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THE SUSTAINABILITY BALANCED SCORECARD – LINKING SUSTAINABILITY MANAGEMENT TO BUSINESS STRATEGY

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The Balanced Scorecard of Kaplan and Norton is a management tool that supports the successful implementation of corporate strategies. It has been discussed and considered widely in both practice and research. By linking operational and non-financial corporate activities with causal chains to the firm's long-term strategy, the Balanced Scorecard supports the alignment and management of all corporate activities according to their strategic relevance. The Balanced Scorecard makes it possible to take into account non-monetary strategic success factors that significantly impact the economic success of a business. The Balanced Scorecard is thus a promising starting-point to also incorporate environmental and social aspects into the main management system of a firm. Sustainability management with the Balanced Scorecard helps to overcome the shortcomings of conventional approaches to environmental and social management systems by integrating the three pillars of sustainability into a single and overarching strategic management tool. After a brief discussion of the different possible forms of a Sustainability Balanced Scorecard the article takes a closer look at the process and steps of formulating a Sustainability Balanced Scorecard for a business unit. Before doing so, the basic conventional approach of the Balanced Scorecard and its suitability for sustainability management will be outlined in brief. Copyright © 2002 John Wiley & Sons, Ltd and ERP Environment.

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INTRODUCTION

In the market system economic scarcities are reflected by market prices. Environmental and social scarcities are, however, only partially reflected in economic transactions, although they have become increasingly important for business. Management reacts to perceived scarcities with the use of management instruments. To the degree that environmental and social issues are reflected in market transactions and with the growing importance of environmental and social issues many companies have implemented specific environmental or social management systems during the last decade. These systems have, however, rarely been integrated with the general management system of a firm. As a consequence, environmental and social management is often not linked to the economic success of the firm and the economic contribution of environmental and social management therefore remains unclear. The decisive role of companies in achieving sustainability has been stressed and discussed both on the strategic (see, e.g., Hart, 1995, 1997; Roome, 1998) as well as on the instrumental level (see, e.g., Schaltegger and Burritt, 2000; Bennett and James, 1999). If firms are to achieve simultaneous improvements of the economic, environmental and social performance of businesses (strong contributions to sustainability; Figge *et al.*, 2001b), this lack of integration turns out to be a major obstacle. Concerning the relation between the environmental and social performance of the firm and its economic performance, the literature is mainly based on empirical studies that refer to the correlation but not to the causality between environmental and social measures and the economic success of firms (see, e.g., Pava and Krausz, 1996; Griffin and Mahon, 1997; Wagner, 2001; Schaltegger and Synnestvedt, 2002). To date there is rather little literature on the relation between environmental and social measures and the achievement of long-term economic goals (for some exceptions see Burke and Logsdon, 1996; Figge, 2001; Figge and Schaltegger, 2000; Schaltegger and Figge, 1997). The Balanced Scorecard as a strategic management tool claims to identify the major strategically relevant issues of a business and to describe and depict the causal contribution of those issues that contribute to a successful achievement of a firm's strategy (Kaplan and Norton, 1997). Thus, it appears promising to use the Balanced Scorecard methodology to integrate environmental and social management with the general management of a firm (Figge *et al.*, 2001a, 2001b). After a brief discussion of the different possible forms of a Sustainability Balanced Scorecard (SBSC), the article concentrates on the process and steps of formulating a Sustainability Balanced Scorecard for a business unit. Before doing so, the Balanced Scorecard approach and its suitability for sustainability management will be outlined in brief in the following section.

THE BALANCED SCORECARD AS AN INSTRUMENT FOR SUSTAINABILITY MANAGEMENT

The balanced scorecard approach

The concept of the Balanced Scorecard (BSC) was developed in the early 1990s as a new approach to performance measurement due to problems of short-termism and past orientation in management accounting (Kaplan and Norton, 1992). The concept of the BSC is based on the assumption that the efficient use of investment capital is no longer the sole determinant for competitive advantages, but increasingly soft factors such as intellectual capital, knowledge creation or excellent customer orientation become more important. As a reaction Kaplan and Norton suggested a new performance measurement approach that focuses on corporate strategy in four perspectives (Kaplan and Norton, 1992, 1997, 2001). This BSC aims to make the contribution and the transformation of soft factors and intangible assets into long-term financial success explicit and thus controllable. The BSC's four perspectives can be characterized briefly as follows (Weber and Schäffer, 2000, p. 3; Kaplan and Norton, 1997, p. 24, 2001, pp. 23, 76).

(i) The *financial perspective* indicates whether the transformation of a strategy leads to improved economic success. Thus, the financial measures assume a double role.

On one hand, they define the financial performance a strategy is expected to achieve. On the other hand, they are the endpoint of cause and effect relationships referring to the other BSC perspectives.

(ii) The *customer perspective* defines the customer/market segments in which the business competes. By means of appropriate strategic objectives, measure, targets and initiatives the customer value proposition is represented in the customer perspective through which the firm/business unit wants to achieve a competitive advantage in the envisaged market segments.

(iii) The *internal process perspective* identifies those internal business processes that enable the firm to meet the expectations of customers in the target markets and those of the shareholders.

(iv) Finally, the *learning and growth perspective* describes the infrastructure necessary for the achievement of the objectives of the other three perspectives. In this case, the most important areas are qualification, motivation and goal orientation of employees, and information systems.

The purpose of a BSC is to formulate a hierarchic system of strategic objectives in the four perspectives, derived from the business strategy and aligned towards the financial perspective. Based on such a causal system of objectives, corresponding measures are formulated in all four perspectives. Kaplan and Norton basically distinguish between *lagging* and *leading indicators* (Kaplan and Norton, 1997, p. 28).

Lagging indicators and long-term strategic objectives are formulated for the strategic core issues of each perspective derived from the strategy of the business unit. Lagging indicators thus indicate whether the strategic objectives in each perspective were achieved.

In contrast to the lagging indicators, the *leading indicators* are very firm specific. They express the specific competitive advantages of the firm and represent how the results – reflected by the lagging indicators – should be achieved. Based on the specific strategy of the business unit, the key performance drivers that have the greatest influence on the achievement of the core strategic objectives (measured by lagging indicators) are identified for every perspective.

The integration of the indicators in the four perspectives is achieved by defining goals and appropriate lagging and leading indicators (Kaplan and Norton, 1997, pp. 28, 142) for a specific business strategy. By doing so, a BSC translates strategy in terms of objectives, measures and targets in the four perspectives. Rather than representing strategy as a loose collection of indicators and measures, these are linked by cause and effect relationships. By formulating and defining the goals and measures based on the strategy top down from the financial perspective through the other perspectives, it becomes clear which influence factors impact most the lagging indicators and thus ultimately the achievement of the objectives. These strategy-specific influence patterns are reflected through cause-and-effect chains, which directly or indirectly link all the goals, indicators and measures of the BSC perspectives hierarchically towards the financial perspective with its long-term financial goals. It is noteworthy that the causal linking of leading and lagging indicators not only occurs within the individual perspectives, but also by constructing effect chains through the four perspectives of the BSC. This means that lagging indicators of a lower-level BSC perspective are acting as leading indicators/performance drivers for an indicator in a higher-level perspective. Proceeding in this way results in a situation where the lagging (financial) indicators are combined with the leading indicators/performance drivers through the four perspectives, leading to a hierarchical cause–effect network, which reflects the fundamental assumptions for successful translation of the strategy (Kaplan and Norton, 1997, pp. 8, 28). This strategy-focused hierarchical approach ensures the identification of the major strategic issues of a business and assigns them their particular strategic relevance – as strategic core issues or performance drivers. This enables an orientation of all business resources and activities towards the conversion of the strategy and a better communication of the strategy.

The BSC as an instrument for performance measurement was further developed beyond its original conception into a strategic management concept. Here, the BSC is used to communicate and coordinate the translation of the business strategy (Kaplan and Norton, 1997, 24, p. 34): the gap between strategic and operative planning can be bridged and the long-term achievement of the strategic objectives guaranteed by means of a consistent application and formulation of a previously defined business strategy in the four perspectives of the BSC (Kaplan and Norton, 2001, p. 65). In particular, Kaplan and Norton subdivide the strategic management system of the BSC into four partial processes. The central question for the theme of this article about the structure of a BSC is mainly related to the first of the four critical management processes to be described by Kaplan and Norton (Radcliffe, 1999, p. 8): clarification and translation of vision and strategy.

The BSC is directed top down, both in its contents and in its development as a management system. Therefore, to be able to clarify and translate the strategy top management must agree on the strategy. The goal is to create a common and comprehensible strategic basis in the form of a formulated BSC (Kaplan and Norton, 1997, pp. 11, 186). Because of this, the verbally formulated strategy should be translated and causally linked in terms of objectives and measures as described above.

Suitability of the balanced scorecard as a tool for sustainability management

Conceptually, sustainability management with the BSC seeks to address the problem of corporate contributions to sustainability in an integrative way. It posits that for companies to contribute to sustainable development, it is desirable that corporate performance improves *in all three dimensions of sustainability* – economic, environmental *and* social – *simultaneously* (see Figge *et al.*, 2001a). In contrast to approaches that try to measure corporate sustainable performance (see, e.g., Huizing and Decker, 1992; Atkinson, 2000), in this article we propose a more procedural approach to sustainability management: While conflicts between the three performance categories of sustainability (social, ecological and economic goals) may occur, from a pragmatic business viewpoint corporate sustainability management should first identify and realize opportunities for simultaneous improvements in all three dimensions in order to achieve strong corporate contributions to sustainability.

In a BSC all aspects relevant for achieving a permanent competitive advantage should be included. In the four perspectives of the BSC, therefore, the company's activities critical for long-term business success are included and causes are linked to effects. In the formulation of a BSC the objectives and measures in all perspectives are deduced from the long-term strategic financial goals in a *top-down* process. This hierarchical structure of the BSC guarantees that all business activities are linked to the successful implementation of the business strategy.

This characteristic of the BSC can also be used for the management of environmental and social aspects. Against the backdrop of the fundamental deficits of most current approaches for environmental and social management described above the ability of the BSC to integrate the three dimensions of sustainability offers the possibility to integrate the management of environmental and social aspects into mainstream business activities. Such an approach to sustainability management aims at a simultaneous achievement of ecological, social and economic goals (Figge *et al.*, 2001a, 2001b; Schaltegger and Burritt, 2000). Therefore, the relation between all three performance dimensions of sustainability – environmental, social and economic performance of the firm – has to be explicitly taken into account. Integrating the three pillars of sustainability into general business management by a pragmatic approach offers three major advantages (Figge, 2001; Figge *et al.*, 2001a, 2001b).

(i) Sustainability management that is economically sound is not endangered by economic crisis because it is not only carried out as long as the company is successful. Usually, if firms find themselves under financial distress, those costs that are perceived as not contributing to the economic success are cut down first. Sustainability management that is economically sound, however, will also be practiced in times of crises and not only as long as firms are successful.

(ii) Firms that want to promote or reinforce their environmental and social management often orientate themselves towards competitors. Therefore, sustainability management that also contributes to economic objectives helps to disseminate the idea of sustainable development in business, as it serves as an appropriate role model for other businesses.

(iii) An integration of environmental and social aspects into general business management ensures that corporate sustainability management covers all three dimensions of sustainability. According to the three-pillar concept sustainability involves economic, ecological and social aspects. Usually, it is implicitly assumed that these aspects bear a complementary relation to each other. Thus, from the viewpoint of sustainability, it is most favourable if a business improves performance with regard to all the three dimensions of sustainability simultaneously.

The BSC assists the identification and the management of simultaneous improvements of environmental, social and financial business goals. Therefore, an SBSC fulfils the central requirement of the sustainability concept for a permanent improvement of the business' performance in economic, ecological and social terms. A particular suitability of the BSC for the integration of all three sustainability dimensions results from the possibility to also consider soft factors, which cannot be monetarized. Environmental and social aspects often show precisely these characteristics (Senn, 1986). Thus, an SBSC helps to implement soft factors such as environmental or social objectives within the core management of businesses instead of just adding satellite systems. In the following section the fundamental possibilities of an integration of environmental and social aspects into the BSC are briefly described.

DIFFERENT POSSIBLE APPROACHES OF INTEGRATING ENVIRONMENTAL AND SOCIAL ASPECTS

There are basically three possibilities to integrate environmental and social aspects in the BSC. First, environmental and social aspects can be integrated in the existing four standard perspectives. Second, an additional perspective can be added to take environmental and social aspects into account. Third, a specific environmental and/or social scorecard can be formulated (Deegen, 2001, p. 50; Epstein, 1996, p. 73; Figge *et al.*, 2001a, 2001b; Sturm, 2000, p. 374).

Integration of environmental and social aspects in the four balanced scorecard perspectives

Environmental and social aspects can be subsumed under the four existing BSC perspectives like all other potential strategically relevant aspects (Deegen, 2001; Epstein, 1996, p. 73; Figge *et al.*, 2001a, 2001b). This means that environmental and social aspects are integrated in the four perspectives through respective strategic core elements or performance drivers for which lagging and leading indicators as well as targets and measures are formulated (Kaplan and Norton, 2001, p. 90). Through this top-down derivation those environmental and social aspects that are strategically relevant within the framework of the four standard perspectives of the BSC are identified. Environmental/social aspects consequently become an integral part of the conventional Scorecard and are automatically integrated in its cause–effect links and hierarchically orientated towards the financial perspective and a successful conversion of a business' strategy.

Within all its four standard perspectives the logic of the BSC remains almost exclusively in the economic sphere. Exchange processes outside the market mechanism are hardly considered. Therefore, the approach of the integration of environmental and social aspects by subsuming them under the four standard perspectives is particularly relevant for strategically relevant environmental and social aspects that are already integrated in the market system. For instance, for a firm that aims at an environmental customer segment the core measure 'market share' in the customer perspective would have an environmentally oriented dimension. Also, the leading indicator 'product features' would have an environmental dimension.

Introduction of an additional non-market perspective into the balanced scorecard

As already noted above, environmental and social aspects and scarcities are not (yet) fully integrated in the market exchange processes through assigned market prices. The reason for this is that, fundamentally, environmental and social aspects originate from non-market systems as social constructs. Thus, many environmental and social aspects are still not integrated into the market coordination mechanism and often represent externalities. However, the model of the socio-economic rationality according to Hill shows that firms do not operate exclusively in the commercial–economic sphere. As quasi-public institutions, they rather interact with other spheres, too, for instance the socio-cultural or the legal sphere (Hill, 1985). Environmental and social aspects as social constructs can emerge in all spheres and can become strategically relevant for firms through other mechanisms than the market exchange process.

Given these particular characteristics of environmental and social aspects, it becomes clear that for the integration of strategically relevant environmental and social aspects from outside the market system the standard BSC structure – which reflects the market system only – might have to be extended by an additional perspective. Figge *et al*. (2001a, 2001b) propose the introduction of an additional, so called non-market perspective in order to integrate strategically relevant but not market-integrated environmental and social aspects. Kaplan and Norton also point out that the firm-specific formulation of a BSC may involve a renaming or adding of perspectives (Kaplan and Norton, 1997, p. 33). In order to justify an introduction of an additional non-market perspective, environmental and social aspects from outside the market system must explicitly represent strategic core aspects for the successful execution of the strategy of the company considered. Thus, the necessity for an additional non-market perspective arises when environmental or social aspects that cannot be reflected according to their strategic relevance within the four standard BSC perspectives at the same time significantly influence the firm's success from outside the market system.

Strategically relevant environmental/social aspects from outside the market system can impact a firm's performance in all four perspectives of the conventional Scorecard. This means that they can be relevant both directly (with regard to the financial perspective) and indirectly (with regard to the other perspectives). Thus, an additional non-market perspective can affect all four conventional perspectives. Analogously to the process of formulating a conventional scorecard, the strategic core aspects and leading indicators of the non-market perspective must also be identified and reproduced through respective measures. These measures are then linked towards the financial perspective by means of hierarchical cause-and-effect chains. Consequently, strategy-linked management is guaranteed for the strategically relevant non-market aspects, too. As will be shown later on, the decision of whether an additional non-market perspective is necessary to formulate an SBSC for a specific business strategy cannot be taken beforehand but only within the process of formulation.

Deduction of a derived environmental and social scorecard

The third approach to integrating environmental and social aspects into the BSC lies in the deduction of an environmental and/or social scorecard. At this point, it is very important to note that a derived environmental or social scorecard cannot be developed parallel to the conventional scorecard. Instead, in order to integrate sustainability management into mainstream business management this is only possible in conjunction with one of the two alternatives of integration discussed above. Therefore, a derived environmental/social scorecard is *not an independent alternative for integration*, but only an *extension* of the two variants discussed in the previous sections. A derived scorecard as discussed in this section draws its contents from an existing BSC system and is thus predominantly used in order to coordinate, organize and further differentiate the environmental and social aspects, *once their strategic relevance and position in the cause-and-effect chains have been identified by the two approaches presented above*. Deriving such a scorecard can serve to clarify the relationship of an internal service unit with the strategic business units and their scorecards (Kaplan and Norton, 2001, p. 48). Thus, this additional variant of a *derived* environmental/social scorecard allows coordinated control of all strategically relevant environmental/social aspects, which are spread and integrated in the whole overarching BSC system.

Relationship of the three approaches to building a sustainability balanced scorecard

As already pointed out in the previous paragraph, a fundamental difference exists between the three approaches to building an SBSC. On the one hand, the first two variants (subsumption and addition) refer to the structure of the core scorecard for a business unit. On the other hand, the derived environmental/social scorecard is deduced from the core scorecard. In other words, a derived environmental or social scorecard can only be formulated after at least one of the two first variants has been realized for the core scorecard system. The contents of a derived scorecard result from the higher-level BSC of the strategic business unit. Concerning the process of building up an SBSC, formulating a derived environmental/social scorecard represents thus only a possible second step. The first step always needs to be an integration of the strategically relevant environmental and social aspects into the core BSC with the help of the two variants discussed above.

After having delineated the first two approaches from the subsequent possibility of a derived environmental or social scorecard, it is important to take a look at the relation between the two variants concerning the structure of a business unit's core scorecard. It is important to note that certain environmental or social aspects can be subsumed under the four conventional BSC perspectives parallel to the introduction of a specific perspective for other strategically relevant environmental or social aspects. In other words, the first two alternatives of structuring an SBSC are not mutually exclusive. Given the characteristics of the two alternatives as outlined above it becomes clear that the difference lies mainly in the characteristics of the strategically relevant environmental and social aspects. For those strategically relevant environmental or social aspects that are already integrated in the market system (e.g. environmental costs), it is fairly straightforward to integrate them by means of appropriate leading or lagging indicators into one of the four conventional perspectives. In contrast, if environmental and social aspects exert their strategically relevant influence via mechanisms acting in the firm's non-market environment (e.g. complaints of neighbour groups), then an additional, non-market perspective is necessary. Because there might well exist situations where strategically relevant environmental or social aspects already incorporated in the market system occur alongside those influencing the business unit via non-market mechanisms, it is neither necessary, nor desirable, to make a final decision for or against one of the two variants of integration. Most of the authors who have dealt with different approaches to integrate environmental and social aspects in the BSC so far neither considered explicitly the relationship between the different approaches nor discussed the preconditions of their respective appropriateness (Epstein, 1996, p. 73; Radcliffe, 1999; Sturm, 2000, p. 374; Fahrbach *et al.*, 2000; Czymmeck and Faßbender-Wynands, 2001). We propose two fundamental conditions for the introduction of an additional non-market perspective. In order to justify the addition of a non-market perspective (i) environmental and social aspects have to be strategically relevant, i.e. they are either strategic core aspects or performance drivers *and* (ii) it is not possible to include these aspects appropriately, i.e. according to their strategic relevance, into the four conventional perspectives of the BSC (Figge *et al.*, 2001a, 2001b).

Regarding the process of formulating an SBSC these findings lead to the conclusion that the decision on which structure is appropriate for a specific business unit cannot be taken without further consideration. Rather, it depends on the nature of the strategically relevant environmental and social aspects that are identified during the process of formulating an SBSC. The choice of how environmental and social aspects are integrated is therefore taken during this process, rather than at its beginning. The process of constructing an SBSC is described in the following section.

THE PROCESS OF FORMULATING A SUSTAINABILITY BALANCED SCORECARD

Based on our reasoning in the previous sections the process of formulating an SBSC has to meet a number of basic requirements.

(i) First, the process must lead to an integration of environmental and social management into business management.
(ii) An SBSC that exactly meets the specific characteristics and requirements of the strategy and the environmental and social aspects of a business unit must not be generic. The process therefore has to ensure, second, that the SBSC formulated is business unit specific.
(iii) Third, environmental and social aspects of a business unit must be integrated according to their strategic relevance. This includes the question whether the introduction of an additional non-market perspective is necessary.

On the basis of these requirements the process of formulating an SBSC can be divided into three major steps. First, the strategic business unit has to be chosen. This step presupposes that a strategy of the business unit exists. Second, the environmental and social aspects of concern have to be identified. Third, the relevance of these aspects for the specific business

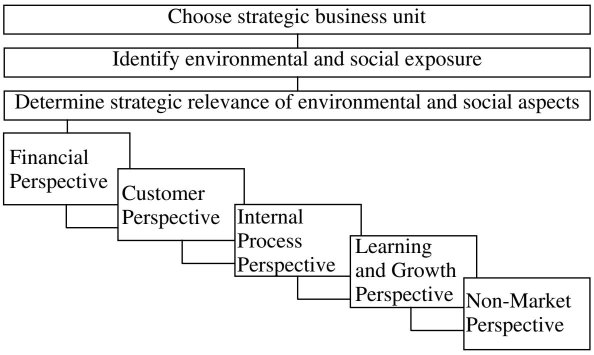

Figure 1. Process of formulating an SBSC

unit's strategy has to be determined. Figure 1 gives an overview of the whole process.

Choice of strategic business unit

The BSC as developed by Kaplan and Norton was originally designed for strategic management at the business unit level (Kaplan and Norton, 1997, p. 161). Thus, as a first step, the business unit for which an SBSC will be formulated has to be chosen. For small and medium sized enterprises the business unit level may be identical with the corporate level, while in large companies or groups there are often several business units that aim at different customer segments, often organized as independent profit centres. The choice of the business unit presupposes that a strategy exists for this business unit. It is important to note that the BSC is not a tool for the formulation of strategies. Rather, the BSC serves to describe and translate an existing strategy consistently in order to enhance the successful execution of the strategy (Kaplan and Norton, 1997, p. 36, 2001, p. 104). The formulation of a BSC is thus not an independent process but is part of a wider framework of competitive positioning and strategy formulation (Kaplan and Norton, 2001, p. 40). This is also the case for the formulation of an SBSC: before an SBSC can be formulated top management has to arrive at a common agreement on what the strategy is, no matter whether it explicitly mentions sustainability issues or not.

Identification of the environmental and social exposure of the business unit

In order to ensure that the SBSC is tailored to the specific needs of the business unit chosen, the environmental and social aspects that affect the business unit must be identified in a second step. The result is a profile of the environmental and social exposure of the business unit. The purpose of this step is to identify all the pertinent environmental and social aspects in order to obtain a comprehensive list of all possibly strategically relevant environmental and social aspects. For the identification of the environmental and social exposure of a business unit two generic frameworks can be used.

The first framework (see Figure 2) serves to identify the environmental exposure of a business unit. The idea behind this framework is to identify all the environmental interventions that originate from a business unit's operations and products. These interventions are

Environmental exposure of a business unit	
Type of environmental intervention	Business unit specific occurrence
Emissions (to air, water, and soil)	…
Waste	…
Material input/material intensity	…
Energy intensity	…
Noise and vibrations	…
Waste heat	…
Radiation	…
Direct interventions on nature and landscape	…

Figure 2. Framework for the identification of the environmental exposure of a business unit (Figge *et al.*, 2001a, p. 36)

eventually responsible for the environmental impacts a business unit causes, because all environmental problems can finally be traced back to physical and/or chemical interventions (Heijungs *et al.*, 1992). In order to obtain the business-unit-specific environmental exposure all activities and products of the business unit must be checked against the categories of the framework as shown in Figure 2. It is important to consider all pertinent environmental interventions in order to come up with a comprehensive and business-unit-specific profile of the environmental exposure.

Social aspects that are strategically relevant can be identified, analogous to the environmental aspects. However, due to the great variety and diversity of social aspects and the lack of a common foundation in natural sciences as found for environmental aspects it is very difficult to achieve a comprehensive classification of social aspects (Clarkson, 1995, p. 102). Rather, social aspects heavily depend on the preferences and values of the different actors involved (Zadek, 1999, p. 7). It is therefore advisable to classify social aspects not according to their contents but according to the actors involved. The stakeholder approach (Freeman, 1984) provides a useful framework to classify the actors concerned with different social claims (Clarkson, 1995). The social issues concerning a business unit can thus be identified by systematically following a comprehensive framework of potentially relevant stakeholder groups (Liebl, 1996). Figure 3 provides such a framework. Potentially relevant stakeholder groups for a business unit can be distinguished into internal stakeholders, stakeholders along the value chain, stakeholders in the local community and societal stakeholders. As a further, cross-sectional, classification, direct stakeholders can be distinguished from indirect stakeholders (Rowley, 1997). Direct stakeholders are those groups that are related to the firm by direct material resource exchange flows, while with indirect stakeholders no such direct material exchange flows are established. In a first step, all *pertinent stakeholder groups* for a business unit have to be identified. In a second step the *social claims and issues* brought up by these groups have to be identified. By specifying the framework shown in Figure 3 a specific profile of the social exposure of the business unit can be obtained.

Determination of the strategic relevance of environmental and social aspects

For both the conventional BSC and the SBSC the identification and alignment of the strategically relevant aspects is the core step. The purpose of this step is to translate the verbally formulated strategy of a business unit into

Social exposure of a business unit							
Direct stakeholders				Indirect stakeholders			
Internal	Along the value chain	In the local community	Societal	Internal	Along the value chain	In the local community	Societal
particular stakeholder group	*particular stakeholder group*	*particular stakeholder group*	*particular stakeholder group*	*particular stakeholder group*	*particular stakeholder group*	*particular stakeholder group*	*particular stakeholder group*
...	...	...	...	...	...	...	...
claim/issue	*claim/issue*	*claim/issue*	*claim/issue*	*claim/issue*	*claim/issue*	*claim/issue*	*claim/issue*
...	...	...	...	...	...	...	...

Figure 3. Framework for the identification of the social exposure of a business unit (Figge *et al.*, 2001a, p. 38)

causally linked objectives and indicators. As already mentioned above the BSC is a tool to identify the 15–25 strategically most relevant aspects and to link them causally and hierarchically towards the long-term success measured by the financial perspective. For the formulation of a BSC Kaplan and Norton (1997) propose a top-down process to identify the strategically relevant aspects in all the perspectives. In principle, this approach can also be used for the formulation of an SBSC. The only difference is that in addition to 'conventional' aspects environmental and social aspects have to be considered, too. By going through the perspectives in a cascade-like process starting from the financial perspective as indicated in Figure 1, the hierarchical and causal linkage of the strategically relevant aspects is guaranteed. This serves to align all strategically relevant aspects of a business unit towards the successful conversion of the strategy and thus towards long-term economic success.

Like all other business issues, we can distinguish between three stages of strategic relevance of environmental and social aspects.

(i) Environmental or social aspects can represent *strategic core issues*, for which lagging indicators have to be defined. These lagging indicators measure whether the strategic core requirements in the perspective have been achieved. Kaplan and Norton (1997, p. 4) have proposed generic categories for the formulation of lagging indicators in each perspective (see Table 1).

(ii) Performance drivers as represented by leading indicators show *how* the results in each perspective, reflected by the lagging indicators, are to be achieved. Performance drivers are highly business specific but there are once again categories to support identification (see Table 2). Leading indicators will reflect environmental or social issues whenever environmental and social aspects act as *performance drivers*.

(iii) Finally, environmental or social issues can also represent *hygienic factors*, reflected by diagnostic indicators. Hygienic factors (Herzberg *et al*., 1999) are issues that have to be managed sufficiently in order to guarantee successful business operations; however, addressing these factors does not lead to any competitive advantage (Kaplan and Norton, 1997, p. 156). In other words, hygienic factors represent necessary but not sufficient conditions for a successful execution of a firm's strategy. Therefore, these factors are not part of the BSC.

Environmental and social aspects have to be classified and integrated into the scorecard system according to their strategic relevance

Table 1. Generic categories for the formulation of lagging indicators (Figge *et al*., 2001a; see also Kaplan and Norton, 1996)

Financial perspective	Customer perspective	Process perspective	Learning and growth perspective	Non-market perspective
◦ Revenue growth	◦ Market share	◦ Innovation process	◦ Employee retention	◦ Freedom of action
◦ Productivity growth	◦ Customer acquisition	◦ Operations process	◦ Employee productivity	◦ Legitimacy
◦ Asset utilization	◦ Customer retention	◦ Postsale service process	◦ Employee satisfaction	◦ Legality
	◦ Customer satisfaction			
	◦ Customer profitability			

Table 2. Generic categories for the formulation of leading indicators (Figge *et al.*, 2001a; see also Kaplan and Norton, 1996)

Financial perspective	Customer perspective	Process perspective	Learning and growth perspective	Non-market perspective
–	◦ Product attributes ◦ Customer relationship ◦ Image and reputation	◦ Cost indicators ◦ Quality indicators ◦ Time indicators	◦ Employee potentials ◦ Technical infrastructure ◦ Climate for action	leading or lagging indicators from all other perspectives

just like all potentially strategically relevant aspects. In order to determine the strategic relevance of environmental and social aspects for each perspective a matrix as shown in Figure 4 can be used. To determine whether environmental and social aspects represent strategic core issues, performance drivers or simply hygienic factors, environmental and social exposure are cross checked against the categories of lagging and leading indicators (see Tables 1 and 2) in a cascade-like top-down process as shown in Figure 1 for every perspective. It is useful to check systematically all pertinent environmental and social aspects by answering the following questions when going through the four conventional perspectives.

(i) Does the environmental or social aspect represent a strategic core issue for the business strategy of our business unit (→ environmental or social lagging indicator)?

(ii) Does the environmental or social aspect contribute significantly to a strategic core issue and therefore represent a performance driver for the business strategy of our business unit (→ environmental or social leading indicator)?

(iii) What is the substantial contribution of the performance driver to the achievement of a strategic core issue?

(iv) Is the environmental or social aspect simply a hygienic factor, which necessarily has to be well managed but leads to no particular strategic or competitive advantage?

As already mentioned above, the decision whether adoption of an additional non-market perspective is necessary can only be taken during rather than before the process of formulating an SBSC. Therefore, after having gone through the four conventional scorecard perspectives, it finally has to be checked whether strategically relevant environmental or social

		Environmental exposure								Social exposure							
										Direct Stakeholders				Indirect Stakeholders			
		Emissions	Waste	Material input/intensity	Energy intensity	Noise and vibrations	Waste heat	Radiation	Land use	Internal	Along the value chain	In the local community	Societal	Internal	Along the value chain	In the local community	Societal
Strategic core issues	#1																
	#2																
	…																
Performance drivers	#1																
	#2																
	…																

Figure 4. Matrix to determine the strategic relevance of environmental and social aspects (according to Figge *et al.*, 2001, p. 42)

aspects exist that significantly influence the success of the business unit's strategy via mechanisms other than the market system. This can be done by answering the following questions.

(i) Are there any environmental or social aspects that influence the business unit's success via non-market mechanisms?
(ii) Do these environmental or social aspects represent strategic core elements at which the business unit has to excel in order to successfully execute its strategy?
(iii) What is the substantial contribution of the performance driver to the achievement of the business unit's strategy?

When going through the perspectives in the described cascade-like manner it is important to remember that the causal relationships between the strategically relevant aspects identified stretch beyond the lagging and leading indicators within one perspective. Rather, all aspects and indicators have to be directly or indirectly linked towards the financial perspective. The strategic core aspects and value drivers of the lower level perspectives in the cascade shown in Figure 1 serve to achieve the objectives set by the indicators in the upper level perspectives. Therefore, every time one moves from an upper level perspective to the next lower level perspective in the cascade it has to be ensured that and shown explicitly how the lower level strategic core aspects and performance drivers contribute to the achievement of the objectives in the higher level perspective(s). This serves to establish the hierarchic cause-and-effect chains that link all strategically relevant aspects to the successful execution of the strategy. As discussed above, in contrast to the other scorecard perspectives the non-market perspective acts as a frame that embeds the other perspectives. However, the strategic aspects of the non-market perspective have to be linked directly or indirectly to the financial perspective as well. It is important to note in this context that the core aspects of the non-market perspective can in principle influence objectives in any other perspective. Consequently, as indicated in the last column of Table 2, the performance drivers for the non-market perspective can also be found in any other perspective.

As the result of the process described above, all strategically relevant aspects reflected by appropriate lagging or leading indicators are part of a cause-and-effect network, which visualizes and translates the strategy of the business unit. By systematically going through the perspectives in a top-down direction, the strategic relevance of the pertinent environmental and social aspects is determined, as for all other, 'conventional', aspects. This ensures the full integration of environmental and social aspects in the general management system. The result of the process of formulating an SBSC can be shown graphically by using a strategy map (Kaplan and Norton, 2001). In such a strategy map, all economic, environmental and social aspects that have been identified as strategically relevant are represented in the hierarchical network of cause-and-effect chains. Figure 5 shows an SBSC for a sample company as such a strategy map. Once the identification and alignment of the strategically relevant aspects has been performed, the next step is to define indicators, targets and measures in order to control and steer corporate performance towards the achievement of strong corporate contributions to sustainability.

DISCUSSION AND CONCLUSION

The process of formulating an SBSC described in this article shows how environmental and social issues can be integrated with the general management of a business unit. The process is designed in such a way that it can be applied no matter whether a conventional scorecard already existed prior to integrating environmental and social aspects or not. As a further

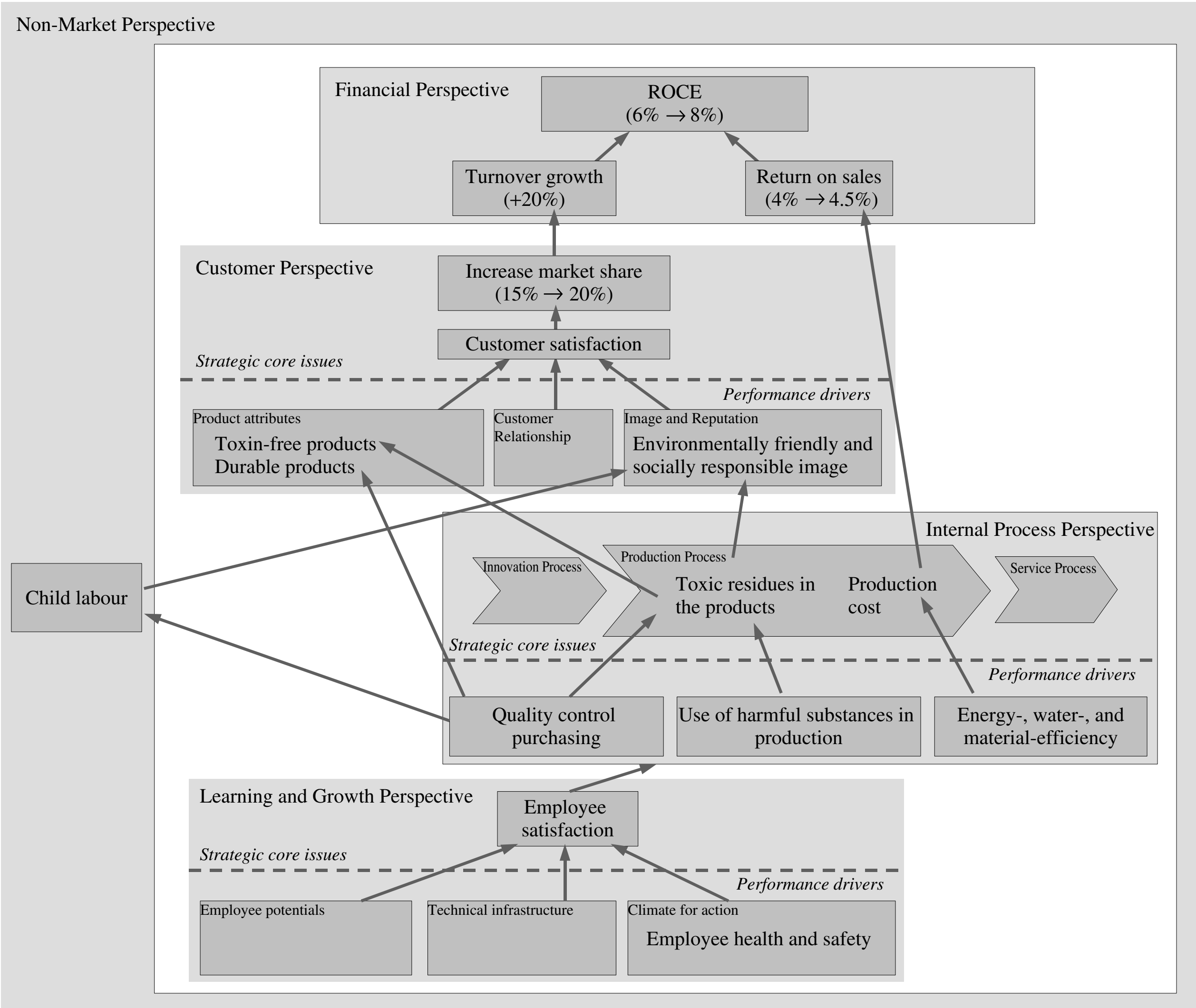

Figure 5. SBSC as a strategy map for a sample company

advantage, the SBSC concept is an open concept. This means that it can be applied to integrating environmental and social aspects into the successful implementation of both 'conventional' corporate strategies and explicit corporate sustainability strategies. It is obvious that in the case of companies that have adopted explicit sustainability strategies (see, e.g., Hart, 1997) environmental and social aspects will play a more prominent role in the SBSC. However, the openness of the approach to also include conventional firms widens the applicability of the SBSC from sustainable niche players to the far wider range of mainstream companies and helps them to move towards a more sustainable performance. It is obvious that the SBSC makes no statement on what kind of strategy should be chosen. Here again, it becomes clear that an SBSC is embedded in the wider context of strategic management.

This embeddedness also holds true when it comes to the relation of the SBSC with other tools of sustainability and environmental management. As the SBSC is used to translate a verbally formulated strategy into operational terms, it can be seen as a tool for strategic control. Thus, it has a very tight link to information management tools, which can also be found with corporate control, corporate eco-control, environmental, economic and social performance indicators, as well as internal reporting devices. On the other hand, the formulation of an SBSC depends on information generated by tools for strategic planning. Furthermore, through each of its perspectives the SBSC establishes links to the realms of finance, marketing, operational or process management, human resources and issues management, within all of which environmental specifications can be found in literature. The approach proposed in this article can help to chose the most pertinent tools for environmental and social management for a specific business considered. Eventually, this will enhance both effective and efficient environmental and social management and sustained economic success.

Overall the SBSC provides a strong tool for an integrated sustainability management. It helps significantly to overcome the shortcomings of the often parallel approaches of environmental, social and economic management systems implemented in the past.

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