Corporate Sustainability integration; development of a framework to map supporting approaches

Ir. Sjors Witjes[1], Dr. Walter V.J. Vermeulen*, Prof. Dr. Jacqueline Cramer**

** Copernicus Institute for Sustainable Development, Utrecht University, The Netherlands*

Abstract

Companies have become more aware of the impact they generate on society. Some companies take up the challenge to convert this awareness in an added value to their core business activities. There is an extensive amount of CS approaches (tools, instruments and initiatives) available to companies enabling the integration of CS in the core business activities. To understand the applicability of these approaches scholars have been developing frameworks by looking from outside of the company, its intentions and its structure, towards these approaches. These researches have resulted in the conclusion that the application of these approaches does not guarantee a successful integration of corporate sustainability in the core business activities of the company. To contribute to the understanding of the intentions of CS approaches and their application in businesses this research takes an inside-out perspective. A framework was developed to question the intentions of the approaches within the context of the company. The framework was validated by its application on the three most cited CS integration approaches.

The conclusion of this research is that an inside-out perspective on the intentions of the CS integration approaches can complement the already existing understanding by an outside-in perspective. More specifically, mapping the three most cited CS integration approaches with the developed inside-out framework shows indeed that these CS integration approaches have specific intentions within the CS integration process and therefore emphasizes the conclusion of other outside-in frameworks that companies should use a mixture of approaches for a successful integration of CS in the core business activities.

The insides of this paper can be used to collectively improve CS integration approaches to be adaptable to the continuously changing business environment and to support companies in their search for integrating CS in the core business activities.

[1] Corresponding author, s.witjes@uu.nl, Heidelberglaan 2, 3510 TC, Utrecht, The Netherlands

Keywords
Corporate sustainability, approaches, integration, sustainability reporting, life cycle assessment, environmental management system, business system.

1. Introduction

Due to the growing awareness of environmental and social impact of business activities the pressure of internal and external stakeholders on companies to address corporate sustainability (Witjes et al., 2014) is increasing. Proactive companies take these challenges and start integrating corporate sustainability (CS) in their business system (Lozano, 2013). Over the last decades, several approaches have been developed to support this integration process: i.e. tools, instruments, initiatives used by companies to connect the Triple Bottom Line (TBL) issues of planet, people and prosperity (Elkington, 1998; Jamali, 2006) to the business system (Azapagic, 2003; Eccles, Serafeim, & Ioannou, 2011; Maon, Lindgreen, & Swaen, 2009).

Several scholars have shown, though, that companies have little success with the application of these approaches ((Doppelt, 2003; Siebenhüner & Arnold, 2007) as cited in Lozano, 2012): they are too specific in time or in scope not enabling companies to comply with the full TBL scope and do not support the iterative dynamics of the companies´ daily business processes (Azapagic, 2003; Jamali, 2006). Besides, the large array of existing approaches is overwhelming for companies, resulting in companies not knowing which approach to use at what moment and for which cause (Van Der Woerd & Van Den Brink, 2004).

To better understand the variety of the different CS integration approaches, this paper describes a framework linking the needs of the companies willing to integrate CS into their business systems and the intentions of approaches with the potential of doing so. To be able to do so, a framework was developed enabling the mapping of the CS integration approaches.

Section 2 will discuss the literature on CS integration leading to the selection of the approaches and the explanation of a framework to enable the analysis of CS integration approaches. Section 3 describes the methods for data collection and analysis. In section 4 the findings are presented; followed by the discussion of the

findings within the scope of the literature review; and finally the conclusions with proposals for future research.

1.1. Integrating Corporate Sustainability

Sustainable development, as a normative concept outlining desirable development paths of societies, has been increasingly receiving attention in business literature (Bansal 2002, 2005; Dyllick and Hockerts 2002; Gladwin et al. 1995; Jennings and Zandbergen 1995; Shrivastava 1995). By their contribution to the economy, companies´ play an important role in sustainable development (Bansal, 2002). Being sustainable development a society-level concept, individual companies cannot become sustainable; they contribute to the achievement of the larger system in doing so (Jennings and Zandbergen 1995). This has led to the manifestation of the notion of businesses addressing CS taking responsibility to society in general (Gomez-Samper, 2011). As with the concept of CS itself, also the scope of this responsibility has been evolved from eliminating negative effects of business processes, by means of an efficiency focus, towards a broader view of how a company can contribute to sustainable development in general (i.e. TBL), leading to an effectiveness focus (Baumgartner, 2009). Therefore the integration of the company´s vision on CS into the core business activities will result in the creation of value for businesses and society alike. Some companies have been able to make this process of CS integration lead to support the main goals of the company. As a result, these companies outperform equivalent companies over the long term in stock market and financial performance (Eccles et al., 2011).

1.2. CS integration

In 1987, the Brundlandt report (WCED & World Commission on Environment and Development, 1987) emphasized, within the concept of sustainable development, the importance of aligning companies´ impacts on the needs of current and future generations with the main business goals. Since then, scholars and practitioners alike have been exploring how companies can take up this challenge (Baumgartner, 2013; Lozano, 2012; Robèrt et al., 2002). In their intent to describe this process of linking the company´s vision on CS with the general business proposition, scholars have their researched on organising (e.g. Graafland et al. 2003) and implementing CS (e.g. Maon et al. 2009). A growing group of scholars have been focussing on the

integration of CS (Bonini, Görner, & Jones, 2010; Eccles et al., 2011; Moore & Manring, 2009) though. In the research on how companies integrate CS in their core business activities different theories unite.

Firstly, from an organisational theory point of view integration is understood by "the coordination of activities through accountability, rules and procedures, liaison roles, cross-functional team, or direct contact" (Hatch and Cunliffe, 2013, p.95). To achieve a unity of efforts within an organisation, collaboration between the people is required. These occurrences or experiences between people are referred to as phenomena, the core object of study of sociology. Therefore and secondly, the structural functionalist theory emphasises social stability, norms, control and the process of socialisation (Merton, 1973; Parsons, 1971; Storer, 1966) while touching upon the concept of integration. Consequently, integration refers to the relationships between elements of a social system and their impact on the system as a whole (Parsons, 1971). For conflict theorist, the relationship between the elements of a social system is taken as an attribute of group life manifesting the group cohesion (R. A. Scott, 1976; Simmel, 1955). Social network theorists relate notions of integration additionally to the density of the relationships resulting in social structure (J. Scott, 2000). Finally, the field of social capital defines the cohesion and density of relationships between the elements of the social system and their impact on the system as the value of the system itself (Putnam, 2000).

Thirdly, the field of CS integration can be studied from an organisational culture perspective. Graafland (2003) uses the concept of organising when aiming for managers and other employees to act in accordance with established values. From an organisational culture perspective the adoption of these values occurs through a joint learning process attempting to solve group problems with, for example internal integration (Edgar H. Schein, 2004).

Fourthly and finally, in the field of management sciences, the linkage between CS and the core business activities has been used to describe the unity between different (i.e. TBL) stakeholder issues (López-Fresno, 2010). Since the last 15 years, there is a specific interest in researching business compliance with these different issues by means of integrated management systems (e.g. a quality, health & safety and environmental management system) with focussing on the subsequent standards (e.g. ISO 9001, OHSAS 18001/ISO 45001 and ISO 14001). In their research on the

sustainability of integrated management systems Gianni and Gotzamani (2015) emphasize the importance of cohesion, an orientation on performance management, as is the case with social systems. Besides, the recognition of an integral control system (i.e. by integral auditing) was seen as key (Gianni & Gotzamani, 2015). This corresponds to the outcomes of an 18-year-long longitudinal study with 180 companies on CS (Eccles et al., 2011): CS encloses the assumption that companies are faced with a broad scope of stakeholder issues in achieving societal objectives. Apparently these objectives appear desirable and applicable in isolation but are ‘‘inextricably connected and internally interdependent’’ (Bansal and Roth 2000, p. 123 as mentioned in Hahn et al. 2014).

For this research we take CS integration as the system´s value consisting of the cohesion and density of the relationships between all TBL stakeholder-issues and the physical and social-cultural impact of the business system processes with a controlled (i.e. audited) impact of the business leading to enhancing the company´s value for society.

1.3. CS integration approaches

To support companies with the process of CS integration, both scholars and other professionals have been engaged in the process of developing and applying approaches: tools, instruments, initiatives for CS integration (e.g. Baumgartner 2013; Lozano 2011; Robèrt et al. 2002).

CS integration approaches, like for example The Natural Step (TNS), support the strategy development process of the companies (Robèrt et al., 2002). These approaches are merely based on the back casting process: by defining the future and looking at the current situation a possible path forward can be determined (Robinson (1990) as mentioned in Dreborg (1996)). Understanding the company´s vision on CS and its current CS status is essential for these approaches.

Other approaches, like environmental management systems or CS management systems, are based on the management system of the company. Several scholars have been proposing CS management systems in order to capture the proposed holistic character of the business system (Azapagic, 2003; Hahn et al., 2014; Jamali, 2006; Maon et al., 2009). Consequently, these approaches tend to make the link with the core business activities by integrating their CS vision in the different elements of the

management system. Hereby the scholars propose broadening the initial reduced focus of the management system (e.g. quality for ISO 9001) to the TBL issues.

Life cycle approaches, like CO2 footprint or Life Cycle Assessment, are based on the supply and/or value chain of the product and/or services produced by the company. The scope of these approaches can differ as the approaches differ in their scope (Searcy, 2014). In general, this kind of approaches is more focused on the physical side of the CS integration leading to an integration based on control.

Other approaches, like the Global Reporting Initiative (GRI) or Integrated Reporting (IR), support companies with the reporting of their CS performance. The scope of these approaches range from just the reporting phase (e.g. CS self-declarations) to approaches that also include management system elements and therefore have the potential to cover not only part of the CS integration process but also completely (Lozano & Huisingh, 2011).

Table 1 presents an overview of the most prominent CS approaches and their search hits on prominent academic search engines (i.e. Web of Science, Scopus, Google Scholar and Google web search). This selection is not claimed to be complete but rather to symbolise the range and importance of existing CS integration approaches. The pre-selection of the list of CS approaches is based on the appearances of approaches in the sustainability literature (see for example Baumgartner 2013; Lozano 2011; Robèrt et al. 2002). In this way the above-mentioned back casting, management system, life cycle, and reporting approaches are extended with others. As can be seen in Table 1, the 10 most frequent appearing approaches are included.

CS approach	Web of Science	Scopus	Google Scholar	Google web search	Overall ranking
Sustainability reporting	53	97	6470	136000	1
Environmental management system	6	14	2320	43000	2
Life cycle assessment	8	13	2130	24700	3
Cleaner production	5	7	3970	18500	4
Green marketing	2	2	938	14400	5
Eco innovation	3	3	575	6210	6
Ecodesign	0	1	416	29200	7
The natural step	0	2	575	5520	8
Cradle to cradle	0	0	822	12600	8
Sustainable procurement	2	1	375	10900	9

Table 1 Appearance of CS integration approaches in scientific literature (3 April 2015)

The search was performed by using "corporate sustainability" and the approach name between quotation marks. For example for Life cycle assessment the search was: "corporate sustainability" + "life cycle assessment". Specific for each source:

- Web of Science (http://apps.webofknowledge.com.proxy.library.uu.nl/): the search was within "topic".
- Scopus (http://www-scopus-com.proxy.library.uu.nl): the search was within "article title", "abstract" and/or "keywords".

- Google Scholar (https://scholar.google.com/): the search was without "patents" and "citations".
- Google web search (https://www.google.com/)

As can be seen in Table 1, sustainability reporting, environmental management system and life cycle assessment are the most frequent mentioned approaches in the context of CS. CS approaches are set up for a specific moment or to support a specific process. This specificity does not enable the approach to reach a full cohesion of the broad range of CS stakeholder issues (i.e. TBL) linked to business system processes. Besides, it does not support the iterative dynamic nature of daily business, making the integration of CS into business activities generate problems (Azapagic, 2003; Jamali, 2006). Moreover, an one-size-fits-all approach does not exist due to the diversity in companies (Jamali, 2006). Several authors (Azapagic, 2003; Salzmann, Ionescu-somers, & Steger, 2005; Weber, 2008) demand a descriptive research to increase the internal validity of results or adopt a comparative approach to shed more light on the effectiveness of CS integration approaches.

1.4. Structuring CS integration approaches

A multilevel-approach or the use of several approaches is necessary to assure a successful support of the integration of CS (Hahn et al., 2014). To make the right choice an understanding of the intentions of any of the broad range of specific CS integration approaches is necessary: how could the application of a specific approach lead to CS integration?

Robert et al. (2002) divided the field of CS integration approaches in 5 levels: 1. principles for the constitution of the system, 2. principles for a favourable outcome of planning within the system, 3. principles for the process to reach this outcome, 4. concrete measures that comply with the principles for the process to reach a favourable outcome in the system, and 5. tools to monitor and audit. A clear understanding and synergistic application of these levels could help companies being more successful with CS integration. Research on the application of individual CS approaches shows that a successful application of the approach should be used throughout the organisation (Baumgartner, 2009). Baumgartner (2013) therefore classifies the CS approaches according to the three levels of organisational structure as described by Ouchi (1978): 1. strategic (top management), 2. tactical (middle management) and, 3. operational (shop-floor) level. The link between these levels is key to assure a successful CS integration (Baumgartner, 2013). Lozano (2012)

structures the CS approaches according to the organisational departments and TBL including the time dimension. For a successful CS integration approaches should applied that result in an alignment of all these departments (Fernandes, Raja, Whalley, & Whallay, 2006) and top-bottom from strategic, over tactical to operational is key for successful CS integration (Baumgartner, 2013). By adding the external and internal dimension, Baumgartner´s framework complements the framework by Robert et al. (Robèrt et al., 2002). Hahn et al. (2014), completes the framework of CS integration approaches by improving the systems perspective on time and system.

Despite the development and testing of these different frameworks they do not enable the differentiation between specific sectors (Baumgartner, 2013; Salzmann et al., 2005) and there is still the need to understand the circumstances under which the companies use a combination of these approaches, leading to an integrative approach (Hahn et al., 2014; Lozano, 2012; Robèrt et al., 2002). Separate case studies could contribute to understand why companies use specific approaches (Hahn et al., 2014). Consequently, the intentions and experiences with the different approaches could give companies a better idea which approach should be used for a specific situation. Instead of focussing on the outside-in perspective: the principals (Robert), organisational structure (Baumgartner), departments (Lozano) or, additionally, the context and time (Hahn et al), these intentions can be covered by asking the companies about their vision of the use of CS approaches, why they apply them, what they applied, how they applied them, where and when the application took place. The same counts for the approaches themselves: what is the approaches vision on CS integration, why should a company use this approach, what is the focus of the approach, how should the approach by applied, where can it be applied and when should it be applied (see Table 2 Understanding the intentions for the use of CS approaches). This inside-outside perspective and understanding of CS integration approaches leads to the development of the MCSA framework.

Elements	**Questions**
Scope/Vision	Which scope does an approach have and how visionary does it get? Meant to assess the depth and level of development of the vision on CS integration
Why?	Assessing the reasons why the approach opts for CS.
What?	Gives insights into which actions were carried out to apply the approach.

How?	How is the CS approach applied on an organisational level?
Where?	Where was the CS approach applied: inside, outside the organisation, what part of the supply chain, life cycle of the product, etc.
When?	Referring the time dimension considered during application of the approach. When was the approach applied? But also the role of past and future activities in the application of the approach

Table 2 Understanding the intentions for the use of CS approaches

2. The MCSA framework

A systemic framework enables the mapping of the different CS integration approaches. The general goal is to carry out a qualitative mapping where the visualised answers provide even further insights into the approaches. This single framework for mapping CS approaches (MCSA) was constructed based on the elements mentioned in Table 2 Understanding the intentions for the use of CS approaches, and was used to map a selection of the approaches mentioned in Table 1In order to gain more detailed information about the intentions of the approaches, each MCSA elements (i.e. Vision, why, what, how, where and when; see Table 2 Understanding the intentions for the use of CS approaches) is supported by three bi-polar sub-elements (see Table 3).

Elements	**Sub-elements**
Vision	1. All-inclusive focus: People, Planet, Prosperity versus limited focus on either: People, Planet, Prosperity 2. Focus on short term improvements versus focus on long term, cultural change 3. Single process/business unit change versus including entire corporation or even networks
Why?	1. Shared value and culture driven versus profit driven 2. Future market inevitability versus ethical pre-deposition (good for society) 3. Legally driven versus intrinsically driven
What?	1. Product-Service orientation versus product/technological orientation (material flow focus) 2. Incremental redesign versus radical redesign 3. Specific strategic guideline versus broad (customized) framework
How?	1. Circular/evolutionary approach versus linear approach 2. Target compliance monitoring & reward systems versus value based discourse and mutual control 3. Strong visionary leadership (top-down) versus interrelated, shared responsibilities (bottom-up & top-down)

Where?	1. Customer/Community including (i.e. stakeholder) versus purely focus on company (i.e. shareholder) 2. Selective group versus throughout entire organisation 3. 'Inside' components (purely internal) versus 'Outside' components (full value chain including – post consumer
When?	1. Back-casting versus forecasting 2. Only consideration of future development versus consideration of corporate history 3. One time project versus permanent improvement

Table 3 MCSA elements and the sub-elements

Due to the bi-polar nature of the sub-elements each MCSA element can be represented by a 3-axes system. As can be seen in Figure 1, for each MCSA element these 3-axes constitute a 2 dimensional space. In this way the 3 axes of the MCSA sub-elements contribute to the x- and y-axis of the MCSA element.

The y-axis of this space represents the level of complexity of the CS integration strategy of the company. The x-axis represents in the majority of the cases the development of the CS integration in time. For the Why-element the x-axis represents whether the CS integration is intrinsically or extrinsically driven. For the How-element the x-axis represents the level of embededness of the CS integration. All elements with its 2 dimensional space constituted by the 3 axes form the MSCA framework (see Figure 1).

2.1. Data analysis

The approaches are mapped in a comparative way: scientific and professional literature was assessed in order to justify the positions on the axis scheme. The position of an approach on the axis should but rather symbolize which approach can be found on which side of each question. To determine the position of the approach on the MCSA axes, the data was analysis and interpreted. According to Elliot (2000) interpretive analysis leads to an understanding of why phenomena come about and how these unfold over time. In most cases clear answers and thus positions on the axis were given. However, in some cases the authors of the selected approaches did not elaborate on specific MCSA framework questions and thus the position was based on interpretations of the underlying philosophy and mind-set of each approach.

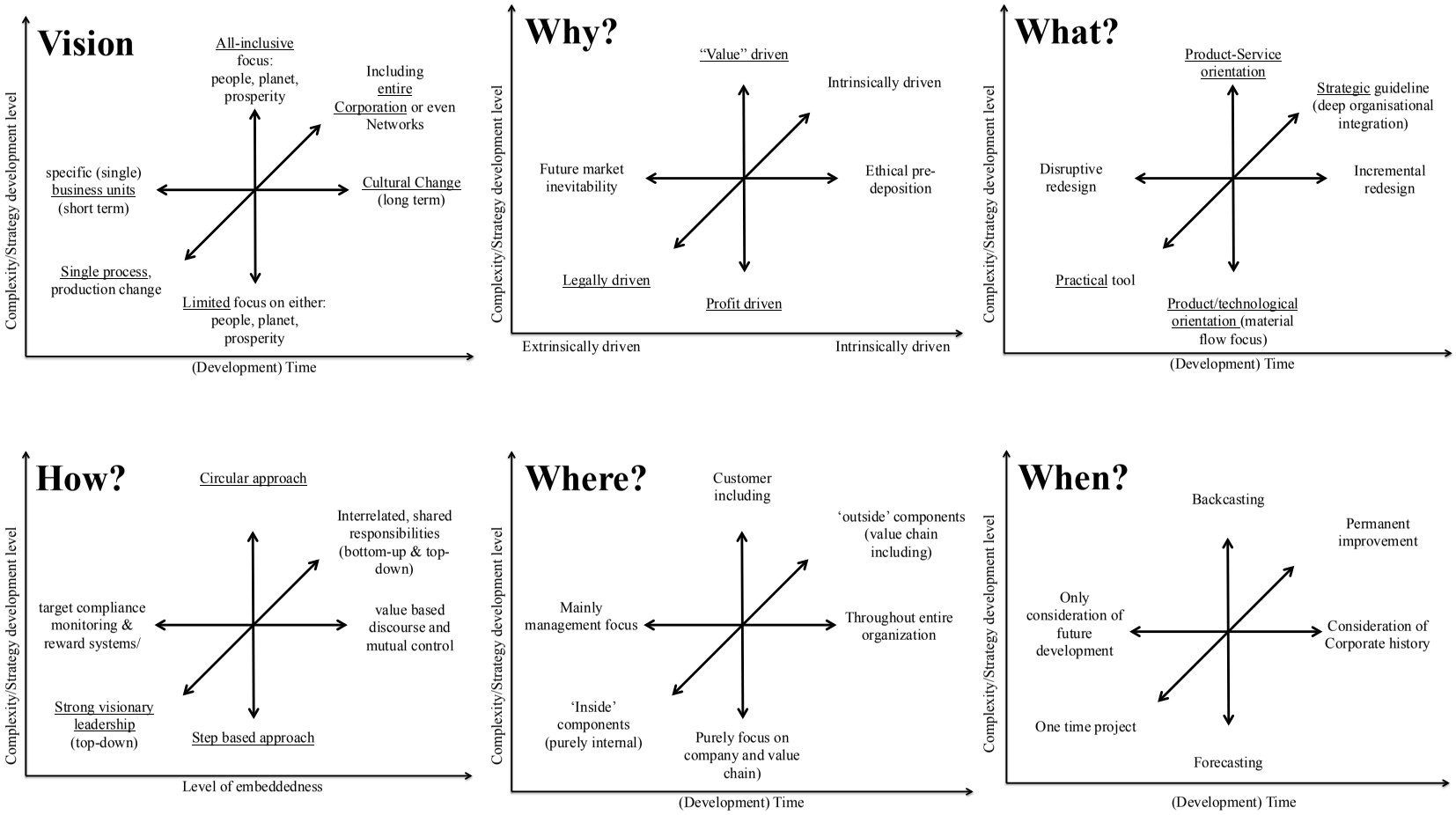

Figure 1 The MCSA framework

3. Findings

To validate the MCSA framework the 3 most cited CS integration approaches were mapped: sustainability reporting, environmental management system and life cycle assessment (see Table 1). The visual results can be found in Figure 1.

3.1. Sustainability Reporting

3.1.1. Vision

Sustainability reporting is a voluntary activity to assess the current state of an organisation's TBL issues, and to communicate the company´s efforts and progress (Lozano & Huisingh, 2011). Consequently, sustainability reports have the organisation as scope. Within this scope the sustainability issues mentioned in the report have been developing from originally a single issue-focus primarily on the environment, towards a broader and integrated issue-focus also to include ethical/social and financial issues (Kolk, 2008). This is confirmed by the current discussions for an integrated reporting (IR). Applying IR, companies confirm that significant changes were made to what was measured in the past or had plans to do so in the future (IIRC, 2014). A direct link between sustainability reporting and the corporate culture could not be found in literature. Based on the strong focus of reporting on quantitative indicators this is not to be expected either. As can be seen in Figure 2, this results in the positioning of sustainability reporting in the right top quadrant of the MCSA vision-graph.

3.1.2. Why

Being sustainability reporting an approach backed up by accounting principals (Adams & Frost, 2008; Kolk, 2008), companies tend to apply it to communicate the efforts and progress on quantitative indicators for important stakeholders, leaving out the qualitative/cultural efforts and progress. Despite of this quantitative basis, IR has been trying to include shared value principles as: "new approaches to value creation and decision making require organizations to assess their performance in new ways" (IIRC, 2014, p. 5). Stakeholder inclusiveness, as one of the sustainability reporting guiding principles, motivates the reporting company to identify stakeholders and communicate the compliance with stakeholder requirements (Initiative & Global Reporting Initiative, 2012). It therefore depends on the reporting company if they

report on their ethical pre-deposition or their intrinsic drivers. As can be seen in Figure 2, this results in the positioning of sustainability reporting in the left bottom quadrant of the MCSA why- graph.

3.1.1. What

A sustainability report contains merely data on product and process results that contribute to the efforts of the company in becoming more sustainable. Due to the stakeholder/market oriented-view sustainability reporting is principally an approach to communicate these organizations efforts. In order to do so, companies strive to increase transparency and accountability (Ioannou & Serafeim, 2011; Kolk, 2008). Besides assessing the organizations performance and compliance with stakeholder requirements, sustainability reporting also supports the companies to continuously improvement these same efforts over time (GRI, 2011; IIRC, 2014). In this sense, a sustainability report could contribute to the incremental redesign of the organization and its processes towards the CS scope, but this depends on the company and its stakeholder demands. In principal, sustainability reporting is an approach to assess the state of the organisation's TBL-issues and to communicate the efforts and progress (Lozano & Huisingh, 2011) with the potential of becoming an approach that supports the company on strategic matters as well. As can be seen in Figure 2, this results in the positioning of sustainability reporting in the lower part of the of the MCSA what-graph with a spread of the time-axis.

3.1.1. How

Due to the amount of data that has to be gathered and analysed, the publication frequency of a sustainability report is often linked to the general year report of the company: once a year. Although the goal of a sustainability report is to strive for continuous improvement, this time interval results in sustainability reports making their contribution in step-wised based improvement approaches.

Several authors have research this link between sustainability reports and general year reports (Cooper & Owen, 2007; Kolk, 2008). In both cases the responsibility of the success of the report lies in the hands of a single person or limited group of persons, mostly positioned at the top of the organisation or maintaining a staff-function with direct link to the board of the company. If the responsibility of top positions also leads to a top-down or, in contrary, a bottom-up integration of CS cannot be found in

literature. Initially it can be the case that top positions drive the reporting process (i.e. top-down), but with the knowledge of former sustainability reports people throughout the company can generate input for upcoming reports by initiate sustainability improvement processes (IIRC, 2014). Although IR has showed a vision for attempting to include company´s efforts on internal socio-cultural issues in sustainability reports, the focus on quantitative outcomes to improve the company´s performance has not yet made this possible. As can be seen in Figure 2, this results in the positioning of sustainability reporting in the lower left- part of the of the MCSA how-graph.

3.1.1. Where

Integrating CS with sustainability reporting support the company to report about its performance on TBL-issues (GRI, 2011). These outcomes can be used for the internal improvement programmes. Additionally, disclosed information can help stakeholders to focus their decisions, related with the reporting company, without adversely affected the company´s shareholders (Ioannou & Serafeim, 2011). Although a selected group of people will take the responsibility of developing and publishing the sustainability report, the impact of the outcomes can be used by a broad range of internal and external stakeholders (Kolk, 2008). As can be seen in Figure 2, this results in the positioning of sustainability reporting throughout the MCSA where-graph.

3.1.2. When

By looking backwards to support a vision for the future, sustainability reporting has a double time-focus: “measuring, disclosing, and being accountable to internal and external stakeholders for organizational performance towards the goal of sustainable development” (GRI, 2011). These past performances have been measured over the period of the report: mostly one year. By analysing and comparing more than one report, a continuous performance assessment can be achieved. Sustainability reporting is therefore becoming an approach for companies for the long-term (Lozano & Huisingh, 2011). As can be seen in Figure 2, this results in the positioning of sustainability reporting in the right top-part of the MCSA when-graph.

3.2. Environmental management system

3.2.1. Vision

Environmental management systems are voluntary and focused on the structure, implementation and maintenance of a formal single-issue management system: the environmental impact of the company´s processes (Curkovic & Sroufe, 2011). The proper implementation of an environmental management system enables the company to take advance of long-term benefits. Yet, daily challenges can impede an organization's long-term sustainability goals unless the environmental management system clearly determines standard requirements for these daily activities (Logsdon, 1985; Carpenter, 1991; Willig, 1994; Bhat, 1998; Angell and Klassen, 1999; Melnyk et al., 2001; Curkovic, 2003; Darnall et al., 2008 as mentioned in Curkovic and Sroufe, 2011). Principally these activities depend on the scope set by the company and, when certified, included in the environmental management system certificate. This scope can range from a single process, or business unit to the entire organisation, towards even multi-site certification covering more than one company.

As can be seen in Figure 2, this results in the positioning of sustainability reporting in the right part of the of the MCSA vision-graph with a spread of the strategy´s complexity level-axis.

3.2.2. Why

Environmental management systems "help organizations both to manage better the impact of their activities on the environment and to demonstrate sound environmental management" (ISO, 2009) and can lead to an improved organisation and documentation of the organisational processes that generate an impact on the environment, increased certainty of legal compliance, a better company image and increased employee motivation (Morrow & Rondinelli, 2002). Recent research has showed the ambiguous role of environmental management systems in assuring CS integration: although the amount of management system certificates indicates a more sustainable company, the management system itself is not used to integrate CS (Witjes, Vermeulen, & Cramer, 2014). For companies the adoption of an environmental management system has become a paper-driven process of limited value (Curkovic & Sroufe, 2011) for improving the company´s internal processes and environmental impact. In these cases an environmental management system is used to comply with external stakeholders´ requirements, instead of an intrinsic motivation.

As can be seen in Figure 2, this results in the positioning of environmental management systems in the left lower part of the of the MCSA why-graph.

3.2.3. What

As with Life Cycle Assessment, the environmental management system approach is able to support a company with reducing its impact on the environment, but only by the application of an overall perspective. In the case of environmental management systems this perspective is the continuous improvement cycle constituted by plan, do check and act (ISO, 2009). Environmental management systems, as strategic guidelines, focus this continuous improvement on the impact of the organisation. When applied in a right manner, the reduced environmental impact of the organisation´s processes also require high employee participation and training resulting in increased environmental awareness. Despite this correct application of environmental management systems, it is difficult to attribute environmental improvements directly to the adoption and certification of EMS (Morrow & Rondinelli, 2002). As can be seen Figure 2, this results in the positioning of sustainability reporting in the right upper part of the of the MCSA what-graph.

3.2.4. How

To apply an environmental management system, the company should assign the responsibility for enabling to reach set objectives and targets for all relevant function and at each level of the organisation, provide the means for fulfilling these objectives and targets, and designate a specific time-frame for achieving these objectives (Clark, 1999; Abarca, 1998; Rowland-Jones et al., 2005; Albuquerque et al., 2007 as cited in Curkovic and Sroufe 2011). The five requirements of an environmental management system contain: 1. the formation of a policy and commitment to the environmental management system, 2. the development of a plan for applying and, 2. maintaining the environmental management system, and 3. a plan for monitoring and 4. possible corrective action, and 5. top management review and continuous improvement (Curkovic & Sroufe, 2011). Consequently an environmental management system requires high employee participation and training (Azapagic, 2003) guided by a top management´s commitment and results in more systematic and formal company´s approach in the identification and management of environmental improvements

(Granly & Welo, 2014) . As can be seen in Figure 2, this results in the positioning of sustainability reporting in the left top-part of the of the MCSA how-graph.

3.2.5. Where

The ambiguous role of environmental management systems, as shown in paragraph 3.2.2, shows that companies use the certificate to comply with stakeholder's requirements. Besides, pressure from customers and the possibility of environmentally advanced processes pull the company towards certification (Granly & Welo, 2014). When going for the certificate, a selected group of people can enable achieving this goal, but when the organisation wants to get maximum results out of the application of an environmental management system, all levels of the company should support its development and maintenance (Curkovic & Sroufe, 2011). The crucial elements for the continuous improvement of the impact of the organisation will be defined (Pojasek, 2012) by setting the scope of the environmental management system. These elements can differ according the sector and geographical context of the company (Curkovic & Sroufe, 2011). As can be seen in Figure 2, this results in the positioning of sustainability reporting in the top right-part of the of the MCSA where-graph.

3.2.6. When

After the development and application/certification of the environmental management system, the continuous improvement cycle assures that companies are aware of the past when establishing strategies and policies for future improvements of the impact of the organisation. An environmental management system enables the company to take advance of long-term benefits. Yet, daily challenges can impede this (Curkovic & Sroufe, 2011). Therefore knowledge of the organisation´s historical development and current situation and its processes is required to develop and apply an environmental management system. As can be seen in Figure 2, this results in the positioning of sustainability reporting in the right upper-part of the of the MCSA when-graph.

3.3. Life Cycle Assessment

3.3.1. Vision

Life cycle assessment originally is a single issue-focused tool to understand the impacts of human interactions with the environment by the identification and quantification of environmental impacts of processes constituting the life cycle of a product or service (Azapagic, 2011; UNEP, 2009). Developed in parallel, Life cycle costing is concerned with optimizing value for money in the ownership of physical assets by taking into consideration all the cost factors relating to the asset during its operational life (Woodward, 1997). Recent developments show that the scope has been broadened to include social and prosperity issues although challenges with allocation are still to be overcome before getting to a full sustainability life cycle assessment approach (Robèrt et al., 2002). Life cycle assessment has been primarily applied for assessment to define impact improvement actions at product or process level on short term or long term depending on the perspective (i.e. individualist, egalitarian or hierarchist) chosen by the company (Goedkoop & Spriensma, 2001).
As can be seen in Figure 2, this results in the positioning of sustainability reporting in the lower left part of the of the MCSA vision-graph.

3.3.2. Why

The outcomes of a Life Cycle Assessment support companies to identify which aspects of their processes are efficient, and where they can improve efficiency and to reduce TBL impacts (UNEP, 2009). Besides, the perspective of the assessment can differ with regard to the company´s goal with the use of Life Cycle Assessment: “it does not explicitly say how this is done, what is the overall scope, or for what purpose“ (Robèrt et al., 2002). Depending on the goal definition, a Life Cycle Assessment can be focussed on specific or broader TBL issues and life cycle stages. The motives for executing a Life Cycle Assessment can differ from assessing the impact on TBL issues, through the interpretation of improvement-options for product design or process optimization, to product labelling (Azapagic, 2011). As can be seen in Figure 2, this results in the positioning of Life Cycle Assessment in the centre between extrinsically and intrinsically but towards the top according the complexity of the strategy.

3.3.3. What

Life Cycle Assessment focuses on the life cycle of products or services. Through the assessment of the processes constituting the life cycle stages Life Cycle Assessment contains a technological orientation. The initial product data scope can be increased with full life cycles of other materials that are used in the making of the product or service (UNEP, 2009). The quantification of the impacts of the TBL issues of the life cycle stages enables the identification of the most significant impacts contributing to these stages. This can then be used to address these impacts for system improvements or redesign (Azapagic, 2011). As can be seen in Figure 2, this results in the positioning of Life Cycle Assessment in the lower part of the of the MCSA what-graph with a spread of the time-axis.

3.3.4. How

The Life Cycle Assessment as an approach to quantitatively assess the impact of the life cycle of products or services is a linear approach existing of four mayor phases (i.e. definition of goal and scope, life cycle inventory analysis, life cycle impact assessment and life cycle interpretation; UNEP 2009). A thorough Life Cycle Assessment is primarily possible when people at the operational and tactical level gather and analyse the big amount of data necessary to create the basis for interpreting and taking strategic decisions. To enable the interpretation of life cycle data and assessment outcomes, an understanding of TBL issues and life cycle stages is a prerequisite: Life Cycle Thinking. Both are characterized by their complexity due to wide and far-reaching impacts and close links between issues and stages (Azapagic, 2011). The application of Life Cycle Thinking itself can contribute to the transparency and accountability, as mentioned for the Sustainability Reporting approach, necessary to define the company´s efforts for sustainable development.

As a unique phenomenon, Figure 2 shows on two axes of the MCSA how-graph twice an indication for Life Cycle Assessment. In this case both the quantitative assessment method and Life Cycle Thinking were mapped as being both elements of the Life Cycle Assessment approach.

3.3.5. Where

While setting the goal and scope is open to the company, it depends on their needs what part of the life cycle will be assessed (UNEP, 2009). The scope of the approach

itself has been recently increased from the assessment of environmental and economic issues towards social issues. By doing so, Life Cycle Assessment enables the contribution to the full assessment of products and services within the scope of CS. Consequently this increase in issues also results in a larger group of stakeholders to engage with (Benoît et al., 2010). To enable the improvement of the TBL issues it is necessary to drive fundamental internal changes in culture and structure (Azapagic, 2011). As can be seen in Figure 2, this results in the positioning of sustainability reporting in the right part of the of the MCSA where-graph with a spread of the strategy complexity-axis.

3.3.6. When

When applying the quantitative assessment of the impact of the organisation's processes is complemented by the qualitative perspective of Life Cycle Thinking, Life Cycle Assessment can support a backcasting process aimed at reaching a total reduction of material flow (Robèrt et al., 2002). When combined with an environmental management system life cycle assessment can lead to continuous improvement of the processes and the organisation (ISO, 2009). As can be seen in Figure 2, this results in the positioning of sustainability reporting in the lower left part of the MCSA when-graph.

3.4. CS integration approaches

Figure 2 shows the three CS integration approaches covering the broad range of the complexity of CS strategies of the MCSA framework. The mapping shows that these three approaches are supporting the companies more with long term then short term CS integration. Especially the why-graph, consequently why the company uses the CS integration approaches, shows that the three approaches can support extrinsically driven companies. The where-graph shows that companies can expect a CS integration support from the three approaches with a broader scope than just the own organisation. Especially the when-graph shows a clear difference between Life Cycle Assessment and the other two approaches. Life Cycle Assessment can support companies with project-based and short term CS integration instead of permanent improvement and long term integration.

1

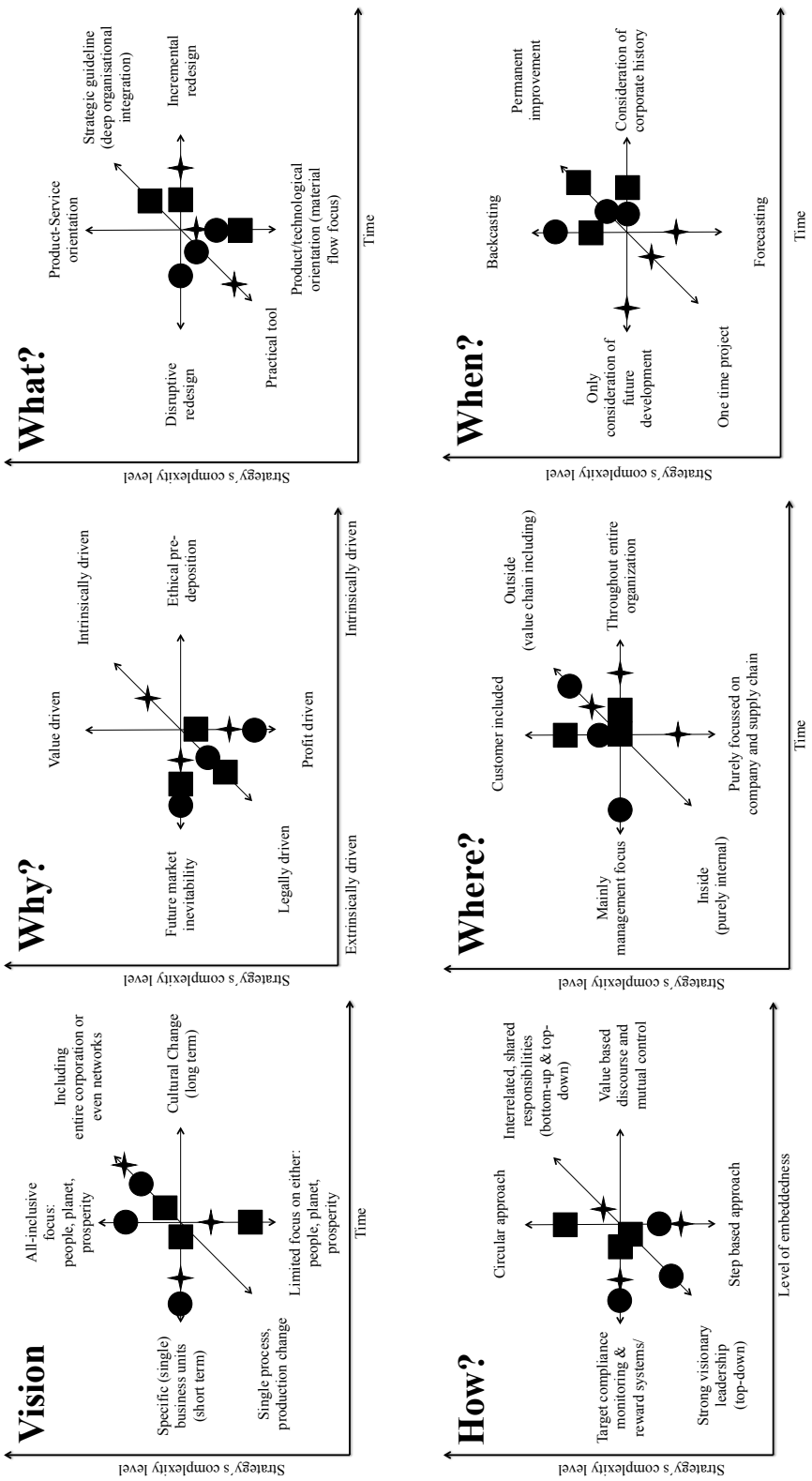

Figure 2 MCSA framework with CS approaches

- *The circle represents sustainability reporting*
- *The square represents environmental management system*
- *The star represents life cycle assessment*

The circles, squares and stars are centred on the corresponding axis

4. Discussion and conclusions

In this paper a literature analysis of CS integration and CS approaches is leading to the development of a framework. The MCSA framework was developed and applied to compare the intention of CS approaches. In contrary with existing approaches, the MCSA framework analyses the intentions of the CS integration approaches instead of mapping the approaches according to organisational structure as do existing frameworks (Baumgartner, 2013; Hahn et al., 2014; Lozano, 2012; Robèrt et al., 2002). To validate this framework the three most cited CS integration approaches are mapped through analysis of scientific and professional literature. This validation shows that the process of CS integration can also be analysed trying to understand the company´s and approach´s point of view. Within the MCSA framework the cohesion and density of the relationships between the different elements constituting the system (e.g. the people in the company, the processes generating the impact and the TBL issues), as mentioned in sociology (Putnam 2000; R.A.Scott 1976; Simmel 1955), management sciences (Bansal and Roth 2000) can be understood by the what- and how-graph. The adoption of the values resulting from this cohesion and density of the relationships, as mentioned in the organisational culture theory (Schein 2004) can be understood by the where- and when-graph of the MCSA framework. The overall value can be found in the vision- and why-graph. Finally, the integral control system to assure the right outcomes of the impacts, as mentioned in management sciences (Gianni and Gotzamani 2015) comes back in the when-graph of the MCSA framework.

Due to the uniqueness of every company and its business system, companies apply a mixture of approaches to support its CS integration process. Several scholars (Baumgartner, 2013; Hahn et al., 2014; Lozano, 2012; Robèrt et al., 2002) have set up frameworks to understand these CS integration approaches with an outside-in perspective. The MCSA framework was set up to complement the understanding of CS integration approaches by taking an inside-out perspective. The mapping of the three most cited CS integration approaches with the MCSA framework shows that these three approaches are supporting the companies more with long term then short term CS integration. Especially the why-graph, consequently why the company uses the CS integration approaches, shows that the three approaches can support extrinsically driven companies. The where-graph shows that companies can expect a

CS integration support from the three approaches with a broader scope than just the own organisation. Especially the when-graph shows a clear difference between Life Cycle Assessment and the other two approaches. Life Cycle Assessment can support companies with project-based and short term CS integration instead of permanent improvement and long term integration. In general it can be concluded that the three mapped CS integration approaches can support companies with the integration of CS with a high level of strategic complexity. Besides, the three approaches permit the support over longer time periods.

For this paper the MCSA framework was validated with theoretical data. For comparison with the empirical data, for example from case studies is recommended.

5. Acknowledgements

The authors would like to thank Sonja Koehller, former master student of the Sustainable Development programme of Utrecht University, for her support in this research.

6. References

Adams, C. A., & Frost, G. R. (2008). Integrating sustainability reporting into management practices. *Accounting Forum*, *32*(4), 288–302.

Azapagic, A. (2003). Systems approach to corporate sustainability: a general management framework. *Process Safety and Environmental Protection*, *81*(5), 303–316.

Azapagic, A. (2011). Assessing Environmental Sustainability: Life Cycle Thinking and Life Cycle Assessment. In Adisa Azapagic and Slobodan Perdan (Ed.), *Sustainable Development in Practice: Case Studies for Engineers and Scientists*.

Bansal, P. (2002). The corporate challenges of sustainable development. *Academy of Management Executive*, *16*(2), 122–131.

Bansal, P., & Roth, K. (2000). Why companies go green: a model of ecological responsiveness. *Academy of Management Journal*, 717–736.

Baumgartner, R. J. (2009). Organizational culture and leadership: Preconditions for the development of a sustainable corporation. *Sustainable Development*, *17*(2), 102–113.

Baumgartner, R. J. (2013, September 7). Managing Corporate Sustainability and CSR: A Conceptual Framework Combining Values, Strategies and Instruments Contributing to Sustainable Development. *Corporate Social Responsibility and Environmental Management*, pp. 258–271.

Benoît, C., Norris, G. a., Valdivia, S., Ciroth, A., Moberg, A., Bos, U., … Beck, T. (2010). The guidelines for social life cycle assessment of products: just in time! *The International Journal of Life Cycle Assessment*, *15*(2), 156–163.

Bonini, S., Görner, S., & Jones, A. (2010). How companies manage sustainability. *McKinsey Global Survey Results*, 1–8.

Cooper, S. M., & Owen, D. L. (2007). Corporate social reporting and stakeholder accountability : The missing link, *32*, 649–667.

Curkovic, S., & Sroufe, R. (2011). Using ISO 14001 to promote a sustainable supply chain strategy. *Business Strategy and the Environment*, *20*(2), 71–93.

Doppelt, B. (2003). *Leading Change Toward Sustainability: A Change-Management Guid for Business, Government and Civil Society*. *Government and Civil Society*. Sheffield: Greenleaf Publishing.

Dreborg, K. (1996). Essense of Backcasting. *Futures*, *28*(9), 813–828.

Eccles, R. G., Serafeim, G., & Ioannou, I. (2011). The Impact of a Corporate Culture of Sustainability on Corporate Behavior and Performance. *UBS Research Insight Conference Call, December 7th*, 57.

Edgar H. Schein. (2004). *Organizanional culture and leadership*. *Vasa* (3rd ed.). San Francisco: Jossey-Bass.

Elkington, J. (1998). *Cannibals with Forks: the Triple Bottom Line of 21st Century Business*. *Conscientious Commerce*. Gabriola Island: New Society Publishers.

Fernandes, K. J. K. J., Raja, V., Whalley, A., & Whallay, A. (2006). Lessons from implementing the balanced scorecard in a small and medium size manufacturing organization. *Technovation*, *26*, 623–634.

Gianni, M., & Gotzamani, K. (2015). Management systems integration: lessons from an abandonment case. *Journal of Cleaner Production*, *86*, 265–276.

Goedkoop, M., & Spriensma, R. (2001). *The Eco-indicator 99 - A damage oriented method for Life Cycle Impact Assessment*. Amersfoort.

Gomez-Samper, H. (2011, July 4). Rethinking Corporate Social Engagement: Lessons From Latin America. *Journal of Latin American Studies*.

Graafland, J., Van de Ven, B., & Stoffele, N. (2003). Strategies and instruments for organising CSR by small and large businesses in the Netherlands. *Journal of Business Ethics*, *47*(1), 45–60.

Granly, B. M., & Welo, T. (2014). EMS and sustainability: Experiences with ISO 14001 and Eco-Lighthouse in Norwegian metal processing SMEs. *Journal of Cleaner Production*, *64*, 194–204.

GRI. (2011). *Sustainability Reporting Guidelines © 2000-2011*.

Hahn, T., Pinkse, J., Preuss, L., & Figge, F. (2014). Tensions in Corporate Sustainability: Towards an Integrative Framework. *Journal of Business Ethics*.

IIRC. (2014). *Realizing the benefits: The impact of Integrated Reporting*.

Initiative, G. R., & Global Reporting Initiative. (2012). *G3.1 GRI Sustainability Reporting Guidelines G3.1 – Reference Sheet*.

Ioannou, I., & Serafeim, G. (2011). *The consequences of mandatory corporate sustainability reporting*. *Harvard Business School Research …* (Vol. 7387).

ISO. (2009). *Environmental management: The ISO 14000 family of International Standards*.

Jamali, D. (2006). Insights into triple bottom line integration from a learning organization perspective. *Business Process Management Journal*, *12*(6), 809–821.

Kolk, A. (2008). Sustainability, accountability and corporate governance: exploring multinationals' reporting practices. *Business Strategy and the Environment*, *17*(1), 1–15.

López-Fresno, P. (2010). Implementation of an integrated management system in an airline: a case study. *The TQM Journal*, *22*(6), 629–647.

Lozano, R. (2012). Towards better embedding sustainability into companies' systems: An analysis of voluntary corporate initiatives. *Journal of Cleaner Production*, *25*(C), 14–26.

Lozano, R. (2013). Are Companies Planning their Organisational Changes for Corporate Sustainability? An Analysis of Three Case Studies on Resistance to Change and their Strategies to Overcome it. *Corporate Social Responsibility and Environmental Management*, *20*(5), 275–295.

Lozano, R., & Huisingh, D. (2011). Inter-linking issues and dimensions in sustainability reporting. *Journal of Cleaner Production*, *19*(2-3), 99–107.

Maon, F., Lindgreen, A., & Swaen, V. (2009). Designing and implementing corporate social responsibility: an integrative framework grounded in theory and practice. *Journal of Business Ethics*, *87*(1), 71–89.

Merton, R. K. (1973). The Normative Structure of Science. In *The sociology of science: theoretical and empirical investigations* (pp. 267–280).

Moore, S. B., & Manring, S. L. (2009). Strategy development in small and medium sized enterprises for sustainability and increased value creation. *Journal of Cleaner Production*, *17*(2), 276–282.

Morrow, D., & Rondinelli, D. (2002). Adopting Corporate Environmental Management Systems: Motivations and results of ISO 14001 and EMAS certification. *European Management Journal*, *20*(2), 159–171.

Ouchi, W. G. (1978). The Transmission of Control Through Organizational Hierarchy. *Academy of Management Journal*.

Parsons, T. (1971). *The system of modern societies*. Englewood Cliffs, NJ: Pretence Hall.

Pojasek, R. B. (2012). Implementing a sustainability management system. *Environmental Quality Management*, *22*, 83–90.

Putnam, R. D. (2000). *Bowling Alone: The Collapse and Revival of American Community: New York: Simon und Schuster, 2001. ISBN. Policy Analysis* (Vol. 20).

Robèrt, K.-H. H., Schmidt-Bleek, B., Aloisi De Larderel, J., Basile, G., Jansen, J. L., Kuehr, R., … Larderel, J. A. De. (2002). Strategic sustainable development — selection, design and synergies of applied tools. *Journal of Cleaner Production*, *10*(3), 197–214.

Robinson, J. B. (1990). Futures under glass: A recipe for people who hate to predict. *Futures*, *22*(8), 820–842.

Salzmann, O., Ionescu-somers, A., & Steger, U. (2005). The Business Case for Corporate Sustainability: *European Management Journal*, *23*(1), 27–36.

Scott, J. (2000). *Social Network Analysis: A Handbook*. *Contemporary Sociology* (Vol. 3).

Scott, R. A. (1976). Deviance, sanctions, and social integration in small-scale societies. *Social Forces*, *54*(3), 604–620.

Searcy, C. (2014). Measuring Enterprise Sustainability. *Business Strategy and the Environment*, online publication

Siebenhüner, B., & Arnold, M. (2007). Organizational learning to manage sustainable development. *Business Strategy and the Environment*, *16*(5), 339–353.

Simmel, G. (1955). Conflict and the web of group affiliations. *Trans. K. Wolff and R. Bendix. New York: Free Press*.

Storer, N. W. (1966). *The Social System of Science*. *Social Forces*. New York: Rinehart & Winston.

UNEP. (2009). *Guidelines for Social Life Cycle Assessment of Products*.

Van Der Woerd, F., & Van Den Brink, T. (2004). Feasibility of a Responsive Business Scorecard - A pilot study. *Journal of Business Ethics*, *55*(2), 173–186.

WCED, & World Commission on Environment and Development. (1987). *Report of the World Commission on Environment and Development: Our Common Future (The Brundtland Report)*. *Medicine, Conflict and Survival* (Vol. 4).

1 Weber, M. (2008). The business case for corporate social responsibility: A company-
2 level measurement approach for CSR. *European Management Journal*, *26*(4),
3 247–261.
4 Witjes, S., Vermeulen, W. J. V, & Cramer, J. M. (2014). Exploring the gap between
5 vision and practice of corporate sustainability in SMEs , experiences from 18
6 Dutch cases. In *ERSCP 2014* (pp. 1–16).
7 Woodward, D. G. (1997). Life cycle costing—Theory, information acquisition and
8 application. *International Journal of Project Management*, *15*(6), 335–344.
9