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Stefan Schaltegger, Marcus Wagner

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Integrative management of sustainability performance, measurement and reporting

Stefan Schaltegger*

Centre for Sustainability Management (CSM),
University of Lueneburg,
Scharnhorststr. 1, D-21337 Lüneburg, Germany
E-mail: schaltegger@uni-lueneburg.de
*Corresponding author

Marcus Wagner

Dr. Theo Schöller Chair in Technology and Innovation Management,
Technische Universität München (TUM), TUM Business School,
Arcisstr. 21, 80333 Munich, Germany
E-mail: wagner@wi.tum.de

Abstract: Sustainability performance management is a newly emerging term which addresses the social, environmental and economic (performance) aspects of corporate management in general and of corporate sustainability management in particular. The management of sustainability performance requires a sound management framework which firstly links environmental and social management with the business and competitive strategy and management and, secondly, that integrates environmental and social information with economic business information and sustainability reporting. This contribution addresses the link between the Sustainability Balanced Scorecard as a strategic information and management approach, sustainability accounting as a supporting measurement approach and sustainability reporting for communication and reporting.

Keywords: accounting; performance measurement; reporting; sustainability balanced scorecard; sustainability management.

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Biographical notes: Stefan Schaltegger is a full-time Professor of Management and Head of the Centre for Sustainability Management (CSM) at the University of Lueneburg, Germany. His research deals with corporate sustainability management with a special focus on accounting, performance measurement, management methods and the business case of sustainability.

Marcus Wagner is Assistant Professor at the Dr. Theo Schöller Chair in Technology and Innovation Management at the Technische Universität München (TUM) Business School. He is also an associate research fellow at CSM and researches into innovation and sustainability as well as their management.

1 Introduction

Sustainability performance management is a newly emerging term in the debate about business and corporate social responsibility. It aims at addressing the social, environmental and economic (performance) aspects of corporate management in general, and of corporate sustainability management in particular (Epstein and Roy, 2003; Schaltegger et al., 2003; Steering Group of the Global Principles Network, 2003). Sustainability performance reflects one target end of the move of companies in the corporate responsibilities continuum (Bhimani and Soonawalla, 2005) from corporate conformance and compliance with given standards to corporate performance in relation to stakeholder expectations. In this context, sustainability performance can be defined as the performance of a company in all dimensions and for all drivers of corporate sustainability. The management of sustainability performance requires a sound management framework that, on the one hand, links environmental and social management with the business and competitive strategy and management and, on the other hand, integrates environmental and social information with economic business information (Epstein and Roy, 2003; Keeble et al., 2002).

Early empirical research into environmental and social (performance) management and reporting was partly founded in the 1970s business ethics debate. During the 1980s, research centred around two features. The first dealt with the societal (i.e., environmental and social) performance of corporations (partly as a result of dissatisfaction with the early empirical work on social performance). The second focused on a theoretical discussion of how to define and measure environmental and social performance, corporate social responsibility (CSR) or corporate citizenship. CSR here is considered to cover corporate responsibilities that address a firm's voluntary or discretionary relationships with its societal and community stakeholders:

> "It refers to the obligations of businessmen to pursue those policies, to make those decisions, or to follow those lines of action which are desirable in terms of the objectives and values of our society." (Carroll, 1999).

This means that CSR is typically undertaken with some intent to improve an important aspect of the society or relationships with communities or non-governmental or non-profit organisations (Caroll, 1979). CSR defined in this way does not particularly integrate business issues with social and environmental activities, and thus may fail to consider the general economic relevance of corporate societal engagement. CSR activities may result in establishing a parallel organisation in the company (e.g., environmental department and delegates, or employee relations), dealing with non-economic issues and measuring non-economic aspects of performance.

There are three problems with such an approach. First, parallel or supplementary developments contrast with the basic vision of sustainability to integrate social, environmental and economic issues. Secondly, sustainable development and corporate sustainability require participation and stakeholder involvement, not just with societal stakeholders, but also an involvement of conventional business managers. One danger of satellite attempts to improve corporate sustainability is that they pay insufficient attention to the need of companies to create value and to pursue the right business strategy (IFAC, 2004). Business strategy and sustainability communications and reporting should therefore be linked with sustainability performance management. To link sustainability management with strategy and strategy implementation requires an interlinkage between

the respective actors, i.e., between the environmental/sustainability department, information management and accounting department, public relations department and external communications. Thirdly, building up parallel organisational structures with satellite management and measurement methods always faces the danger of being cut back in times of declining corporate economic performance. Parallel developments can be managed as a discretionary activity. Furthermore, such a satellite approach to measurement, management and reporting of social and environmental issues often conflicts in organisations with the incentives and goals of conventional production, financial and accounting managers. Sustainability information and communication should thus be dealt with as a process overlapping departments, such as strategic planning, accounting and public relations and reporting.

As a consequence, sustainability performance measurement and management require a framework that links:

- business strategy with sustainability performance measurement and management
- performance measurement and management with reporting and communication.

In particular, the link between performance measurement and management with sustainability reporting has not been investigated so far. This paper proposes a framework to link strategic aspects of corporate social responsibility with sustainability reporting by means of sustainability performance measurement and management.

2 A framework for sustainability performance measurement, management and reporting

Sustainability performance measurement and management can be defined (Bennett and James, 1997) as the measurement and management of the interaction between business, society and the environment. Issues and perspectives of sustainability performance measurement and management can be analysed at three levels: the level of individual sustainability performance indicators, the level of the overall performance measurement system and at the level of the relationship of this overall system with the external environment (Neely, 1993; Bell and Morse, 1999; Keeble et al., 2002). The first level has been extensively analysed (see e.g., Schaltegger and Burritt, 2000; Olsthoorn et al., 2001). The focus of the remainder of this section is on the second level, the overall performance measurement system and its relation to the external business environment. The third level is examined in the following section on sustainability reporting and sustainability performance measurement and management.

The link between performance management, measurement and reporting can be characterised by an external ‘outside-inward-perspective’ or by strategic considerations reflecting an ‘inside-outward-perspective’. The outside-inward-perspective will screen publically discussed issues, communicate the corporate contribution to these issues and thus define measurement and management activities on basis of these issues. The inside-outward-perspective is based on the business strategy and the analysis of what issues are relevant for an effective implementation of the strategy and to succeed with this strategy. This latter approach, which is followed in this contribution, will analyse stakeholder relationships, their strategic relevance and what aspects characterising the relationships should be managed and measured.

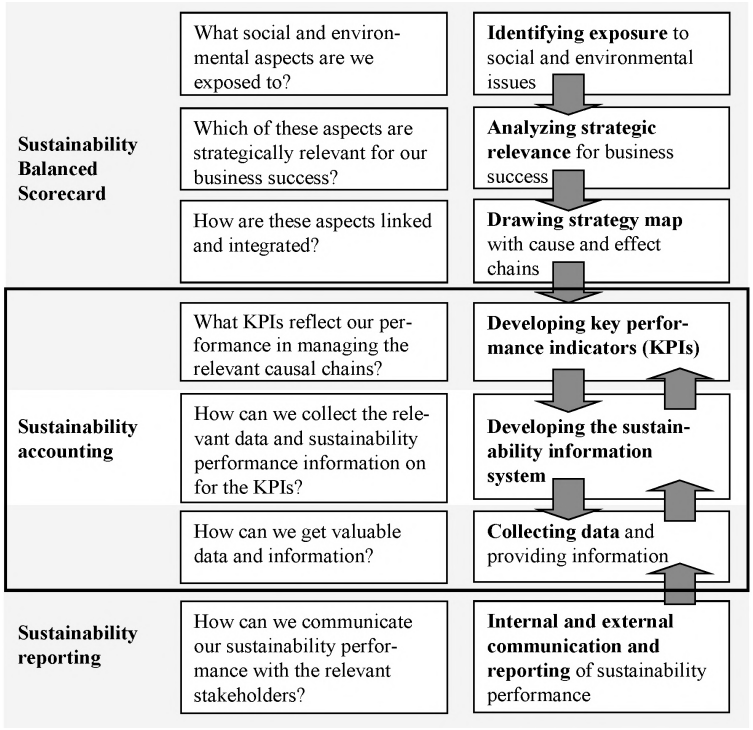
The interests of various stakeholders drive the development of sustainability performance measurement (Wehrmeyer and Tyteca, 1998). These aim mainly to support regulatory data requirements, pressure group demands for detailed information and data (e.g., Freeman, 1984; Schaltegger and Figge, 2000), internal environment-related decision making and requirements of financial institutions, mainly banks, insurers and funds (Lascelles, 1993). Customer interests in environmental and sustainability performance (Wells et al., 1992) and requirements of environmental and social management standards are also important drivers (Marsanich, 1998). Another set of driving forces stems from the final objectives of sustainability performance measurement and management. This raises the two issues:

- whether sustainability performance measurement and management should be business-linked or solely oriented towards environmental and social improvements
- whether they should be more long-term or short-term orientated (Wehrmeyer and Tyteca, 1998).

This in turn points to the question of whether sustainability performance measurement and management should take a life-cycle approach or a more practical management-orientated one. Clearly, all these forces are interrelated and depend on the stakeholder's interests. In other words, what is understood by sustainability performance is influenced by the stakeholder environment of a company. As a consequence, sustainability performance measurement requires business managers to define the goals and criteria of what is understood by corporate sustainability performance in a communicative interaction with stakeholders and to establish an information, measurement and reporting system which supports the management and communication of those indicators and issues which are key to stakeholders and the business success. Thus, the management task is to identify strategy-related sustainability issues, to account for them and finally, to report them.

Figure 1 shows an integrated framework approach linking the Sustainability Balanced Scorecard (shaded area 'Sustainability Balanced Scorecard' at the top of Figure 1) with sustainability accounting (framed area 'sustainability accounting' in the middle of Figure 1) and reporting (lower shaded area 'sustainability reporting' at the bottom of Figure 1) in order to achieve the integrative task of sustainability performance measurement, management and reporting. The first column of boxes describes the core questions that guide the performance measurement and management process for the Sustainability Balanced Scorecard, accounting and reporting. The three approaches overlap, which means that they share some common core questions and activities. For example the question "What KPIs reflect our performance in managing the relevant causal chains?" is shared by the SBSC and the accounting approach and the question "How can we get valuable data and information?" is shared by the accounting and reporting approach. At the right side of Figure 1, the second column of boxes shows steps of activities from strategy-related identification of sustainability issues to the collection of the respective information and reporting (each box representing a step). These steps relate to the questions in the first column of boxes.

Figure 1 An integrated framework for sustainability performance measurement and management linking the SBSC, sustainability accounting and sustainability reporting



The framework represents the inside-outward logic (arrows from top down) and distinguishes itself from the more common outside-inward approach (arrows from below upwards) where issues are taken up from media and the public debate. The conceptual development of the measurement and management approach can also be driven by the reporting agenda and requirements, but this approach mostly does not link with strategy and the Balanced Scorecard. The integrative character of the framework attempts to link three main management approaches and the respective departments taking an inside-outward approach based on corporate and business strategy:

- the Sustainability Balanced Scorecard and the strategic planning department
- sustainability accounting and the accounting and information department
- sustainability reporting and the public relations, communications and marketing department.

The framework shows core questions driving the management of sustainability performance in the left column and the respective management activities in the right column. The questions and activities can be organised in three overlapping groups of approaches: the Sustainability Balanced Scorecard, sustainability accounting and sustainability reporting. The Sustainability Balanced Scorecard (SBSC) model and tool and its role in sustainability performance management and measurement will be introduced in the next section. Section 4 will then explain how the SBSC links to

sustainability accounting, whereas Section 5 discusses the link between sustainability accounting and reporting.

3 Measuring and managing sustainability performance with the sustainability balanced scorecard

3.1 The sustainability balanced scorecard approach

The Balanced Scorecard has become a popular strategic management approach and has experienced rapid diffusion (Olve et al., 1999). With its multidimensional conception, the approach is well placed to efficiently address the major challenges of corporate sustainability management.

The Sustainability Balanced Scorecard – which, in addition to issues addressed by the conventional Balanced Scorecard, also addresses non-market issues of high business relevance – combines performance measurement simultaneously with performance management in all dimensions of sustainability (Figge et al., 2002; Schaltegger and Dyllick, 2002). The Sustainability Balanced Scorecard is an approach targeted to improve the integration of environmental, social and economic aspects of corporate sustainability measurement and management (for a discussion of various company case studies see Schaltegger and Dyllick, 2002). For an integrated management of sustainability issues, environmental, social, financial and risk performance indicators should not stand alone and separate from each other (Schaltegger and Burritt, 2000). Thus the challenge is:

- how to combine them into an overall performance measurement system covering all significant environmental and social performance aspects of a company's operations?
- to determine what sustainability indicators are needed in an overall performance measurement system to measure and report the achievement of strategic and operational goals.

An overall performance measurement system can, for example, be mainly defined by the industry sector, resulting in a set or sub-set of sector-specific indicators. Other determinants could be the level of public concern, the strictness of national legislation and the size of the organisation (James and Wehrmeyer, 1996). Yet another set of determinants could result from the relative importance of stakeholders to the company (Freeman, 1984; Schaltegger and Figge, 2000). Much of the discussion is about identifying a suitable 'balanced scorecard' of monetary and non-monetary (i.e., physical) indicators (Bennett and James, 1997). This is why the Sustainability Balanced Scorecard (SBSC) approach seems suitable for linking performance measurement with reporting and management.

The starting point of the Balanced Scorecard is the business strategy which is operationalised through four to five management perspectives (finance, customer, processes, learning and organisational development, and non-market perspective (see Kaplan and Norton, 1997, 2001, 2004; and for the fifth perspective, Figge et al., 2002; Schaltegger and Dyllick, 2002) based on hypothesis-driven cause and effect chains linking the strategically relevant aspects in each perspective. The conventional Balanced Scorecard approach (Kaplan and Norton, 1997, 2001, 2004) in its original

form emerges from weaknesses of conventional management accounting (Johnson and Kaplan, 1987) and distinguishes a financial perspective, a customer perspective, a business process perspective and a learning and development perspective (Olve et al., 1999; Kaplan and Norton, 1997, 2001, 2004). The Sustainability Balanced Scorecard also integrates non-market issues with a possible fifth perspective – the non-market perspective (Figge et al., 2002). The non-market perspective covers strategically relevant issues that are not covered in market arrangements with the company. Such an example is child work at a supplier, which can have a substantial influence on sales although the company has no market relationship with the children employed by the supplier. The perspectives are linked with cause and effect chains. Beyond being a performance measurement system, the approach also represents an overall management concept (Kaplan and Norton, 1997, 2001, 2004).

To develop a SBSC, a number of essential steps need to be completed (see Hahn and Wagner, 2001 for detailed descriptions and examples): identification and analysis of the environmental and social exposure of the business; development of cause and effect chains; and the definition of key performance indicators. In order to link sustainability reporting with performance measurement and management, the following steps can be followed:

- identifying the environmental and social exposure of the business
- analysing the strategic relevance of environmental and social aspects
- development of causal chains and the strategy map
- definition of key performance indicators and development of the measurement methods to create the respective performance information
- consideration of the identified key sustainability performance indicators in the company internal and external communication and reporting activities
- BSC implementation, revision and reporting on sustainability indicators.

The first step aims to identify those environmental and social aspects, which are relevant for a specific company. Since these may differ, depending on the company and the business field, e.g., depending on products, production processes, site location, it is necessary to identify them specifically, based on criteria matrices providing an overview of environmental and social issues (see Hahn and Wagner, 2001, for a detailed explanation how this is achieved). These matrices are structured according to resource use, environmental impacts and stakeholders, and serve as checklists to identify the *environmental and social exposure* of a company.

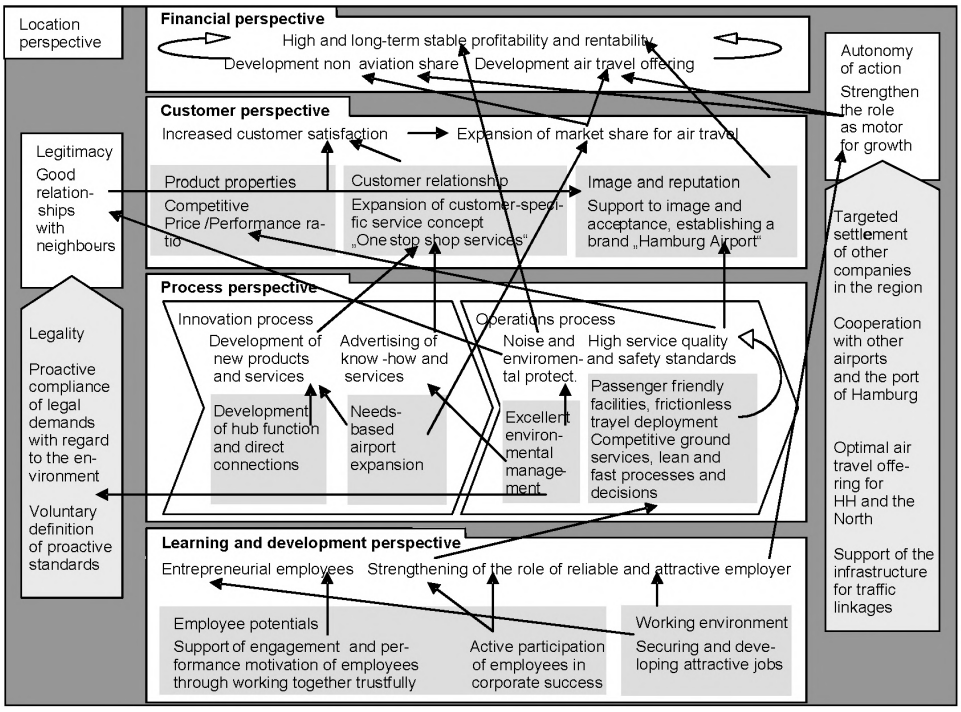
The second step in the SBSC process is the identification of *strategically relevant* environmental and social aspects, i.e., to identify the subset of environmental and social aspects, which potentially has a material impact on the firm's business success. Identification is carried out in an order consistent to the logic of the conventional BSC that is starting from the financial perspective and then progressing through the customer perspective, process perspective down to the learning and development perspective. An important addition here (which is specific to the SBSC) is an analysis of non-market aspects of corporate activity which is captured through a dedicated non-market perspective. The development of causal chains as a third step is important to reflect linkages between the strategically relevant social and environmental aspects and the

company's business goals and corporate activities in order to assess the potential influence of environmental and social aspects on business success. An important instrument used here is *strategy maps* which are becoming increasingly relevant also for conventional BSC development (Kaplan and Norton, 1997, 2001, 2004). Based on a strategy map, which focuses on the essential linkages within a company aimed at concisely describing the business model (Gaiser and Wunder, 2004), target levels, performance indicators and activities can then be formulated and implemented. The sustainability performance indicators defined in the fourth step of this process reflect the first level of sustainability performance measurement and management and provide a very important link to sustainability reporting (fifth step).

The sixth step of the SBSC process is the implementation and review of the resulting SBSC. Here it is important to ensure that the SBSC is continuously reviewed in terms of the underlying strategy, indicators and activities. Next to being a performance measurement tool, this also brings out more fully the strength of the BSC method as a management system. Once this process of SBSC development is finished, the result is a hierarchical causal chain network which enables successful strategy enactment (see Kaplan and Norton, 1997, 2001, 2004 for more details on this crucial aspect).

Based on this, the relevant sustainability performance indicators are defined and linked to accounting and reporting. Figure 2 provides an example of a Sustainability Balanced Scorecard resulting from such a process.

Figure 2 Sustainability balanced scorecard of Hamburg airport



Source: Based on Diaz Guerrero et al. (2002)

3.2 The case of Hamburg airport: part I

The case study analysed and presented here is on the Hamburg Airport Corporation and illustrates application of the framework in practice. It was mainly carried out in 2001 to 2002 as part of a larger research project funded by the German government (see Schaltegger and Dyllick, 2002 and Diaz Guerrero, 2002 for details). Hamburg Airport is the fifth-largest airport in Germany and is located in the North of Germany, only nine kilometres away from the city centre. This poses significant environmental and social challenges for the ca. 12,000 employees working at the airport. The airport has developed a detailed vision of its future focussing on providing air transport and airport-related services to the greater Hamburg region (Hoffmann, 2001). In this vision, the airport also states that it considers itself as a fair partner and responsible for the environment. The airport consequently has an environmental management system (EMS) certified according to ISO 14000 and validated according to EMAS. Also, the airport provides noise protection windows to local residents (FHG (Hamburg Airport Corporation), 1999). Based on the steps proposed above, a SBSC was derived for the Hamburg Airport Corporation based on its vision and the strategic objectives derived from this. The Sustainability Balanced Scorecard of Hamburg Airport is structured with five perspectives: the financial, customer, process, learning and development, and the non-market perspective which in this case is the location perspective. The location perspective (the dark background in Figure 2 which embeds the four conventional four dimensions) which is a specific addition to the conventional Balanced Scorecard covers issues like legitimacy and legality of corporate activities as well as issues of politics including the freedom of actions for Hamburg Airport and its role as an engine of regional growth (arrows/boxes left and right of traditional dimensions). The locational perspective is shown as a frame for the other perspectives in Figure 2 because it covers non-market issues which influence the market-related perspectives (finance with financial markets, customer with customer markets, processes with supplier markets, and learning and development with labour markets). The arrows show links between key performance drivers. This picture of the total scorecard structure, the key performance indicators and the arrows linking them is commonly referred to as a strategy map (Kaplan and Norton, 1997, 2001, 2004; Gaiser and Wunder, 2004).

Once the Sustainability Balanced Scorecard including the strategy map and the performance indicators for the measurement of the key performance indicators are developed for the company, the management challenge is to translate the strategic considerations into the information and accounting system in order to collect the relevant information to support a successful consideration of the strategically relevant sustainability issues. This requires the integration of the SBSC-based sustainability performance measurement system with the internal company business information and reporting systems. The next section briefly introduces and defines sustainability accounting and then describes its linkage with a Sustainability Balanced Scorecard in the context of performance measurement and management.

4 Linking sustainability accounting with the sustainability balanced scorecard

4.1 Extending the SBSC with sustainability accounting

Sustainability accounting and reporting can be defined as a subset of accounting and reporting that deals with activities, methods and systems to record, analyse and report:

- environmentally and socially induced economic impacts
- ecological and social impacts of a company, production site, etc.
- perhaps the most important, measurement of the interactions and links between social, environmental and economic issues constituting the three dimension of sustainability (for an overview of environmental and sustainability accounting see e.g., Schaltegger and Burritt, 2000; Bebbington and Thomson, 1996; Bennett and James, 1997; Bennett et al., 2002, 2003; Burritt et al., 2002; Gray et al., 1996; Gray, 1992; Mcnaghten et al., 1997).

By providing information for strategic management and for reporting purposes, sustainability accounting serves as an important link between the SBSC and reporting. The information requirements are deducted from the Sustainability Balanced Scorecard, collected and analysed with sustainability accounting and communicated externally with sustainability reporting. With its link to the SBSC, sustainability accounting has a strong strategic character and provides information that can be used to devise and implement the corporate strategy (for an overview of strategic accounting see e.g., Srikanthan, 2002).

A first step towards integrated sustainability reporting therefore requires design of the internal information and reporting systems in a way that ensures the correct company-internal information is made available to calculate the key performance indicators identified with the SBSC approach (Schaltegger and Burritt, 2000). This is the core function of sustainability accounting.

The challenge for management is to link business success and value creation with environmental and social considerations, including the accountability of risk (see e.g., Srikanthan, 2002; Sharman, 2003). The proposed framework (Figure 1) plays into the management process when corporate strategic goals and the business strategy have been defined. Based on the business and financial goals of the company, which can differ substantially between different organisations, the SBSC supports the ‘translation’ of the strategic goals into the identification of strategic core aspects, the formulation of key performance indicators and the design of the accounting system. Furthermore, the SBSC guides the development of effective operational activities on basis of the identified relevant key performance indicators and the content of sustainability reports. This strategy-focused design of sustainability performance management requires a substantial change of conventional corporate accounting systems to incorporate environmental and social issues and their financial impacts. One way to establish links between the measurement of corporate social and environmental issues and its business success is to determine key performance indicators with the SBSC and to orientate the accounting systems towards the provision of the necessary data for these indicators.

Such an approach distinguishes itself clearly from any accounting approach which tries to measure an overall sustainability performance. Sustainability accounting based on the SBSC is focused on the provision of those strategic and operational indicators which

have been identified as key to business success and the creation of shareholder value. Such a sustainability accounting system will, in most cases, provide a mixture of strategic and operational, monetary and non-monetary, quantitative and qualitative information.

4.2 The case of Hamburg airport: part II

Returning to the case study introduced in the previous section, the strategy map of Hamburg Airport shown in Figure 2 includes leading and lagging indicators of the SBSC as a starting point for applying sustainability accounting. For example, on the left side legality, proactive compliance with legal demands and the voluntary definition of demanding standards by the airport (e.g., with regard to acceptable noise levels) are performance drivers which are expected to result in good relationships with local residents as an outcome measure. For each leading indicator and each outcome measure in the SBSC shown in Figure 2 targets and definitions for measurement can be formulated as well as actions how to achieve the former. For example, specific measures used in the airport's EMS and its and other management systems (e.g., the HR system) can be used to measure target achievement since they are defined and operationalised through sustainability accounting. For Hamburg Airport, the development of such indicators and measures for the most important causal chains is described in Diaz Guerrero (2002). One very important causal chain, which is also shown in Figure 2, is that from excellent environmental management in the process perspective of the airport's SBSC. This has a positive effect on high and (long-term) stable profitability of the airport's operations in two ways. First, excellent environmental management (as a leading indicator or driver and measured e.g., by indicators referring to the EMS of the airport) results in high noise reduction and a high level of general environmental protection as an outcome measure (measured e.g., in terms of physical environmental performance indicators such as emissions). This in turn improves (in the location perspective of the airport's SBSC) the legitimacy of the airport's business activities – it ensures a license to operate in terms of good relationships to the local residents and signalling the airport's willingness to minimise detrimental effects such as aircraft noise. The increased legitimacy of the airport improves its image and reputation (located in the customer perspective of the SBSC), which enables a higher market share on the German air transport market (measured at the indicator level in terms of standard market share measures), in turn resulting in faster and more steady development of air travel offerings by Hamburg Airport. The latter (as a driver) finally leads to improved and more stable profitability (measured e.g., in terms of standard financial ratios). Secondly, next to this causal chain linked to the airport's direct business model, excellent environmental management also enables a very interesting indirect contribution to the airport's profitability. This is because as part of its business model, Hamburg Airport also aims at expanding its revenues and profits from non-aviation services it offers. These may be directly on the premises of the airport (in terms of shopping facilities, where also image and reputation are an important driver), but also may be through consulting services the airport provides to others based on its core competences. Since the airport considers environmental management as one of these, and owing to its unique location, it has a high competence in noise management. Therefore, it also offers paid consultancy on noise aspects to other airports, most notably to the airport of Lubeck which is a smaller regional airport located east to Hamburg on the Baltic Sea coast of Germany. In doing so, Hamburg Airport fosters its 'one stop shop services' approach and expands it beyond its

direct airport operations. This approach essentially helps Hamburg Airport to further increase revenues and profits from the (specialised and difficult-to-imitate) non-aviation services it offers, thereby further enhancing its overall profitability.

These findings from the case study illustrate well that business success, defined as the effective achievement of the strategic goals of the company, is always a result of collaboration between the company and its most important stakeholders (Freeman, 1984). One way to identify the importance of stakeholders is to analyse whether and how they are related to the key performance indicators of the SBSC. A logical consequence for communication and reporting with the important stakeholders is that it should also cover achievements and deficiencies in the areas of the key performance indicators. On this basis internal and external corporate reporting can be designed on a strategically based sound sustainability performance measurement, accounting and management system, which is the focus of the next section.

5 Sustainability reporting in the context of performance measurement

5.1 Sustainability reporting

The corporate environmental and sustainability reporting have recently experienced increasing attention and a growing number of companies have decided to issue reports (for an overview see e.g., KPMG, 2002; SustainAbility and UNEP, 2001; 2002). Among the main reasons for companies to publish a sustainability report are to communicate with stakeholders about non-market issues, to secure or increase legitimacy, credibility and corporate reputation and to motivate employees to deal with sustainability issues and benchmarking (AccountAbility, 2003; CSR Europe and AccountAbility, 2002; DEFRA, 2001; House of Mandag Morgen, 1999; Future and IÖW, 1998; INEM, 2001; Isenmann and Lenz, 2001; PWC, 2002; Weil and Winter-Watson, 2002).

Several papers and recent initiatives on environmental, social and sustainability reporting stress the needs for more standardisation of accounting, performance measurement and reporting procedures (ACCA, 2001, 2004; CSR Europe, 2000; Ditz and Ranganathan, 1997; ISO, 1999; Ministry of the Environment, 2001; GRI, 2002), the need for systematic measurement of environmental and sustainability performance (Wehrmeyer and Tyteca, 1998; Ilinitch et al., 1998; Callens and Tyteca, 1999), the consideration of risk issues (Sharman, 2003), life-cycle thinking (Hofstetter and Heijungs, 1996) and internet support ((ACCA, 2001, 2004; CSR Europe, 2000; Ditz and Ranganathan, 1997; ISO, 1999; Ministry of the Environment, 2001; Isenmann and Lenz, 2002; Isenmann, 2005).

Some initiatives point to the need to use sector-specific performance indicators within an overall performance measurement system to mirror sector-specific social and environmental impacts (AccountAbility, 2003; CSR Europe and AccountAbility, 2002; DEFRA, 2001; House of Mandag Morgen, 1999; Future and IÖW, 1998; INEM, 2001; Isenmann, and Lenz, 2001; PWC, 2002; Weil and Winter-Watson, 2002). The implications of these considerations for performance measurement, management and reporting will be illustrated in the remainder of this section by focussing on environmental performance. Similar arguments can be formulated for social performance, and thus also for sustainability performance as a whole. There are clear consequences of the above-mentioned trends and developments for overall performance measurement

systems, accounting and reporting. The objective of achieving comparable, transparent and complete (environmental) performance indicators implies e.g., the need to adopt a standard set of universally reported indicators. This in turn facilitates the development of accounting and reporting standards that ensure high information quality (Wagner, 2005). Standards will likely feedback on reporting requirements, since they provide incentives for tracking environmental performance in a standardised way (GRI, 2002). The above developments could therefore form a basis for consistent standards of accountability for environmental performance. They are likely the result of combined efforts of governments, international standards and ratings organisations and inter-firm cooperation, possibly facilitated by industry associations.

Sustainability performance measurement, management and reporting as practical means for internally measuring and externally communicating social and environmental performance improvements are challenged to serve diverse audiences with different information needs, since this has been highlighted above as a major driver. One model could be a type of 'generic' performance measurement and reporting that concentrates on key information that is relevant to all major target audiences (Azzone et al., 1997). The Global Reporting Initiative goes with its guidelines in this direction (GRI, 2002).

However, in order to become effective in a company, the sustainability indicators relevant for the success of the company have to be selected from such a 'generic' model. This requires a systematic approach such as the SBSC to determine which indicators are strategically relevant. The strategically relevant indicators, in turn, define the data collection needs and the focus of the sustainability accounting approach. Furthermore, the respective accounting information provides the main content for sustainability reporting if it needs to address those issues relevant to stakeholders, which are of core strategic importance to the company. In doing so, the SBSC is linked through sustainability accounting to a firm's sustainability reporting.

5.2 The case of Hamburg airport: part III

Referring again to the case study of the Hamburg Airport, it needs to be noted that in fact its (environmental) reporting activities dated already back to before the development of its SBSC (FHG (Hamburg Airport Corporation), 1999). Therefore, while the SBSC also proposed new indicators and measures (Diaz Guerrero, 2002), it also tried to make use of those already available in the existing management systems of Hamburg Airport (such as their EMS and HR systems). This in fact links with the issues discussed in Section 2 where the inside-outward logic of the SBSC was contrasted with outside-inward approach taking up issues from public debate. In the case of Hamburg Airport, one key motivation for developing an SBSC was, however, that the airport (and especially its environmental department) wanted to better understand the link between its strategy and vision and its environmental management and, as part of this, its reporting needs. Therefore, while strategic linkage could be created between the SBSC and the Hamburg Airport's reporting, this was not a 'greenfield' process. This observation is in fact generalisable to many other companies attempting to link more closely their strategies with regard to corporate sustainability with their accounting and control as well as reporting processes (be it using the Balanced Scorecard-based framework outlined in the previous sections or other methods and concepts for integrating social, environmental and economic aspects of a firm's operations). The reasons for this finding as well as possible

consequences for using an integrative framework such as the one developed in this paper are analysed in more detail in the final section below.

6 Conclusions

The proposed framework describes how the management, measurement and reporting of strategically relevant sustainability issues can be supported by linking the Sustainability Balanced Scorecard with sustainability accounting and reporting. The goal of such a structured integrative management of sustainability issues is to manage the causal links between sustainability performance and economic performance more effectively. The logic is to only measure and report what is considered strategically important. The case study of Hamburg Airport has shown that an application of a Sustainability Balanced Scorecard and its linkage with sustainability accounting and reporting are feasible.

However, while the type of sustainability reporting which is described as the endpoint of the (inside-outward, strategy based) framework and illustrated by the case study of Hamburg Airport would be a very structured and focused way of communicating on the basis of a strategically determined integrated measurement of sustainability performance, it needs to be noted, that the practical and historical evolution of sustainability reporting (see e.g., Elkington et al., 1998) as an endpoint of any framework for sustainability performance management, is currently much more strongly influenced by a number of contingent factors of which two seem particularly important.

One of these is the publication of guidance documents or quasi-standards for environmental and sustainability reporting such as GRI (2002) or IRRC (1995) whose requirements have been introduced in the previous section and which may imply a system lock-in (see IMUG; IÖW; IFEU and Öko-Institut (2000) for examples of this) referring to company conformance rather than company performance (Bhimani and Soonawalla, 2005). The development of guidelines is ideally driven by general societal and political factors discussed in various groups or based on a multi-stakeholder consultation process. In such a case, the positive aspects of standardisation and transparency resulting from such guidelines (Morhardt et al., 2002) should benefit many of its users. However, because of information asymmetries between actors involved in the process of developing guidelines, problems of moral hazard and adverse selection emerge. For example, individual parties involved in guideline formulation may pursue hidden agendas aimed at maximising their own benefits or profits, rather than maximising social welfare.

A second very relevant factor influencing sustainability reporting in a way that potentially distracts from strategic relevance is specific reporting competitions and rankings (AccountAbility, 2003; CSR Europe and AccountAbility, 2002; DEFRA, 2001; House of Mandag Morgen, 1999; Future and IÖW, 1998; INEM, 2001; Isenmann, and Lenz, 2001; PWC, 2002; Weil and Winter-Watson, 2002) which may provide incentives for some firms to gear their reporting towards specific formal aspects of these competitions, rather than basing them on a fully-consistent performance measurement and management system as e.g., the one introduced here based on linking SBSC, sustainability accounting and reporting. No doubt, from a reputation, signalling and marketing perspective, these developments have to be considered by corporate management and opting to follow them may be a rational choice of firms. However, to optimise sustainability performance, it is necessary to address those social and environmental activities which are most important to the company's business success and

to stakeholder concerns. For this, the structured analysis and identification of core strategic social and environmental issues determined, for e.g., on the basis of the firm's SBSC and linked via sustainability accounting to corporate reporting as proposed here, need to drive sustainability performance management.

The risk of guidelines and competitions falling short of achieving an efficient and effective link between strategic aspects, operational measurement and reporting represent a dilemma for the firm. This means, while in the short term it may be beneficial for firms to follow the requirements of guidelines and competitions to realise short term image gains, but in the longer term such a course of action may reduce the credibility of sustainability reporting and cause reputation costs because it may, for e.g., prove to imply only very little about sustainability performance. At least, in the case of environmental reporting, disclosure and performance, similar effects have been observed (Wagner, 2005; Hughes et al., 2001; Richardson and Welker, 2001). However, a recent research using a simultaneous equations approach for the relationship between economic performance, environmental performance and environmental disclosures to account for potential endogeneity finds a positive association between the last two (Al-Tuwaijri et al., 2004; Wagner and Schaltegger, 2003; see also Blacconiere and Northcut, 1997; Blacconiere and Patten, 1994 for similar findings).

This last finding suggests that the effects of guidelines and competitions may not per se be negative. This is also supported by the findings of our case study, because also in the case of Hamburg Airport we found that the existence of reporting activities and performance measurements systems such as physical environmental performance indicators did not hinder development of an SBSC and subsequent linkage to the airport's sustainability accounting and reporting. In fact, following the guidelines in an intelligent way may help firms to actually improve the linkage between SBSC and sustainability accounting by identifying the most suitable indicators for measuring specific causal chains. Also choosing indicators and measurement rules for sustainability accounting which are promoted by guidelines (such as e.g., specific energy indicator protocols proposed by GRI) may well assist a more efficient communication of sustainability performance in the reporting stage. Therefore it might be worthwhile to further investigate how integration of guideline content may assist in linking the SBSC with accounting and reporting along the lines of the proposed framework to ensure that causal links between sustainability performance and economic performance are managed more effectively. In this way, guidelines, as e.g., the ones on sustainability reporting and sustainability performance measurement introduced earlier, can be a complement to the framework for sustainability performance management developed and applied in this paper. Equally, the framework may also help to integrate various detailed guidelines for different aspects of sustainability performance management (concerning accounting or reporting) in that it provides a conceptual frame for their application, as well as a tool helping to link the different approaches of sustainability performance management.

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