to be successful in an operational sense.

There is no doubt that conventional accounting still does not provide sufficient relevant information about corporate sustainability and specific corporate contributions to sustainable development in spite of calls for change (Maunders & Burritt, 1991). Although the limits of conventional accounting in providing corporate sustainability information are widely acknowledged, different conclusions are drawn from this in discussions about the relationship between accounting and sustainability and the role of accounting for sustainability. From a philosophical viewpoint, the question can be raised as to whether accounting can be developed or further modified so that it can help management foster the sustainable development of a company, or whether the accounting approach would, in principle, be overtaxed if it was to address sustainability issues. For example, Hines (1991) does not advocate environmental resource values to be included in accounting because accounting-as-language is such a dense medium that it provides no guidance at all to how the world really is. Environmental issues will become trivialised and demeaned (McKernan, 2007; Milne, 1996, p. 153). Accounting, as the provider of partial transparency, is acknowledged by Tinker, Merino, & Neimark (1982) as a language used to distort and conceal. In a world where companies are expected to demonstrate their performance in terms of contributions towards sustainability, accountability and transparency have become major prerequisites to enabling a cooperative and constructive participation of employees, customers, the financial community and civil stakeholders. But what is really meant when talking about sustainability accounting? A completely different development is observable in the field of applied management research and corporate practice, where managers and researchers are struggling with terms and tools.

2.2. The management line of thought. Struggling with terms and tools

Within the capacity of supporting social and natural systems, information management is a vital concept. It is sometimes overlooked in discussions about growth and competitiveness. However, for good or bad, business cannot escape the economic and competitive consequences of a large number of emerging sustainability issues. Anybody pursuing sustainable development as a corporate goal will sooner or later face questions about the metrics used to operationalize sustainability, and how these are communicated. In particular, the demand for information about the economic effects of environmental and social activities helps push the development of sustainability accounting tools for use in corporate practice. At present, there is an enormous potential to improve development towards corporate sustainability, which highlights the importance of management linking value creation with environmental and social considerations (Wagner & Schaltegger, 2003). To realize this potential, it is necessary for sustainability issues to be given adequate consideration in information management accounting. There is a need to revise conventional corporate accounting systems to incorporate environmental and social issues and their financial impacts.

Investigation of corporate practice reveals that sustainability accounting is sometimes just used as a new term for environmental accounting. Sometimes it consists of a collection of two or three independent accounts or reports. On occasion interdependency is recognised through eco-efficiency reports, which combine environmental and economic information about the company, and related information systems that focus on one of the links between the three dimensions of sustainable development (see Herzig & Schaltegger, 2006; Schaltegger, Bennett, & Burritt, 2006). However, to date, no clear approach to sustainability accounting has emerged from corporate practice.

Adopting the information management perspective the term sustainability accounting is conceptualized in the next section. Sustainability accounting is the term used to describe new information management and accounting methods that attempt to create and provide high quality, relevant information to support corporations in relation to their sustainable development.

Sustainability accounting describes a subset of accounting that deals with activities, methods and systems to record, analyse and report:

- First, environmentally and socially induced financial impacts,
- Second, ecological and social impacts of a defined economic system (e.g., the company, production site, nation, etc.), and
- Third, and perhaps most important, the interactions and linkages between social, environmental and economic issues constituting the three dimensions of sustainability.

This definition of sustainability accounting helps address the question of its role in the management of corporate responsibility as alluded to by McKernan (2007).

3. Reasons for sustainability accounting

Apart from the intrinsic motivation of some managers and the general importance of accounting for sustainable development of a company, there are six various reasons that may encourage managers to establish an accounting system that provides information for assessing corporate actions on sustainability issues:

- *Greenwashing*: one reason for dealing with sustainability accounting can be derived from the motivation of management to signal concern and to collect data for communicating and reporting purposes rather than to improve sustainability performance. In this view, accounting serves as a tool to support cost efficient communicative activities contra sustainability (Gray, 2006; Lindblom, 1994).
- *Mimicry and industry pressure*: mimicry has relevance as an explanation of management activities (e.g., Abrahamson, 1991, 1996; Rikhardsson, Bennett, Bouma, & Schaltegger, 2005; Qian & Burritt, 2008) and may also be a motivation for management to talk about and deal with sustainability accounting. Mimicry can be seen as a way in which new accounting ideas about sustainability can be introduced, but emulation of methods can also be seen as being uncritical of associated problems (Frenkel, 2008).
- *Legislative pressure, stakeholder pressure and ensuring the "licence to operate"*: stakeholder pressure and the introduction of mandatory information and reporting requirements through governmental legislation is another possibility. It is the easiest for most people to think of (e.g., as discussed in relation to the EU chemical regulation, REACH, or in the context of stakeholder pressure with published toxic release information). In case of enforced information requirements on sustainability, institutional compliance and stakeholder communication and dialogues can become necessary for the continuation of corporate activities (Adams, 2004; Cooper & Owen, 2007; Mitchell, Agle, & Wood, 1997; Murillo-Luna, Garcés-Ayerbe, & Rivera-Torres, 2008; Unerman, 2007).
- *Self-regulation*: self-regulation is a voluntary activity where a company or an industry association restrains its actions or commits itself to certain non-market actions (e.g., the disclosure of social and environmental information). The corporation or industry seeks to improve its performance and reputation in a voluntary way, set within a framework whereby commercial or profit making considerations may be important (see CMAC, 2005, p. 12), but not necessarily the main driver. Self-regulation on an industry level is often introduced in order to impede further mandatory government regulations, to maintain social acceptance and reputation, or to prevent competing companies from free-riding (e.g., by not bearing the costs of information management) (Gunningham, 2007; Gunningham, Grabosky, & Sinclair, 1998).
- *Corporate responsibility and ethical reasons*: corporate responsibility is a contested notion as it is frequently attributed to individuals rather than institutions, although the notion of responsibility accounting recognises the practical importance of both (Ashman & Winstanley, 2007). For an individual to be held responsible, the process begins with perception of phenomena, then proceeds towards identification of certain morally significant features, such as impact on others, harm, or pain. From the perspective of corporate responsibility, the corporate information gathering system provides it with a way of perceiving, the first step in acting responsibly (Stone, 1976, p. 118), prior to the identification of the morally significant features of corporate activities. If the information system is incomplete, lacks relevance, or does not assist with comparability of different alternatives the likely outcome is irresponsible corporate activity and impacts (Campbell, 2007; Maignan & Ralston, 2002). The centrality of accounting information in the process of promoting and maintaining responsible corporations is linked with the view that accounting is concerned with the individual behaviour or the behaviour of individuals in groups, such as in departments, divisions or corporations (Card, 2005). Ethical motivation and legitimation for accounting to address sustainability issues is of uncontested importance (see for example Dillard, 2007). The focus of accounting information will direct and guide corporate decision makers (Burritt, Hahn, & Schaltegger, 2002). For managers who aim to improve corporate sustainability, sustainability accounting thus plays a crucial role.
- *Managing the business case for sustainability*: one reason to introduce sustainability accounting is to identify and realize the economic (e.g., cost reduction or sales revenue increasing) potential of voluntary social and environmental activities (Salzmann, Ionescu-Somers, & Steger, 2005; Schaltegger & Wagner, 2006). Corporate management will be motivated by this reason if it has some inkling that the company may have a business case for pursuing sustainability, but which would only be made transparent with better information.

Apart from the ethical arguments of corporate responsibility, all of the reasons are concerned with corporate benefit, or the avoidance of detriment. The first tends to focus on accounting for compliance; whereas the second leans towards the role of accounting for developing industry reputation and freedom of action. The third reason is clearly associated with improved corporate performance and focuses on corporate competitiveness. Apart from the general desire to shape sustainable development of the economy and society, all reasons are necessary for corporations to demonstrate corporate sustainability.

A narrow view of the compliance approach recognises that corporations need to demonstrate that they comply with the letter of the law. For example, this has been the driving force behind recent rules introduced after the Enron collapse in the U.S.A. and is linked with the Sarbanes-Oxley legalistic approach to resolving corporate issues associated with: the effectiveness of audit committees/corporate governance; disclosure and internal controls; external financial reporting; and executive reporting and conduct.

From the compliance perspective, sustainability accounting can focus on information about what has to be complied with (e.g., the amount of certain air emissions, effluents, labour standards, etc.), whether it has been complied with, and exception reports showing where non-compliance has occurred and how the situation will be improved. A broader view would argue the need for corporate compliance with the spirit of the law (CMAC, 2005). Acceptance of moral liability for breaches of this spirit may be a better corporate strategy in order to maintain support against reputational risks and liabilities that could severely affect corporate value (Swiss Re, Insight Investment, Foley Hoag, 2004). From this broader perspective, accounting needs to provide awareness of the potential and actual social legitimating issues.

In the drive to ensure or encourage acceptable corporate behaviour, it has not been enough to confront the corporation with the threat of negative profit outcomes for unacceptable behaviour (e.g., fines, removal of licences), or to take legal action against the corporation or key corporate individuals for non-compliance with the myriad of legal rules laid down (CMAC, 2005, p. 12; Stone, 1976, p. 29). Recognition of the limited scope of penalising corporations for non-compliance or non-conformance has led to a second approach gaining in popularity as a way of encouraging acceptable corporate actions. The *voluntary self-regulation* of improved corporate performance (CMAC, 2005, p. 18) challenges the view that the corporation must pursue maximum profit regardless of the consequences for society, and involves the management of risk and return. Companies and industries may choose to restrict their actions for intrinsic moral reasons, to improve their reputation, to reduce incentives for politicians to pass new regulations and to design themselves optimal cost-minimizing approaches achieving certain sustainability goals, or for the reason that they seek increased profit. In this view, it may even make sense, from a corporate perspective, for companies to decide on self-regulation of the industry and to accept higher costs. The higher costs will not reduce competitiveness if all companies have to bear them as part of an industry agreement. In this sense, self-regulation makes sure other companies cannot act as free-riders, or that the government does not impose more stringent or more costly regulations. Self-regulation can either be driven by moral objectives, the desire to reduce potential costs or competitive disadvantages, or by the intention to increase the company's profit. The rationale is that it is beneficial to signal that the company or industry is going beyond mandated regulations in the consideration of social and environmental concerns.

Under the self-regulatory approach, sustainability accounting can provide information about the economic, social and environmental costs and benefits of new self-regulations for a single company or the industry. It can also facilitate post assessments of existing self-regulations, compliance of competitors with industry self-regulations, cost differentials between the self-regulation and a possible government regulation and cost differentials between competitors.

A third important reason that company management may be interested in developing or introducing sustainability accounting is to increase its profits/wealth under the given regulatory and market conditions. Such a *business case perspective* also referred to as *social corporatism* (Carter & Burritt, 2007) implies that it is in the company's own short- and long-term interests to take into account the environmental, social, as well as economic contexts in which it operates. Economic success based reasons for this view can be driven by risk or opportunity. Risk management is an often underestimated element of the business case approach to corporate responsibility. Control of financial, social and environmental risks all have a bearing on corporate success, shareholder value and maintenance of the corporation's licence to operate (Schaltegger & Figge, 1997). Trade-offs between different risks in the short- and long-term are important to long run corporate success. An accounting system that advises and informs decision makers about relevant risks is to be preferred to one which turns a blind eye to certain risks, such as the risks associated with environmental and social impacts of corporations. Apart from risks, the increasing globalization of markets and standardization of products also provides opportunities for companies to differentiate themselves in terms of sustainability. This has become a driving force especially for many medium size companies but also larger corporations that have identified possibilities for developing their products, production systems and marketing in a more sustainable direction. As with risks, which by definition have not yet occurred, an opportunity based business case needs to be created and managed. Among the main reasons to create a business case for corporate sustainability are: to reduce costs or risk, to enter new markets, to improve employee morale, or to increase contribution margins, prices, sales, innovation, corporate reputation, or intangible values such as brand value (see e.g., Schaltegger & Hasenmüller, 2006; Steger, 2004; see also Schaltegger et al., 2006).

Under the business case approach sustainability accounting can be regarded as that subset of accounting which provides information about the business opportunities and risks an organisation faces in the light of sustainable development considerations including potential cost savings, reputational issues, or other profit increasing possibilities. Thus, the question is in which direction sustainability accounting will develop, from the management perspective. Based on the different reasons for why sustainability accounting is important for management different information management interpretations of sustainability accounting can be distinguished.

4. Different information management interpretations of sustainability accounting

Apart from the philosophical debate, four possible interpretations for the development of sustainability accounting and the ideas behind them can be distinguished in the light of information management (Table 1).

As shown in Table 1 sustainability accounting can be interpreted as:

- An empty buzzword blurring the debate,
- A broad umbrella term bringing together existing accounting approaches dealing with environmental and social issues,
- An overarching measurement and information management concept for the calculation of corporate sustainability, or
- A pragmatic, goal driven, stakeholder engagement process which attempts to develop a company specific and differentiated set of tools for measuring and managing environmental, social and economic aspects as well as the links between them.

The following sections give a short overview of these interpretations.

4.1. Sustainability accounting as buzzword

One reason for dealing with sustainability accounting could be derived from the motivation to signal concern rather than to improve sustainability performance. In this interpretation sustainability accounting can be seen as an empty buzzword which blurs the view of corporate sustainability and sustainable development from both a philosophical view and also from a manager's perspective. From a "hardline" management view the tool can be used for *greenwashing*, or window dressing, to cover up the lack of activity, or to make sure that no engagement with corporate sustainability process is expected. The fact that sustainability is sometimes used as a buzzword for window dressing activities has lead some critics to condemn the management approach to sustainability accounting and to question the usefulness of sustainability accounting and management for sustainable development in general (Gray, 2002, p. 698; Gray & Bebbington, 2000; Welford, 1997).

Table 1
An overview of different interpretations of corporate sustainability accounting.

Interpretation of sustainability accounting	Use of sustainability accounting
It is an illusion and buzzword	Window dressing, "green-washing"
Broad umbrella term	Window dressing or expression of ignorance
Precise overarching measurement approach	One measure covering all aspects of sustainability
Process developing a set of pragmatic information management tools and information	Identification of relevant sustainability issues of the company, overall performance tracking and measurement with specific respect to the specific characteristics of the relevant sustainability issues

The general rejection of a management approach towards corporate sustainability is an exaggerated response as it would devalue and cast aside all and any positive engagement processes, results and attempts towards improving the links between corporations and sustainability. Development of sustainability accounting from a management perspective is necessary for a number of reasons even though some specific company cases justify a strong critique:

- *No alternative to management*: to date there is no alternative stakeholder who could effectively initiate and establish sustainable development of companies. Any potentially effective and efficient approach which supports corporate decision makers must therefore be managerial in kind. Everything else is an illusion.
- *Different kinds of management motivations*: managers, as individuals and as part of a management team, can have very different views about sustainability. This is reflected in the way they consider sustainability issues in their business, whether as a core topic for their core business, as an opportunity driven issue, a subject of risk, an administrative task to be complied with, or as an issue to be fought against.
- *Different kinds of management approaches*: depending on the sustainability preferences and their possibilities managers will define other goals and shape the corporate sustainability process in different ways. As a result the tools will differ and the concrete operationalisation and implementations will be different. In other words: the shape, process and effects of sustainability accounting can be very different from company to company. However, the variety of approaches does not mean that sustainability issues are not taken seriously.

The last point in particular suggests that another view of sustainability accounting is as a broad umbrella term for a multitude of different tools. This is explained in the next section.

4.2. Sustainability accounting as a broad umbrella term

Sustainability accounting could just be used as a broad umbrella term bringing together existing accounting and reporting approaches dealing with environmental, social, eco-efficiency, etc. issues. Among the main reasons for this interpretation are:

- Discussions about general sustainability and the corporate sustainability debate in particular, have been characterized by the *frequent use of new and similar terms.* To most observers, sometimes even for experts, the links and differences between these terms are unclear or obscure. One possible reaction of managers is to use them interchangeably or to use one term as an umbrella term covering a large variety of approaches in the broader area.
- Sometimes the use of the term "sustainability" is not driven by the concept of sustainability at all but it is instead an *expression of the struggle with the complex bundle of issues* and goals covered by the concept of sustainable development.

However understandable the reasons for such interpretation are, this basis for development of sustainable accounting *ignores a decisive characteristic of sustainability: the consideration of interlinkages* between the different dimensions of sustainable development. To consider sustainability accounting as an umbrella term not only reflects a certain *ignorance* of the basic idea of the sustainable development concept, but also is accompanied by the danger of coincidental or other misuse. This may be illustrated and expressed most clearly in cases where the word "sustainable" or "sustainability" is used indifferently and interchangeably with the word "environmental" (accounting).

As a consequence, the consideration of sustainability accounting as a broad and fairly nebulous umbrella term for a large variety of methods would in effect mean sustainability accounting is being handled as a buzzword, without a specific approach or meaning. Furthermore, if used as an umbrella term it basically is *difficult to distinguish whether management is not well informed* or trained about sustainability issues, whether it is ignorant, or whether it is an exponent of the art of window dressing. Hence, it makes sense from a management as well as from an academic position to provide the term sustainability accounting with further meaning by linking it to the need to treat corporate sustainability as an outcome, track progress towards this outcome and feedback information that can be used to ensure the corporation is on course, and if not, to use feed forward (planning) devices to help the organisation take actions that will bring it back on track.

4.3. Sustainability accounting as an overarching measurement tool

Some may expect sustainability accounting to become a single overarching "comprehensive" measurement and information management tool quantifying and covering all aspects of sustainability with one measure. The desire to express the level of sustainability through one, preferably monetary, measure has accompanied discussion and research about sustainability since its beginnings. A large body of literature addresses this topic for national accounting (e.g., Banzhaf, 2005; Hecht, 2005; van Dieren, 1995), product assessment (e.g., the early approaches to life cycle assessment, e.g., Aoe, 2003; Bartelmus & Seifert, 2003; Mueller-Wenk, 1978), and even to the measurement of corporate sustainability performance (Chambers & Lewis, 2001) and sustainability ratings of firms.

Without doubt, an overarching key figure for sustainability performance has its appeal and can serve as a spur to sustainable development through comparisons of products, brief communication of extraordinary performance, or discrimination against laggards. Use of this single metric approach to measure sustainability faces the problem that the concept becomes too broad and more pluralistic than the measurement of environmental impacts or performance. Sustainability does not just cover three times as many issues as the environmental dimension; it also addresses issues such as participation, future orientation, diversity, cultural issues and the linkages between them all. Furthermore, corporate sustainability requires the specific consideration of spatial, regional and time aspects which can differ substantially. Given the multi-perspective character of sustainability and the variety of goals and stakeholders involved, no matter how technically sophisticated it might be, an approach aiming for a single overarching measure must remain a technocratic illusion. If a single approach to measurement and one key number representing corporate sustainability at a particular time prevailed in public and political debate, a large variety of crucial aspects and issues related to sustainable development and critical to the sustainability vision and its realization in corporate practice, could be hidden.

This does not mean that a specific key figure for sustainability performance will never be of use for answering specific questions, contributing to the understanding of situations, or providing information about company performance. Instead, it means that such an approach to measurement and indicators will never be able to fulfil the information needs of managers and stakeholders who are really concerned about improving corporate sustainability and who engage with the corporate sustainability challenges. Corporate sustainability management covers a wide range of issues which are very different in kind. Managers who really want to engage with these challenges and who wish to contribute to their solution with tangible activities must accept these differences in their measurement, information and management methods. This discussion shows as a consequence that *sustainability accounting must be placed and developed somewhere between the extremes of an umbrella term and a single measurement tool*, each of which is insufficient on its own.

4.4. Sustainability accounting as a pragmatic goal driven set of tools

Sustainability accounting can be seen as a pragmatic goal driven set of tools which attempts to develop measurement tools for different integration levels and methods of environmental, social and economic accounting and reporting expressed in physical and monetary terms. This includes the measurement and management of information about all linkages and aspects of corporate sustainability (see Schaltegger & Burritt, 2005; Schaltegger et al., 2006) eco-efficiency, socio-efficiency, stakeholder value, shareholder value contributions of corporate citizenship, etc. As a result, various subsystems of sustainability accounting and information management are currently emerging, such as eco-efficiency accounting, accounting for social impacts and benefits, and accounting for socio-efficiency (e.g., measuring stakeholder value).

The acceptance of a range of different information management methods for the design of a company's sustainability accounting should not be confused with chaotic development of any kind of indicator and measurement systems. The management challenge of corporate sustainability accounting is to design an information management approach which is, first, linked to the relevant sustainability issues the company is confronted with and, second, clearly shows the relevance of the information to corporate success.

A core question for this approach is identification of the specific sustainability challenges for the company, the sustainability issues it is exposed to, which of these are relevant, how they can be reduced to relevant sustainability goals, and how they can be measured, analysed, communicated and improved. Hence, from this perspective, sustainability accounting research has to provide proposals for *procedures about how relevant sustainability challenges can be identified and how measures and indicators for a given corporate and management situation can be deduced.* With this pragmatic goal driven perspective of sustainability accounting, from a manager's perspective the task is to *develop a company specific framework* and system related to clearly defined businesses, company tasks and decision situations. One reference leading in this direction provides the framework for environmental management accounting (Burritt et al., 2002) which distinguishes different decision situations and encourages management to identify their information needs and to chose the appropriate EMA tools (see also Herzig et al., 2006).

Developing sustainability accounting from a goal or target driven pragmatic perspective requires that addressees and key stakeholders are identified and that the core topics and expected contributions of sustainability are identified. These requirements make it clear that sustainability accounting cannot be completely separated from sustainability reporting and the strategic and operational management of sustainability issues. Furthermore, the role of accounting and accountants is seen to:

- Support the process of engaging management in the development and improvement of corporate sustainability,
- Review results, processes and inputs as well as to relate these areas to each other,
- Facilitate communication and review of reports, and
- Support and challenge management in their choice of corporate sustainability measures.

One of the main differences between the pragmatic process development approach and the umbrella interpretation is that the umbrella interpretation does not consider relevance. Instead it places all kinds of information tools beside each other, without the specific focus on what relevance they have for a given corporate or sustainability context. From a pragmatic perspective, sustainability is accepted as a real, not just an abstract or theoretical, corporate challenge. The description and measurement of sustainability performance has to be made concrete in the specific context in which each company finds itself. This requires an approach which can identify and differentiate between the issues of relevance to corporate sustainability for a given setting. Thus, pragmatism is distinctly different from, on the one hand, ignorance and, on the other, from assigning all tools the same level of importance.

4.5. Relationship between the reasons for and interpretations of sustainability accounting

The relationship between the reasons discussed in Section 3 for sustainability accounting and the interpretations of sustainability accounting are summarized in Table 2.

The data in Table 2 reveals that the interpretation of sustainability accounting as a buzzword stems from one main information management concern, greenwashing. Greenwashing occurs when leaders seek to show they are concerned about sustainability issues, but without improving corporate social and environmental performance. Sustainability accounting as an umbrella term appears to be driven by pressure to mimic others, to keep control over the corporate social and environmental agenda, and to address any issues in a piecemeal way, with little attention being given to interdependencies. Reasons behind the provision of information are ambiguous as they may be based in a desire for selective image building, or could be an attempt to move towards the provision of information for specific decisions about sustainable courses of action. In contrast, as an overarching measurement tool sustainability accounting provides aggregated and general information with no specific basis for action by managers or stakeholders. Finally, sustainability accounting interpreted as a pragmatic goal oriented approach to development does keep control of the accounting system in the hands of

Table 2
Relationships between different reasons for and different interpretations of corporate sustainability accounting.

Interpretations reasons	SA a buzzword	SA as umbrella term	SA as overarching measure	SA as pragmatic goal orientated development approach
Greenwashing	X			
Mimicry and industry pressure		X		
Self-regulation		X		(x)
Legislative and stakeholder pressure		(x)	X	X
CR and ethical reasons			(x)	X
Business case for sustainability				X

Note: X = main relationship; (x) = minor relationship.

management, but for reasons of providing useful information to different managers in their decision making about specific social and environmental issues, whether internal or external in focus, and an information system which is linked to strategy as well as specified outcomes in relation to corporate sustainability.

5. Approaches of the pragmatic goal driven development interpretation of sustainability accounting

This section discusses three basic approaches of the goal driven interpretation of sustainability accounting. Each can be distinguished to develop a pragmatic sustainability accounting system in general and in a specific company context:

- The top-down approach,
- The stakeholder driven approach, and
- The twin track approach.

Good decisions are based on information about the issue being considered. Data provided by sustainability accounting provide a starting point for good decisions but only if the data are related to desired goals will the quality of decisions be improved (Chambers, 1966). Such purpose-orientated information is only beneficial if it helps create specific valued outcomes by affecting people's decision making behaviour (Keeney, 1996), only if the sustainability accounting information has a pragmatic orientation.

The *top-down approach to sustainability accounting development* starts with the broadest definition of sustainable development and corporate sustainability and from this the measurement approach is derived. The logic is that the overall term sustainable development is broken down into partial indicators and measurements in the most systematic way possible. The basic idea of this approach is to develop a generally usable key indicator system similar to that offered by the Return on Investment (ROI) indicator scheme made popular by DuPont. The characteristics and perspectives of sustainable development such as the three pillars, future orientation, participation, long-term view, etc. are used in order to develop a system of accounting and information management tools derived from the top and extended downwards to provide relative measures of sustainability topics in a systematic and integrated, or related, manner. Measures and measurement approaches have then to be established to create the defined goal orientated information and to calculate the relevant indicators.

This approach can result in a compelling sustainability performance measurement and management concept if specific conditions hold: first, corporate responsibility and accountability relationships must be clearly defined; second, an appropriate strategic analysis of the company and its interface with sustainability and sustainable development issues must be mapped. However, as an academic endeavour this approach remains mostly as an abstract academic experience for an intellectual elite, because of its orientation towards the blanket coverage of all detailed possibilities—or at least a large number of these defining indicators. This contrasts with actual corporate practice, where only a limited number of indicators are seen as being relevant, for example general indicators promoted by the Global Reporting Initiative, or by industry specific guidelines.

The *stakeholder driven approach to sustainability accounting* organizes the development of sustainability accounting in a quite a different way. A stakeholder driven development of sustainability accounting means that the question of what sustainability performance means for a specific company and industry, what indicators are considered to mirror this performance best and how it should be measured and communicated is *determined through stakeholder engagement processes.* The basic logic is that if management wishes to make sustainability a real world phenomenon the engagement of stakeholders is a prerequisite to the development of an effective sustainability accounting system. Behind the stakeholder driven development of sustainability accounting is the notion that identification of the core corporate sustainability issues is neither an abstract theoretical exercise nor a unitary view (e.g., the management perspective). *Participation and involvement of key stakeholders* (see e.g., Unerman, 2007) are thus considered to be key components of business strategy designed to establish an effective information management system for corporate sustainability. Furthermore, participation is a crucial aspect of sustainable development itself so that the development of a measurement and information management system should also be undertaken through a participatory, or at least consulting, based process.

The stakeholder driven approach to sustainability accounting, starts with one, or usually several, *multi-stakeholder dialogues.* The first management step is to identify and include in dialogue addressees and key stakeholders and the core topics and sustainability contributions which the stakeholders expect from the company. These dialogues should produce goals which are jointly derived and ideally result in agreement on measures and indicators. They reflect initial corporate commitment to the process of stakeholder engagement. In the second step, management is challenged to develop its sustainability accounting and information management framework and measurement approaches on the basis of these goals and indicators. The result of this process should be a targeted stakeholder orientated sustainability accounting system in which purpose orientated information is collected, classified and analysed, compared with performance targets and actions taken to develop improvement plans that, when implemented, move the company towards sustainability. In the third step, stakeholders are advised about the direction and strength of such movements through two complementary processes, verification and reporting. Verification adds credibility to information disclosed, while the reporting of credibly information provides the basis for further stakeholder dialogue and incremental improvement.

A comparison of the top down approach with the stakeholder driven approach to develop sustainability accounting shows that both have a certain logic which may be appropriate in a given corporate situation. Whereas the stakeholder driven approach may be linked best with reporting, social acceptance and reputation requirements, the top down approach may make it easier to bring into line with the strategic goals and the competitive strategy of the company. As a consequence the development of the corporate sustainability accounting system cannot be isolated from the development of the sustainability reporting system.

In practice, management may want to adopt a combination of both approaches, a *twin track approach*, to check whether all relevant stakeholder issues are addressed, as well as whether business strategy relating to major sustainability issues is realistic and flexible in the light of changing circumstances, such as the global economic crisis. The twin track approach to sustainability accounting information encourages management to keep a broad watch on issues that could be of concern and the associated relevant indicators, while working towards specific corporate goals within a setting that recognises the importance of adaptation to changing conditions as they arise. For example, because of changes to current economic circumstances companies need to be engaged in the dynamic process of re-examining their relevant sustainability issues, the focus of strategy and the feasibility of implementation as well as the measures which will assist (Pfeffer, 2008). The twin track approach encourages broad understanding about possible indicators of corporate sustainability, but remains focused on the need to gather information to help implement emerging solutions which are appropriate in the changing strategic settings in these turbulent times and which help inform management practice.

6. Managerial relevance

The term sustainability accounting and the relationship between sustainability and accounting began to be addressed about ten years ago. Considerable academic discussion seemed to have become caught up in an ongoing philosophical debate. This has resulted in different interpretations and intended uses of sustainability accounting (Table 1). The development of a pragmatic set of tools for corporate practice is yet to progress beyond an early stage of development and is hampered by insufficiently refined and immature proposals. Thus future research needs to address the real challenge to corporate management—to develop pragmatic tools for sustainability accounting for a well described set of business situations.

Business situations need to address the decision and control needs of corporate managers, whether they are responsible for environmental, social or economic issues associated with corporate activities, and with some combination of these. The trade-offs (conflicts) and complementary situations need to be identified, analysed and accounting that provides a basis for movement towards corporate and general sustainability developed. In this context, two critical questions arise:

- What appear to be the outstanding tasks for research into the development of sustainability accounting?
- What are the requirements for the development and use of a sustainability accounting system in corporate practice?

First, given the significance of the task there is a need for *diversity of research methods* to be encouraged in direction of sustainability accounting, whatever the philosophical stance being taken—empirical, qualitative and research based on mixed methods (Creswell, 1997). Second, conducting theoretical *research that is useful to corporate managers in practice* (Lawler et al., 1985), based on a pragmatic orientation (Pfeffer, 2008) is necessary if sustainability accounting is to demonstrate its fitness for purpose, and will require: the creation of meaningful indicators and information using a range of tools; support for meaningful interpretation and relevant use of these indicators and information; a sustainability accounting system that is reliable and transparent and, thereby, provides a credible basis for decision making and accountability; and for many sustainability issues which are relevant for corporate success a new definition and understanding of accounting boundaries is necessary, one that pulls relevant information into the corporate net through *value chain information management.*

Third, the linkage between sustainability accounting and sustainability reporting needs to be extended as a pragmatic imperative *by moving beyond the procedural tasks* designed to emphasise report preparation, information verification and disclosure (SIGMA, 2003, p. 5) and *towards behavioural change* within corporations, such that performance is improved (Schaltegger & Wagner, 2006). In this context, sustainability reporting remains at an early stage of development and at present is still more of a buzzword than a well defined approach.

Fourth, a further pragmatic challenge for research is the need to provide a framework for and evidence about measurement and reporting which balances the need for *integration* of the variety in information about sustainability with the *differentiated* unitary information effects between the dimensions of sustainable development (Lawrence & Lorsch, 1967), at various corporate management levels (e.g., top management and site management) and for various management functions (e.g., strategy development and operations).

Fifth, researchers need to recognise that to fall short of a *convincing conceptualization* will leave sustainability accounting as a broad umbrella term, with little practical usefulness. Finally, the tasks for applied research, development and training are: to recognise and accept the limited function of accounting information and the need for its serviceable information in business; to capitalise on the specific guidance for mangers offered by sustainability accounting; and to conceptualise an acceptable proportionality in sustainability challenges to business and to independently research links between this proportionality and the mindsets, actions, attitudes and behaviours of managers, given the predetermined policy goal of sustainable society. Of course, the debate remains open to those with a philosophical bent, to challenge this goal and the whole edifice constructed on the premise of sustainability, its operationalisation and its accountings.

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