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The Sustainability Balanced Scorecard: A Systematic Review of Architectures

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Abstract The increasing strategic importance of environmental, social and ethical issues as well as related performance measures has spurred interest in corporate sustainability performance measurement and management systems. This paper focuses on the balanced scorecard (BSC), a performance measurement and management system aiming at balancing financial and non-financial as well as short and long-term measures. Modifications to the original BSC which explicitly consider environmental, social or ethical issues are often referred to as sustainability balanced scorecards (SBSCs). There is much scholarly discussion about SBSC architecture and how it can be designed to relate performance dimensions, strategic objectives and the logical links among these elements. To synthesise the widely scattered research findings and publications on the SBSC, we conducted a thematic analysis based on a systematic literature review containing 69 relevant articles spanning a period of two decades. We found that sustainability-oriented modifications of the BSC architecture are motivated by instrumental, social/political or normative theoretical perspectives. Moreover, these modifications can be mapped with a typology of generic SBSC architectures. The first dimension of the typology describes the hierarchy between performance perspectives and strategic objectives and how it is related to the organisational value system. The second dimension describes how sustainability-related strategic objectives are integrated into SBSC performance perspectives and how this is related to corporate sustainability strategy. This study contributes to the development of the emerging SBSC literature and practice and, more generally, to research on corporate sustainability performance measurement and management. We conclude with a research agenda and implications for management.

Introduction

The shortcomings of insufficiently comprehensive approaches to the measurement and management of corporate success have led to increased economic risks and problems for companies, the economy and society (Grant and Visconti 2006; Maltz et al. 2003). In connection with concepts such as corporate social responsibility (CSR) and corporate sustainability (Lee 2008; Lindgreen and Swaen 2010; Maon et al. 2010), scholars and practitioners are increasingly interested in the integrated measurement of economic, social and environmental performance by corporate sustainability performance measurement systems (Searcy 2012). The latter is an umbrella term for individual sustainability indicators, composite indices and performance measurement and management systems such as the sustainability balanced scorecard (ibid.).

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In the present paper, we examine the research literature on the sustainability balanced scorecard (Figge et al. 2002a; Searcy 2012; Wagner 2007) and related concepts such as the responsive business scorecard (Hardjono and de Klein 2004; van den Brink and van der Woerd 2004; van der Woerd and van den Brink 2004; van Marrewijk 2004). These sustainability-oriented management tools are based on the balanced scorecard (BSC) as originally proposed by Kaplan and Norton (1992, 1996, 2001a, b), a multidimensional performance measurement and management framework originally organised hierarchically with four performance perspectives (finance, customers, internal processes and learning and growth) aimed at balancing financial and non-financial, short-term and long-term, as well as qualitative and quantitative success measures. The *sustainability* balanced scorecard (SBSC) goes a step further by explicitly integrating strategically relevant environmental, social and ethical goals.

Research on the balanced scorecard (both BSC and SBSC) can be structured into the four stages of *design*, *implementation*, *use* and *evolution* (Searcy 2012). We have identified a controversy about how sustainability could or should be integrated in the SBSC *design* stage, particularly regarding its architecture. While some researchers suggest a conventional BSC architecture using a strict hierarchy of performance perspectives and strategic objectives, which ultimately aim at financial success (e.g. Figge et al. 2002a), others deviate from this by flattening the hierarchy or even proposing network-like architectures (e.g. van Marrewijk 2004). Environmental and social strategic objectives can also be taken into account in the BSC by integrating them into existing performance perspectives or by dealing with them in specially created perspectives (Epstein and Wisner 2001a). In an Australian survey, for example, Bedord et al. (2008, p. 27) find that BSCs in practice often contain non-traditional performance perspectives, such as 'the environment' (50 %) and 'community' (53 %).

The aim of our research is to study in more detail the diversity of proposed SBSC architectures described in recent publications in order to shed light on measuring and managing sustainability-related organisational success through multidimensional performance measurement systems. To the best of our knowledge, there are only partial and out-of-date reviews of the existing body of research on SBSC approaches (see, for example: Figge et al. 2002a; van Marrewijk 2004; Hubbard 2009; Zingales et al. 2002) and no exhaustive or systematic account of this research field exists. This paper aims to fill this gap by focusing on the research question: *How can the architecture of the BSC be adapted to integrate corporate sustainability, thereby creating a SBSC?* This overarching research question is operationalised in three interrelated sub-questions:

(1)   Which theoretical perspectives are used to argue for sustainability-oriented modifications of the BSC architecture?

(2)   Which generic SBSC architectures exist and how are they related to each other?

(3)   Which organisational contingencies constrain the choice of different architectures?

We answer these research questions by conducting a systematic review (Tranfield et al. 2003) of the interdisciplinary research field of the SBSC. Using a transparent and reproducible process, 69 scientific publications were selected and subsequently analysed. Our main findings and related contributions are as follows: first, in accordance with the findings of Garriga and Melé (2004), we find *instrumental* (i.e. contribution to competitive advantage), *social and political* (i.e. addressing conflicting stakeholder interests and legitimacy seeking) and *normative* theoretical arguments (i.e. involving a moral duty) for the development of an SBSC approach. This contributes to the literature and theory as it reflects the increasing efforts in the field of corporate sustainability, CSR and ethics to clarify and classify theoretical perspectives (e.g. Donaldson and Preston 1995; Garriga and Melé 2004; Lee 2008). More specifically, it enables more theoretically informed research on sustainability-oriented strategic performance measurement and management systems in general and the SBSC in particular. Second, building on prior research in this journal suggesting a one-dimensional taxonomy of SBSC designs (van den Brink and van der Woerd 2004; van der Woerd and van den Brink 2004; van Marrewijk 2004), we develop a two-dimensional typology of generic SBSC architectures dependent on contextual variables. The first dimension of this typology reflects the hierarchy between individual performance perspectives (and related strategic objectives) distinguishing 'strictly hierarchical', 'semi-hierarchical' and 'non-hierarchical' architectures and their links to the organisational value system (van Marrewijk 2004). The second dimension reflects the nature of integration of sustainability-related strategic objectives into performance perspectives and differentiates 'add-on', 'integrated' and 'extended' architectures and their links to the degree of proactivity of the corporate sustainability strategy (Aragón-Correa 1998; Aragón-Correa and Rubio-López 2007). We also show evolutionary pathways from conventional to more advanced architectures as a result of changing organisational context. This typology of generic SBSC architectures contributes to the literature as it 'maps the field' and thereby provides a framework and terminology for researchers from diverse disciplines, theoretical perspectives and academic backgrounds, ultimately enabling more informed future research.

The remainder of this paper is structured as follows: after this introduction, we briefly elaborate the concepts of corporate sustainability, corporate sustainability performance management systems and the SBSC. Second, we describe the methodology of the systematic literature review. Third, we present the thematic analysis distinguishing (a) theoretical perspectives on the SBSC and (b) the typology for the various generic SBSC architectures. Finally, the findings are discussed and implications for management and research are developed.

Corporate Sustainability, Performance Management Systems and the SBSC

Before presenting the research results, this section explains the conceptual framing guiding the systematic review of the existing literature with a brief introduction of the research fields of corporate sustainability, corporate sustainability performance management systems, as well as the BSC and SBSC.

Sustainable Development and Corporate Sustainability

Concepts such as CSR (Carroll 1979; Lee 2008; Schwartz and Carroll 2003; Maon et al. 2010), corporate social performance (Carroll and Shabana 2010), stakeholder theory (Freeman 1984; Freeman et al. 2004), the triple bottom line (Elkington 1998) and corporate sustainability (Dyllick and Hockerts 2002; Epstein and Roy 2001; Schaltegger and Burritt 2005; Shrivastava 1995; Searcy 2012) have in common the goal that environmental and social issues should be explicitly considered by businesses in addition to financial objectives. In the following, the term *corporate sustainability* is used to capture the systematic management efforts of businesses to voluntarily integrate environmental and social issues into general management. These are efforts with the goal of supporting organisations to contribute to sustainable development, defined as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (WCED 1987, p. 54).

For the last two decades, environmental and social issues have gained increasing strategic relevance for businesses as they very often represent risks (e.g. negative press coverage or consumer boycotts) or opportunities (e.g. positive effects on employee morale and corporate reputation; differentiation through eco-products) (Aragón-Correa and Rubio-López 2007; Epstein and Roy 2001; Wehmeier 2006; Dias-Sardinha and Reijnders 2005; Schaltegger and Wagner 2006a; Länsiluoto and Järvenpää 2010). In response, various corporate strategies, including

proactive environmental or sustainability strategies, have been developed (Azzone and Bertelè 1994; Aragón-Correa 1998; Aragón-Correa and Rubio-López 2007).

Increased strategic attention to environmental and social issues has spurred the demand for their systematic measurement and management (Epstein and Roy 1998, 2001) and led to a growing interest in corporate sustainability performance measurement and management systems.

Corporate Sustainability Performance Management Systems

By narrowing the definition of organisational success to a single financial measure, companies may tend to overlook that financial performance is based on both lagging and leading indicators (Kolk and Mauser 2002) and thus also on the achievement of non-financial objectives and related performance drivers such as employee morale, the quality of products and processes, the capacity to innovate and reputation (Eccles et al. 2006; Maltz et al. 2003). If companies fail to manage such drivers, organisations remain without control over the point of time, the direction and the extent to which these drivers ultimately influence financial performance in positive or negative ways. As a result, there is now a growing interest in corporate sustainability performance management and measurement systems (Searcy 2012). While such measurement systems also include individual or composite indicators, this paper focuses on multidimensional performance measurement and management models (Maltz et al. 2003; Brignall and Modell 2000) or performance measurement packages (Jakobsen et al. 2011) such as the BSC (Kaplan and Norton 1992, 1996), the performance prism (Neely et al. 2002), the success dimension model (Shenhar and Dvir 1996) and the dynamic multidimensional performance framework (Maltz et al. 2003). The BSC is a controversial (Jensen 2001) but also one of the most popular performance measurement and management tools (e.g. Abdel-Kader et al. 2011; Länsiluoto and Järvenpää 2010; Maltz et al. 2003; Schneider and Vieira 2010) and has been strongly advocated by scholars of corporate sustainability (Dias-Sardinha et al. 2002; Figge et al. 2002a; Searcy 2012).

The Balanced Scorecard

The BSC aims at 'balancing' financial and non-financial, short-term and long-term, as well as qualitative and quantitative success measures (Kaplan and Norton 1992, 1996). It does so by presenting a set of strategic objectives defined by the company, each of which is then assigned to one of four performance perspectives (financial, customer, internal processes, learning and growth) and which

ultimately lead to financial success through cause-and-effect chains. Each objective is measured by key performance indicators. Initially, the BSC focused on individual and groups of performance indicators for measuring and managing the implementation of strategic objectives (Kaplan and Norton 1992), but in later publications the focus turned to the description of strategy using cause-and-effect chains between strategic objectives (Kaplan and Norton 2001b, c). This represents a development from first to second-generation performance measurement approaches (Neely et al. 2003).

These cause-and-effect chains between strategic objectives are illustrated by strategy maps (Kaplan and Norton 2004; Neely et al. 2003). The strategy map with its core elements (performance perspectives, strategic objectives, cause-and-effect chains) is what we refer to as the BSC's architecture (see also Kaplan and Norton 2001b, p. 69ff.). Of course, such a management approach with multiple dimensions and inter-linkages is more complex and requires management to deal explicitly with trade-offs among multiple objectives and to find ways to link the different goals with each other (Jensen 2001). However, the additional effort is offset by a more comprehensive view of organisational performance, performance measurement and performance management.

The BSC as originally proposed by Kaplan and Norton (1992) is a strategic management tool to both operationalise and measure strategies of the organisation or organisational units (usually strategic business units), but it can also be used as a comprehensive management system which is cascaded down from the corporate level, over business units and functions, to individuals via incentive and compensation schemes.

The Sustainability Balanced Scorecard

As many environmental and social issues are non-financial and often influence an organisation particularly over the long term, both academics (e.g. Epstein and Wisner 2001a, b) and practitioners (e.g. Rohm and Montgomery 2011) consider the BSC an appropriate tool to account for sustainability issues. The SBSC differs from the BSC in its architecture by *explicitly* recognising sustainability-related objectives and performance measures. Scholars have emphasised the potential of the SBSC for integrating conventional strategic management with corporate sustainability management for two reasons (Figge et al. 2002a): first, it allows management to address goals in all three dimensions of sustainability by integrating economic, environmental *and* social issues, whereas other approaches merely focus on, for example, the environmental dimension. Second, the SBSC integrates these three dimensions in a single integrated management system instead of

requiring parallel systems (e.g. separate environmental, social and financial management systems). Based on these considerations, researchers have developed extended scorecard designs under the names of *sustainability balanced scorecard* (e.g. Figge et al. 2002a; Hansen and Schaltegger 2012), *sustainability scorecard* (SIGMA 2003) or *responsive business scorecard* (van den Brink and van der Woerd 2004; van der Woerd and van den Brink 2004; van Marrewijk 2004).

Performance management systems such as the SBSC can be studied with regard to their design, implementation, use and evolution (de Geuser et al. 2009; Searcy 2012). We focus on their design by analysing the SBSC architecture composed of strategic objectives, performance perspectives and the hierarchy represented by cause-and-effect chains between these elements (see an example of SBSC architecture in Fig. 1). Scholarly debate about SBSC architecture focuses on at least two issues: first, differences about whether additional performance perspectives should be used to address sustainability objectives or whether sustainability issues should be integrated into existing performance perspectives (Bieker et al. 2001; Figge et al. 2002a). Kaplan and Norton themselves opened this door by stating that "depending on industry circumstances and a business unit's strategy, one or more additional perspectives may be needed" (1996, p. 34). Indeed empirical studies of the BSC show that some companies add perspectives such as 'the environment' or 'community' (Bedford et al. 2008; Speckbacher et al. 2003). A *second* debate is about whether a hierarchy should only contain strict causal linkages to financial goals or whether more relaxed designs are beneficial (Hansen 2010, p. 89; van der Woerd and van den Brink 2004).

According to Jakobsen et al. (2011), the architecture of strategic performance measurement and management systems can be analysed on the level of both *generic* performance management systems (e.g. the hierarchical BSC framework with four performance perspectives as proposed by Kaplan and Norton 1996) and *firm-specific* ones (e.g. the BSC of the sample company in Fig. 1). While we collected evidence on firm-specific SBSC architectures (including their operationalisation on the level of specific performance indicators) as part of the empirical studies in the systematic review (particularly case studies), our primary aim is to generalise and synthesise extant research with the aim of deriving a typology of *generic* SBSC architectures and, therefore, to remain on the level of (stylised) strategy maps. This is intended to promote future research and debate on architectural choices and related contingencies.

In summary, we treat the SBSC as a generic strategic performance management and measurement tool used at various organisational levels (e.g. business unit) within for-profit organisations with an architecture explicitly

Fig. 1 Strategy map of the SBSC in a sample company (*Source*: Figge et al. 2002a, p. 282)
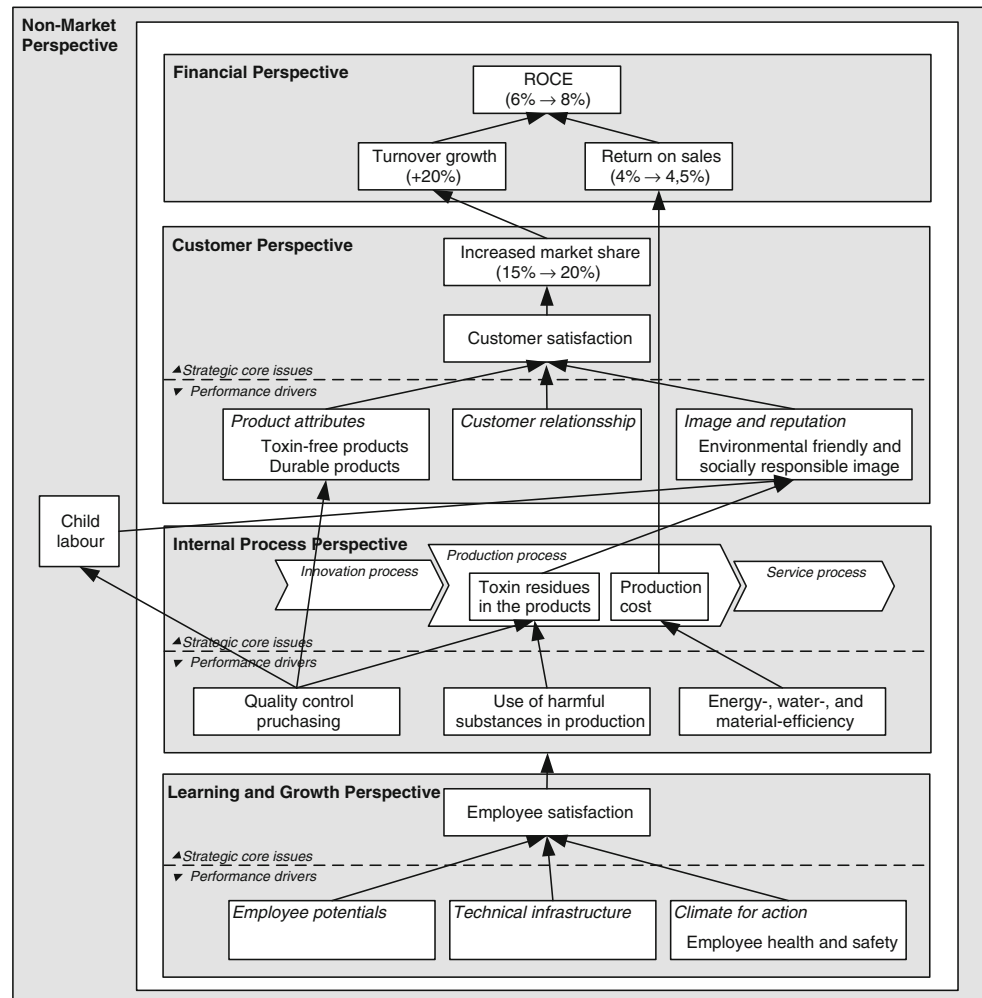
incorporating sustainability-related strategic objectives visualised with strategy maps. Based on this general understanding of the SBSC, we conducted a systematic review to answer our research questions, i.e. what theoretical perspectives have been used to study SBSC architectures, what generic SBSC architectures have been proposed and which organisational contingencies determine their application. The next section describes the method of the systematic review.

Method

This paper is based on a *systematic* review, a methodology which differs from the conventional literature reviews by aiming at "synthesising research in a systematic, transparent, and reproducible manner" (Tranfield et al. 2003; a recent example in this journal is Parris and Peachey 2013). Systematic reviews are important, not only for advancing an academic field but also for informing management practice (Cummings and Daellenbach 2009). According to

Tranfield et al. (2003), conducting a systematic review consists of six major steps (while we present the result as a linear process, the steps were in practice followed in an iterative nature):

(1) *Identification of research* In the first phase, keywords relevant to our research question were identified. These were subsequently used to construct a search string consisting of various keywords related to both sustainability and the BSC.[1] We applied the search string to titles, abstracts and keywords of academic publications in major Internet-based research databases (e.g. EBSCOhost and Scopus; see Table 1 for details). As this an emerging research field and not only journal articles should be

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[1] Although adaptations were necessary to the circumstances of each database, the generic search string used is '(Sustainability OR Ecological OR Eco OR Environmental OR Green OR Greenish OR Greening OR Social OR Societal OR Community OR Stakeholder OR Ethics OR Ethical OR CSR OR Responsive) AND (Balanced scorecard OR Business scorecard OR BSC)'.

Table 1 Documentation of keyword-based database search and selection process

Phase	Subphase	# Keyword-based hits	# Removed based on			# Articles added to sample
			Title/abstract	Full text	Duplicates	
Database analysis[a]	Overall	+473	−370	−31	−13	46
	a. EBSCOhost	(+218)	(−191)	(−9)	(−0)	(18)
	b. Scopus	(+78)	(−59)	(−7)	(−1)	(11)
	c. Emerald	(+61)	(−48)	(−5)	(−1)	(6)
	d. Wiley	(+58)	(−39)	(−6)	(−3)	(7)
	e. ScienceDirect	(+30)	(−24)	(-2)	(−1)	(2)
	f. JSTOR	(+13)	(−4)	(−1)	(−4)	(0)
	g. SpringerLink	(+9)	(−1)	(0)	(−3)	(2)
	h. Inderscience	(+6)	(−4)	(−1)	(0)	(1)
Reference analysis						17
Expert recommendation						6
Total						69

[a] Search within title, abstract and keywords

considered in a systematic review (e.g. Fink 2009, p. 39; Tranfield et al. 2003), we also searched for books, book chapters and related academic publications. Corporate sustainability (and CSR) is a highly interdisciplinary field, and so it was necessary to search for publications across disciplines including management, accounting and sustainability/environmental studies (including related subfields that may be best described by the term 'business and society'). In fact, the challenge to "synthesize data from a range of disciplines" is common to systematic reviews (Pittaway et al. 2004, p. 140; see also Renwick et al. 2013). Only publications in English were considered. Based on abstracts, titles and keywords, we identified a *preliminary set* of 473 publications within a timeframe from 1994 to 2013.

(2) *Development of Inclusion and Exclusion Criteria* As terms such as the SBSC are relatively broadly applied, a more detailed definition in the form of inclusion and exclusion criteria was necessary to circumscribe the concept as used in this review (see also Table 4 in the Appendix). First, although the BSC and SBSC have also been applied to non-profit organisations (Kaplan and Norton 2001a; Somers 2005), we only studied for-profit organisations. Second, as mentioned before, the SBSC implementation often spans multiple levels of the organisation, which also allows SBSCs in lower level units (e.g. functions) to contribute to higher level SBSCs (e.g. business units). We were, therefore, not only interested in corporate or business unit levels but also in SBSCs in shared service units, particularly when sustainability plays a dominant role, such as in sustainability, CSR or environmental departments

(e.g. Dias-Sardinha et al. 2007; Simmons 2008). Third, with our emphasis on corporate sustainability and sustainable development, the recognition of the environmental (i.e. ecological) dimension in the SBSC was a necessary inclusion criteria and BSCs dealing only with, for instance, safety or HR issues (e.g. Mohamed 2003) were not included. Fourth, the so-called environmental scorecards (e.g. Scavone 2006) often represent a set of operational environmental indicators with little strategic relevance or are focused on a single issue (e.g. carbon; see Oshika et al. 2013) and were therefore not considered here. Fifth, sometimes the SBSC framework is used as an analytical framework for both external sustainability benchmarking and meta-reviews of the literature (e.g. Spiller 2000; Jamali 2008) rather than as a performance management tool inside organisations. Nevertheless, we included this literature in our sample as it contributes to theorising about the SBSC and increases knowledge about generic SBSC architectures.

(3) *Selection of Studies* Inclusion and exclusion criteria based on the SBSC definition given above were used to further narrow down the publication set. The application of these criteria to *abstracts* and *full texts as well as the removal of duplicates* led to a significant reduction to 46 publications. The references sections of articles in this preliminary set were screened for further publications meeting the above criteria, resulting in 16 additional publications. Although generally only English-speaking sources were considered, we also added references in other languages if they were cited by at least 3 articles in the (English) sample; we considered this an indicator that the article is strongly relevant to and sufficiently

recognised in the research field, even though it was published in a language other than English. This only led to one further publication. Finally, expert recommendation led to 6 additional articles. The final set of publications thus contained 69 articles.

(4) *Assessment of Study Quality* We did not further investigate the quality of individual publications (e.g. their methodological rigour), but relied instead on the quality screening undertaken by the research databases identified during the selection phase.

(5) *Data Extraction* All publications were listed in a data extraction form using basic information (authors, titles, etc.) and specific information (details, method, etc.). The form served as both a log book for decisions within the analytical process and as a basis for subsequent data synthesis.

(6) *Data Synthesis* We focused on an interpretative, *thematic analysis* for answering our research questions. First, we analysed the theoretical perspectives in publications justifying SBSC architectures. Second, we analysed the proposed architectures and derived a typology of generic SBSC architectures.

The final sample size (69 publications; see Table 2) shows that the SBSC literature represents a research field which is somewhere between emerging and established. In general, literature reviews can be beneficial for both emerging and mature research fields (e.g. Torraco 2005, p. 357). While *systematic* reviews are more often done for established fields (with sample sizes of often more than 100 publications), they are also done for emerging topics with considerably smaller sample sizes (e.g. Baines et al. 2007; Gold et al. 2010; Li et al. 2008; Klewitz and Hansen 2014; Parker et al. 2009; Thorpe et al. 2005). It should also be mentioned that the systematic review method was originally developed to synthesise *empirical* evidence derived from the field of medicine (Tranfield et al. 2003). As in other systematic reviews in the management field (e.g. Crossan and Apaydin 2010; Seuring and Müller 2008), the aim of this paper is slightly different. We are interested in the overall development of the SBSC concept not only from the empirical but also from the conceptual point of view. This led to a sample containing diverse methods, the major part being case studies (Fig. 2). Where useful, we distinguished empirical and conceptual evidence in the results section (particularly in the main figures).

The research findings (i.e. the data synthesis) are presented next and include both the theoretical perspectives behind the SBSC and the various SBSC architectures.

Theoretical Perspectives on Implementing the SBSC

The integration of sustainability into the BSC is considered by or expected from organisations for various reasons. This becomes evident when analysing the explicit or implicit theoretical foundations of the examined publications. Making use of previously existing classifications of theories in the domain of corporate sustainability and related fields (Garriga and Melé 2004; see also: Donaldson and Preston 1995; Gray et al. 1995; Lee 2008), we identified three broad theoretical perspectives linked to the SBSC implementation:

- *Instrumental Theories* Publications with this perspective discuss sustainability performance as a contribution to the achievement of conventional corporate objectives (e.g. profitability or market share) and thus the improvement of organisational performance. In this case, the SBSC is understood as a rational advancement in performance measurement and management.

- *Social and Political Theories* This perspective assumes the existence of interest group conflicts and power struggles among interest groups in society and thus considers a corporation's continued existence as dependent on how successful it is in gaining the approval of its stakeholders (Gray et al. 1995, p. 53). In this perspective, management techniques such as the SBSC are not interesting for their potential to improve organisational efficiency but for their ability to help the organisation adapt to external social expectations and so secure legitimacy.

- *Normative Theories* This perspective involves a "connection with more fundamental and better-accepted philosophical concepts" (Donaldson and Preston 1995, p. 81), which make it a moral duty to integrate sustainability issues (and stakeholders) into performance management systems. Publications with this perspective are not based on empirical evidence but instead on analytical argumentation.

Most publications in the sample take a single perspective and only few explicitly apply different theoretical perspectives. The use of different perspectives can be appropriate, for example, when managerial motivation to implement the SBSC changes during the implementation process from simply achieving instrumental goals to respond to societal expectations or institutional forces (Länsiluoto and Järvenpää 2010). In the next section, the SBSC literature is reviewed regarding each of the three theoretical perspectives.

Instrumental Perspectives

Many authors discuss the SBSC from an instrumental perspective, particularly by referring to *strategic management theories*. They see environmental and social issues as important factors of economic success, and often refer to the 'pays-to-be-green literature' (Wagner 2007). In this

Table 2 Sample with publications considered for the systematic review

Publication			Research design			BSC design			
Author(s)	Year	Publication type	Method	Type of organisation	Size of organisations[a]	Type of use[b]	Organisational scope[c]	Issues addressed	Design type[d]
Lueg and Carvalho e Silva	2013	Journal article	Literature review	–	–	SPMM	C, BU, I	Sustainability	A, B
Nikolaou and Tsalis	2013	Journal article	Archival	n.a.	n.a.	Benchmarking	C	Sustainability	n.a.
Tsalis et al.	2013	Journal article	Quantitative (survey)	Private	Small/medium	SPMM	C	Sustainability	n.a.
Kaplan	2012	Journal article	Conceptual	–	–	SPMM	C, BU	Sustainability	–
Länsiluoto and Järvenpää	2012	Journal article	Case study	Public listed	Large	SPMM	C	Eco-efficiency	A1
Butler et al.	2011	Journal article	Conceptual	–	–	SPMM; reporting	C	Sustainability	A, B
Chalmeta and Palomero	2011	Journal article	Qualitative	Private, public, NGOs	Small/medium and large	SPMM	BU	Sustainability	A3
Hansen and Spitzeck	2011	Journal article	Case study	Public listed/subsidiary	Medium	SPMM	BU	Philanthropy	A3 (r)
Hsu et al.	2011	Journal article	Quantitative (Delphi)	n.a.	n.a. (experts)	SPMM	n.a.	Sustainability	B2
Rohm and Montgomery	2011	White paper	Conceptual	–	–	SPMM	C	Sustainability	A2
Schaltegger	2011	Journal article	Conceptual	–	–	Structuring framework	n.a.	Sustainability	A3
Tseng et al.	2011	Journal article	Quantitative (survey)	Private	Large	Benchmarking	C	Environment	A3
Hansen et al.	2010	Journal article	Case study	Public listed/subsidiary	Medium	SPMM	BU	Philanthropy	A3 (r)
Hsu and Liu	2010	Journal article	Quantitative (survey)	Mixed	SME/large	Benchmarking	C	Environment	A2
Länsiluoto and Järvenpää	2010	Journal article	Case study	Public listed	Large	SPMM	C, BU	Eco-efficiency	A1
León-Soriano et al.	2010	Journal article	Case study	Private (family business)	Small/medium	SPMM	C	Sustainability	B2
Parisi	2010	Book chapter	Conceptual	–	–	SPMM	C	Sustainability	n.a.
Schneider and Vieira	2010	Journal article	Case study	Private (family business)	Small	SPMM	C	Sustainability	A0
Sundin et al.	2010	Journal article	Case study	State owned	Large	SPMM	C, BU	Sustainability	B1
Tsamenyi et al.	2010	Journal article	Multicase study	Private	n.a.	Benchmarking	C	Philanthropy	n.a.
Zingales	2010	PhD thesis	Multicase study	Public listed	Large	SPMM	BU	Sustainability	A2
Avlonas and Swannick	2009	Book chapter	Case study	Public listed	Large	SPMM; reporting	BU	Sustainability	n.a.
Hansen et al.	2009	Conference proceedings	Case study	Public listed/subsidiary	Medium	SPMM	BU	Philanthropy	A3 (r)
Hubbard	2009	Journal article	Conceptual	–	–	Measurement; reporting	C	Sustainability	C0
Morsing and Oswald	2009	Journal article	Case study	Public listed	Large	SPMM	C, BU, I	Sustainability	A2
Panayiotou et al.	2009	Journal article	Archival	Public listed	Large	Benchmarking	C	Sustainability	A3
Jamali	2008	Journal article	Quantitative (survey)	n.a.	n.a.	Benchmarking	C	Sustainability	n.a.
Joseph	2008	Journal article	Case study	Public listed	Large	SPMM	C, BU, SSU, I	Sustainability	A1
Länsiluoto and Järvenpää	2008	Journal article	Case study	Public listed	Large	SPMM	C, BU	Eco-efficiency	A2
Morsing and Oswald	2008	Journal article	Case study	Public listed	Large	SPMM	C, BU, I	Sustainability	A2
Parisi and Hockerts	2008	Journal article	Case study	Public listed	Large	SPMM	C, BU, SSU/ESU	Sustainability	A
Simmons	2008	Journal article	Conceptual	–	–	SPMM; reporting	C	Stakeholders	n.a.
Claver-Cortés et al.	2007	Journal article	Multicase study	Public listed	Large	Benchmarking	C	Environment	A2
Dias-Sardinha et al.	2007	Journal article	Multicase study	Public listed	Large	SPMM	SSU/ESU	Environment	B2
Wagner	2007	Journal article	Quantitative (survey)	Mixed sample	Small/medium and large	SPMM	C	Environment	A

Table 2 continued

	Year	Publication	Study method	Ownership	Size	Purpose	Scope	Focus	Architecture
Schaltegger and Wagner	2006a	Journal article	Case study	Private/state-owned	Large	SPMM; reporting	C	Sustainability	A3 (r)
Schaltegger and Wagner	2006b	Book chapter	Conceptual	–	–	SPMM; reporting	C	Sustainability	A3 (r)
Voelpel et al.	2006	Journal article	Conceptual	–	–	SPMM	C	Sustainability	C2
Wagner and Schaltegger	2006	Book chapter	Quantitative (survey)	Private	Small/medium and large	Benchmarking	C	Environment	A3 (r)
Yongvanich and Guthrie	2006	Journal article	Conceptual	–	–	Reporting	C	Sustainability	n.a.
Anand et al.	2005	Journal article	Quantitative (survey)	Public listed	Large	SPMM	C, BU, I	Sustainability	A
Crawford and Todd	2005	Journal article	Illustrative cases	Public listed	Large	SPMM; reporting	C	Sustainability	A2
Dias-Sardinha and Reijnders	2005	Journal article	Interview study	Private	Large	Benchmarking	C	Sustainability	B2^e
Möller and Schaltegger	2005	Journal article	Conceptual	–	–	SPMM; information system	C	Eco-efficiency	A3 (r)
Epstein and Roy	2004	Journal article	Conceptual	–	–	SPMM	B	Sustainability	A1
Hardjono and de Klein	2004	Journal article	Illustrative cases	Public listed	Large	SPMM	n.a.	Sustainability	A, B
van der Woerd and van den Brink	2004	Journal article	Multicase study	Cooperatives	Small/medium and large	SPMM	BU	Sustainability	B3
van Marrewijk	2004	Journal article	Conceptual	–	–	SPMM	C	Sustainability	B3
SIGMA	2003	Study report	Other^f	–	–	SPMM	C, BU, SSU	Sustainability	B2
Zingales and Hockerts	2003	Working paper	Illustrative cases	Public listed	Large	SPMM	C, BU, SSU	Sustainability	A
Bieker and Waxenberger	2002	Conference proceedings	Conceptual	–	–	SPMM	BU, SSU	Sustainability	C3
Brignall	2002	Conference proceedings	Conceptual	–	–	SPMM	C, BU	Sustainability	B0
Dias-Sardinha et al.	2002	Journal article	Quantitative (survey)	Mixed sample	Small/medium	SPMM	C, BU, SSU	Environment	B2
Figge et al.	2002a	Journal article	Conceptual	–	–	SPMM	BU	Sustainability	A3 (r)
Figge et al.	2002b	Conference proceedings	Illustrative case	Private (family business)	Large	SPMM	BU	Sustainability	A3 (r)
Gardiner	2002	Journal article	Conceptual	–	–	SPMM	C, BU	Social/ethics	A2
Gminder and Bieker	2002	Conference proceedings	Multicase study	n.a.	n.a.	SPMM	BU, SSU/ESU	Sustainability	A, B
Jensen	2002	Journal article	Conceptual	–	–	SPMM	C, BU, SSU, I	Stakeholders	–
Schaltegger and Dyllick	2002	Edited book	Multicase study	Mixed sample	Large	SPMM	C, BU, SSU	Sustainability	A
Zingales et al.	2002	Working paper	Multicase study	Public listed	Large	SPMM	C, BU, SSU	Sustainability	A
Bieker et al.	2001	Conference proceedings	Conceptual	–	–	SPMM	C, BU, SSU	Sustainability	A
Epstein and Wisner	2001a	Journal article	Illustrative cases	Public listed	Large	SPMM; reporting	C, BU, SSU	Sustainability	A
Epstein and Wisner	2001b	Report	Illustrative cases	Public listed	Large	SPMM; reporting	C, BU, SSU	Sustainability	A
Figge et al.	2001	Conference proceedings	Conceptual	–	–	SPMM	BU	Sustainability	A3 (r)
Jensen	2001	Journal article	Conceptual	–	–	SPMM	C, BU, SSU, I	Stakeholders	–
Spiller	2000	Journal article	Archival	Public listed	Large	Benchmarking	C	Sustainability	n.a.
Radcliffe	1999	Conference proceedings	Conceptual	–	–	SPMM	n.a.	Environment	A2
Johnson	1998	Journal article	Conceptual	–	–	SPMM	ESU	Environment	A2
James	1994	Journal article	Conceptual	–	–	SPMM	C	Environment	n.a

a Small ≤ 50 employees; Medium > 50 and ≤ 250 employees; Large > 250 employees

b Strategic performance measurement and management (SPMM)

c Board (B); Corporate (C); Business Units (BU); Shared service units (SSU); Environmental service unit (ESU); Individuals (I)

d Codes relate to framework of BSC architectures in Fig. 4; l = left; r = right

e Architecture is not specified in detail

f According to the project website, it is most probably a qualitative and action research study, however, method is not explicitly stated in the article

Fig. 2 Methods used in the sample
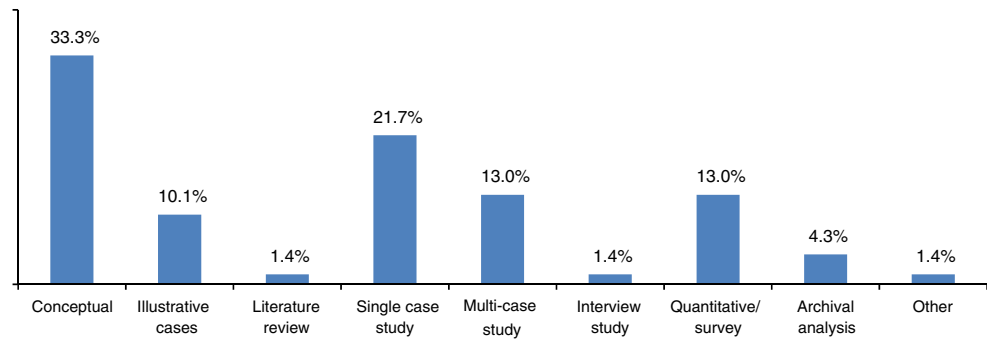
perspective, the management of social and environmental issues is seen to strengthen *competitive advantage* (e.g. Figge et al. 2002a; Johnson 1998; Schneider and Vieira 2010) or increase a firm's efficiency (Voelpel et al. 2006). This also links to the '*business case for sustainability*' literature (e.g. Bieker et al. 2001; Figge et al. 2002a; Joseph 2008; León-Soriano et al. 2010; Möller and Schaltegger 2005; see also Epstein and Wisner 2001a). Another aspect of the instrumental perspective relates to the *strategic stakeholder theory,* in which it is hypothesised that the recognition of a broader set of stakeholders will lead to improved organisational performance (Jamali 2008; Sundin et al. 2010), for instance, due to better relationships, improved products or enhanced reputation.

The instrumental perspective is also taken by authors from the knowledge management field. They criticise the conventional BSC architecture for ignoring today's most important paradigms of economic success: innovation, knowledge and intangible assets (Simmons 2008; Voelpel et al. 2006). They argue for a new strategic management theory by embracing knowledge management and they claim that the co-creation of knowledge in networks and collaboration (both intra- and interorganisational) is at the heart of success in the race for innovation. To facilitate collaboration and knowledge exchange, they emphasise the need for a more systemic perspective in which different stakeholders are considered partners in a collaborative knowledge creation process. Claver-Cortes et al. (2007) argue from an *intellectual capital* perspective. They claim that the management of eco-logical issues in general and the competency to "offer the market products and services that are more environmentally friendly and therefore have a higher added-value component" in particular represent intangible assets leading to "environmental capital" (Claver-Cortes et al. 2007, p. 172).

The BSC has also been linked to *quality management.* Some authors criticise the conventional understanding of quality as too strongly centred on internal processes and see a lack of outcome orientation (e.g. Hubbard 2009). However, many SBSC publications (e.g. Parisi 2010; van der Woerd and van den Brink 2004) are rooted in or linked to *total quality management* concepts such as the European Framework of Quality Management (EFQM). The EFQM framework can accommodate the stakeholder approach and link performance enablers not directly to organisational performance but to intermediate results via various stakeholders (e.g. Hardjono and de Klein 2004). Some scholars have used this as an conceptual base to further strengthen the role of external stakeholders in the BSC (van der Woerd and van den Brink 2004; van Marrewijk 2004; Spiller 2000; see also: Anand et al. 2005).

From an *accounting* perspective, given the increasing instrumental value of sustainability issues, the SBSC is in line with the *decision-usefulness criterion* requiring that environmental and social accounting information is also valuable to decision makers (Brignall 2002; Schaltegger 2011).

Social and Political Perspectives

While from an instrumental perspective the driving forces behind the integration of sustainability issues into organisational decision-making and related management systems (such as the BSC) include competition, efficiency or some other form of rational adaptation to technical, market and environmental conditions, the social and political perspective emphasises how companies have to respond to societal expectations in order to maintain their 'license to operate' and ultimately to thrive (Brignall 2002). Social and political theory thus focuses on the relationship between organisations and their societal environment.[2]

Institutional theory postulates that organisations adapt to their institutional environment in order to achieve *organisational legitimacy* (DiMaggio and Powell 1983). Institutions represent a "web of values, norms, rules, beliefs, and taken-for-granted assumptions" (Barley and Tolbert 1997). Institutional theory thus prioritises organisational legitimacy over efficiency, and even legitimacy at the expense of efficiency (Barley and Tolbert 1997). Performance measurement and management tools such as the BSC are used to meet societal expectations and achieve legitimacy (Brignall 2002; Länsiluoto and Järvenpää 2010).

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[2] We used a social and political perspective as indicated by Gray et al. (1995). This covers both political and integrated perspectives introduced by Garriga and Melé (2004).

Institutional pressures can result in organisations becoming ever more similar or isomorphic (DiMaggio and Powell 1983). This *institutional isomorphism* is experienced by organisations through coercive (response to regulatory pressure), normative (response to professionalisation) and mimetic (imitation of others under uncertainty) processes. For example, Gardiner (2002) argues, although not explicitly, that normative isomorphism is a major force behind the integration of sustainability-related issues into the BSC by emphasising that increasing professionalisation is driven by the need to conform to social and environmental standards (e.g. GRI guidelines). Strongly related to institutional theory, *management fashion* has also been highlighted as a motivation to implement the SBSC (Länsiluoto and Järvenpää 2008). Management fashion theory explains how organisations adopt management techniques to demonstrate compliance with external norms of rationality and norms of progress (Abrahamson 1996).

Decoupling, another important element of institutional theory (Boxenbaum and Jonsson 2008; Meyer and Rowan 1991), has also been applied to the study of the SBSC (Brignall 2002; Parisi 2010). Decoupling describes the deliberately induced gap between the external perception of what a performance management tool does and the actual internal decision-making and behaviour related to the 'tool-in-use'. While the external perception is usually informed by the communication of the visual structural characteristics of the performance management tool (e.g. performance perspectives and strategic objectives as presented in strategy maps), internal use requires deeper qualitative insights into actual management practices. Decoupling increases organisational flexibility as it buffers contradictions between external stakeholder expectations and internal efficiency, which is an important factor for organisational survival (Brignall 2002). More specifically, Brignall suggests that *coercive* isomorphism is linked to tight coupling, *normative* isomorphism to loose coupling and *protective* isomorphism to decoupling.

Brignall (2002; in reference to Gray et al. 1995) highlights the theoretical view of *political economics* as a conflict-based perspective "taking into account deep conflicts among different interests in society" to study social issues in accounting systems. This perspective can be informed by *stakeholder theory* expressing that a

> corporation's continued existence requires the support of the stakeholders and their approval must be sought and the activities of the corporation adjusted to gain that approval. The more powerful the stakeholders, the more the company must adapt. (Gray et al. 1995, p. 53)

This understanding of stakeholder theory is more political than the instrumental stakeholder theory presented above, which is focused on organisational performance, and than normative stakeholder theory grounded in ethics (as will be discussed later). Sundin et al. (2010) ground their study in *sensemaking theory* (Weick 1995), which understands organisations as social systems or processes in which the mental mindsets of managers constitute their view of the external environment and stakeholders. Sundin et al. emphasise the social construction of cause-and-effect chains in the BSC in contrast to the traditional view of them as statistically verifiable relationships and argue that there is no optimal or maximised endpoint in the BSC but that it is instead a mechanism to understand and deal with trade-offs among stakeholders.

Normative Perspectives

The third theoretical grounding is normative or ethical. Joseph (2008) criticises instrumental approaches, particularly agency theory, as being too narrowly focused on shareholder wealth. Instead, he argues for a *normative stakeholder theory* that aims at "total wealth creation" (2008, p. 138). In normative stakeholder theory, "the firm is seen as having responsibilities to a wider set of groups than simply shareholders" (Hubbard 2009). The ethical consideration of stakeholders is different from strategic stakeholder theory, which sees instrumental value in the recognition of stakeholders. While strategic stakeholder theory is seen to be focused more on transactional relationships with stakeholders (e.g. customers), normative stakeholder theory holds that all stakeholders have normative legitimacy (Bieker and Waxenberger 2002; Hubbard 2009) and thus organisations have moral obligations towards them (Sundin et al. 2010).

Adopting a stakeholder-based management view requires multidimensional performance measurement systems (Joseph 2008) such as the BSC. With its recognition of some stakeholders (e.g. shareholders, customers and—implicitly—employees), the BSC is mainly considered close to or at least in harmony with stakeholder theory (e.g. Bieker and Waxenberger 2002), with some even claiming that the BSC is in fact based on stakeholder theory (Hubbard 2009). Following this understanding, and as discussed in the subsequent section in detail, researchers propose various extensions of the BSC to more explicitly consider a wider set of stakeholders (e.g. Jamali 2008).

Other normative approaches have been proposed besides stakeholder theory. Some are rooted in the principles of *sustainable development* (e.g. SIGMA 2003). The recourse to sustainable development has also been made for many instrumental approaches (e.g. Figge et al. 2002a), demonstrating the existence of a normative core in instrumental approaches (Donaldson and Preston 1995). Bieker and Waxenberger (2002) base their work in *integrative*

Fig. 3 Sustainability-related strategic objectives addressed in the generic SBSC architectures
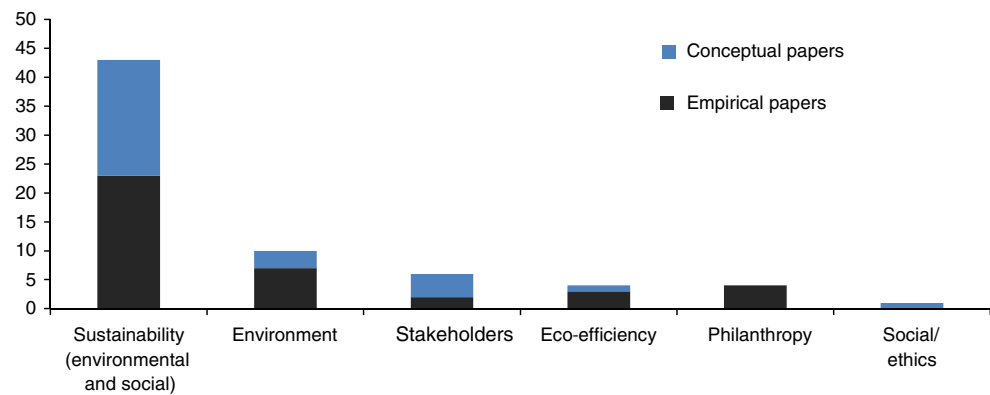
economic ethics (Ulrich 2008)—which is itself rooted in ethical approaches such as the golden rule, Kant's categorical imperative and Habermasian discourse ethics—to justify the recognition of stakeholder demands, as well as related social and environmental issues, in the BSC. Gardiner (2002) more generally speaks of *ethical and social accountabilities* in business as rooted in Kantian moral duty and communitarian ethics, and sees the BSC as a good tool to manage these. Another group of scholars bases its normative work in '*emerging cyclical levels of existence theory*' (also popularised as 'spiral dynamics') which provides, comparable to Maslow's hierarchy of needs, an evolutionary model with stages (for both individuals and organisations) ranging from survival values to community values (van Marrewijk 2004; van der Woerd and van den Brink 2004).

These three theoretical perspectives—instrumental, social/political and normative—are important to understand the potential roles of the SBSC for organisations and to better understand the main differences in SBSC architectures.

Analysis of SBSC Architectures

The SBSC has been positioned as a modification of the BSC that explicitly integrates environmental and social strategic objectives into its architecture. Before going into details, a brief overview of the specific environmental and social objectives addressed in SBSCs is given in Fig. 3. It shows that most publications focus on integrating both environmental *and* social objectives into the conventional BSC, addressing a broad range of sustainability aspects. Others emphasise a single dimension (e.g. the environment), the relationship between two dimensions (e.g. eco-efficiency) or even a single specific issue (e.g. strategic philanthropy).

Various modifications of BSC *architecture* have been proposed in order to integrate environmental and social objectives. They can be structured according to two dimensions:

- The first dimension describes the nature of the *hierarchy* among the individual performance perspectives (and related strategic objectives). This dimension refers to the organisation's value system (van Marrewijk 2004).
- The second dimension describes the actual design of *performance perspectives* (and related strategic objectives). This dimension relates to the corporate sustainability strategy (Bieker et al. 2001; Epstein and Wisner 2001a).

Taking both dimensions together, a typology of *generic SBSC architectures* emerges (Fig. 4) with codes (e.g. A1) for each of the architectures. Both dimensions—SBSC hierarchy and SBSC performance perspectives—are elaborated in more detail in the following.

Dimension 1: SBSC Hierarchy and the Organisational Value System

While the originators of the BSC framework have a strictly hierarchical understanding of the relationships among strategic objectives (together with their related performance perspectives) and leave no room for alterations, the publications in the sample show a different picture. In the SBSC literature, some authors follow Kaplan and Norton in calling for strictly hierarchical cause-and-effect linkages (e.g. Figge et al. 2002a), some propose semi-hierarchical architectures (Sundin et al. 2010), whereas others propose network-like architectures (e.g. Hubbard 2009; Voelpel et al. 2006). Generally, van Marrewijk (2004; see also van der Woerd and van den Brink 2004) finds that an organisation's sustainability management efforts depend on and are constrained by the degree and nature of the BSC's hierarchy. Given the large hierarchical differences of SBSC architectures, the next section discusses in greater depth the three types of hierarchy (strictly hierarchical, semi-hierarchical and non-hierarchical) before describing the relevant contingency factors.

Fig. 4 A typology of generic SBSCs architectures (strategy maps)
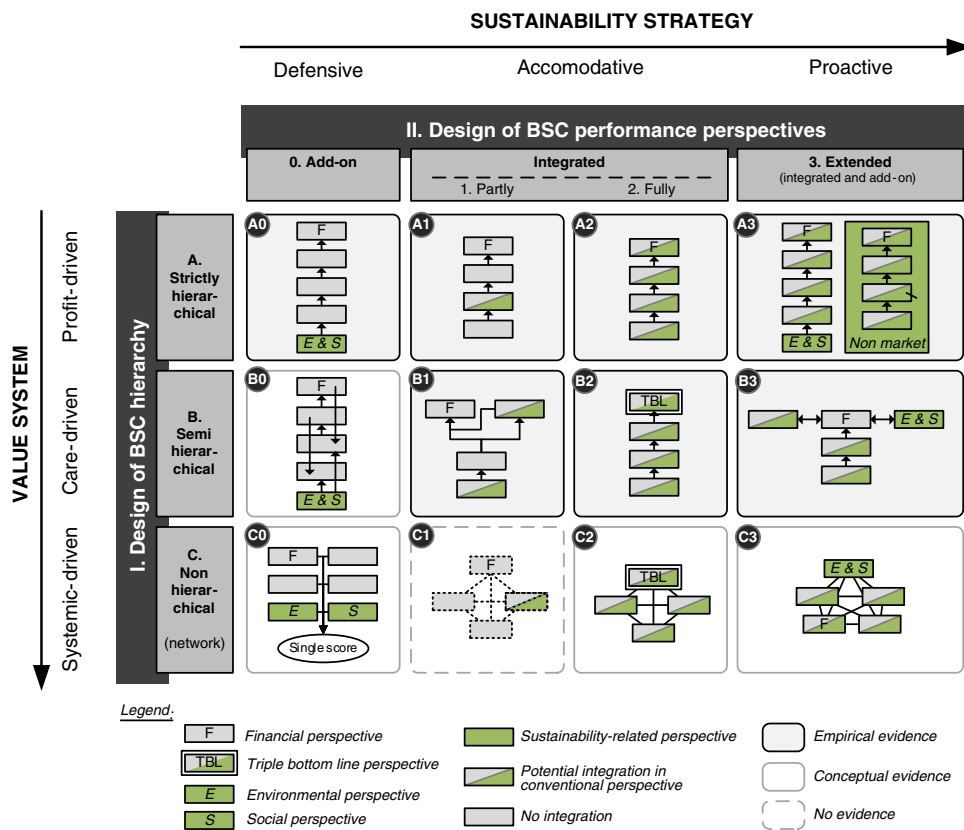

Strictly Hierarchical

The strictly hierarchical architecture maintains the conventional hierarchy of the BSC. Most publications arguing for a strict hierarchy take a strong instrumental perspective (though sometimes they are implicitly normative, e.g. Lee 2008) based on concepts such as competitive advantage and the business case for sustainability. It is not surprising that this is the dominant perspective in the overall sample (the frequencies with which publications from the sample match certain types of architecture are presented in Fig. 5). Still, social and political theories (e.g. institutional theory) are also sometimes used in proposing a strict hierarchy.

Advocates of a strictly hierarchical SBSC emphasise the original character of the conventional BSC and the need for a top-down arrangement of performance perspectives with accurate linkages of strategic core issues and performance drivers, all of which ultimately contribute to financial objectives (e.g. Figge et al. 2002a; Johnson 1998). The hierarchical design has its roots in scientific management theory and the goal of profit maximisation (Simmons 2008). However, the strict hierarchy is also considered necessary for fully embedding environmental and social aspects into general management, and for preventing the SBSC from being perceived as a mere public relations exercise (Zingales et al. 2002). A strictly hierarchical

SBSC supports decisions requiring trade-offs and is seen as the appropriate design for a 'strategy scorecard' (Kaplan and Norton 2001b, p. 102).

Although Jensen (2001) criticises the BSC because "a decision maker cannot make rational choices without some overall single dimensional objective to be maximised" and the BSC fails to specify how trade-offs are to be made, this fundamental rejection of multidimensional performance measurement seems inappropriate. First, at least in conventional BSC architectures, the strict hierarchy requires that all strategic goals directly or indirectly contribute to financial outcomes, hence giving managers some initial guidance. In fact, it may be the case that trade-offs tend to favour short-term financial performance too strongly (Zingales et al. 2002). Second, recent empirical evidence suggests that managers are in fact capable of balancing different objectives (Sundin et al. 2010).

With reference to sensemaking theory, Sundin et al. (2010) relax this strict understanding of cause-and-effect chains by highlighting the role of *social constructivism*. They argue that cause-and-effect chains in the SBSC are socially constructed rather than statistically verifiable relationships. Moreover, they claim that managers may not even want to verify the postulated causal linkages as they simply want to believe in the representativeness and correctness of these links. While these assumptions are still compatible with the strictly

Fig. 5 Frequencies of generic
SBSC architectures
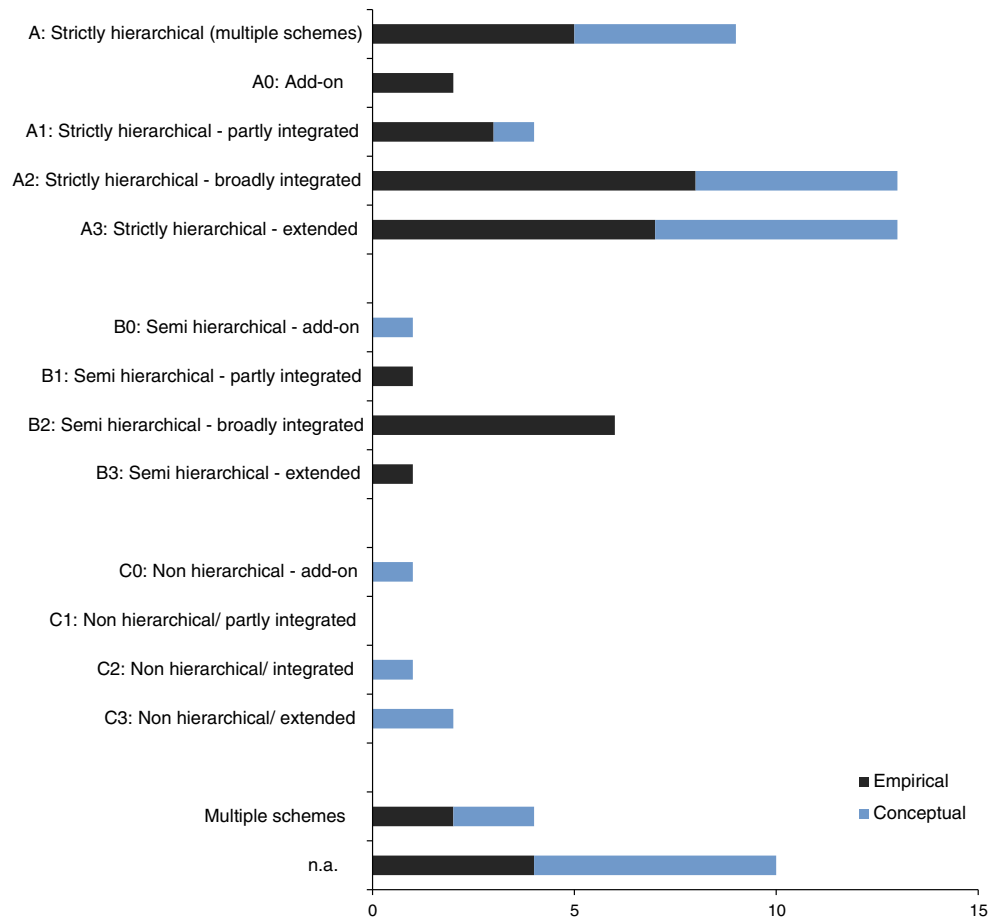
hierarchical nature of the SBSC, they also open up the discussion to less rigorous understandings of hierarchy.

Semi-hierarchical

The semi-hierarchical SBSC is rooted most strongly in social/political and normative theory. From social/political perspectives, relaxing strict cause-and-effect chains and thus allowing non-financial objectives to exist in their own right are a means to deal with conflicting interests of different stakeholder groups in order to secure organisational legitimacy and thus survival (Brignall 2002). Accordingly, managers have to move from a 'maximizing' to a 'satisficing' approach in which decisions "will ensure an outcome that is at least minimally satisfactory along all dimensions" (Sundin et al. 2010, p. 208).

Concerning the architecture, the semi-hierarchical SBSC involves two interrelated modifications. A *first modification* addresses the cause-and-effect chains. At least to some degree, strictly causal relationships from each strategic objective to financial performance are rejected (e.g. Hsu et al. 2011). It emphasises that some strategic objectives exist in their own right, thus allowing a greater diversity of SBSC architectures. Schneider and Vieira (2009) find

conflicting evidence in the literature as to whether cause-and-effect chains are actually necessary for the BSC. Other researchers more directly criticise cause-and-effect linkages because causal relationships are "not always linear and one-way, but are commonly a fuzzy mess of interactions and interdependencies" (Brignall 2002). Thus, relations are, if at all, logical rather than causal (Brignall 2002; Sundin et al. 2010). With a multiple case study of cooperatives, van der Woerd and van den Brink (2004) find that companies aiming at higher levels of sustainability, particularly when sustainability becomes part of the product-market mix, are overly constrained by the strict hierarchical architecture. Moreover, in a quantitative survey, Anand et al. (2005) reveal that almost half of the respondents find it difficult to establish cause-and-effect chains. Thus, in its place a *semi-hierarchical architecture* in which "most [but not all] cause-and-effect relations will point upward" is proposed (van der Woerd and van den Brink 2004, p. 178).

A *second modification* of the SBSC architecture is a broadening of the financial perspective from a focus solely on the financial bottom line of organisational performance to the triple bottom line (van Marrewijk 2004, p. 152). There are two options. First, the top-level financial perspective can be replaced by a broader approach such as a

triple bottom line, sustainability or eco-efficiency perspective (e.g. Dias-Sardinha et al. 2002, 2007; León-Soriano et al. 2010; SIGMA 2003; see B2 architecture in Fig. 4) or, second, additional environmental and/or social perspectives can be added on at the same hierarchical level (e.g. van Marrewijk 2004; see B3 architecture).

It may be arguable that there is no considerable difference between semi- and strictly hierarchical architectures, as both allow environmental and social objectives to be integrated into the financial perspective. However, in the financial perspective of the strictly hierarchical BSC, environmental and social objectives have to directly or indirectly contribute to financial objectives. In contrast, the semi-hierarchical architecture (with a triple bottom line perspective or multiple individual perspectives at the top)

allows the pursuit of environmental and social objectives in their own right. It thus aims at representing a "new governance structure" with "shareholder value being balanced with the interests of other legitimate stakeholders" (van Marrewijk 2004, p. 152).

Overall, compared to the strictly hierarchical SBSC, fewer publications propose the *semi-hierarchical SBSC*. Potential reasons are that (1) its implementation demands a "renewed learning process" (van der Woerd and van den Brink 2004, p. 179) and (2) that "time consuming group processes" are involved (van Marrewijk 2004, p. 152). Still, case study evidence (as presented in Table 3) shows that the semi-hierarchical BSC is not only adopted by cooperatives (van der Woerd and van den Brink 2004; also: SIGMA 2003), state-owned companies (Sundin et al. 2010)

Table 3 Generic SBSC architecture and type of business organisation (based on case studies)

Company type	Owned by/ primary control	Generic SBSC architecture[a]	
		Strictly hierarchical	Semi-hierarchical
Large, public listed companies	Investors	•ACEA[c] (Zingales 2010)	•EDP Produção (Dias-Sardinha et al. 2007)
		•ALPHA[c] (Zingales 2010)	•Sonãe (ibid.)
		•Axel Springer AG (Schaltegger and Dyllick 2002)	
		•Lloyds TSB plc[d] (Avlonas and Swannick 2009)	
		•Novo Nordisk (Morsing and Oswald 2008, 2009; Parisi and Hockerts 2008)	
		•Tata steel (Joseph 2008)	
		•PC Ltd.[c]; SC Ltd.[c] (Tsamenyi et al. 2010)	
		•Unaxis Balzers AG (Schaltegger and Dyllick 2002)	
Subsidiary of public listed companies	Parent company; joint venture partners	•Food plc[c] (Länsiluoto and Järvenpää 2008, 2010)	n.a.
		•Merck Ltd., Thailand[e,f] (Hansen et al. 2009, Hansen et al. 2010; Hansen and Spitzeck 2011)	
Small and medium-sized family businesses[b]	Families/owner managers	•Fresh Breeze[c] (Schneider and Vieira 2010)	•Ceramic Ltd.[c,g] (León-Soriano et al. 2010)
Cooperatives	Employees	n.a.	•Coop Adriatica (van der Woerd and van den Brink 2004)
			•Granarolo (ibid.)
Partly state-owned companies	State (partly)	•Berliner Wasserbetriebe[h] (Schaltegger and Dyllick 2002)	•Energyco[i] (Sundin et al. 2010)
		•Hamburg Airport[j] (Schaltegger and Wagner 2006a)	

[a] Companies listed stem only from publications using a case study research strategy (illustrative cases were omitted for lack of detail)

[b] We refer to the definition by the European Union, where small and medium-sized enterprises are defined as having less than 250 employees (European Commission 2003)

[c] Fictitious name due to reasons of anonymity

[d] Actual SBSC architecture unknown – however, a strictly hierarchical architecture is most likely

[e] Joint venture with local investor

[f] Thai subsidiary of the publicly listed stock corporation Merck Darmstadt, Germany (partly family owned)

[g] Family-owned business (with a hired general manager – i.e. not owner managed)

[h] Partly state-owned (majority)

[i] Fully state owned

[j] Partly state-owned (minority)

and family businesses (León-Soriano et al. 2010), but also publically listed and private companies (Dias-Sardinha et al. 2007).

Non-hierarchical (Network)

The non-hierarchical SBSC is predominantly a normative phenomenon (e.g. Bieker and Waxenberger 2002; Hubbard 2009). Accordingly, authors strongly argue against linear cause-and-effect chains and replace the *BSC hierarchy* by a network structure where all perspectives are interlinked (e.g. Bieker and Waxenberger 2002) or exist in their own right (Voelpel et al. 2006). According to Kaplan and Norton's (2001c) dichotomy of a strategic scorecard, where all strategic objectives are just means to an end, and a stakeholder scorecard, where objectives for different constituencies exist in their own right, the non-hierarchical SBSC architecture is clearly a stakeholder scorecard. However, Sundin et al. (2010) question this dichotomy. If an organisation's strategy aims at pursuing multiple goals or at satisfying multiple stakeholders, then the BSC design should represent this plurality to enable a successful strategy implementation. Sundin et al. (2010) thus conclude that a stakeholder scorecard may at the same time be a strategic BSC. The architecture proposed by Hubbard (2009) also represents network characteristics by establishing a procedure on top of the SBSC that allows for a weighted aggregation of all performance perspectives (and indicators) into a single score—though originally with the purpose of external reporting. In fact, this could be understood as an approach for converting the multigoal SBSC into a "single-valued objective function" (Jensen 2001). However, it remains questionable whether this is at all desirable. For the practice of balancing multiple objectives in the context of top management decision-making, Sundin et al. (2010) report that practitioners are opposed to such aggregation through weighting systems.

In an exception to the dominance of normative standpoints, Voelpel et al. conceptually advance on the basis of knowledge management a strongly instrumental network and non-hierarchical perspective. In knowledge and innovation driven companies and industries, often confronted with disruptive change, "simple cause-effect relationships are not sufficient anymore to understand complex relationships […] making it difficult to deal with an interconnected and networked world" (2006, p. 54). Accordingly, they propose a more holistic systems view leading to a "systemic scorecard".

The non-hierarchical SBSC architecture has several drawbacks including the "difficulty in maintaining focus" and a risk of a "lack of commitment to organisations and people" (van Marrewijk 2004, p. 155). Jensen (2001) general criticism of the BSC with regard to difficulties in

making trade-offs is surely an important point in the context of network-like performance frameworks. Thus, its feasibility in practice is uncertain (van der Woerd and van den Brink 2004). It is probably for this reason that this fairly radical deviation from the conventional BSC architecture has so far remained predominantly a normative and conceptual undertaking (i.e. no empirical papers) and poorly investigated phenomenon.

SBSC Hierarchy and Value System

We have presented evidence that the design of the SBSC hierarchy can be much more diverse than the original BSC concept. Now we turn to the contextual variables in an attempt to explain why a specific architecture is applied in a given organisation. Van Marrewijk (2004) argues that it is the organisation's value system that determines the nature of the BSC hierarchy. He understands a value system as follows (ibid., p. 148):

> Values are considered as coping mechanisms to meet specific challenges and to structure institutions in order to influence behaviour. A value system is a way of conceptualising reality and encompasses a consistent set of values, beliefs and corresponding behaviour and can be found in individual persons, as well as in companies and societies.

He distinguishes three major value systems—profit-driven (success), community-driven (community) and systemic-driven (synergy)—representing stages on a path from strictly hierarchical to non-hierarchical relationships among strategic objectives in the BSC (van Marrewijk 2004; see also: van der Woerd and van den Brink 2004):

- A strict SBSC hierarchy best resembles a "profit-driven value system" where organisations maintain "an active hierarchy", "seek for progress and success" and "benchmark themselves against competition" while "success is […] primarily measured in terms of money and commercial assets" (van Marrewijk 2004, p. 150f). Sustainability is considered an opportunity to achieve success, reduce risks and enhance reputation or image (ibid., p. 151). It should be noted that the label profit-driven does not signify that the respective value system is the only one linked to for-profit companies. On the contrary, the other two idealised value systems can in principle also be found in for-profit companies. Profit-driven means here that it is the value system with the greatest appreciation for profit seeking or profit maximisation (e.g. as represented by the shareholder value paradigm).
- van Marrewijk (2004, p. 152) considers the semi-hierarchical BSC as based in a "care-driven value

system" characterised by "a sense of community and unity", "fairness" and the belief that "co-operation beats competition". A semi-hierarchical BSC design thus requires "shareholder value being balanced against the interest of other legitimate stakeholders" and therefore would "collaborate first internally and second by engaging with outside stakeholders".

- The non-hierarchical architectures reflects a "systemic-driven value system" and is characterised by "flexibility and open systems", "networks", "alignment […] between the various entities within the network, including stakeholders" and the ability "to learn from any source" (van Marrewijk 2004, p. 155).

A value system is somewhat related to a specific theoretical perspective, for example, the profit-driven value system is closest to the instrumental perspective; the systemic value system—as shown in our analysis—tends to be conceptual and is more likely to be informed by normative approaches. However, it is important to emphasise here that all SBSC architectures—regardless of value system and related hierarchy—can be grounded in all three theoretical perspectives.

Value systems represent the collective deeply ingrained values of individuals in human organisations. They are certainly difficult to change, but at the same time organisations are also dynamic. They can thus not only contribute to our understanding of SBSC *designs*, but also help to examine SBSC *evolution* (Searcy 2012). van Marrewijk (2004) grounds his research in emergent cyclical levels of existence theory and finds that organisations can gradually develop from purely profit-driven, to care-driven and finally to systemic-driven value systems and thus lead to more substantial changes of the SBSC architecture, particularly its hierarchy (these evolutionary developments are shown in the typology in Fig. 4). Evolution to a higher level value system presupposes and requires learning processes for organisations that have become familiar (and thus are maybe stuck) with more conventional SBSC architectures (van der Woerd and van den Brink 2004).

Although the value system can evolve over the long term, there are a number of constraints depending on the type of organisation, such as its legal status and related ownership situation (e.g. private vs. public limited companies). Probably not all value systems can be developed equally well in all types of organisation. The analysis of empirical studies in the sample indicates that the organisational type may correlate with the value system (for evidence from real companies concerning hierarchical and semi-hierarchical SBSC architectures see Table 3). It seems plausible, for example, that public limited companies are most strongly driven by profit maximisation and are therefore most likely, though not exclusively, operating under a profit-driven value system. In

contrast, though cooperatives also seek profits, they simultaneously pursue other objectives as well (such as providing employment) and are therefore more likely to operate under a care-driven value system.

In summary, the literature reveals three different approaches to hierarchy (strictly, semi- and non-hierarchical) which are contingent on the organisational value system (profit, care and systemic-driven). This differentiation may help to better understand the most fundamental differences between SBSC architectures. Nevertheless, SBSC architectures also differ with regard to the design of performance perspectives.

Dimension 2: SBSC Performance Perspectives and Corporate Sustainability Strategy

While the first dimension of the framework shows the influence of value systems on the hierarchy of BSC architecture, the second dimension relates on a more fine-grained level to performance perspectives and sustainability-related strategic objectives. Generally speaking, there are two modifications, which can also be combined, for the integration of sustainability objectives into the BSC (Bieker et al. 2001; Epstein and Wisner 2001a; Figge et al. 2002a; Gminder and & Bieker 2002): first, the sustainability objectives can be partly or fully integrated into the conventional four BSC perspectives and, second, they can be added as a dedicated sustainability perspective complementing the four conventional BSC perspectives. This leads to four combinations representing an increasing degree of integration in the following order: adding a sustainability perspective only (add-on); partial integration into existing perspectives (partly integrated); complete integration into existing perspectives (fully integrated) and simultaneous integration into existing perspectives while adding a dedicated perspective (extended). As we are interested here in the *integration* of sustainability into mainstream performance management and measurement, simply adding a separate sustainability perspective is the least far reaching of the four. Each of these architectural design choices is further explored in the following section and their contingency on corporate sustainability strategy is explained.

Add-on

Kaplan and Norton already emphasised that some organisations may need additional performance perspectives beyond the four in the original BSC (Kaplan and Norton 1996, p. 34). Adding a performance perspective dedicated to environmental and social objectives is thus uncontroversial (see the A0 architecture in Fig. 4; e.g. Schneider and Vieira 2010; Tsamenyi et al. 2010). Two or more

individual perspectives can also be created for environmental and social goals (Hubbard 2009).

A dedicated perspective emphasises the importance of environmental and social objectives as these objectives are then able to be separately managed (though usually subordinated to the financial perspective). Adding a dedicated performance perspective for sustainability-related objectives can be a significant change to the existing BSC system and is often considered a very significant contribution to sustainability because it allows for the pursuit of multiple sustainability-related strategic objectives (Epstein and Wisner 2001a, b; Gminder and Bieker 2002). This holds, however, only if strong linkages to the existing four perspectives exist, which is not always the case. For the *integration* of sustainability objectives into mainstream management, the mere addition of a new performance perspective to the existing BSC system—often with poor linkages to the existing performance perspectives—runs a high risk of failure. In the worst case, the dedicated perspective will only be dealt with by the sustainability or environmental department in the sense of a 'parallel organisation' without much interaction with mainstream business (Schaltegger and Wagner 2006a).

Furthermore, considering the constant evolution of SBSC designs, another risk is that the additional perspective can easily be eliminated, for example, due to changes in top management priorities. For this reason, Figge et al. (2002a) argue that sustainability objectives should only be put into a dedicated perspective if they cannot be integrated into existing perspectives. The isolated addition of an extra perspective can be considered to a certain extent as a reactive approach. Some form of integration into existing performance perspectives—as presented in the next section—is a necessary first step to link add-on perspectives with core management processes and to create business and societal value.

Partly Integrated

A better though still limited form of integration is achieved by a relatively cautious integration of environmental or social aspects in one or few BSC perspectives. Such an approach often relates to the internal process perspective (e.g. Epstein and Wisner 2001a), in which environmental protection, environmental tax payments, energy efficiency or occupational health and safety objectives—all directly related to production processes—are integrated (see the A1 architecture in Fig. 4). In this case, extensions are mostly rooted in management philosophies defining environmental improvement as another aspect of quality. Länsiluoto and Järvenpää (2010), for instance, describe the role of the quality manager in integrating environmental objectives as related to cost reductions from the internal process perspective. In a case study on Tata motors, Joseph (2008) finds that the company considered safety, the environment and community well-being all under the umbrella of operational excellence as part of the internal process perspective.

Broadly Integrated

When environmental or social objectives are not only accounted for by slight modifications of one or a few perspectives but also are integrated into all conventional BSC perspectives, they are in fact 'broadly integrated'. For example, the *learning and growth* perspective may be extended with objectives reflecting green capabilities or intellectual capital (Claver-Cortés et al. 2007). The *customer perspective* can include objectives for product differentiation through environmental and social characteristics or sustainability-related image improvements of the product range (Figge et al. 2002a). The *internal process perspective*, along with the process efficiency improvements already mentioned (see partly integrated architecture), can also account for farther reaching innovation processes for sustainability (Maltz et al. 2003). Last but not least, new objectives in the *financial perspective* can represent cost reductions through eco-efficiency improvements (Dias-Sardinha et al. 2002), revenues and revenue potentials of sustainable products and services (Bieker et al. 2001) and even new business models. Of course, emphasis can be given to different performance perspectives. While an efficiency strategy highlights the internal process perspective, an innovation strategy may emphasise the customer perspective (Bieker et al. 2001).

While the labels of the performance perspectives are often kept unchanged, the integration of sustainability in the BSC sometimes goes along with reframing and relabelling perspectives. Many SBSC authors base their work in *stakeholder theory,* both normative and strategic, and argue for the consideration of a broad group of stakeholders (Jamali 2008). For example, about a quarter of the publications examined suggest broadening the customer perspective to include additional stakeholders leading to a "customers and (external) stakeholders" (Johnson 1998; Rohm and Montgomery 2011), "customer and suppliers" (van Marrewijk 2004) or "relational" perspective (Claver-Cortés et al. 2007). van Marrewijk (2004) proposes an "employee perspective" and Jamali (2008) addresses each stakeholder with a dedicated perspective. Although extending the SBSC perspectives towards other stakeholder groups (e.g. suppliers) can be an important step, corporate sustainability is only advanced if it is explicitly addressed in these stakeholder perspectives (for example, by requiring environmental and social practices in the supply chain). The extension of perspectives has also been discussed from a *knowledge management* view. Voelpel et al. (2006) criticise the BSC for being much too focused on

organisation-internal processes. They see companies in a race for innovation and knowledge—with knowledge being absorbed through co-creation processes by the interaction of internal and external actors. Accordingly, they propose to expand the conventional performance dimensions with "network-extended business processes" instead of the internal process perspective and "systemic knowledge and renewal" instead of the learning and growth perspective.

The financial perspective label usually remains untouched—at least in the strictly hierarchical architecture—even when financial sustainability objectives (e.g. eco-efficiency) are added (see A2 architecture in Fig. 4). This is different in the semi-hierarchical architecture with its top-level triple-bottom-line perspective (see B2 architecture), where environmental and social objectives exist in their own right alongside financial objectives.

Extended (Integrated and Addon)

These design options—adding a dedicated perspective and integrating sustainability objectives into existing perspectives—can also be pursued simultaneously (see A3 architecture in Fig. 4; e.g. Epstein and Wisner 2001a; Figge et al. 2002a; Schaltegger and Wagner 2006a). This "total integration" (Gminder and Bieker 2002) can be seen as the most progressive sustainability strategy. Sometimes, the additional sustainability perspective is introduced to capture strategic objectives with very long time horizons which do not or not sufficiently contribute to short-term financial success. For instance, Bieker et al. (2001) consider a fifth "society perspective" for strategic objectives related to market development, such as to develop public opinion, legislation and industry standards in a sustainability-oriented way.

Other researchers propose that a societal or non-market perspective is reserved for objectives derived from the societal and political context which cannot be integrated into the other four perspectives (Figge et al. 2002a; Schaltegger and Wagner 2006a); they also suggest an unconventional architecture in which the societal/non-market perspective embeds the four conventional performance perspectives (see the right version of A3 architecture in Fig. 4). For example, in a case study on an airport operator, Schaltegger and Wagner (2006a) introduce a locational perspective with various strategic objectives related to legitimacy and broader socio-economic goals. Hansen et al. (2010) find in their case study of a pharmaceutical company in a developing nation a social perspective incorporating strategic philanthropy objectives. The (visually) embedded architecture accompanying the non-market perspective may raise doubts whether this is still compatible with a strictly hierarchic architecture, however, as Figge et al. (2002a) emphasise,

the strategic objectives in the non-market perspective must still be part of the cause-and-effect chains.

SBSC Performance Perspectives and Corporate Sustainability Strategy

Given that the BSC is a tool for "translating strategies into action" (Kaplan and Norton 1996) SBSCs are generally designed on the basis of *existing* strategies (Epstein and Wisner 2001a). It is thus the actual organisation-specific strategies, and more specific sustainability strategies, which are the basis for developing SBSC architecture (Figge et al. 2002a). Indeed, in many organisations, a sustainability strategy had already been formulated before considering an SBSC (e.g. Hansen et al. 2010). However, this is not always the case. Sustainability strategies can also be derived as a first step in the SBSC development process. For example, Dias-Sardinha et al. (2007) describe a case study of a large multinational energy company where academics helped develop an SBSC in a process involving interviews and several workshops covering a timespan of roughly 1 year. They used strategy maps not only to explicate the sustainability strategy but also to prepare a pilot implementation of the SBSC.

A sustainability strategy must answer the question whether environmental and social aspects are assessed as compliance issues, cost drivers or opportunities for competitive advantage (Hubbard 2009). Sustainability strategies provide a first approximation of the role of sustainability for an organisation. Based on seminal publications such as Carroll (1979), such strategies are usually conceptualised as stages on a continuum ranging from reaction, defence, accommodation, to proaction (see also Aragón-Correa et al. 2008; Aragón-Correa and Rubio-López 2007; Buysse and Verbeke 2003; Roome 1992; Sethi 1975). Research on the SBSC links these different strategic positions to specific SBSC architectures (Bieker et al. 2001; Epstein and Wisner 2001a; Figge et al. 2002a; Hubbard 2009; van Marrewijk 2004). As stated in the sections on the modification of BSC performance perspectives, the add-on, partly or broadly integrated and extended architectures represent defensive, accommodative and proactive sustainability strategies, respectively.

Corporate sustainability is far from having reached an end-state and should instead be understood as an evolutionary process (Hockerts and Wüstenhagen 2010). As this development is often characterised by trial-and-error experimentation, reflection and redesign, we can expect that corporate strategies change too, and with this the proposed concepts, practical designs and adaptations of the SBSC architecture.

Zingales et al. 2002 (referring to Kaplan and Norton) highlight the importance of *organisational learning* and in particular 'double loop learning' when implementing the

SBSC. The information gathering and measurement procedures for the individual SBSC performance perspectives and objectives stimulate reflection about the performance measurement system and can enable a discussion about its further development. Formal structures (i.e. SBSC architectures) can be questioned and ultimately changed. From that perspective, the SBSC is not a fixed method but rather 'a "temporal stabilised constellation" of the balancing process (Sundin et al. 2010, p. 210). This is an important observation as otherwise an organisation risks "static-ism" and becomes "locked into its traditional key success factors derived from the BSC" (Voelpel et al. 2006, pp. 50f).

Understanding the SBSC as a dynamic concept has motivated some authors to take an evolutionary perspective to describe how sustainability may be more deeply and comprehensively integrated in the SBSC over time. From this view, the SBSC linking sustainability with strategy and strategy transformation can be expected to move from less to more proactive strategies (Bieker et al. 2001; Hubbard 2009) and related SBSC architectures.

Discussion

This section is intended to stimulate a discussion about future research dealing with individual SBSC architectures. The research agenda is broadened from SBSC design to its implementation and use, as well as from the BSC to other related performance measurement and management systems. Finally, implications for management and limitations are discussed.

Future Research on Individual SBSC Architectures

The SBSC architectures discussed in this paper deserve different degrees of attention. Regarding the two dimensions of the typology, we would encourage future research to focus on the design of the SBSC hierarchy instead of on the mode of integration into performance perspectives. We feel that it is more ambiguous, more controversial and in fact less well understood. In particular, extant research lacks in-depth analysis informed by theory. Although our review has identified the existence of three broad theoretical perspectives (instrumental, social/political and normative), most conceptual and empirical SBSC publications, whether case studies or survey-based quantitative research papers, are descriptive accounts of the SBSC architecture or are based on implicit assumptions about the instrumental value of the SBSC for organisational performance. Therefore, we see a demand for more strongly theory-guided studies, particularly from instrumental and social/political theoretical perspectives. Normative perspectives are less desirable as SBSC architectures are conceptually quite well established

in the extant research and it is difficult to combine normative theoretical perspectives with much needed empirical research (Garriga and Melé 2004).

The three types of proposed hierarchies also deserve different degrees of attention in future research. While we address future research for each specific type of hierarchy in a separate section, our main focus is on the semi-hierarchical architecture.

Hierarchical Architecture

Our results show that the strictly hierarchical SBSC designs are dominant in the literature and, as they are close to the conventional BSC, may also be the best understood. Neglecting the financial performance perspective can easily lead to value destroying activities and hence jeopardise organisational survival (Kaplan and Norton 1996; Jensen 2001; Azzone and Bertelè 1994). It is probably for this reason that most companies analysed in the empirical studies, particularly public limited companies, choose strictly hierarchical SBSC architectures. It also explains why *instrumental theories* of the SBSC dominate the research field. We still see room for study of these architectures from social/political perspectives, particularly institutional theory (we will advance more specific research avenues later). However, the most interesting research to be done is probably linked to unorthodox hierarchies.

Semi-hierarchical Architecture

Recalling that the original idea of the BSC was that corporate success cannot be captured with financial figures only, the further development of an SBSC towards a *semi-hierarchical architecture* may be the next logical step for both methodological development and organisational development (consider that a semi-hierarchical architecture best fits a care-driven value system). In any case, managing and measuring organisational performance in a semi-hierarchical (and even more so in a network-like) architecture becomes a complex challenge for organisations as the lack of prioritisation requires complex balancing processes. Such network architectures would have to seriously deal with Jensen (2001) polemic against the BSC in which he sees managers confronted with an impossible task of dealing with trade-offs among its multiple objectives. We, therefore, see a major need for further research on the semi-hierarchical architectures.

The study of semi-hierarchical performance measurement and management systems could be advanced by both instrumental and social/political theoretical perspectives. The instrumental potential of this architecture most evidently exists for organisations combining economic and societal goals, which are generally referred to as hybrid

organisations (Boyd et al. 2009) or sustainable entrepreneurs (Hall et al. 2010). Such organisations most likely operate with a value system other than the profit maximisation public listed companies most likely represent. For example, anecdotal evidence from our sample suggests the relevance of semi-hierarchical SBSC architecture for cooperatives, family businesses and fully or partly state-owned corporations. But semi-structured SBSCs can also be instrumental for more strongly profit oriented organisations such as public limited companies. This is best explained by outlining the risks involved for organisations in sticking to a *strictly hierarchical* BSC architecture (van Veen Dirks and Wijn 2002). If management works with a too narrow focus using a limited number of finance-related indicators (e.g. energy savings), sustainability may be marginalised as environmental and social contributions to short-term financial success. Too rigid performance management tools, as represented by the strictly hierarchical SBSC, make it difficult for companies to adapt their product-market mix towards sustainability (van der Woerd and van den Brink 2004, p. 178), "endanger the survival of the firm in the innovation economy" (Voelpel et al. 2006, p. 49) and impede company managers from effectively responding to disruptive environmental changes (Christensen 1997; Christensen and Bower 1996). Innovation and change are, however, necessary to maintain and increase competitiveness in future markets characterised by such disruptive changes and transitions as from fossil to low carbon energy; from combustion and purely private mobility to electric vehicles and shared mobility systems; as well as from conventional consumption goods to environmentally friendly and fair-trade products (e.g. Geels 2012; Penna and Geels 2012). Such strategic renewal, as opposed to operational optimisation, requires long-term investments without an ultimate guarantee of success. Even though Kaplan and Norton's original conception of the BSC's learning and growth perspective was intended to provide space for such learning processes, it may be very difficult to realise this potential in a hierarchy dominated by top-level financial goals. In contrast, semi-hierarchical BSCs may foster the incorporation of a 'future dimension' into performance measurement systems (Maltz et al. 2003, p. 191) and thus enable ambidextrous organisations with the capability to simultaneously manage incremental and radical change processes within the same organisation (Tushman and O'Reilly 1996; Raisch et al. 2009). In this case, the SBSC can be considered an interactive control system which helps top-level managers, their subordinates and even external stakeholders to experiment and learn in a context of strategic renewal (Simons 1994; Schaltegger 2011). Future research can therefore analyse the instrumentality of semi-hierarchical SBSC architectures for different organisational types.

While we have just demonstrated good instrumental reasons for semi-hierarchical performance management systems, the SBSC is not only implemented for its instrumental rationality in the pursuit of organisational excellence (Meyer and Rowan 1991). *Social and political theoretical perspectives* can explain why it may be rational to reject the paradigm of strict cause-and-effect chains, thus moving to semi-hierarchical architectures. Building semi-hierarchical BSCs can be an important stepping stone in managing the political power game arising from conflicting societal stakeholder interests. Alternative SBSC architectures then can help an organisation to *seek legitimacy* in the face of increasing societal pressure. Often this is done by *decoupling* the externally reported artefact (here the SBSC strategy map) from real action in day-to-day practices in order to buffer contradictions between external stakeholder expectations and internal efficiency (Boxenbaum and Jonsson 2008; Brignall 2002; Parisi 2010). In this case, an organisation deliberately uses an SBSC architecture which does not fit its value system. In this context, *institutional theory* has much potential to inform organisational (Lee 2008) and accounting research (Brignall and Modell 2000) on the SBSC. Future research could conduct in-depth case studies analysing the role of institutional forces, decoupling (Boxenbaum and Jonsson 2008), impression management and management fashion (Länsiluoto and Järvenpää 2008).

Non-hierarchical Architecture

The *non-hierarchical*, network-like SBSC is what the originators of the BSC have pejoratively called a 'stakeholder scorecard' in stark contrast to a 'strategy scorecard' (Kaplan and Norton 2001c). Although Sundin et al. (2010) argue that this is a false dichotomy, the challenges of balancing and trading off strategic objectives in the non-hierarchical architecture become even more significant. Also, our sample shows that supporters of this architecture take a strongly normative viewpoint (with the exception of Voelpel et al. 2006) and admit a lack of empirical evidence. Basically, these publications are argumentative in nature with normative prescriptions about the 'right' BSC architecture according to the individual author's point of view (though usually with recourse to a philosophical concept). This is also represented in the systemic-driven value system, which is a purely normative category (van Marrewijk 2004). It will be up to future research to identify organisations which have successfully adopted non-hierarchical SBSC architectures and to analyse these "extreme cases" (Yin 2003, p. 40) in order to unearth motivations and non-normative theoretical perspectives which make their application feasible or even desirable. The non-hierarchical architecture may fit well into or even become

instrumental in organisations where balancing financial with other objectives is part of the organisational mission, such as social businesses (Somers 2005), hybrid organisations (Battilana and Dorado 2010) and particularly non-profit organisations (Kaplan and Norton 2001a), which however have not been investigated in this paper.

SBSC Hierarchy and Value System

In addition to corporate sustainability strategy, our resulting framework incorporates the values system (van Marrewijk 2004) as a contextual variable. Our research, therefore, contributes to the contingent view of accounting research (Chapman 1997; Chenhall 2003). Contextual variables or contingency factors are generally understood as external factors which determine the optimal characteristics of—or 'fit' with—some internal organisational phenomena (e.g. strategy, structure, policies, routines). In other words, "the term contingencies means that something is true only under specified conditions" (Chenhall 2003, p. 157). Important contingency factors identified in accounting and management research are the external environment, technology, strategy and national culture (Chenhall 2003) as well as ownership structure and organisational culture (Zu et al. 2011). Our paper advances the thesis that the organisational *value system* (and relatedly the organisational type) and the *corporate sustainability strategy* determine the best fitting SBSC architecture. Future research should advance our understanding of value systems and more broadly organisational culture as contingency factors enabling and constraining the fit of different SBSC architectures. Also, as already indicated, 'misfit' between contingencies factors and SBSC architectures should be explored and explained.

Refocusing and Broadening Future Research

From Design to Implementation and Use

So far, the previous sections have dealt primarily with the *design* (i.e. visual representation) of various archetypical SBSC architectures and the evolution of these designs. While this is important as the SBSC architectures can be per se a powerful internal communication device and enabler in the strategy making process (e.g. Schaltegger and Wagner 2006a), overall we encourage a shift of the discussion from design to implementation, use and evolution (de Geuser et al. 2009; Searcy 2012) regardless of the actual SBSC architecture.

To better understand the *implementation* and innovation processes of the SBSC requires going far beyond the generic implementation steps found in the literature (e.g. Chalmeta and Palomero 2011; Figge et al. 2002a; León-Soriano et al. 2010; Rohm and Montgomery 2011; SIGMA 2003). Further empirical and conceptual studies are needed

to enhance understanding of the benefits and pitfalls of the SBSC in organisations, addressing questions such as what are the organisational dynamics involved in the implementation and change processes (e.g. Länsiluoto and Järvenpää 2010; see also Ahn 2001). Given that a large share of the case evidence in the sample stems from action research in which researchers conducted interventions in the target organisations implementing SBSCs (e.g. Chalmeta and Palomero 2011; Hansen et al. 2010; León-Soriano et al. 2010), a further question would be how successful these interventions have been in moving from pilot implementation to actual use.

Regarding the 'SBSC *in use*', perhaps the most important avenue for further research is to be found in studying the process of how managers make trade-offs—that is, the actual 'balancing'—among the various SBSC goals, also when considering the three different hierarchies. Recent evidence from an in-depth case study (Sundin et al. 2010) shows that this is indeed possible and can be rational from instrumental or social/political theoretical standpoints. Still, concerns voiced by critics such as Jensen (2001) should be taken seriously, as relaxed or semi-hierarchic hierarchies do indeed create challenges for managers having to make trade-offs and ensuring a balancing of goals. This in turn increases the risk of an opportunistic decoupling between the formal SBSC architecture and actual implementation, as explained by institutional theory (Brignall 2002; Gond et al. 2012). Of course, this is not easy to study because "organisations that decouple must avoid close inspection or else they are exposed as frauds" (Boxenbaum and Jonsson 2008). Still, decoupling does not claim that legitimacy seeking must be sustained on a ceremonial level only. Once people start working with or in the newly established formal structure they may engage in real action and change as "most individuals refuse to see themselves as only ceremonial props" (Boxenbaum and Jonsson 2008, p. 88). This leads directly to consideration of the evolutionary processes linked to the SBSC.

Evolution is important for the SBSC as, according to Sundin et al. (2010), it is not a "fixed structure". Longitudinal studies are needed to critically reflect on and understand the organisational learning processes triggered by the SBSC. What effects, for example, do the visualisation of strategy maps and the acceptance of trade-offs have in practice, and subsequently, how has the SBSC architecture been modified over time (along the two dimensions suggested in the present paper)? How does the evolution of contextual variables like the value system and the corporate sustainability strategy influence the SBSC architecture? Taking SBSC development as a nexus of evolving sustainability management and engagement processes may stimulate research informed by pragmatism (e.g. York 2009; Wicks and Freeman 1998). This may include questions

about sensemaking (Weick 1995), for example, about the role of the SBSC in developing a common understanding of what sustainability means for the company and its stakeholder network, and of SBSC projects for interaction about what measures and processes would best enhance sustainability management and organisational learning processes. Last but not least, why and how are SBSCs abandoned or gradually phased out? Is it for instance due to managerial succession (e.g. Hansen and Spitzeck 2011)?

The BSC and Related Performance Measurement and Management Approaches

It should not be overlooked though that—whether with or without consideration of sustainability—the BSC has been subject to fierce criticism (Jensen 2001; Nørreklit 2000; Voelpel et al. 2006). The dominance of a single concept is considered a threat (Neely 2005), and a call for building a research agenda going beyond the BSC has been formulated (ibid., p. 1274). We see the typology of generic SBSC architectures as a first step in this direction, particularly with regard to the semi-hierarchical and non-hierarchical architectures. As mentioned before, these architectures have received inadequate attention in the past and need further research.

A critical examination of the semi-hierarchical and non-hierarchical SBSC architectures also raises the question whether or not these are still BSCs. They are definitely not BSCs in the sense originally proposed by Kaplan and Norton (1996). It also cannot be overlooked that by putting more weight on sustainability and stakeholder-related performance perspectives, the SBSC framework comes closer to competing performance management frameworks such as the performance prism (Neely et al. 2002). Nørreklit (2000) even states that if strict cause-and-effect chains (i.e. hierarchical architectures) are omitted the BSC is not much different than other approaches. It is, therefore, important that future research on sustainability performance management examines existing frameworks and their related strengths and weaknesses more broadly. Although the research agenda advanced in this paper explicitly addresses the BSC, it should be understood as more generally addressing performance management frameworks.

This may also include so far neglected research topics like comparisons with other management control approaches related to sustainability (such as Simons' levers of control, which have been discussed in the context of corporate sustainability by Gond et al. 2012; or Neely et al.'s 2002 performance prism which emphasises the fundamental role of stakeholders).

Implications for Management

The two-dimensional typology of *generic* SBSC architectures contingent on the organisational value system and the corporate sustainability strategy provides templates of generic performance measurement and management systems. While they cannot be immediately implemented in practice (as they represent *generic* systems; Jakobsen et al. 2011), they can give initial guidance for basic decisions necessary when managers want to make environmental and social objectives an integral part of their way of doing business and, more specifically, integrate them into the company's performance management and measurement framework.

- First, managers need to understand their organisation's value system, which describes the *general relationship* between profit-making and sustainability. The value system indicates the 'right' fit with regard to *SBSC hierarchy* and leads to hierarchical, semi-hierarchical or non-hierarchical SBSC designs. We have indicated that it is more likely that public limited companies engage in hierarchical designs, while family businesses, public–private owned companies, cooperatives and hybrid organisations may also tend to have semi-hierarchical or even network-like architectures.
- Second, based on the degree of proactivity of their *corporate sustainability strategy*, managers should engage in a process of strategy formulation in which they decide on the *specific* relevance they want to give to sustainability within their *corporate* strategy. This would lead to add-on, integration or extended designs of SBSC performance perspectives and related architectures.

The generic SBSC architecture derived from the typology can then serve as a basis for developing *company-specific* SBSCs or strategy maps with context-specific strategic goals and corresponding performance indicators.

We have also highlighted risks involved in the various architectures, particularly regarding SBSC hierarchy. The strict hierarchy is likely to promote the short-termism that the BSC originally set out to overcome as it sometimes impedes or at least interrupts fundamental change in organisations (e.g. from fossil to renewable energy; from conventional to sustainability mobility; from energy and carbon-intensive industrial agriculture to sustainable agriculture) which has become more needed than ever given the increasing sustainability-related global problems facing today's societies (Whiteman et al. 2013). Using the typology of generic designs to engage the management team in thought processes about these issues can be a fruitful exercise and may smooth the path for new strategic directions.

Limitations

Our study is subject to some methodological limitations. The first is that the sample is in principle drawn from only

English-speaking literature. Given that some major advances of the concept stem from research institutions across Europe, particularly in Germany and Switzerland, not all evidence was covered. While if systematic reviews are to be 'rigorous', a focus on English-speaking sources (and usually only peer-reviewed journal articles) is required, we recommend that, a complete compilation of evidence can only be achieved by reviewing multiple languages.

Other limitations are conceptual in nature. First, the sample for the review was limited to publications explicitly dealing with the BSC. Other performance management and measurement frameworks which could possibly be extended to account for sustainability issues (e.g. the performance prism; Neely et al. 2002) have not been considered here. Second, the systematic review covered SBSCs on various organisational levels (e.g. board, corporate, business units, support units). However, we did not investigate in detail the relationships between these levels (e.g. Dias-Sardinha et al. 2007; Zingales et al. 2002) and we did not investigate the cascading of the BSC down to the individual level in a company.

Summary and Conclusion

This literature review shows that the integration of social, environmental and ethical issues into the BSC can be motivated by instrumental, social/political and normative theoretical perspectives. The different recommendations in the literature on *how* to integrate these issues into the BSC design have led to a broad spectrum of different SBSC architectures. To synthesise this growing and scattered research field, we have developed a two-dimensional typology of generic SBSC architectures mapping the various SBSC architectures and explaining their fit as dependent on contextual variables:

- First, the value system of the organisation specifies the design of the BSC *hierarchy* and thereby the nature of cause-and-effect chains or logical links between financial outcomes and various other performance perspectives and strategic objectives. With strongly profit-driven value systems (i.e. following profit maximisation), strictly hierarchical architectures are a logical solution; more care-driven value systems may lead to semi-hierarchical architectures and systemic-driven value systems are most compatible with non-hierarchical, network-like architectures. Closely linked to the value system, organisational type constrains the value system and therefore the choice of hierarchy. While investor-driven public limited companies are strongly profit-driven and therefore usually adopt hierarchical

architectures, private (limited) companies, family businesses and cooperatives seem to be able to operate in both profit-driven and care-driven values systems as well as strictly hierarchical and semi-hierarchical BSC architectures, respectively. It is expected that social businesses and non-profit organisations will tend to have systemic-driven and therefore non-hierarchical BSC architectures.

- Second, corporate sustainability strategy determines the extent to which sustainability-related strategic objectives are integrated into the performance perspectives and how sustainability-related strategic objectives are integrated (add-on, integration, extension). These options have been well developed in research and are much better understood than the options concerning SBSC hierarchy.

While the organisational context as represented by contingency factors (value system and corporate sustainability strategy) constrains the choice of SBSC architecture, the context itself is not stable but can evolve, as represented by the evolution from reactive to proactive sustainability strategies and from lower to higher level value systems. Overall, an SBSC implementation is not a one-off exercise but a continuous and iterative (organisational) learning experience of growing organisational understanding of corporate sustainability, the adaptation of the strategic management approach and the reformulation and reinvention of the SBSC.

In summary, our contribution to the emerging SBSC literature is that the highly interdisciplinary and hitherto scattered research has been synthesised and mapped into the proposed typology of generic SBSC architectures. We have also proposed important research directions regarding the individual SBSC architectures. We have emphasised more theory-driven research and therefore indicated how the three theoretical perspectives (instrumental, social-political and normative) found in extant studies can advance future research on the various SBSC architectures. And, last but not least, we have also indicated links to other performance management frameworks and, given that the results are to some extent generalizable, can therefore contribute to the broader literatures on sustainability performance measurement and management and sustainability accounting. Overall, we consider the SBSC to be a promising framework for integrating strategy and sustainability in businesses if the concept is not interpreted too rigidly but seen as an approach for sustainability-oriented organisational development.

Appendix: Inclusion/Exclusion Criteria

See Table 4.

Table 4 Inclusion and exclusion criteria for the SBSC systematic review

Criteria	Inclusion	Exclusion
Organisational types in which SBSC is applied	For-profit enterprises; Companies with mixed ownership (e.g. public private); Former public companies which were privatised	Non-profit companies (e.g. government organisations, NGOs, public hospitals/universities)
Nature of application	BSC used as strategic management and measurement tool; BSC as analytical framework for external benchmarking of sustainability performance	Environmental (or related) scorecards without strategic relevance to the organisation
Organisational level applied	Corporate and business unit; Support functions directly linked to sustainability (e.g. sustainability, CSR or environmental department); Board governance	Conventional support units (e.g. HR) not addressing issues beyond the conventional BSC
Representation in SBSC architecture	Environmental and/or social dimensions of sustainability need to be explicitly addressed in the SBSC architecture (e.g. by adding a sustainability perspective)	SBSCs where sustainability is only implicitly addressed
Strategic objectives/issues covered	Multiple sustainability-related issues covered in the BSC	Issues-specific BSCs (e.g. sustainable supply chain management BSC; Safety BSC) BSCs without consideration of the natural environment Strategic objectives somehow link to sustainability (or stakeholder management) but do not go beyond standard BSC objectives (e.g. employee satisfaction)

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