

Leapfrogging through retrospection

Ferreting out sustainability integration within organisations

Sjors Witjes

ISBN: 978-94-91602-97-9

Illustrations: Esther Mols Visual Communication / Layout and printing: Print Service Ede

Leapfrogging through retrospection

Ferretting out sustainability integration within organisations

Terugkijken voor een grote stap vooruit

Het onthullen van duurzaamheidsintegratie in organisaties

(met een samenvatting in het Nederlands)

Proefschrift

ter verkrijging van de graad van doctor aan de Universiteit Utrecht op gezag van de rector magnificus, prof.dr. G.J. van der Zwaan, ingevolge het besluit van het college voor promoties in het openbaar te verdedigen op dinsdag 4 april 2017 des ochtends te 10.30 uur

door

Sjors Witjes

geboren op 4 februari 1975 te Heteren

Promotor: Prof.dr. J.M. Cramer

Copromotor: Dr. W.J.V. Vermeulen

*“You look at where you're going and where you are and it never makes sense,
but then you look back at where you've been and a pattern seems to emerge”.*

Robert M. Pirsig, *Zen and the Art of Motorcycle Maintenance: An Inquiry Into Values*

Content

CHAPTER 1 FERRETING OUT SUSTAINABILITY INTEGRATION WITHIN ORGANISATIONS	10
1.1 THE SOCIETAL CALL FOR SUSTAINABLE DEVELOPMENT.....	12
1.2 SUPPORTING COMPANIES WITH CS INTEGRATION	14
1.3 RESEARCH ON CORPORATE SUSTAINABILITY	16
1.4 METHODOLOGIES FOR THEORY BUILDING ON CORPORATE SUSTAINABILITY INTEGRATION	19
1.5 THE MIXED METHOD APPLIED IN THIS PHD THESIS.....	21
CHAPTER 2 ON ADDRESSING THE DUAL AND EMBEDDED NATURE OF BUSINESS AND THE ROUTE TOWARDS CORPORATE SUSTAINABILITY	27
2.1 INTRODUCTION	28
2.2 HOW SHOULD THE DUAL NATURE OF INDIVIDUAL COMPANIES BE CONCEIVED?	31
2.3 HOW SHOULD A LONG-TERM AMBITION FOR CORPORATE SUSTAINABILITY BE SET IN A WIDELY ACCEPTABLE WAY?	34
2.4 HOW SHOULD WE DESCRIBE COMPANIES AS AN ELEMENT OF A PRODUCTION AND CONSUMPTION SYSTEM?.....	37
2.5 HOW SHOULD LONGER-TERM STRATEGY DEVELOPMENT AND IMPLEMENTATION BE DESIGNED? ..	38
2.6 HOW CAN COMPANIES BE SUPPORTED IN MOVING FROM A LIMITED RATIONAL CHOICE APPROACH TOWARDS CONTINUOUS AND TRANSFORMATIVE LEARNING? KEY IMPERATIVES FOR CORPORATE SUSTAINABILITY.....	39
2.7 DISCUSSION	41
CHAPTER 3 EXPLORING CORPORATE SUSTAINABILITY INTEGRATION INTO BUSINESS ACTIVITIES. EXPERIENCES FROM 18 SMALL AND MEDIUM-SIZED ENTERPRISES IN THE NETHERLANDS	47
3.1 INTRODUCTION	48
3.2 CS INTEGRATION.....	49
3.3 METHODS.....	53
3.4 FINDINGS.....	61
3.5 DISCUSSION	67
3.6 CONCLUSIONS	69
CHAPTER 4 ON CORPORATE SUSTAINABILITY INTEGRATION AND THE SUPPORT OF TOOLS	73
4.1 INTRODUCTION	74
4.2 TOOLS TO INTEGRATE CORPORATE SUSTAINABILITY	75
4.3 CORPORATE SUSTAINABILITY INTEGRATION	80
4.4 PROPOSING A FRAMEWORK FOR UNDERSTANDING THE SUPPORT OF TOOLS FOR CORPORATE SUSTAINABILITY INTEGRATION	81

4.5	ILLUSTRATION OF THE FRAMEWORK WITH THREE CS INTEGRATION TOOLS	85
4.6	DISCUSSION	92
4.7	CONCLUSIONS	93
	APPENDIX OF CHAPTER 4 - ANALYSIS OF CS INTEGRATION TOOLS.....	95
CHAPTER 5 TOWARDS A MORE CIRCULAR ECONOMY: PROPOSING A FRAMEWORK		
LINKING SUSTAINABLE PUBLIC PROCUREMENT AND SUSTAINABLE BUSINESS MODELS		
	99
5.1	INTRODUCTION	100
5.2	THE LINK BETWEEN PUBLIC PROCUREMENT (PP), BUSINESS MODELS AND SUSTAINABILITY	102
5.3	METHODS.....	108
5.4	PROPOSING A COLLABORATIVE FRAMEWORK BETWEEN SPP AND SBM TO CONTRIBUTE TO CE..	109
5.5	CONCLUSIONS	112
CHAPTER 6 INTEGRATION MECHANISMS FOR CORPORATE SUSTAINABILITY:		
CORPORATE SELF-REFLECTION ON PATTERNS OF SUCCESSFUL INTEGRATION FOR		
CATALYSING STRATEGY IMPROVEMENT		
		115
6.1	INTRODUCTION	116
6.2	CS INTEGRATION INTO THE ORGANISATIONAL SYSTEM	119
6.3	THE LEAPFROCS METHOD: ITS FRAMEWORK AND APPLICATION	128
6.4	TESTING THE LEAPFROCS METHOD	135
6.5	CONCLUSIONS	143
CHAPTER 7 REFLECTIONS ON FERRETING OUT SUSTAINABILITY INTEGRATION		
WITHIN ORGANISATIONS.....		
		147
7.1	REFLECTIONS ON THE DEVELOPMENT OF THE OUTCOMES.....	148
7.2	METHODOLOGICAL REFLECTIONS	150
7.3	RECOMMENDATIONS FOR FUTURE RESEARCH.....	152
REFERENCES.....		
		155
SUMMARY		
		177
SAMENVATTING		
		181
ACKNOWLEDGEMENTS		
		187
BIOGRAPHY SJORS WITJES		
		191
PUBLICATIONS OF SJORS WITJES INCLUDED IN THIS THESIS		
		193

List of tables

Table 1	Review of recent literature on corporate sustainability integration approaches and elaboration of the CS management elements and 3 feedbacks.....	43
Table 2	Overview of the companies	55
Table 3	Tool 1: the CS growth curve phases, their explanation and the corresponding phases of Dunphy et al.(2006)	56
Table 4	Tool 2: the internal and external CS triggers.....	57
Table 5	Tool 3: The elements to ensure CS integration.....	58
Table 6	Tool 4: The physical and social focus of the CS integration activities.....	59
Table 7	CS growth curve per company including management system certificates	61
Table 8	Presence of each CS trigger in the selected eighteen companies.....	62
Table 9	Presence of each element to ensure CS integration in the selected eighteen companies.....	63
Table 10	Presence of physically or socially focused activities in the selected eighteen companies	64
Table 11	Tool data according to the number of management system certificates present at the eighteen companies.....	66
Table 12	The main researches over the last 15 years contributing to the understanding of the support tools can offer companies with the integration of CS into the organisational system. The researches use different names for what, in this chapter, is referred to as tools.....	78
Table 13	The analysis by Lozano (2012) on how CS tools address the different elements of the organisational system and Corporate Sustainability. The tools were scored full, limited and variable on addressing sustainability in the different organisational system elements.....	80
Table 14	The integration process elements to understand the integration process of a company’s vision into its organisational system.	82
Table 15	The integration process elements to analyse the support tools deliver to companies when integrating CS into their organisational system.	83
Table 16	The analysis of EMS, LCA and SR and their support of the integration process of CS into the organisational system according to the six integration process elements. Coding is done according to Lozano (2012) (i.e. full, limited and variable contribution) and is based on the findings described in this section.	91
Table 17	Appearance of CS integration tools in web searches (21 February 2016).....	96
Table 18	The classification and categorisation of the integration mechanisms of Company A.....	137
Table 19	The classification and categorisation of the integration mechanisms of Company B	139
Table 20	The classified and categorised integration mechanisms of company A from a time perspective. The black bar chart represents the percentages for each cell.	140
Table 21	The classified and categorised integration mechanisms of company B from a time perspective. The black bar chart represents the percentages for each cell.	141

List of figures

Figure 1 The method of theory building according to Lynham (2002)	20
Figure 2 The research approach applied in this research (adapted from Van Hoof, 2013)	22
Figure 3 The chapters of the research according to their focus on theoretical or empirical data	25
Figure 4 Three dimensions of the concept of sustainable development: issues, time and place, containing 3x2x2 boxes	34
Figure 5 Permanent feedbacks between 4 elements of transformative change	40
Figure 6 The three perspectives of the analysis of the support of tools for CS integration into the organisational system.....	80
Figure 7 The changing contact between the procurer and supplier during the PP process showing the different stages from preparation to utilisation (based on UNEP (2014)).....	103
Figure 8 A linear framework of the PP process showing the influence on business models	103
Figure 9 Procurer/supplier proximity and supplier selection during the SPP process (based on UNEP (2014))	110
Figure 10 Collaboration between procurement and business models for CE (ProBiz4CE) framework	111
Figure 11 The three dimensions of Corporate Sustainability: issues (planet, people, prosperity), time (past, now, then) and place (I, here and there).....	117
Figure 12 The cycle of continuous organisational improvement of Plan, Do, Check and Act	122
Figure 13 The strategic, tactical and operational levels of the organisational structure.....	123
Figure 14 The three perspectives of the LEAPFROCS framework (i.e. continuous improvement, organisational structure and organisational culture) with the corresponding elements.....	129
Figure 15 An example of different integration mechanisms	132

This PhD thesis consist of a mixture of quantitative and qualitative research methods. The close collaboration with students and companies is aimed at the generation of knowledge useful for practice as well as theory, now and in the future.





Chapter 1

Ferretting out sustainability integration within organisations

CHAPTER 1

Throughout the last 15 years, I was able to support and guide several companies with addressing sustainability challenges. By asking for my help, these companies already proved to be aware of the importance of sustainability for their businesses. Moreover, they had converted this awareness into action: they asked me, an actor external to their organisations, what to do and how to do it. While defining what sustainability could mean to their business, I ended up by asking them about how they used to do their business; what was successful and why it was so successful. Although this might sound more like digging into a company's history, my goal was to help them to improve their understanding of who they really were and what actions could best benefit their particular organisations. I used retrospective analysis of corporate actions on addressing sustainability to support them in making – smaller or bigger - leapfrogs towards adhering to their vision on addressing sustainability. Many company leaders asked me to write down my thoughts on how to do this retrospective analysis and how this contributes to an improved adherence to a corporate vision on addressing sustainability. This PhD thesis is my answer to that question.

As a representation for leapfrogging I chose the red-eyed tree frog in the layout of this PhD thesis. Besides it being a representation of the beauty of nature that companies should help preserve, the red-eyed tree frog has a curiosity that relates to companies addressing sustainability: in a position of rest, red-eyed tree frogs just look like ordinary green frogs. But when red-eyed tree frogs are in action they show their beautiful colours that make them step out from the rest. Red-eyed tree frogs also relate to me personally: part of their habitat was also the place which served as a leapfrog in my personal development: Colombia.

This PhD thesis develops a method to ferret out past successes on addressing sustainability as a support for companies to leapfrog into adhering to a corporate sustainability vision. The goal of this retrospective analysis is about finding a pattern in past activities, as mentioned by Pirsig (2009), that supports companies in defining future actions. I define this pattern as the 'authentic being of a company'. Knowing your authentic self as a company supports you in defining a more efficient vision for the future and translating this vision into more efficient actions. It is about doing what you can do best by optimally using the potential of the corporate resources.

1.1 The societal call for Sustainable Development

The current debate on the sustainability of society has also been fuelled by retrospective analyses of finding patterns in past activities. Both scientists and other professionals ferret out the impact of process-impacts over time to understand how the current sustainability of the world can be improved. The strife for sustainability is rooted in an unprecedented degradation of ecosystems (Reid et al., 2005; Rockström et al., 2009; WWF, 2014) resulting from major advances in development and industrialisation during the past decades in global society (UNDP, 2015). These developmental advances and their consequences have raised concerns that the resulting impact on

the earth's environment and its influence on the quality of life of future generations will be irrevocable (Starke, 2012). The concept of Sustainable Development (SD) has appeared as an alternative to support understanding and restore the balance between human society and nature (Du Pisani and Du, 2006; Hopwood et al., 2005a; Leiserowitz et al., 2006). SD is defined as (WCED, 1987a, p. 45) "development that meets the needs of the present without compromising the ability of future generations to meet their own needs", and is aimed at addressing the impacts for people, planet, and prosperity (i.e. triple P) in an equal manner at all levels of society, now and in the future (Dam, Ynte K. and Trijp, Hans C M, 2011; Hammond, 2006).

Companies have increasingly become a key focus of attention in the SD debate (Engert et al., 2016; Panagiotakopoulos et al., 2016), since they are perceived to be responsible for many negative impacts on the triple P issues in society (Dunphy et al., 2006). Large multinational companies feel this pressure more strongly than more locally oriented SMEs (Vermeulen, 2015). But even in the case of SMEs most companies are in some way embedded in larger production and consumption systems with a global reach (Kerr, 2006). Whereas in the 1960s and 1970s many companies were still in a state of denial regarding their impact on society, today many companies have accepted their responsibilities and started initiatives to address the demands and expectations of society to contribute to SD (Székely and Knirsch, 2005). With products and production processes becoming less contaminated, companies realize that they can reduce the negative impacts their processes generate. Decreasing the negative impact of business activities will increase operational efficiency (Epstein and Roy, 2001a), improve the overall performance of the company (Eccles et al., 2014; Zangwill and Kantor, 1998) and, potentially, lead to companies outperforming equivalent companies over the long term (Eccles et al., 2011; Kurapatskie and Darnall, 2013). The current influx of corporate awareness of the impact of business activities in their direct and indirect contexts (Searcy, 2016) has, consequently, resulted in many companies developing strategies on how they can contribute to a more sustainable society, while creating added value to their corporate strategy (Amini and Bienstock, 2014; Baumgartner and Ebner, 2010a). As a result a growing number of companies embrace the concept of Corporate Sustainability (CS), defined by Dyllick and Hockerts (2002, p.131) as "...meeting the needs of a firm's direct and indirect stakeholders, such as shareholders, employees, clients, pressure groups, and communities without compromising its ability to meet the needs of future stakeholders as well". Against this background, and in light of emerging ambitions of companies to contribute to a more sustainable society, the empirical question arises of how companies should address CS in such a way that it promotes added value to their business activities.

1.2 Supporting companies with CS integration

This PhD thesis contributes to the understanding the integration process of CS into business activities that can lead to CS becoming an added value with respect to the main corporate goals. Therefore, this thesis specifically aims to support companies to improve the exploitation of their potential. I will do so by framing the integration process, including a focus on the social organisational dynamics, and shedding a light on the role of external change agents, corporate tools and supply chain actors that holistically support companies to integrate CS into their operations.

Companies willing to address CS are looking for guidance on how to develop an authentic vision on CS, and making it an integral part of their business activities (Epstein and Roy, 2001a; Küpers, 2011; Searcy, 2012). An understanding of the process of CS integration into business activities supports these companies in implementing transformative change processes (Dunphy et al., 2006; Lozano, 2013), and creates a willingness and ability, at the individual, group and organisational levels, to make CS part of their daily activities (Lozano, 2007a). These change processes are aimed at creating dynamic capabilities that enable companies to satisfy current demands while simultaneously being prepared for tomorrow's developments (Gibson et al., 2004; Epstein and Buhovac, 2010). Companies need guidance in maintaining a holistic perspective on the consequences of these change processes during the development and implementation of an authentic vision on CS (Searcy, 2012). This guidance should include an increased awareness of the influence of internal and external stakeholders on the CS vision (Searcy, 2016), and the process of CS integration (Engert et al., 2016) supported by decision support tools (Hallstedt et al., 2010). SMEs, especially, that have neither the financial means nor the manpower to take on the responsibility of CS integration, are supported by consultancy firms acting as change agents. Although many scholars (e.g. Aldama et al., 2009; Hallstedt et al., 2010; Van der Heijden et al., 2012) have researched cases including internal and external change agents, the role of consultancies in influencing the CS integration process of companies lacks clarity. Whereas consultancy practices are loosely coupled to a body of exemplary cases and theoretical knowledge in organisation studies, there is no monitoring of the effect nor follow-up of the 'treatment' an external change agent offers companies that are willing to integrate CS (Sorge, 2004).

From my own experience¹, bigger SMEs often lack a clear and shared vision on CS and determined mechanisms to integrate CS into their daily business routines based on past experience. This can hamper the process of making CS an added value to companies' main business goals. I have encountered numerous companies that tend to take a reactive approach towards CS integration

¹ 10 years as an external consultant on CS integration processes for companies in Europe and Latin America and 10 years as a lecturer on CS related topics.

instead of intrinsically defining how to address CS. This reactivity results in a dependency on tools, developments in the supply chain or in wider society and, especially, on consultancies to support the integration process. As a result, they act without a clear intrinsic vision on how their contribution to SD can be an added value to their own business processes. Firstly, these companies do not fully understand what the support tools can offer, nor are these companies proactively planning the use of tools but rather working towards compliance with CS requirements of external stakeholders. Secondly, most reactive companies respond defensively to developments in the supply chain or in wider society, resulting in a CS vision not being authentic but dependent on the expertise of employees in, for example, sales or procurement. Thirdly, reactive companies do not designate the proper resources to address CS and, therefore, must outsource the responsibility for CS integration by trusting the skills and attitudes of external change agents.

My experience has shown that this results in a company's business potential not being fully exploited. They are focussing on compliance with the requirements of stakeholders or standards instead of developing an authentic vision on CS, based on an intrinsic motivation. Their integration activities are mostly focused on the formal physical dynamics of the organisation (i.e. the measurable outputs), resulting in CS not being fully integrated into the organisational processes (i.e. by not including the social dynamics and focussing on the organisational outcomes), nor supporting daily business activities. The organisational change processes of these companies are mostly not focussed on an increased contribution to a more sustainable society but on complying with continuously changing stakeholder requirements and, therefore, generating a sustained need for consultancy support.

To improve their contribution to SD, companies need to address CS from an intrinsic motivation perspective, and develop a corporate strategy leading to CS as an added value to their business activities. A clear vision on the improved output of their business activities on triple P issues should be accompanied by a strategy of how this enhancement could be accomplished by an improved outcome of the organisational processes; i.e. a strategy for the integration of CS into *all* business activities.

The outcomes of this research are aimed at increasing scientific insights in sustainability integration in organizations and, at the same time, at strengthening the capabilities of companies themselves, particularly SME's, to cope with sustainability integration in a proactive manner. To increase the expertise of future players in the CS field, students have been involved in the execution of the research.

1.3 Research on Corporate Sustainability

Companies addressing their contribution to SD have been a topic of increased importance in research (Linnenluecke and Griffiths, 2013). In many cases this research starts with understanding CS from the perspective of stakeholder engagement, and the need for companies to respond to the societal context (Asif et al., 2011; Azapagic and Perdan, 2005; Cramer, 2005a; Maon et al., 2009). Some stress the need for a corporate strategy perspective - posed by the field of strategic management - to continuously elaborate a long-term vision (Baumgartner, 2014; Searcy, 2016). According to Linnenluecke (2013), the field of CS has emerged from a few primary areas of research towards four conceptual branches: 1. Corporate social performance theory; 2. Stakeholder theory; 3. Corporate social performance versus economic performance; and 4. 'Greening' of the management debate. Whereas research on CS has shown a strong focus on empirically examining the relationship between a company's environmental and/or social performance and its economic performance, there has also been a focus on how to integrate these various aspects and understand the managerial implications and consequences (Linnenluecke and Griffiths, 2013).

Existing research on the management of CS integration has taken different analytical perspectives, developed from the strategic level towards all levels of the organisational structure and taking the company's management system as a guide to understanding how companies assure CS integration, including the influence of corporate learning, drivers, and culture on the individual and groups at organisational level (Asif et al., 2011; Rocha et al., 2007; Siva et al., 2016). For example, Robert et al. (2002) focus on development process strategies, and propose several principal CS levels, both internal and external to the company, Azapagic (2003a) takes a management system perspective proposing a direct link with life cycle assessment, Van der Heijden et al., (2006) analyse the role of change agents, Jamali (2006) emphasises the importance of corporate learning to support CS integration, Maon et al. (2009) extend the management system perspective and propose an integrated management system (IMS) perspective, Linnenluecke (2010) extends this IMS perspective and emphasises the organisational culture, Baumgartner (Baumgartner and Ebner, 2010b) tries to understand the strategic management processes when integrating CS, Lozano (Lozano, 2007a) adds an organisational change management perspective on individual, group and organisation level, and Hahn et al. (2015) try to understand the tensions in a company when addressing CS from an organisation theory perspective.

Despite these research developments, there remains a need for CS integration research based on management derived from more complex mental models (Hockerts, 2015). Researchers (Hahn et al., 2015; Lozano, 2012) have emphasised the importance of improving the understanding of CS integration uniting different perspectives in a more holistic perspective (Wells, 2013). From this

perspective, fragmented and mechanistic research based on general data should be avoided (Hjorth and Bagheri, 2006). Addressing complex dynamic inter-relations among economic, environmental, and social issues over time and in society (Lozano, 2008) is often related to complex, self-organising systems (Hjorth and Bagheri, 2006). Consequently, research on CS integration demands the use of current research developments in related fields (e.g. organisation theory, organisational behaviour, organisational change management) that could support more detailed data gathering and, therefore, increase the understanding of the process of CS integration (Rauter et al., 2015). This supports the need expressed by other CS integration researchers (e.g. Azapagic, 2003; Salzmann et al., 2005; Siebenhüner and Arnold, 2007; Weber, 2008) when demanding a more longitudinal research approach to contribute to the understanding of CS integration into business activities. Comprehensive frameworks for longitudinal and a more ‘all-inclusive’ perspective on CS integration will result in new insights by relying on experience and knowledge from historical information (Van der Heijden et al., 2012; Maon et al., 2009). Such retrospective analyses of CS integration could support proactive and forward-thinking companies in their challenge to increase the integration of CS into their organisational systems. Moreover, using developments in related fields, developing and applying holistic frameworks by collecting detailed longitudinal data, supports the necessary theory building on CS integration into organisational systems (Linnenluecke and Griffiths, 2013).

To contribute to the generation of theory on CS integration this PhD thesis addresses the following overarching research question:

How do companies integrate Corporate Sustainability into their organisational system over time?

This important, albeit broad question can be divided into a number of sub-questions to help structure the research:

1. What are the core characteristics of the CS integration process?

This PhD thesis seeks to identify the components constituting the process of CS integration into the organisational system. To highlight how the CS integration process is characteristically distinct from integrating other corporate concepts into the organisational system, the concept of CS is identified within the field of organisation theory and strategic management.

CHAPTER 1

2. What is the role of CS integration tools?

This PhD thesis seeks to identify the role organisational tools play in the CS integration process. Whereas much research has been done to understand specific tools or compare them, this PhD thesis adds an integration process-focus to analyse the contribution of the tools to the process of CS integration.

3. What is the role of third parties in integrating CS?

This PhD thesis seeks to understand the role of external change agents and direct supply chain partners in the process of CS integration. The understanding of how these actors influence the integration process contributes to a more precise definition and characterisation of the CS integration process itself.

4. How can CS integration success be measured?

This PhD thesis seeks to develop a method to collect data to measure the success of the integration of CS into an organisational system. By taking a longitudinal and retrospective perspective, operational elements of the integration process are analysed on how they improve organisational efficiency for achieving the company's CS vision.

The answers to these sub-questions will lead to the development of frameworks based on perspectives from different, but related, fields. The frameworks enable retrospective longitudinal data gathering on mechanisms that have led to the successful integration of CS into business activities. By letting students participate in the research, they can directly test what they have learned from the development of new theory on CS integration. This assures the simultaneous creation of a new generation of researchers and change agents for CS integration. By collaborating with companies, the outcomes of the research can be directly applied and validated in practice.

1.3.1 The collaboration with companies and students

This PhD thesis has entailed the collaboration of 37 commercial companies and 4 governmental organisations, resulting in practical knowledge supporting the strategic goals of the participating organisations. This led to validated knowledge that provided new insights and understanding of CS integration; definitions, frameworks, and innovative research methods. The participating commercial companies were situated in the Netherlands (n=34), Germany (n=1) and Colombia (n=2) and 4 governmental organisations in the Netherlands. The longitudinal/retrospective analysis (averaging 6 months of analysis of a data-coverage of 10 years per organisation) was applied to 21 commercial companies and 1 governmental organisation. While this longitudinal research resulted in the data needed for the contribution to science, it also created support for future strategic decisions on CS integration for the participating companies.

This PhD thesis has also contributed to the creation of a new generation of researchers and change agents for CS, thanks to the participation of 100 students at bachelor (n=6), master (n=93) and PhD (n=1) level. While 100 master students attended lectures on the topics of the different chapters of this PhD thesis, 30 students actively participated in the development and/or support of the frameworks by exploring literature and generating additional conceptual categories (7 bachelor). 23 students collected data from commercial companies and governmental organisations. Moreover, the participation of the students assured that the findings of this PhD on the development of new theory on CS integration were directly tested and validated. The participation of students in longitudinal collaboration with the companies resulted in the best learning experience for the students.

1.4 Methodologies for theory building on Corporate Sustainability integration

Ongoing societal developments related to sustainable development demand continuous construction, testing, and re-construction into new theories and an increase in knowledge (Lang et al., 2012; Pohl et al., 2010). Contemporary society has seen a transformation in the mode of new knowledge production: Mode 1 knowledge, representing traditional knowledge creation within a discipline, is increasingly being accompanied by, Mode 2 knowledge gleaned from broader, transdisciplinary social and economic contexts (Gibbons et al., 1994; Nowotny et al., 2003). This PhD thesis contributes to Mode 2 knowledge creation on CS integration.

Emergent knowledge creation forms the basis for hypothetic-deductive theory testing (Eastwood et al., 2016). Contrary to traditional scientific approaches for formally testing theories (e.g. experimenting, statistics), this research adopts a theory-building approach that first makes theory explicit and accessible to the user of the developed theory. Theory-building is the process that can help us to understand and model reality, and can enable sustainability researchers to make sense of the observable world by conceptualizing, categorizing and ordering relationships (Dubois and Gadde, 2002), from the interplay of observations and multi-relational reflection through interpretation (Astley, 1985; Weick, 1989). Whereas the process of theory-building should start with some background knowledge on the research context (Andersen and Kragh, 2010), this knowledge is enhanced by considering phenomena in the light of a theoretical framework that is improved over time, with the final goal of building a bridge between the evidence and mainstream research (Eisenhardt and Graebner, 2007). Since the empirical fieldwork parallels the theoretical conceptualisation, the 'need' for theory is created in the process (Dubois and Gadde, 2002). According to Lynham (2002) the method for theory building is a recursive system of five distinct phases (see Figure 1): 1. Conceptual development; 2. Operationalisation; 3. Application; 4. Confirmation or disconfirmation; and 5. Continuous refinement and theory development.

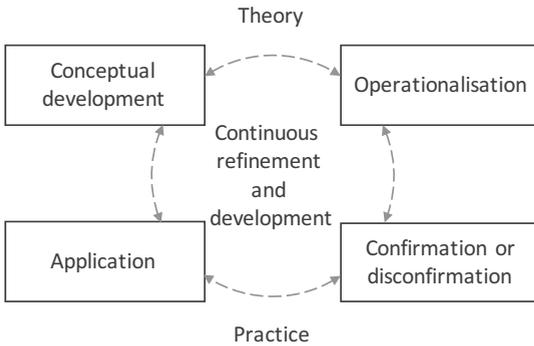


Figure 1 The method of theory building according to Lynham (2002)

For Mode 2, theory is built in transdisciplinary social and economic contexts (Gibbons et al., 1994), resulting in the co-production of knowledge between academics and non-academics (Pohl et al., 2010). Moreover, this mode of knowledge creation should include the development of academic courses and research mentorship opportunities as approaches to science and community action (Stokols, 2006). Participatory action research is a method that permits co-productive research by simultaneously permitting the researcher to gather case study evidence for the development of the theoretical framework, as well as to participate in the organisational change process (Bradbury-Huang, 2010; Cassell and Lee, 2012). Embedding the researcher in the organisations' change processes, related to CS integration, enables the collection of multiple sources of evidence. This creates the broad data sampling necessary for transdisciplinary research (Scholz and Tietje, 2002) as a platform for the cumulative understanding of CS integration (Arthur, 2005). Whereas action research is aimed at the generation of knowledge and social change through participation (Fernández, 2014; Reason and Bradbury, 2006), the application of participatory action research in embedded case studies in this PhD thesis enabled the contribution to theory-building on CS integration by the collaboration of companies and students.

Science has offered different approaches to support theory-building by giving the necessary input for capturing the initial background knowledge on the research context and the consecutive development of the theoretical frameworks (Eisenhardt and Graebner, 2007). For this PhD thesis, participatory action research permits the application of grounded theory, transdisciplinary approaches and abductive logic to support theory building for CS integration. Grounded theory entails the discovery of theory from data and therefore helps to capture important elements from theory and practice and convert them into a framework as the basis for the new theory. The

transdisciplinary approach ensures the collaboration between practice and theory, while abduction offers the initial background ideas to start the conceptual development.

1.4.1 Grounded theory approach

Grounded Theory (GT) refers to the strategy that emphasises developing theory-building from a rich set of data (Cohen et al., 1969; Strauss and Corbin, 1998), and deriving conceptual categories, or their properties, based on the data gathered. The conceptual categories are used to illustrate or propose a concept or framework (Glaser and Strauss, 2008). In this way, the GT approach offers the potential to generate theory systematically by using explicit coding and analytic procedures. The latter helps to identify, develop, and relate the concepts that make the building blocks for theory more systematic and creative (Heath and Cowley, 2004). By using constant comparative analysis it is highly probable that a relevant theory corresponding closely to the data will be achieved (Strauss and Corbin, 1998).

However, empirical data collected by GT results in thick narrative descriptions that may be confusing (Eisenhardt and Graebner, 2007). As GT fails to recognize action research (the embeddedness of the researcher in data construction and interpretation in practice (Bryant and Charmaz, 2007)), transdisciplinary approaches can complement GT in this respect.

1.4.2 Transdisciplinary approach

Transdisciplinary (TD) approaches to research are addressing the messy social and environmental problems of our time through participation of stakeholders in the generation of research outcomes (Carew and Wickson, 2010). Doing TD research means having to work with and reflect upon the practical and theoretical interests of society and science simultaneously. It also means developing and using those participatory action research practices necessary for achieving a co-production of practical knowledge that is oriented towards the strategic goals of society (Hessels and Lente, Harro, 2008), and the innovative theoretical knowledge needed for providing new insights and understanding of complex problems (Lang et al., 2012). Because context matters (Breda, John et al., 2016), TD brings society into the research process, to support and guide the latter in the co-production of knowledge (Collins and Porras, 2002).

However, TD initiatives often require coordination among different types and levels of collaboration. These different forms of TD collaboration have been studied separately, but they have not been linked together as interrelated processes within a more comprehensive formulation of transdisciplinary action research (Stokols, 2006).

CHAPTER 1

1.4.3 *Abductive logic*

Abductive logic (AL) is the logic of hunches – of making connections between things based on intuitive reasoning despite the extremely fallible insight of the researcher. This intuition is nurtured by experience (Gummesson, 2003; Kovács and Spens, 2005), but can also derive from theoretical pre-knowledge (Strauss, 1987). It is extremely relevant when working in unstable social contexts and encourages researchers to abduce (follow through on a hunch) rather than relying on the formal laws of deductive and inductive logic (Reichertz, 2009). It thus allows for greater exploration in designing the research process and is useful for theory building when followed by tracking an unobvious empirical observation through theory matching applying GT (Dubois and Gadde, 2002). However, simply following through on hunches does not challenge social and ecological injustices. Therefore, abductive logic must be paired with the transformative aspirations of TD. Starting from prior knowledge (i.e. the hunch or idea using abductive logic), data collection and theory building then take place simultaneously, implying a learning loop (i.e. the collaboration between practice and theory from TD), leading to the development of a framework combining related theories (i.e. deriving conceptual categories from GT by continuously refining and developing a framework to achieve a relevant theory, Olsson and Olander, 2005). To validate the framework, it is applied in an empirical setting (Kovács and Spens, 2005). For this PhD thesis, consequently, AL, TD and GT form a combined research approach (see Figure 2).

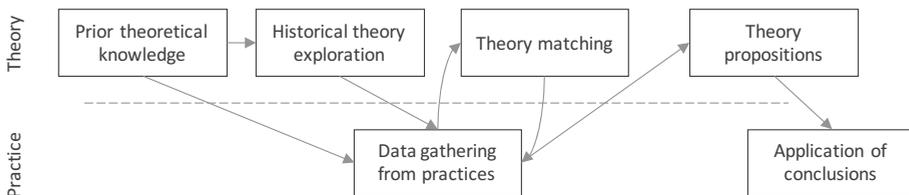


Figure 2 The research approach applied in this research (adapted from Van Hoof, 2013)

1.5 **The mixed method applied in this PhD thesis**

To achieve the combined research approach for this PhD thesis a specific mixture of methods was applied. This mixture consists of quantitative and qualitative research methods, to capture the context of the process of CS integration (as emphasised by van Breda et al. (2016). This results in collaborative action research approaches as the basis for the co-production of practical knowledge, oriented towards the strategic goals of the participating companies (as proposed by Hessels and van Lente, 2008), and new theoretical knowledge (as proposed by Pohl and Hirsch Hadorn, 2008) on CS integration. The initial starting point of this PhD was my previous participation as a consultant in the planning, development and implementation of CS integration improvements in several

companies over the last 17 years (reflected in Chapters 2 and 3). This background knowledge on the research context influenced my pre-knowledge on the research context (as emphasised by Strauss and Corbin (1998)), but this also gave me a preliminary definition of a research gap. Through an iterative process of theory matching I attempted to find a new matching framework, thus extending theory used prior to observation in a historical theory exploration (reflected in all Chapters as stressed by Strauss and Corbin (1998)). This exploration enabled the synthesis of data about dependent and independent variables at the level of individuals, groups and the entire organisation, and of knowledge provided by diverse sources (reflected in Chapters 3, 4, 5 and 6). In all the different case studies the participating companies were included (as emphasised by Scholz and Tietje, 2002)). Characterising conceptual categories from evidence was derived from the data of real life experiences of CS integration processes in company case studies (reflected in Chapters 3, 5 and 6) (as proposed by Glaser and Strauss, 1967; Strauss and Corbin, 1998)), building up to a final framework providing an in-depth understanding of CS integration processes (reflected in Chapters 5 and 6). The different chapters of this PhD research address these theory propositions and the different methods (see also Figure 2):

Chapter 1: Understanding the history and initial scope of CS and its integration process

The main aim of this chapter is to present an historical exploration of the development of the field of CS over the last three decades. Based on prior theoretical knowledge, research in the field of CS and management practices, including the link to other fields, was analysed leading to the proposal of an inclusive systemic perspective for the challenge of speeding up the application of ‘inclusive’ CS. This results in a preliminary framework on the integration of CS into business activities and poses guiding questions for the following chapters of this PhD research.

Chapter 2: Understanding the process of CS integration into 18 SMEs

By applying an action research approach this chapter aims at exploring how SMEs integrate CS into their business activities, supported by co-production oriented towards the strategic goals of the participating companies and theoretical knowledge on the process of CS integration. By taking an external change agent perspective, eighteen Dutch SMEs were supported to improve the integration of CS into their business activities. Based on their long-term knowledge on CS integration, the external change agents collected research data through the application of four consultancy tools. This prior theoretical knowledge was analysed in light of the scientific literature and led to the formulation of conceptual categories. These categories formed the basis of the analysis of the research. The participating companies validated the outcomes.

CHAPTER 1

Chapter 3: CS integration supported by tools

The main aim of this chapter is to assess tools used for addressing CS, based on their support of the process of integration into business activities. To understand this support, this chapter presents an analysis of the professional and scientific literature on the process of CS integration and supporting tools, based on the exploratory work of students with companies resulting in the definition of a framework on the process of CS integration. This chapter concludes with an assessment and discussion of the three most prominent CS integration tools obtained from professional and scientific publications, based on the defined framework.

Chapter 4: CS integration supported by influences from the supply chain

The aim of this chapter is to understand CS integration from a supply chain perspective. It does so by addressing the link between the procurement process and supply chain practices. This chapter proposes a framework to include technical and non-technical specifications of product/service combinations that improve resource usage efficiency through recovery, and, therefore, the integration of CS into company business activities. The development of this framework is based on the generation of conceptual categories from a review of literature on public procurement, business models, CS integration and change management, and co-developed with, and validated by, participating companies and other experts in the field.

Chapter 5: Measuring the success of intervention mechanisms for CS integration

The aim of this chapter is to contribute to an understanding of interventions into business activities by analysing the success of intervention mechanisms in their support for the integration of CS in case studies of two companies using a holistic framework. This chapter presents an integrated framework that was developed through its application in 10 case-study companies and was based on the frameworks of the previous chapters of this PhD, together with additional conceptual categories from the literature review in the fields of organisation theory, organisational behaviour and strategic management. The framework permits a retrospective analysis of the intervention mechanisms that are aiming for an increased coherence of processes in the organisational system leading to CS integration. The framework is applied in the empirical setting of two action research case studies achieving a co-production of practical knowledge that is oriented towards the strategic goals of the companies and of innovative theoretical knowledge for providing new insights and understanding of the success of intervention mechanisms for CS integration. The participating companies validated the outcomes.

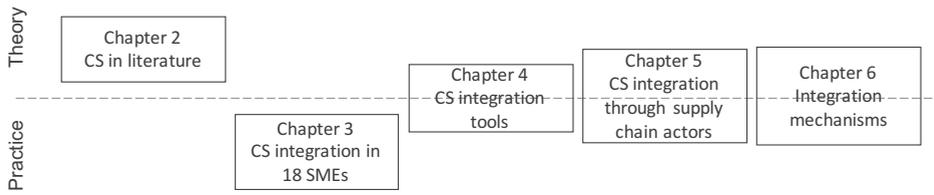
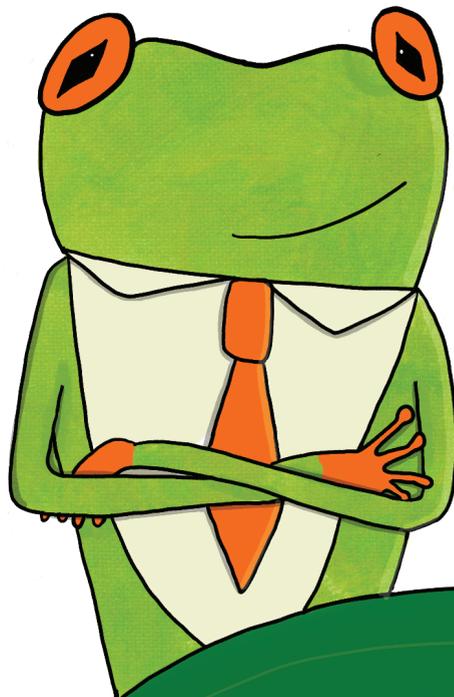


Figure 3 The chapters of the research according to their focus on theoretical or empirical data

This PhD thesis ends with a synopsis and reflection on content and methodology in Chapter 6. By synthesising and reflecting upon the outcomes of the previous chapters, this final chapter proposes an answer to the leading research question of this PhD thesis.

To achieve a more balanced and inclusive Corporate Sustainability, we need to link levels of the achievement of goals more strongly with (self-) assessment of the social dynamics in companies and their societal system.





Chapter 2

On addressing the dual and embedded nature of business and the route towards Corporate Sustainability

This chapter is based on an article published as Vermeulen, W.J.V., Witjes, S., 2016. On addressing the dual and embedded nature of business and the route towards corporate sustainability. *Journal of Cleaner Production* 112, 2822–2832.

The content of this chapter is the outcome of a one-day workshop of the authors, after which both authors contributed in an equal manner to the article. The PhD candidate has been the main contributor in the processes of literature review and writing.

Abstract: *This chapter argues for greater attention to be paid to the dual and embedded nature of business. We propose that a more inclusive systemic perspective is needed for the challenge of speeding up the application of ‘inclusive’ corporate sustainability. The key question is how an on-going upward dynamic of transformative learning cycles can be achieved in practice. The current practice of implementing sustainability management systems, identifying key performance indicators, reporting on sustainability policies and outcomes has a strong focus on the physical dynamics in companies and (in the good cases) in their value chain. In many cases the three dimensions of issues, time and place are only addressed partially. We argue that the academic community needs to pay greater retro- and prospective attention to the social intervention dynamics, introducing checks on the assumed effects of social interventions. To achieve a more balanced and inclusive corporate sustainability we need to link levels of the achievement of corporate sustainability goals more strongly with (self-) assessment of the social dynamics in firms and their societal system.*

2.1 Introduction

Over the last three decades of pioneering, constructive and critical-evaluative scientific work, many scholars in the field of sustainable production and consumption and especially corporate sustainability have greatly contributed to the adoption of more sustainable practices in business. However, progress is slowing down, while the need for greater and faster steps is growing. The key question is how the academic community can further support companies which are already on the road to sustainability, but want to jump to ‘all-inclusive’ corporate sustainability. Such support may also benefit those companies that are currently stepping on the bandwagon.

In the past, progress was possible with smaller adaptations to regular ways of production and consumption. More recently it has increasingly been argued that more fundamental changes in the modes of production and the way of doing business are needed. Such critical thinking about the role of businesses in society has a long history.

Adam Smith is often presented as one of the classical thinkers, promoting in “*The Wealth of Nations*” the fundamental belief in the invisible hand of the market and the assumption that producers and consumers acting in self-interest are the best for the common wealth. However, Adam Smith himself stressed the need for morally reasonable behaviour in his other classical book “*The theory of moral sentiment*” (Smith, 1759; Hunt and Lautzenheiser, 2011; Doorman, 2012;). In the 18th and 19th century other scholars, like Lauderdale and Rae, were opposed to the belief in

unrestricted selfish wealth creation as the best recipe for economic progress (Haney, 1920, pp. 294–302).

From the start of the 20th century scholars have been stressing the need for companies to go beyond merely making profit, by contributing to societal progress in their communities. As did Henry Ford in 1917, defending the reinvestment of profits in plant expansion, arguing the purpose of his company this way: ‘To do as much as possible for everybody concerned, to make money and use it, give employment, and send out the car where the people can use it ... and incidentally to make money ... Business is a service, not a bonanza’ (Lee, 2008, p. 54). While the discipline of economics developed mostly into a dominant main route of neo-liberal economics and further development of applied fields like business management, logistics, econometrics and accounting, a few smaller critical branches stayed alive, and some emerged recently in the last decades.

In the mid-1950s various scholars again took up this debate about the essence of business activity (Bowen, 1953; Carroll, 1999; Frederick, 1960; Lee, 2008; Moura-Leite and Padgett, 2011) with Davis and Carroll in the 1970s translating corporate social responsibility into new imperatives for business, with Carroll initially focussing mostly on social objectives and philanthropy and Davis stressing both community and environmental impacts (Carroll, 1979, 1987, 1978; Davis, 1975; Frederick, 1994).

From the early 1970s a more elaborate environmental agenda was added to the wish list of doing good by doing business, which resulted in the emergence of many approaches for cleaner production, pollution prevention, industrial ecology, eco-design, eco-efficiency and more. These fields first got their feet on the ground in the late 1980s and early 1990s with successful business pilot projects (Allen and Rosselot, 1994; Baas, 1998; Burns, 1999; Cagno et al., 2005; Gallup and Marcotte, 2004; Granek, 2011; Ochsner et al., 1995) which were taken as examples and used to promote wider implementation (Baas, 2007; Bartholomew et al., 2008; Berkel, Rene, 2007; Durfee, 1999; Keijzers, 2000; Kuehr, 2007; Miller et al., 2008; Stevenson, 2004; UNEP, 2007).

In the 1990s there was a revival of the concept of corporate social responsibility, both in the academic world (Burke and Logsdon, 1996; Carroll, 1991; Porter, 1991) and in politics and the market (Holme and Watts, 2000; Petkoski and Twose, 2003; The European Commission, 2006; The European Commission, 2001; Watts and Holme, 1998). This started a development of moving CSR away from philanthropy towards what nowadays is called creating shared value (Chouinard et al., 2011; Jackson et al., 1994a; Porter and Kramer, 2006).

During the last quarter century, impressive improvements in eco-efficiency have been achieved in at least a limited number of countries. Some of the major classic types of pollution at national level have been impressively reduced in north-western European countries. Recycling rates for some

CHAPTER 2

materials have gone up to >80% in some countries (EEA, 2015). But many countries both in the North and in the South still need to make major steps. In the same period, in many sectors, manufacturing companies have outsourced production facilities towards developing countries aiming for cost reduction (Dicken, 2015) and lean environmental regulations, as stated in the disputed ‘pollution haven’ hypothesis (Bu et al., 2013; Cole, 2004; Eskeland and Harrison, 2003; Grether et al., 2012; Levinson and Taylor, 2008).

However, the process of globalisation also implies that a globally networking civil society is witnessing these developments and they increasingly put pressure on multinational companies to improve their social and environmental performance (Christmann and Taylor, 2002; Haddock-Fraser, 2012; Rourke, 2005; Vermeulen, 2015).

At the same time there is a rapidly increasing urgency to create a clean, circular and renewable energy-based economy, partly due to the aspiration to Western lifestyles of the fast growing middle classes in emerging economies (UNEP, 2011a).

Taking this to the company level, it poses new and more inclusive challenges for adapting the day-to-day business routines. Large internationally operating companies feel this pressure more strongly than locally oriented SMEs (Vermeulen, 2015). But even in the case of SMEs most companies are somehow embedded in larger production and consumption systems with a global span (Kerr, 2006).

The historical lines of critical thought on the role of companies in society are now revived in the new debates on corporate sustainability. The various pleas for corporate sustainability are heard from diverse corners, each stressing their own specific perspective, which is often linked to a specific disciplinary background. This disciplinary divide has its advantages of in-depth analysis, but also the common drawback of partial paradigmatic blindness. In this chapter, we propose an inclusive systemic perspective. This is useful both for the academic analysis of the progress being made as well as for direct support to corporate strategies in implementing and further integrating their sustainability policies.

Our starting point is the observation that individual businesses should be seen as a phenomenon with a dual nature and as a single element embedded in a larger societal system. As with ‘two sides of a coin’, the ‘dual nature’ refers to the simultaneously existing *physical* dynamics and *social* dynamics in businesses. This dual physical and social nature should be considered both when looking at the *internal* dynamics in businesses and when looking at the relations of businesses with their *outside* world. Taking this metaphor a bit further, any separate coin will only have value due to the monetary system in which it is embedded. In this way, also any single company can only successfully exist due to it being a part of far larger production and consumption systems (with the directly related

actors in the value chain), which in turn are *embedded* in the larger societal system, including civil society, governments, knowledge producers and last but not least the wide diversity of individuals in their various roles. A company will only have its value if it maintains a positive symbiosis with this societal environment.

In our opinion many approaches promoting corporate sustainability poorly address this *dual and embedded nature* with limited rational choice approaches. These approaches may yield some short-term successes, but eventually will run into systemic barriers.

Taking the dual and embedded nature of businesses as a starting point enables us to address a number of key questions for the implementation of corporate sustainability:

- a) How should the dual nature of individual companies be conceived?
- b) How should a long-term ambition for corporate sustainability be set in a widely acceptable way?
- c) How should we describe companies as an element of a production and consumption system?
- d) How should longer-term strategy development and implementation be designed?
- e) How can companies be supported in moving from a limited rational choice approach towards continuous and transformative learning?

2.2 How should the dual nature of individual companies be conceived?

The reason for the existence of companies is that they satisfy certain needs of individuals or groups in society by creating and selling certain products or services. As such they are an element in a wider physical production and consumption system (which in economic terms is called a value chain and in environmental terms a product life cycle). Crucial to the description of the phenomenon of a company is on one side the physical reality of products or services being produced and offered and the physical, chemical and mechanical processes needed for that, with their physical impacts on the wider environment and ecology. Equally crucial are social dynamics: internally in the company and externally in its outside relations with the social world, both in terms of economic market processes (supply chain, customers, reverse logistics, financing etc.) and social relations with other stakeholders (local authorities, neighbours, NGO's, media etc.).

In the history of the last centuries companies have proven to be able to permanently innovate and increase the efficiency of production, to some extent on their own, but mostly in collaboration with the surrounding societal system, including governments, knowledge producers, civil society and creative individuals. Such innovations may concern both technological processes and products as

CHAPTER 2

physical realities, as well as the social dynamics in the forms of collaboration, applied business models and institutional settings for production.

Companies normally operate in a *fairly static mode*. These are the fixtures in ways of getting products and services on the market based on proven successes: day-to-day routines and standardised procedures in businesses, the ingrained management styles and culture, the workers' ethos, all locked in by fixed capital investments. This gives individuals in companies at all levels a certain sense of security in a constantly threatening and changing outside market and wider world. Maintaining this static mode makes sense for the short term, relying on one's proven approaches. It only gives room for small steps and incremental changes, which is a safe short-term strategy for many.

However, in the outside world change is always around and with the growing global population and its increasing physical needs, the speed of change in the outside world of companies will only increase.

For companies, this implies the need to regularly step out of their comfort zone and unfreeze institutionalised routines and procedures (Lozano, 2007a; Maon et al., 2009). This is needed anyway in a permanently developing international market. But overall the still widespread *unsustainable* practices and resulting continuing and increasing global threats (Haberl et al., 2011; Parris and Kates, 2003; Rockström et al., 2009) require companies to regularly re-orient their long-term future and rethink their current business position and strategy. Therefore the organisation of *continuous change* and *transformative learning* is key to both business success and progress towards a sustainable society (Bebbington et al., 2007; Howie and Bagnall, 2015; Kitchenham, 2008).

Rational planning processes and continuous improvement have been introduced as key concepts since the late 1980s, with the application of plan-do-check-act approaches in environmental management systems (Curkovic and Sroufe, 2011; Delmas, 2002; Delmas and Toffel, 2008; Melnyk et al., 2003; Moen and Norman, 2006; Morrow and Rondinelli, 2002a; Pojasek, 2012; Steger, 2000) and in many of the proposed step-wise approaches for cleaner production, zero waste, industry ecology, the natural step, green chemistry, design for sustainability, blue economy, cradle to cradle et cetera (Baas, 1998; Braungart et al., 2007; Burns, 1999; Graedel, 1996; Kuehr, 2007; Ochsner et al., 1995; Pauli, 2010; Vermeulen, 2006). Many firms worldwide have been adopting and adapting these approaches (more than 300,000 companies certified under ISO 14001 in 2013 (ISO, 2013)), sometimes as single loops, but often as repeated loops, permanently identifying and implementing smaller or larger improvement projects (Maon et al., 2009; von Ahsen, 2013). However, organisations always need to make choices on what is affordable for the short-term, restricted by available budgets, constrained in the context of their current day market prices. In this context,

repetitive learning cycles tend to get refrozen into new administrative routines, to a level just enough to satisfy external auditors, in response to demands posed by key value chain stakeholders (Calcott, 2010; Tinsley, 2002; Zorpas, 2010). In recent years various companies with good track records in environmental management came to us with questions on how to break out of these renewed routines and make a jump to more ‘inclusive’ corporate sustainability (Bootsma et al., 2014). In our post-graduate programs on sustainable development and corporate sustainability we worked with student groups in dozens of companies, successfully addressing such strategic questions (Bootsma et al., 2014).

Most of the methodologies available for implementing (elements of) corporate sustainability (or their predecessor’s concepts in the environmental field) include some form of describing current impacts and a comparison with (long-term) future societal needs (Székely and Knirsch, 2005). Companies *need a very good reason* to start to unfreeze routines every now and then, and be motivated to apply systematic forms of back-casting: goal setting, comparing goals with actual practices, resulting in scenario development and implementation. Various scholars propose to refer to long-term oriented motives (Hart and Milstein, 2003; Porter and Kramer, 2011a), going beyond direct pay-offs of environmental projects (Berkel, Rene, 2007; Burke and Logsdon, 1996; Cagno et al., 2005; Gravitis, 2007).

To start with goal setting: in practice, for most companies, the long-term challenges and threats addressed with the concept of sustainable development are not very clear at all, thus hampering the goal setting. This is partly the result of the on-going, open and divergent discourses on what is needed for sustainable development. This divergence partly has its roots in the endless debates about the “correct” meaning of the concept of sustainable development in and between *academic disciplines*. It is also partly rooted in the same tendency to disagree in the *political arena*. We also see this common practice to compete by means of different framings of the concept in the *market arena*. These three processes of divergence are mutually reinforcing, and do not help companies in making substantial steps in the right direction, especially the smaller ones.

Defining ‘corporate sustainability’ as being about individual companies implementing strategies to achieve sustainable development (Baumgartner and Ebner, 2010a; Dyllick and Hockerts, 2002; Eccles et al., 2014; Hahn et al., 2015; Marrewijk van, 2003; Montiel, 2008), the *first step* would be to support companies in making sense of sustainable development and what that implies for them. As a *second step* it requires a proper view of the current dual and embedded nature of one’s company and when that is known, as the *third step* having a proper view on externally available and/or still to be developed innovative ways of satisfying societal needs with the products or services one can offer. Let us look at the first step.

2.3 How should a long-term ambition for corporate sustainability be set in a widely acceptable way?

The first step requires finding a way through the cacophony of opinions. These range from, on one side, the minimal position of just complying with regulatory requirements (which, in itself, is confusing due to contradictions and diversity in and between regulatory regimes in the >180 nations), via a wide variety of opinions available in the scientific, political and market arenas (Du Pisani, 2006; Robinson, 2004) to, on the other side, some extreme positions of various fundamentalists in civil society, and academics taking positions which may even almost exclude the mere existence of businesses and modern mankind from the picture of Gaia (Callicott, 2005; Lovelock, 2003).

How can one still help companies find their way? There is a way out of this: despite this noisy cacophony in the intellectual, political and market arenas, discourses on the supranational level have resulted in a fairly well supported rough consensus about the core elements of the concept of sustainable development. Some sub-elements may still need some refining, some other key elements may still be further completed with additional sub-elements, but a core-structure exists and is widely being worked with.

Pragmatic choices need to be made. What is the contribution to be made: continue endlessly impeaching the concept, or work with the well-supported rough consensus and get it to be further fine-tuned by exposing it to communities of practice?

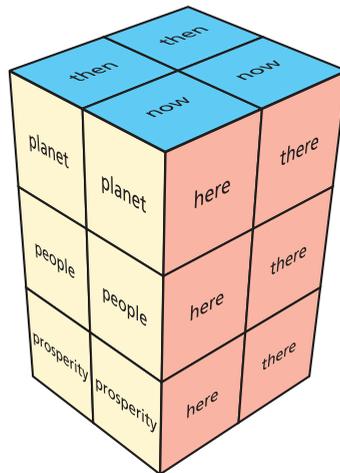


Figure 4 Three dimensions of the concept of sustainable development: issues, time and place, containing 3x2x2 boxes

For the last purpose, we have good experiences with presenting the concept of sustainable development in the context of discourses on vision and strategy development as a somewhat limited

Rubik's Cube (not 3x3x3, but 3x2x2 boxes, see Figure 4), combining the issues dimension (PPP), with the time dimension (now and then) and the place dimension (here and there).

The *issues dimension* summarized in the triple-P refers to the various sustainability issues, or in order words: the three fields of negative internal and external impacts of production and consumption systems, all three being roughly equally important. The first P for planet is about ecological threats, which can be organised in various ways. The second P for people refers to the direct threats and obstructed development potentials and opportunities for individuals that are linked to any of the parts of full production systems. And the third P refers to prosperity, which reflects the developmental goal at society level in the concept of sustainable development and requires a well-functioning societal system, where companies create shared value and prosperity in the communities they serve (European Commission, 2002; Halonen and Mkapa, 2005; Hammond, 2006).

The *time dimension* is embedded in the debate on sustainable development via the principle of generational equity, requiring us to pass on our habitat to future generations, offering them the same opportunities that we have (referring to the famous, most cited quote of World Commission on Environment and Development, 1987, p. 41)². As an essential imperative for corporate sustainability strategy development this implies two key activities: both taking a long-term perspective focusing on radical changes, which require time, while also starting with activities which can be implemented tomorrow rather than next year (Bansal and DesJardine, 2014; Lozano, 2008; Tukker et al., 2008). Thus companies should engage in identifying probable future trends in their markets and anticipate the design of pathways for long-term adaptation to create positive impacts on society and ecology. But the long-term approach should not prevent them from implementing strategies with direct benefits. These are especially needed to secure the commitment of stakeholders.

The *place dimension* is crucial for the systemic approach, stressing the links of any production or consumption activity via value chains with the distribution of negative environmental, social and prosperity impacts elsewhere during the full life cycle of products or services (Chouinard et al., 2011; Dicken, 2015; Lenzen et al., 2012; Lenzen et al., 2012; Porter and Kramer, 2011b).

For the *issue dimension* we can substantiate our claim about the availability of a well-supported rough consensus on the core elements of the concept of sustainable development, by referring to various widely supported initiatives on the supranational level, linked in various communities of practice of implementing and assessing (corporate) sustainability.

² Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

CHAPTER 2

The first practice is the wide application of the GRI guidelines for reporting. Their reporting standards contain a combination of issue descriptors and descriptors related to management processes. Among the world's 250 largest companies 82% refers to the GRI guidelines in 2013 (KPMG, 2013, p. 11). More recently ISO 26000 Guidance for social responsibility has been increasingly accepted (ISO and GRI, 2014). The issue descriptors in both approaches can be used here to identify the issues addressed. However, GRI focuses on showing progress in performance rather than describing long-term target levels.

The second practice is the rapid take-up of voluntary sustainability standards in international trade. Two supranational organisations active in this field (WTO-ITC and ISEAL Alliance) have recently developed guidelines and reviews (ISEAL Alliance, 2013; ITC, 2011; see also Potts et al., 2014) that give a comprehensive overview of the planet, people and prosperity related issues. Here the focus is more on the issues and means and practices to be applied. Again, these issues would need to be translated into long-term target levels.

A third source for the rough consensus is a selection of the best examples of indicator-sets for measuring sustainability at the national level. Here we also witness a wide and diverse community of practice. The International Institute of Sustainable Development is providing an online platform (the Compendium of Sustainable Development Indicator Initiatives) giving access to this variety of sustainability indicators (IISD, 2004). A comparative analysis of the content and methodological approaches of these indicators also allows the identification of a common ground in the key descriptors of the three sustainability issues.

Combining these three sources results in short lists of relevant issues, which are robust enough for companies who are willing to make the next steps and identify their long-term strategy. It would also be essential to identify proper attention to the inter-linkages between the various issue elements (Lozano and Huisingsh, 2011). At this stage, we are merely interested in presenting a comprehensive overview of relevant issues, to prevent companies from overlooking issues that later on would still need to be addressed. Of course, this will lead to debates about trade-offs between the various elements of the sustainability issues and priority setting, but this is to be addressed in the specification of companies' policy plans.

For each of the challenges of reducing specific impacts under the triple-P issues, the *second dimension of time* implies that companies connect their long-term expectations on these threatening impacts to the analysis of their own current (production) practices; what is the link with what one's company does, what goal does one need to set (in various time scales) and what options does one have to promote short and longer term improvements (Holmberg and Robert, 2000)? For this, long-term expectations and projections are produced and renewed constantly (Leisinger and Bakker, 2013; UNEP, 2011a; WBCSD, 2010a). This may result in debates about their reliability and their

completeness, but the constant underlying message is that substantial changes will be taking place and for any company it is wise to anticipate these. From this perspective companies would need to formulate their own long-term target levels, which may be adjusted in due course. If companies develop such long-term perspectives, they may also more easily make sense of the abundance of possible key performance indicators available in literature and the practices of consultancy.

This also requires an on-going reflection on what the company is doing in its full functioning as a part of a larger production system; of global production networks (Dicken, 2015; Vermeulen, 2010, 2015). This system perspective links directly to the *third dimension of place*: any product has distributed impacts over its geographical value chain (Lenzen et al., 2012b; Nijdam et al., 2008).

When working from the perspective of any individual firm, the three dimensions of sustainable development: triple-P issues, time and place are always essentially interconnected. Most important here is to stress that with the sustainability challenges ahead, structural changes are needed in how our production and consumption system functions. This calls for more than incremental technological improvements; for societal transformations in the sociological sense of changing institutions and structures of economic behaviour (ISSC and UNESCO, 2013, p. 101; Sewell, 1992) both inside the firm and in the wider societal system. This brings us to the next question.

2.4 How should we describe companies as an element of a production and consumption system?

Taking the dual and embedded nature of companies again as starting point, we need to combine the knowledge developed from various disciplines, as mentioned in the first section. Taking a position in corporate sustainability requires an analysis of the *physical dynamics* inside the specific company in relation to its full physical product life cycle, as well as an analysis of the *social dynamics*. Both dynamics need to be addressed inside and outside the specific company. This includes the social impacts in the full product life cycle and the appropriateness of the economic practices in the transactions with various stakeholders throughout the value chain. Described in this way it contains various elements. For each element separate tools are available (Glavič and Lukman, 2007; Lozano, 2012; Robèrt, 2000; Robèrt et al., 2002), but they need to be applied in a systematically integrated way.

After two decades of using environmental management systems, many companies have got used to monitoring their progress, because –in principle- in applying ISO14001 and comparable systems they have signed up to continuous improvement. But in practice this monitoring of progress has a very limited application (Delmas, 2003; MacDonald, 2005). In the best cases various key performance indicators on some of the physical dynamics are available to decision-makers in

companies (Birkin et al., 2009; Boons and Lüdeke-Freund, 2013; Yin and Schmeidler, 2009). However, in contrast to that, retrospective self-reflection of the social dynamics inside the company and with its connections with the outside world is hardly being practised (Aguinis and Glavas, 2012; Baumgartner, 2014).

This is actually quite remarkable. With the immense sustainability challenge ahead (section 2.1), the necessary social dynamics inside firms and between stakeholders are created and affected by the implementation of the various suggested sustainability strategies, which will result in their improved physical performance. A lack of proper understanding of this is like driving a car at night with the lights off and no hands on the steering wheel. So, to enable significant change, companies need to make regular self-reflections of their dual and embedded nature, linking how they function in their social dynamics with what they achieve in their physical dynamics in their full production and consumption system.

2.5 How should longer-term strategy development and implementation be designed?

Based on a self-reflective analysis companies need to identify their room for innovation. For this process *search directions* are needed. One might want to get such directions from governments, if they have formulated long-term targets, such as 40% reduction of carbon emissions by 2030 (EU) or 80% by 2050 (UK). But here again we repeat the observation that regulatory regimes as seen in an international context, *by nature*, are confusing due to contradictions and diversity in and between nations, so this yields confusing instructions. This is also why open-minded and two-directional stakeholder engagement with societal stakeholders is indispensable (European Multistakeholder Forum on CSR, 2004; Hart and Milstein, 2003; Polonsky and Jevons, 2009). Search directions can best be identified with these societal actors.

However, the visions for the long term are not as unclear as public debates may suggest. Just as with the operationalization of sustainable development, here we also have supranational networks and initiatives, as mentioned above, that provide a widely supported set of main routes for technical and social innovation.

Combining these various suggested sources for long-term visioning can be summarised in five key search directions for societal transformations (Vermeulen, 2015):

1. Towards climate control and a renewable energy based society;
2. Towards a circular economy reducing its dependency on virgin resources, based on circular resource use and dematerialization;
3. Towards neutral or positive impact on biodiversity;

4. Towards an economic system creating shared triple value, including community well-being and poverty oriented production approaches, such as bottom of the pyramid (BoP) (Schrader et al., 2012);
5. Towards equitable market and governance institutions at all levels, addressing institutional causes of unsustainability in the globalized economy (UNEP, 2011b).

Available literature supplies sufficient challenging examples for each of these key search directions to inspire both large and smaller firms. There is also a wide variety of suggested approaches and methods to kick off strategy formulation activities within firms. As observed above, companies applying repetitive plan-do-check-act cycles tend to lose momentum and the level of improvement in each next cycle of continuous improvement reduces. Lack of internalisation into the company's culture, value system and into communications with its societal stakeholders is often the core reason for this 'jamming' of sustainability strategies. Plan-do-check-act cycles may be repeated, but suffer from a tendency of diminishing returns (Baumgartner, 2014). In our opinion, combining our observations of what is addressed in scientific literature and what we see in our interactions with companies, this is linked to weak integration and weak orientation on the long-term and long-distance challenges (two of the three dimensions in the cube in Figure 4).

In analysing the practice of corporate sustainability and in supporting key actors in the field, we need to take a longer time perspective, not looking at short-term kick-off projects, but at enabling accelerating change processes, where each next cycle gears up its impact: transformative change.

2.6 How can companies be supported in moving from a limited rational choice approach towards continuous and transformative learning? Key imperatives for corporate sustainability.

In our opinion companies and change agents who are supporting companies and the academic community share a common challenge here. If we take the need for a transformative change as the challenge to speed up the application of 'inclusive' corporate sustainability, and we agree on the essential dual and embedded nature of business, then the key question is how an on-going upward mechanism of transformative learning cycles can be achieved in practice. The current practice of implementing sustainability management systems, including the identification of key performance indicators and reporting on sustainability policies and outcomes often has a strong focus on the dynamics of the physical production processes in companies addressing and (in the good cases) in their value chain. They may also address the social impacts of value creation (related to workers inside the company, the neighbourhoods and - if taken in a supply chain perspective - of supplier companies). But in many cases the three dimensions of issues (PPP), time and place are addressed only partially. Simultaneously however, the self-reflection on whether applied interventions work as expected is often limited. The social dynamics related to the social interventions aiming at

CHAPTER 2

reducing negative direct and indirect impacts are largely ignored and the analysis of the links between the social dynamics and physical dynamics are underexplored.

In *transformative change* the learning cycle should be seen as a constantly rotating plan-do-check-act wheel, which should be riding up the mountain quickly enough. Such transformative change can only be effective if it is a constant process *self-assessment by the company*. In doing this it is essential to explore the company's *social intervention dynamics* and their links to the level of success in affecting the *dynamics adjusted physical and social impact creation: the value creation practices*. This finally needs to result in improving the effectiveness of efforts of reducing negative impacts and shifting towards positive effects in the three issue areas of the triple-P, both here and there and both in the short term and the long term.

In our view a corporate sustainability theory of change of firms embedded in societal systems needs to explicitly link the social intervention dynamics as essential in the pathway from beliefs, values, needs and motives via repetitive learning to successfully implementing social and technical innovations in the firm's societal systems.

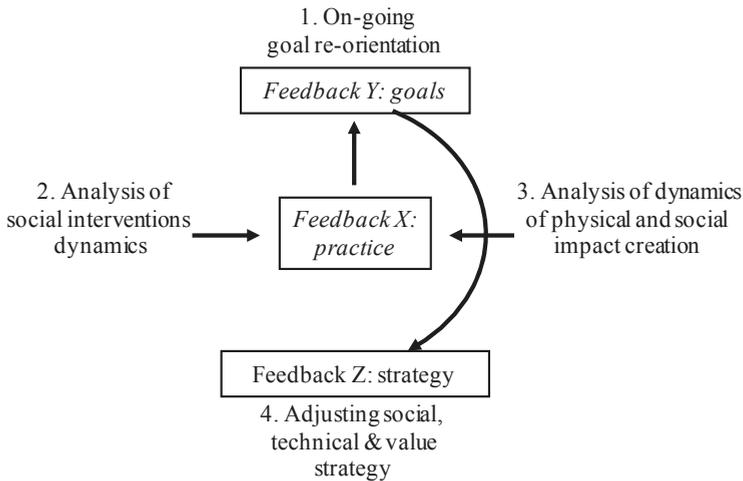


Figure 5 Permanent feedbacks between 4 elements of transformative change

For companies, this implies a management strategy with *permanent feedbacks between four elements*:

1. On-going goal re-orientation, addressing the three sustainable development dimensions (3P issues, time and place);
2. Longitudinal analysis (retro- and prospective) of the general social dynamics in the firm and the social dynamics of introducing interventions;

3. Longitudinal analysis (retro- and prospective) of the physical and societal impacts of introducing interventions aiming at the triple issue fields (PPP);
4. Linking the results of the analysis of social dynamics to the impacts in physical and social realm, and translating this to goal-re-orientation and adjusted social and technical strategies.

These essential feedbacks are schematically represented in Figure 5. The feedback X refers to the reflection on whether social interventions applied in the organisational structure and culture and in the collaboration with value chain partners do in fact result in the assumed effects on the performance in the physical and societal realm. Is the ‘theory of change’ actually working and what other social interventions could be effective in the specific organisation reviewed?

The feedback Y refers to the refining of the company’s mission and goals based on the reflections under feedback X. At this stage the required permanent monitoring of essential changes in the context of the company and the internal lessons learnt on what works and what does not work need to be integrated. This can result in a reformulated, more challenging vision or mission document and needs to be translated in adjusted KPIs (Key Performance Indicators).

Feedback Z then refers to adjusted strategies both in terms of new projects enabling the attainment of the physical and social targets and the type of social interventions planned to achieve these. This includes making explicit assumptions about the ‘theory of change’, which can be tested in a next phase.

Feedback X, Y and Z are interdependent: the learning about the causal links between the social and physical dynamics (feedback X), the readjustment of corporate goals (feedback Y) and the integration of these first two learning cycles into the learning about interventions in the company’s processes and its people to adhere to the CS vision.

2.7 Discussion

It is essential that approaches to corporate sustainability include such a permanent self-reflective learning process inside the company. Corporate sustainability scholars from different academic and geographic backgrounds have recently been proposing approaches for the implementation of corporate sustainability. Looking at these we can review to what extent these approaches stress such self-reflexive feedbacks. In Table 1 we present this review.

In many cases the reasoning starts from the perspective of stakeholder engagement and the need to respond to the societal context (Asif et al., 2011; Azapagic and Perdan, 2005; Cramer, 2005a; Maon et al., 2009). Some stress the need of taking long-term challenges posed by sustainability sciences as a starting point to elaborate a long-term vision (Baumgartner, 2014; Searcy, 2016).

CHAPTER 2

Most of these approaches combine using a plan-do-check-act cycle of continuous improvement in one or another way with widening the scope of sustainability issues to be addressed. Goal formulation and performance measurement are common elements, as well as communication with external stakeholders, both in the initial phase of issue identification and after the check phase, showing the achievements. Various authors present typologies of firms with different attitudes and cultures towards corporate sustainability, which would then require case-specific implementation approaches (Baumgartner, 2009; Baumgartner and Ebner, 2010a; Hahn and Scheermesser, 2006; Linnenluecke and Griffiths, 2010). Many of the approaches are (implicitly) presented as a first start to implementing corporate sustainability, which is not helpful if applied to companies that have a long history of environmental and/or corporate social responsibility policies. In contrast a few scholars explicitly present their approach as starting with reflecting on earlier achievements (Cramer, 2005a) and ‘unfreezing’ existing practices (Maon et al., 2009).

We have been looking how and to what extent these scholars propose transformative learning with the three types of feedbacks we just discussed. We see that in most approaches the registration of achieved improvements of physical and social impacts of the value creation is well addressed. The (re-)formulation of mission and goals does in most cases include a balance between environmental and social impacts, taking into account the working conditions in the wider supply chain. Some articles take a more limited view on this (Azapagic and Perdan, 2005; Baumgartner and Ebner, 2010a).

In section 2.3 we referred to the PPP, taking the third “P” beyond the perspective of ‘profit’ (as: ‘firms still need to make profit while addressing sustainability’), towards a reflection on how companies create shared value and prosperity in the communities they serve. This ‘prosperity’ perspective is far less present in the current writings. Some authors do take this wider perspective explicitly as part of their approach (Cramer, 2005b; Epstein and Buhovac, 2010; Hahn et al., 2015; Linnenluecke and Griffiths, 2010), while others still apply the narrow framing (Asif et al., 2011; Azapagic and Perdan, 2005; Schaltegger et al., 2013).

Main researchers with papers	Analyse internal intervention social dynamics		Analyse achieved physical & social impacts in value creation		Feedback X: practice	On-going goal re-orientation			Feedback Y: goals	Feedback Z: strategy
	Retro-spective	Pro-spective	Retro-spective	Pro-spective		3P	time	place		
Hahn, T. et al. (Hahn et al., 2015; Hahn and Scheermesser, 2006)	-	V	V	V	V	PPP	V	V	(.)	(.)
Baumgartner et al. (Baumgartner, 2014, 2009; Baumgartner and Ebner, 2010a)	(v)	V	V	V	V	PP(P)	V	V	-	-
Searcy & Asif, M. et al. (Asif et al., 2011; Searcy, 2016, 2011)	(v)	V	-	V	V	PP(P)	V	V	(v)	
Schaltegger et al. (Figge et al., 2002; Schaltegger et al., 2013)	-	-	-	-	(.)	PP(P)	-	V	-	-
Linnenluecke et al. (Linnenluecke et al., 2009; Linnenluecke and Griffiths, 2010)	V	V	-	(v)	V	PPP	-	-	(.)	(.)
Lindgreen & Maon et al. (Lindgreen et al., 2010; Lindgreen and Swaen, 2010; Maon et al., 2009)	-	V	-	(v)	V	PP(P)	-	-	V	V
Cramer et al. (Cramer, 2005a, 2005b; Heijden et al., 2010)	V	V	V	V	-	PPP	V	V	V	-
Azapagic et al. (Azapagic, 2004, 2003b; Azapagic and Perdan, 2005)	-	(v)	-	V	V	PP(P)	(t)	V	-	-
Marrewijk et al. (Marrewijk van, 2004; Van, Marrewijk and Werre, 2003)	V	V	-	-	(v)	PP(P)	V	V	-	-
Epstein et al. (Epstein and Buhovac, 2010; Epstein and Roy, 2001b)	V	V	V	V	V	PPP	V	(v)	V	-

Table 1 Review of recent literature on corporate sustainability integration approaches and elaboration of the CS management elements and 3 feedbacks.

(- = ignored; V = discussed; (v) = discussed, but no approach proposed; (.) = identified in discussion as essential new direction; (t) in time column = long term < 5 years; PPP = sustainability issues discussed with wider perspective on 'prosperity'; PP(P) = sustainability issues discussed with narrow perspective on 'profit' (see section 2.3)).

For the time dimension, we see a mixed picture. In some cases the time dimension is presented in a fairly narrow frame, with four to five years presented as 'long-term' planning' (Azapagic and Perdan, 2003, p. 308). Others explicitly take a longer term perspective applying back casting methodologies and including prospects of long term global trends, which is essential in sustainability thinking (Baumgartner, 2014; Hahn et al., 2015). This way of thinking has been elaborated by the World Business Council for Sustainable Development in 2010 and is available for all (WBCSD, 2010a, 2010b).

CHAPTER 2

Most approaches pay attention to analysing current physical and social impacts connected to value creation, either with quantitative methods (e.g. LCA) (Azapagic and Perdan, 2005) or qualitative methods and translate this into reduction targets (Cramer, 2005a; Figge et al., 2002). Some approaches with a focus on the social dimension take this part for granted (Linnenluecke et al., 2009; Van, Marrewijk and Werre, 2003).

In reviewing the progress made, a few of the scholars explicitly address the need for retrospective analysis of the achieved physical and social impacts, which is seen as essential to understand success and failures in the implementation of strategies (Epstein and Roy, 2001b; Hahn et al., 2015). Baumgartner stresses the need to include analysis of “socially constructed, historically influenced, soft, but relatively stable organizational culture” and refers to available methods which enable such analysis over time, but do not further develop this element in their approach (Baumgartner, 2014). Epstein and Buhovac state that “it is through a mix of leadership, strategy, structure, as well as hard and soft management systems, that sustainability can be implemented and measured successfully”, but they do not elaborate how the soft systems and leadership could be measured retrospectively (Epstein and Buhovac, 2010).

In our view, it is crucial how the analysis of social intervention dynamics and the registration of (lacking) impacts improvement are combined in feedback X. Most of the reviewed researchers do refer to this to some extent (Baumgartner, 2014; Epstein and Buhovac, 2010; Hahn et al., 2015; Maon et al., 2009; Searcy, 2016). Hahn et al., for example, emphasize attention to tensions due to the changes that corporate sustainability calls for and suggest various strategies to deal with these intra-organisational tensions (Hahn et al., 2015). Baumgartner calls for a reflection on all sustainability dimensions (i.e. social and physical dimensions), their impacts (i.e. PPP in time and place), and their interrelations to develop a comprehensive corporate sustainability strategy, based on these cultural differences between organisations (Baumgartner, 2014, p.264). Others also provide useful socio-cultural typologies of companies and relate this to the level of success in realizing change (Linnenluecke and Griffiths, 2010; Van and Marcel, 2004). These typologies may be useful in finding explanations in the social dynamics for success and failures and the appropriateness of specific social interventions.

In transformative learning, such an analysis would result in feedback Y: adjusting visions, mission and goals. Some scholars have made steps in this direction. Maon and Lindgreen built their approach around the need to regularly unfreeze institutionalized practices and include their step 8: “evaluations should be based on measuring, verifying, and reporting, with the objectives of determining what works well, why, and how to ensure it will continue; investigating what is not

working well and why; exploring barriers to success and ways to overcome them; and revisiting original goals or establishing new ones as necessary” (Maon et al., 2009), but they do not further elaborate this.

Finally, feedback X and Y should also lead to adjusted intervention strategies (feedback Z). This we only find to some extent in the approach in Asif et al., where they promote the assessment of CS integration in structures and routines and checking for learning from past experiences (Asif et al., 2011), however, they do not provide tools to analyse these learning processes. The same can be seen in (Lindgreen and Swaen, 2010; Maon et al., 2009).

The table clarifies that the separate elements of the full transformative learning approach are present in recent literature, but that the combined application of the three feedbacks in the CS approach is not yet presented. We see proposals of some useful elements. The various typologies of organisational culture are useful to describe key features of the social dynamics inside firms (Linnenluecke and Griffiths, 2010; Van, Marrewijk and Werre, 2003), while Baumgartner has given suggestions on how deeper integration of CS in organisational culture can be analysed (Baumgartner, 2009). The listing of possible tensions and opposition against interventions in the organisation is also useful (Hahn et al., 2015; Lozano, 2007a).

The literature gives examples of working in this direction both with large and medium size companies, in various sectors, making cross comparisons and in the developed world and emerging economies (Johnson and Schaltegger, 2015; Lindgreen et al., 2010, 2009; Luken and Castellanos-Silveria, 2011).

We need to further develop, by synthesising of these various elements, an overarching framework and related methods, which will enable both academic scholars and practitioners to understand the social interventions dynamics. This can best be further developed in a transdisciplinary approach, as engaged scholars and action researchers as suggested by (Schaltegger et al., 2013), having various tools and methods elaborated and tested in close collaboration with the type of front running companies, which we referred to in the introduction.

The academic community needs to play an essential double role here: partly supplying such approaches and tools, and partly critically analysing the progress made and testing the assumptions about effective strategies for transformative change. We will set our steps in this direction, but we welcome a wide collaboration with academic and market actors in this common challenge.

An equal focus on both the physical and social dynamics of the company's strategy, the interventions, as well as the assessment supports the integration of Corporate Sustainability into business activities.





Chapter 3

Exploring corporate sustainability integration into business activities. Experiences from 18 Small and Medium-sized Enterprises in the Netherlands

This chapter is based on the article published as Witjes, S., Vermeulen, W.J.V., Cramer, J.M., 2016. Exploring corporate sustainability integration into business activities. Experiences from 18 small and medium sized enterprises in the Netherlands. *Journal of Cleaner Production* Forthcoming, 1–11.

Previous versions of this paper were presented at:

Cátedra Europa, 15 November 2012, Universidad del Norte, Barranquilla, Colombia

16th Conference of the European Roundtable on Sustainable Consumption and Production (ERSCP) & 7th Conference of the Environmental Management for Sustainable Universities (EMSU), 4-7 June 2013, Istanbul, Turkey

European Roundtable on Sustainable Consumption and Production (ERSCP) 2014: 17th European roundtable on sustainable consumption and production, 14-16 October 2014, Portorož, Slovenia

Joint PhD Workshop Organisational Sustainability Research, 26-28 January 2015, Utrecht University, The Netherlands

Abstract: *Although companies have shown a growing awareness of the importance of Corporate Sustainability (CS), integration of CS into their business activities is still problematic. Most of the CS research focuses on large corporations, with limited discussions of Small and Medium Sized Enterprises (SMEs). Research on SMEs has shown that most CS activities have been developed in isolation, and have not yet been totally integrated into the business activities. This research aims to understand how SMEs integrate CS into their business activities. Eighteen SMEs were analysed. These SMEs were, on their explicit request, supported in enhancing the integration of CS into their business activities. The external change agents connected to this consultancy firm applied four CS integration tools, which was based on their own experience in supporting the integration of CS in companies. The data generated through the application of these tools gives this research a specific, external change agent perspective that contributes to the understanding of CS integration. Tables including the tool data of all companies were used to analyse all eighteen cases as well as to enable a cross case comparison. The data showed that a balance proved to be necessary between a physical and social focus in the SMEs' vision on CS, the CS integration activities, the conditions for the CS change agent and the CS assessment. The research also found that although companies in a more advanced CS growth stage have more management system certifications, the management system itself is not used to ensure CS integration.*

3.1 Introduction

Companies' awareness of their impact on their direct and indirect context has been increasing and will increase in future (Searcy, 2016). Subsequently, they recognize the importance of integrating sustainability into their policy and business activities (Salzmann et al., 2005). To support this integration, a large number of integration approaches, mostly focusing on the company's environmental impact, were developed in the 1980s and 1990s, and have been applied (e.g. cleaner production, pollution prevention, The Natural Step, environmental management systems, life cycle assessment, zero emission, and ecodesign; e.g. Hahn et al., 2015; Robèrt et al., 2002), often supported by internal or external change agents (Lozano, 2014, p. 207). In recent years, several authors have suggested the use of corporate sustainability (CS) management systems (Azapagic, 2003a; Jamali, 2006; Maon et al., 2009) for CS integration. These systems broaden the scope of the company's vision to more than just environmental issues and, in addition, the systems perspective should lead to a better integration of CS in business activities (Yin & Schmeidler, 2009).

However, decisions taken by companies do not necessarily match the decisions prescribed by management systems approaches (Mac, 2002). This results in CS integration initiatives that are often isolated and, therefore, not directly linked to the core business activities (Székely & Knirsch, 2005). Most research on CS integration has been conducted with short term data gathering methods and by using, for example, interviews, questionnaires or checklists (e.g. Aya Pastrana & Sriramesh, 2014; Cramer, 2005; Jenkins, 2006; Klewitz & Hansen, 2014). Moreover, authors have paid less attention

to exploring CS integration into the business activities of small and medium sized enterprises (SMEs; Aya Pastrana & Sriramesh, 2014; Jenkins, 2006; Siebenhüner & Arnold, 2007). In particular, there is a need to understand the adoption of available CS integration tools in the SME context (Klewitz & Hansen, 2014). This kind of research asks for the application of longer term qualitative field based data methods.

The goal of this chapter is to explore how SMEs integrate CS into their business activities with the help of external change agents: consultancy change agents supported these eighteen Dutch SMEs to improve the integration of CS into their business activities were the collectors of research data. These change agents applied four tools based on their own long term experience with CS integration in SMEs. The data collected by the change agents were analysed by three researchers, one of which was also the senior change agent. The data analysis enabled the exploration of CS integration in SMEs through comparison and exemplification. Moreover, the tools used by the change agents were reflected upon by the three researchers by comparing them with those mentioned in the literature. Section 3.2 will discuss the concept of CS, focusing specifically on the integration of CS in business activities in SMEs and the role of change agents. This discussion will be used to interpret the findings of the research. Section 3.3 describes the methods for data collection and analysis. In section 3.4 the findings are presented followed by section 3.5 with the discussion of the findings within the scope of the literature review. Finally, section 3.6 contains the conclusions including suggestions for future research.

3.2 CS integration

As organisations face pressures to address the impact on society which they directly or indirectly cause, several authors have stressed the increasing importance of CS (Baumgartner, 2009; Dunphy et al., 2006; Lozano, 2015). This implies that companies need to achieve mutually interdependent sets of issues: the triple bottom line of planet, people and prosperity (PPP), thus integrating economic, social and environmental issues (i.e. triple issue focus; Elkington, 1998) into their business activities. The awareness of CS in relation to the general business goals makes it easier to define how to integrate CS into business activities (Dunphy et al., 2006). To create this awareness, it is necessary to use a holistic understanding of the triple issue focus of the corporate values (Linnenluecke et al., 2009; Lozano, 2012) while reducing the environmental impact and ensuring compliance with policy goals. Simultaneously, companies tend to contribute to stakeholder welfare (Hahn et al., 2015).

This growing field of concerns for companies wanting to integrate CS can also be found in the increasing scope of stakeholder sustainability requirements. First, this scope has been widened towards having to deal with direct and indirect, and internal and external stakeholders (Dyllick & Hockerts, 2002; Epstein & Roy, 2001), including clients, suppliers, employees and the community

(Wells, 2013). Second, recent developments by, for example, the Global Reporting Initiative, the International Organisation for Standardization (ISO) and the World Business Council on Sustainable Development show a global debate among stakeholders in which the triple issue focus of corporate values has subsequently been formalized in, e.g. standards, guidelines and visions (GRI Australia et al., 2014; International Organisation For Standardization, 2009; Pasquier et al., 2004).

Recently, authors have argued that awareness of the employment of corporate resources in a historic perspective is crucial to enable CS integration (Baumgartner, 2014; Dunphy et al., 2006; Epstein & Buhovac, 2010). To historically trace the development of triple issue impact of the corporate values and, consequently, how the company has been integrating CS into business activities makes CS integration a concept that has to be seen in a time perspective. Several authors (Dunphy et al., 2006; Uhlener, Berent, Jeurissen, & de Wit, 2010) have proposed specific phases to understand this time perspective. For example, Dunphy et al. (2006) propose six phases of CS growth: 1. rejection, 2. non-responsiveness, 3. compliance, 4. efficiency, 5. strategic proactivity, and 6. the sustaining corporation. During these phases organisations are confronted with a broad range of triggers motivating them to start with or improve the integration of CS. Besides the company's economic vision and mission, these triggers should include the organisational culture the company aspires (Baumgartner, 2009; Clarke & Roome, 1999) but also the direct and indirect context of the company (Cramer, 2005b). This broad scope of triggers creates the basis for a company to start defining which activities have to be undertaken to integrate CS into its business.

These integration activities should be focused on the physical dynamics of the organisation (Hart, 1997; Siebenhüner & Arnold, 2007). This leaves out the focus on the organisational culture with its internal social dynamics (e.g. employer behaviour and leadership characteristics) as stressed by several authors (Baumgartner, 2009; Epstein & Buhovac, 2010; Linnenluecke & Griffiths, 2010; Marrewijk & Werre, 2003). To effectively integrate CS, the focus of integration activities on both physical and social organisational dynamics, also defined as the formal (hard) or informal (soft) system, must be balanced (Epstein & Buhovac, 2010). This research takes Linnenluecke's definition (Linnenluecke & Griffiths, 2013): a physical focus considers dynamics imposed by the physical (natural) environment and a social focus considers dynamics imposed by the social environment of the business activity.

3.2.1 CS integration in SMEs

Although interest in CS has increased over the past decades, the general research focus has remained on large or even multinational corporations. Nevertheless, SMEs encompass at least 95% of private sector companies and employ more than two thirds of the workers (Lejárraga et al., 2014, p. 10). Although SMEs may not have significant effects on the economy taken individually (Spence & Schmidpeter, 2003), 60-70% of the environmental impacts in, for example, Europe relate to SMEs

(Constantinos et al., 2010). Subsequently, concerns about environmental and social impacts are also becoming major business policy priorities for many SMEs (Johnson & Schaltegger, 2015).

Research on SMEs shows that the CS triggers are primarily the pressure from supply chain partners or from inside the company itself (Ciliberti et al., 2008). In competition with bigger companies, the disruptive innovation could be the power of the more sustainable SME: smaller organisations can control their capacities for entrepreneurial innovations and organisational change, thereby learning to achieve advantages over larger organisations (Moore & Manring, 2009). The organisational development processes of smaller companies may also constitute a built in engine for addressing the challenges of disruptive innovation and change in the SMEs' context (Moore & Manring, 2009). Consequently, the degree of adaptation to this disruptive context also defines the SMEs' success in CS integration (Klewitz & Hansen, 2014, p. 72).

As is the case with CS integration in general, research on the integration of CS in SMEs has evolved from an environmental management perspective (e.g. the implementation of an environmental management system), towards a more integrative management perspective (see e.g. Asif et al., 2011; Gianni & Gotzamani, 2015). The majority of the literature is dominated by the barriers faced by SMEs when integrating CS, and the corresponding strategies to overcome them (Johnson & Schaltegger, 2015). Participation and teamwork by the company's employees are essential strategies for successful integration (Arnold, 2010). Additionally, specific SME CS integration tools were discussed in the latter part of the last decade (e.g., as discussed in Perrini & Tencati, 2006). Heras & Arana (2010) conclude that simplicity and practicality are important tool criteria, having a positive effect on the success of CS integration in SMEs. Despite these developments, most CS integration tools are not being used by SMEs and, moreover, the majority of SMEs do not use CS integration tools at all (Johnson & Schaltegger, 2015).

3.2.2 *The role of the change agent*

After the decision at strategic level to integrate CS, it is the CS change agent who coordinates the integration process and who chooses the tools that should support the integration of CS into the business activities (Dunphy et al., 2006; Hannon, 2012; Lozano, 2014). This agent is intensely interested in the general CS goals of the company and considers them to be a high priority in his or her daily tasks; the main task is to create a transformational environment with conditions for the organisation to be able to integrate CS into its business activities (Marion & Uhl-Bien, 2002). Besides the physical determinants of this environment, socio cultural determinants are seen as essential (Siebenhüner & Arnold, 2007) re-emphasising the importance of a managed balance between the physical and social organisational dynamics for the CS change agent to enable his or her support for the CS integration process.

Change agents can be internal, such as managers or employees who are delegated to coordinate the change process, but they can also be external, such as consultants from outside the company. These

CHAPTER 3

external change agents are not constrained by the company's culture, politics, or traditions (Lunenburg, 2010) and therefore play an important role in facilitating the adaptation of the organisation (Ginsberg & Abrahamson, 1991). Harris & Crane's (2002) study suggests that it is possible for these change agents to advance the integration of CS, although such attempts might be moderated by the power and resources available to these agents.

3.2.3 *Ensuring CS in the business activities*

Management systems could support ensuring integration of CS (Azapagic, 2003a; Hahn et al., 2015; Jamali, 2006; Maon et al., 2009). With a systems perspective and a structured and organised support for continuous improvement, management systems facilitate companies to translate specific goals (e.g. CS) into business activities (Pojasek, 2012). The practical integration of CS is generally supported by standardized guides and action schemes (Heijden et al., 2010). To assist the progress of companies in their CS integration, national and international organisations have developed various management system standards, e.g. ISO. While the ISO 9001 standard (ISO, 2008) is developed to support companies with product and process quality issues, the ISO 14001 (ISO, 2004) is an management system standard to support companies to manage their environmental impact, and the Occupational Health and Safety Assessment Series (OHSAS) 18001 (OHSAS, 2007) standard supports the development and maintenance of a safe working environment and the health of workers, addressing the internal social dimension of sustainability (Qi et al., 2013). Although the ISO 26000 is seen as a possible tool for CS integration in the company's management system, it contains a list of possible corporate social responsibility topics on which a company can focus. ISO 26000 does include the aforementioned structured and organised support for continuous improvement. Therefore, ISO decided to make ISO 26000 a guideline instead of a standard that can be used to certify a management system.

Because CS integration for SMEs is often a complex process, a more practical solution is to make use of the existing management system with its possible foci in accordance with these standards (Graafland et al., 2003, p. 48). An integrated management system (i.e. combining the focus on quality, environment, and health & safety) could support CS integration (Epstein & Buhovac, 2010; Figge et al., 2002; Searcy, 2012). In addition, Macpherson & Holt (2007) showed that the SMEs contain the ability to create and adjust suitable management systems. Therefore SMEs with the triple certification (i.e. ISO 9001, ISO 14001, and OHSAS 18001) are in a strong position to ensure CS integration (Yin & Schmeidler, 2009). Moreover, the creation of an integrated management system provides business, hence CS objectives and goals (Asif et al., 2011; Gianni & Gotzamani, 2015; Johnson & Schaltegger, 2015).

In complying with the requirements of the different management system standards the management team often takes the strategic decisions, whereas an internal or external change agent bears the responsibility for the integration of these requirements into the business activities (Lozano, 2014).

To get the connection between the change agent and the decision makers within a company, several management system standards require specific activities (e.g. setting up and presenting a management review or yearly report, measuring and sharing the technical outcomes of the most important company processes and developing procedures for internal communications and reporting; ISO, 2004, 2008; OHSAS, 2007). Unfortunately, decisions taken by management teams may not correspond with the requirements prescribed by the management system standards (Gond et al., 2012; Mac, 2002) putting the connection with the change agent at risk. When using the management system for CS integration, this failing connection could result in a gap between the decisions made to integrate CS by the SME's management team and the real adjustments to business activities coordinated by the change agent (Laforet, 2011).

3.3 Methods

The main aim of this research is exploring how SMEs integrate CS into their business activities. The research takes an external change agents perspective: while supporting eighteen Dutch SMEs to improve the integration of CS into their business activities, consultancy change agents collected the research data through the application of four tools. These tools were not underpinned via literature, but based on the long-term experience of the consultancy firm with CS integration in SMEs. The data were analysed by the authors of this chapter via comparison and exemplification. Moreover, the researchers reflected upon the tools used by the change agents by relating them to the academic literature.

Most research on CS integration has been conducted using short term data gathering methods and, for example, questionnaires or checklists (e.g. Aya Pastrana & Sriramesh, 2014; Cramer, 2005; Jenkins, 2006; Klewitz & Hansen, 2014). In order to capture both the physical and the social organisational dynamics of CS integration, long term qualitative and field based data methods should be applied (Baumgartner, 2009; Hahn et al., 2015; Lozano, 2012; Robèrt et al., 2002). This study explores a long-term case using action research. Case study research is a valid method for theory building (Eisenhardt & Graebner, 2007; McCutcheon & Meredith, 1993), and because it is based on analytical rather than statistical generalization (Yin, 2009) it facilitates the exploration of CS integration in companies. In addition, Stuart et al. (2002) argued that case study research is aiming at being exemplary rather than representative. Having eighteen companies participating in this case study research has enabled a comparative analysis to be made between these example cases. This research intends to recognize patterns of relationships among constructs ((Eisenhardt and Graebner, 2007)) stemming from the application of the four consultancy tools. The tool data was provided by the external change agents in their project work (i.e. action research) carried out within the eighteen companies.

CHAPTER 3

3.3.1 *Research context*

Between 2008 and 2010, more than 300 Dutch SMEs met on a quarterly basis to exchange experiences in the integration of CS. These sustainability round tables were organized by a consultancy firm. The main end result of the round tables was that the companies agreed upon avoiding “window dressing”; they did not want to legitimize questionable business practices, nor to deceive stakeholders (Cai et al., 2012). In other words, the company’s vision on CS, expressed in, for example policy documents and external communication, must correspond with the outcomes of the company’s activities. From these round table meetings, several companies chose to ask for consultancy support on improving their integration of CS. For 25 years, the consultancy has been a renowned support for SMEs in quality, health and safety, and environmental matters. Many companies, seeking the consultancy’s support, have a long-term relationship with the consultancy. By paying an annual membership fee, the companies are entitled to frequent visits from consultants (i.e. external change agents) in which the latest developments are discussed and ways to support the company are defined. Due to this long-term relationship, the change agents have access to an extensive body of knowledge and experience with the companies. To improve the change agent’s support on CS integration the consultancy firm converted this knowledge and experience into four CS integration tools. Although the tools correspond to scientific research on CS integration tools, the consultancy firm did not use these references in the development of these tools (see section 3.4 for the scientific support of the tools).

This research includes the data gathered during eighteen projects (see Table 2) on the improvement of CS integration by the change agents using these four tools, in a period from 2009 until 2013. During these CS integration projects and based on their long-term knowledge of the companies, the change agents determined the position of each company according to the four tools. The eighteen case study projects were selected from the larger group of companies requesting follow up support on CS integration after the round table meetings. This selection was mainly based on the completeness of the data sets produced by the change agents. In addition, these eighteen case studies complied with the following three characteristics.

1. SME

The size of the companies included in this research was in accordance with the European Commission Recommendation 2003/361 (i.e. an SME has more than 10 and less than 251 employees). For this research, we also included business units of big or multinational enterprises that correspond to the same size. The European Commission recommendation on the definition of SMEs also specifies limits to company turnover and balance sheet. Because this data was not available for all companies in this research (especially the business units) these limits do not apply to this research.

2. CS vision

The company should have an explicit idea of what CS could mean for their business. This expressed CS vision could be found in corporate vision or mission documents, reports or the corporate website. This criterion obliges the participating companies to adhere to the precondition of a holistic understanding of the triple issue (i.e. environment, social and environmental) focus of the corporate values (Linnenluecke et al., 2009; Lozano, 2012) for CS awareness.

3. A certified management system

The company should have one or more valid management system certificates (e.g. ISO 9001, 14001 or OHSAS 18001). This ensures a structured and systematic source of data necessary for the change agents to determine the position of the company in accordance with the four tools.

In Table 1, details on the eighteen companies can be found at the time of gathering the research data. 15 complied with the EU definition of SMEs. The number of FTEs shows that the companies are big SMEs. Although three companies (see*: company 9, 10 and 16 in Table 2) were larger, the unit of the company where the data were collected complied with the EU definition on SME size.

Companies	FTE	SIC
1	150	Concrete, gypsum & plaster products
2	200	Plastics foam products
3	50	Plastic materials, synth resins & non-vulcan elastomers
4	25	Miscellaneous fabricated metal products
5	170	Miscellaneous primary metal products
6	200	Metal doors, sash, frames, moldings & trim
7	170	Plastic materials, synth resins & non-vulcan elastomers
8	100	Plastic materials, synth resins & non-vulcan elastomers
9*	150	Electrical work
10*	100	Water, sewer, pipeline, communication & power line construction
11	50	Miscellaneous primary metal products
12	100	Services-miscellaneous repair services
13	50	Miscellaneous primary metal products
14	230	Papers & allied products
15	180	Chemicals & allied products
16*	200	Medicinal chemicals & botanical products
17	250	Metal doors, sash, frames, moldings & trim
18	200	Papers & allied products

*Table 2 Overview of the companies
 FTE: the number of employees is expressed in Full Time Equivalent
 SIC: the standard industrial classification (SIC) for each company is given to indicate its sector of activities.*

3.3.2 *CS integration tools*

The data for this research is derived from the application of four CS integration tools in the eighteen companies by external change agents of the consultancy firm. The four tools are based on the knowledge and experience of these change agents developed over the years in projects on CS

CHAPTER 3

integration. The setup of the tools did not change during the period of data collection. For the consultancy and its change agents the goal of the application of the tools was twofold: 1. to support the assessment of the company and define advice on the improvement of its CS integration, and 2. to create an input for a debate with the company on further steps to improve the integration of CS. In the following paragraphs (i.e. 3.3.2.1 – 3.3.2.4) the explanation of the four tools can be found. The four tools are not meant to be fully conclusive, but to enable an external change agent perspective on understanding the CS integration processes in a company.

3.3.2.1 *Tool 1: the CS growth curve*

The consultancy firm defined the CS growth curve to create awareness of the past, present and future of the company's development. This awareness is a crucial precondition for CS (Dunphy et al., 2006, p. 19). To operationalize this tool the consultancy defined three phases: reactive, proactive and sustainable (see Table 3). These phases coincide with the last four phases of the model proposed by Dunphy et al. (2006): Dunphy's first and second phases (i.e. rejection and non-responsiveness) do not apply to the companies in this research as they have taken the initiative to improve their CS integration. In particular, this tool supports the change agents in addressing the difference between the current and desired situation in CS integration of the specific company, as is the case with the back casting approach (Bertels et al., 2010, p. 44). For this research the CS growth curve is only used to indicate the current situation in the CS integration of a specific company according to the change agent.

Dunphy et al. (2006)	CS growth curve phases	Explanation
Compliance	Reactive	The company reacts to stakeholders' demands without proactively engaging in the processes that could prepare compliance with these demands. Taking this compliance approach (Holton et al., 2010) with these demands often results in ad hoc activities. This first CS growth phase coincides with Dunphy's third phase (i.e. compliance)
Efficiency and Strategic proactivity	Proactive	The company ensures the compliance with stakeholders' demands by making the activities, leading to compliance, part of its business activities, therefore avoiding its ad hoc nature. The efficiency of the company's processes is an important focus in this phase likened to the company's strategy. This phase coincides with Dunphy's fourth and fifth phase (i.e. efficiency and strategic pro-activity)
The sustaining corporation	Sustainable	The company focuses on its own strengths by acting with the internal stakeholder abilities to comply with the external stakeholders' demands. This last phase coincides with Dunphy's sixth phase (i.e. the sustaining corporation)

Table 3 *Tool 1: the CS growth curve phases, their explanation and the corresponding phases of Dunphy et al. (2006)*

3.3.2.2 *Tool 2: the CS triggers*

The CS triggers tool was developed to understand why a company started the process of integrating CS and, as a quick scan, to start a debate with the company on how to improve this integration. Triggers motivating a company to start with or improve its CS integration can be seen inside as well as outside the company, and are related to the triple issue requirements of its stakeholders (Cramer & Loeber, 2004). A holistic identification of what motivates companies to change to a more sustainable state supports the development of CS strategies, thus helping to improve the CS integration (Lozano, 2015). Research on CS integration triggers has resulted in several lists with corresponding structures (for example Cramer & Loeber (2004), Epstein & Buhovac (2010), Lozano (2013b) and Skarmeas & Leonidou (2013)). The consultancy firm decided to make a distinction between internal and external triggers and focused on several stakeholders (see Table 4).

Internal
<ul style="list-style-type: none"> The expressed CS vision of a high level person or group of persons within the company. The CS impact on the primary processes of the company The physical relocation of the company The internal organisational changes The requirements from the parent company Responding to emergency situations
External
<ul style="list-style-type: none"> The requirements of direct customers of the company The developments in the market in general The CS performance of supply chain companies The requirements of the law and regulations (particularly environmental and health & safety legislation) The advantage of integrating CS in comparison with competitors

Table 4 *Tool 2: the internal and external CS triggers*

3.3.2.3 *Tool 3: the elements to ensure CS*

The consultancy defined five elements that, according to their experience, play an important role in ensuring CS integration into business activities: the elements to ensure CS integration. Research on CS integration has confirmed the importance of these five elements as mentioned in Table 5:

<p><u>The vision of CS</u> Companies with a vision on CS have an advantage in integrating CS into business activities (Hart, 1997). In addition, a long term vision creates an further advantage (Aya Pastrana & Sriramesh, 2014). For this research, only the presence of a vision of CS is marked.</p>
<p><u>The strategy to CS</u> The vision of CS is translated into planned, programmed and organized activities defines the CS strategy. Having a CS strategy contributes to a CS vision and its integration into business activities (Baumgartner & Ebner, 2010).</p>
<p><u>A management system in which the CS activities are included</u> A formalized management system ensures the integration of CS into business activities by means of the management system elements and/or the requirements of the standard (Azapagic, 2003a; Hahn et al., 2015; Jamali, 2006; Maon et al., 2009). Research has shown that this potential is not always used by SMEs (Johnson & Schaltegger, 2015).</p>
<p><u>The presence of an internal CS change agent</u> As mentioned in section 3.3.2</p>
<p><u>An assessment of the CS performance</u> An awareness of its impact by having a qualitative and/or quantitative indication of its CS performance supports companies to define CS strategies and CS integration (Searcy, 2016).</p>

Table 5 Tool 3: The elements to ensure CS integration

3.3.2.4 *Tool 4: the physical and social focus of CS integration activities*

The fourth tool is used to clarify the focus of CS integration activities. CS integration refers to demonstrating the inclusion of social and physical concerns into business activities and into interactions with stakeholders (Marrewijk & Werre, 2003). In particular, the distinction between physically and socially focused activities is important for CS integration (Baumgartner, 2009; Epstein & Buhovac, 2010; Hahn et al., 2015; Linnenluecke & Griffiths, 2010). To categorize the observed physically or socially focused activities, the consultancy determined physical and social factors. Table 6 below explains these factors more in detail:

<p>Physical factors</p> <p><u>Result</u> Apart from making revenue (i.e. economic impact), the company’s processes can have other outcomes (e.g. environmental). Indicators often represent these outcomes. A company could prioritize these indicators in the process of CS integration (e.g. activities to influence the company’s key performance indicators (KPIs)). Doing so they take result oriented activities.</p> <p><u>Process</u> By controlling the primary processes, the above-mentioned performance indicators could be influenced. These processes are supported by secondary or supporting (e.g. administrative processes, human resources, quality health safety and environment, maintenance) and management processes (e.g. defining policy, management review, adjusting goals) represented e.g. by procedures or working instructions. By controlling these processes, the company takes process oriented activities.</p> <p><u>Product</u> CS integration activities can also be taken from a product, and/or service perspective. The product and/or service is the main subject of trade with which the company makes its revenue. Activities to adjust the CS performance from a product perspective (e.g. redesign, setting up LCAs) are defined as product oriented activities.</p> <p><u>Resources</u> The process inputs necessary to create the product or service can also influence the sustainability performance of the company. Apart from the adjustments to product related resources, adjustments to non product related materials (e.g. lubricants, energy) can also influence the sustainability performance of the company. The activities are defined as resource oriented.</p>
<p>Social factors</p> <p><u>Behaviour</u> The behaviour of the people, directly or indirectly working with the company's processes, has an influence on the company's performance. For example, a sales person acting in a friendly and respectful way towards clients has a bigger chance of receiving orders. Behaviour oriented activities attempt to influence the behaviour of people.</p> <p><u>Leadership</u> People within an organisation influence each other. This interpersonal influence can be exerted consciously by providing the necessary conditions to enable set goals to be reached (e.g. helping others to adjust their behaviour so the company’s performance is influenced in a positive way). Activities providing these conditions are defined as leadership oriented activities.</p> <p><u>Shared belief</u> Having a shared belief among a group of people in the vision of how CS should be integrated in the business activities also influences the behaviour of these people. The more people share a belief; the more influence this belief will have on the activities taken by these people. Activities leading to this belief are defined as shared belief activities.</p>

Table 6 Tool 4: The physical and social focus of the CS integration activities

3.3.2.5 The four tools to support the understanding of the external change agent perspective on CS integration

The four tools were developed on the basis of the long-term experience and knowledge of the consultancy firm with projects on CS integration. The explanation of the tools in the previous four sections shows a clear overlap between the tools developed in practice and the literature in the field of CS integration tools. This justifies the adoption of the tools developed by the consultancy change agents as leading framework.

CHAPTER 3

3.3.3 *Data collection and analysis*

To give a valid understanding of the company's position according to the four tools, hermeneutics (i.e. the interpretation of human understanding (Seth & Thomas, 1994) was applied; the change agents defined the position of the companies according to the tools by interpreting the given situation using their long term experience with the company, its development with CS integration and CS integration in companies in general. In addition, the change agents asked for the company's feedback on its position according to the tools used during the project and, at the latest, in their final presentation of the project advice on the improvement of CS integration to the company. If necessary, the data were adjusted according to the outcomes of this feedback. To interpret the data, stacking comparable cases (Miles & Huberman, 1994) was used; the data were included in tables to interpret each case. By analysing the data of several tables at the same time a systematic comparison enabled the identification of cross case sequences and contingencies. The senior change agent was responsible for the analysis and comparison. Due to his major body of knowledge and experience on CS integration and overall view of all the projects within this research, this senior change agent was assigned to analyse and compare the data. In addition, the senior change agent is also the corresponding author of this thesis.

3.3.4 *Generalisability and validity*

The generalizability of the case studies (Yin, 2013) was ensured by using the change agents' long term knowledge of the companies' development and their experience with CS integration projects. As mentioned by Eisenhardt (1989), the limitation of the validity of the study is a disadvantage of case study research. In this research a validity check of the research data was included by asking for the company's feedback.

Action research is a potent method for intentional change in a collaborative context (Espinosa et al., 2015, p. 204). Its limitation in terms of validity and generalization is related with the knowledge specificity that characterizes the process, considering that a sole company offers limited observation opportunities (Reason & Bradbury, 2006). The change agent's involvement with the observed events may hinder the observation process (West, 2011). Considering that the action research project's goal is to improve the company's CS integration, the relationships between change agents and the company's employees could influence the research data. Nonetheless, action research draws on the change agents' expert knowledge of CS integration processes, recognizing that those challenges will be better understood by letting these change agents gather the research data.

3.4 Findings

In the first four sub paragraphs of this section the findings of the research are presented according to the four tools. In the tables, the companies are firstly ranked according to the CS growth curve stage and, secondly, within a specific CS growth curve stage, the companies are ranked according to the sum of the management system certificates present. In the last sub paragraph, the data of all the applied tools of the companies is ranked according to the number of management system certificates.

3.4.1 Tool 1: CS growth curve

Table 7 presents findings of the CS growth curve per company. In addition, this Table presents the valid management system certificates the companies had at the time of the CS integration improvement projects.

Companies	Growth curve	9001	14001	18001
1	Reactive	x		
2		x		
3		x		
4		x	x	
5		x	x	x
6	Proactive	x		
7		x	x	
8		x	x	
9*		x	x	
10*		x		x
11		x		x
12		x		x
13		x		x
14		x	x	x
15		x	x	x
16*		x	x	x
17		x	x	x
18	Sustainable	x	x	x

Table 7 CS growth curve per company including management system certificates

Per company the following characteristics are included in this table:

CS growth phase: indicates the CS growth stage the company attains according to the change agents (i.e. reactive, proactive, and sustainable)

The last three columns show if a company has management system certifications for ISO 9001:2008, ISO 14001:2004 and/or OHSAS 18001:2007 present at the moment of the project.

CHAPTER 3

The majority of the participating companies are defined as proactive (12 out of 18). This is understood because only the companies that proactively decided to ask for consultancy support were able to enter the research project. Despite this pro-activeness the change agents decided to categorize five companies as reactive. Another notable result is that the change agents defined only one company as sustainable. This low number can be comprehended when taking into account that all the participating companies expressed their need to become more sustainable. By requesting the support of the consultancy firm with the improvement of CS integration they expressed that in their opinion they were not yet sustainable. Apparently in one case the change agent had a different opinion and decided to categorize a company as sustainable. Consistent with this data and according to the change agents, companies at all CS growth stages showed a need for support in integrating CS in their business activities.

3.4.2 Tool 2: the CS triggers

Table 8 reveals the triggers to integrate CS. The three triggers that were most mentioned by the change agents to integrate CS are: direct customers (n = 14), competitors (n = 13), and a vision of CS (n = 13). Combined with the growing importance of the triggers of internal stakeholders when growing towards sustainability, and as mentioned before, this means an increasing importance of a vision of CS when the company develops itself to become more sustainable.

		Presence reactive (n= 5)	Presence proactive (n= 12)	Presence sustainable (n= 1)	Number
Internal	Vision	37%	38%	67%	13
	Impact				5
	Relocation				2
	Organisational changes				10
	Parent company				6
	Emergence				6
External	Direct customers	40%	57%	40%	14
	Developments in market				9
	Situation in other companies				7
	Legislation				3
	Competitors				13

Table 8 Presence of each CS trigger in the selected eighteen companies

Furthermore, as can be seen in Table 8, there is a positive relationship between the CS growth curve stages and the presence of internal triggers: the more advanced the CS growth stage of a company, the more internal triggers the change agents indicate as having motivated the company to integrate CS. The external triggers are at their maximum (57%) for proactive companies. The ratio of internal/external triggers for the reactive companies is almost 1 (37%/40%) meaning that internal and external triggers are equally important for reactive companies in their decision to integrate CS into their business. For the proactive companies it is smaller than 1 (38%/57%) signifying that the external triggers seem to be more important than the internal triggers. For the sustainable company, it is larger than 1 (67%/40%) demonstrating that the internal triggers are more important than the external triggers to integrate CS into their business activities. This finding can be understood given the importance of the strengths of the internal stakeholders by defining sustainable companies (Moore & Manring, 2009). For proactive companies, that are mostly triggered by external stakeholders, and want to become more sustainable, this would mean that they have to increase the focus of ensuring their compliance more on the requirements of internal stakeholders.

3.4.3 Tool 3: the elements to ensure CS integration

Table 9 reveals the elements used to ensure CS integration in the business activities.

	Average reactive (n= 5)		Average proactive (n= 12)		Average sustainable (n= 1)		Number of elements
Vision on sustainability	60%	36%	42%	52%	100%	100%	9
Strategy to sustainability	60%		42%		100%		9
Management system	0%		50%		100%		7
CS change agent	60%		100%		100%		16
Sustainability assessment	0%		25%		100%		14

Table 9 Presence of each element to ensure CS integration in the selected eighteen companies

As can be seen in Table 9, there is a positive relationship between the CS growth curve stages and the number of elements to ensure CS integration; for example, moving from reactive to proactive, the management system as element ensuring CS integration increases considerably (from 16.7% to 44%). Also, the presence of an internal CS change agent and an assessment of the company’s sustainability will increase when a company develops towards a more sustainable state, emphasizing the importance of both elements for CS integration.

At the sustainable company, according to the external change agents, all the elements to ensure CS integration were present. It is worthwhile noting that this coincides with the consultancy’s notion of the importance of all the five elements ensuring CS integration. However, it is also important to take

CHAPTER 3

into account that only one company was confirmed as sustainable, making the sample, and therefore the validity of this finding, low.

Additionally, Table 9 reveals that the number of management system certificates does not influence the elements ensuring CS integration. On the contrary: although all companies have their management system certified, some even more than once, the management system was the least used element to ensure CS integration.

3.4.4 Tool 4: the physical or social focus of CS integration activities

Table 10 shows the focus of each company on the activities contributing to CS integration. The level of presence of a physically or socially focused activity per company was indicated as: 1: not present, 2: present, and 3: strongly present.

	Companys number	Physical			Social		
		Processes	Resources	Product	Behaviour	Leadership	Shared belief
reactive	1	2	2	2	1	2	2
	2	2	3	2	1	2	3
	3	2	2	2	1	1	1
	4	2	2	3	1	2	2
	5	2	3	2	1	1	1
Average reactive		2.2			1.5		
proactive	6	2	2	3	1	2	3
	7	2	2	2	2	2	1
	8	3	2	2	2	2	2
	9	3	3	2	1	2	2
	10	3	3	3	2	2	1
	11	3	3	3	2	2	1
	12	2	3	2	2	2	1
	13	3	3	3	2	2	2
	14	2	3	2	2	1	2
	15	3	3	3	2	2	3
	16	2	3	1	2	2	1
17	2	2	2	2	2	3	
Average proactive		2.5			1.9		
sustainable	18	2	3	3	2	3	3
Average sustainable		2.7			2.7		
Average per element		2.3	2.6	2.3	1.6	1.9	1.9

Table 10 Presence of physically or socially focused activities in the selected eighteen companies

As can be seen in Table 10, there is a positive relationship between the CS growth stage and the level of presence of both physically and socially focused activities; the ratio between the presence of the focus on physical and social for the reactive and proactive companies is almost the same

(Reactive: $1.5/2.2=0.68$; Proactive: $1.9/2.5=0.76$), but bigger for sustainable companies ($2.7/2.7=1.0$). Thus, in the transition from proactive to sustainable, the activities shift from predominantly physical to both physical and social focus. This finding can be understood given the importance of the social strengths (e.g. organisational culture, employee behaviour) of the internal stakeholders, by defining sustainable companies. This also underlines the growing importance of the integration of CS into the organisational culture as a necessary prerequisite for a company to become more sustainable. In addition, this positive relation between the CS growth stage and the level of presence of both physical and social focus of activities shows that CS focused activities are necessary to reach a higher growth stage.

Table 10 also shows that within the physically focused activities, the one on resources has the highest average. This, combined with the finding in the former paragraph of the importance of a sustainability assessment, would emphasize the need for attention to measuring and assessing the sustainability impact of, specifically, the physical resources used. Within the socially focused activities, both leadership and a shared belief in CS integration stand out. Moreover, combined with the findings in paragraph 3.4.2., this articulates the increasing importance of a shared vision on CS.

CHAPTER 3

3.4.5 The influence of management system certificates

Table 11 shows the data of the application of the tools corresponding to the combination of management system certificates (i.e. certificate categories) present at the company:

1 - only ISO 9001:2008;

2a - ISO 9001:2008 and ISO 14001:2004;

2b - ISO 9001:2008 and OHSAS 18001:2007;

3 - ISO 9001:2008, ISO 14001:2004 and OHSAS 18001:2007.

Certificate categories	CS growth curve	Triggers			Elements ensuring CS integration	Physical and social		
		I	E	I/E	Total	P	S	P/S
1	3-1-0	46%	50%	92%	40%	2.2	1.7	130%
2a	1-3-0	33%	45%	74%	40%	2.3	1.8	133%
2b	0-4-0	38%	60%	63%	45%	2.8	1.8	162%
3	1-4-1	39%	50%	78%	67%	2.4	1.9	123%

Table 11 Tool data according to the number of management system certificates present at the eighteen companies

Growth curve: number of companies reactive-proactive-sustainable companies

Triggers: I: internal triggers; E: external triggers; I/E: the ratio of internal triggers/external triggers

Physical and Social: P: physical focus; S: Social focus; P/S: the ratio of physical focused activities and socially focused activities

As can be seen in Table 11, there is a dependency between the number of management system certificates and the stage on the CS growth curve. This finding illustrates that the presence of a management system certificate is a support for CS integration. Table 9 also shows that the number of the elements ensuring CS integration present also increases with the number of management system certificates, emphasizing the importance of the support of a management system certificate for CS integration.

In Table 11 the data on the triggers shows that the external triggers are more present than the internal ones for all certificate combinations. This motivation leads to the notion that management systems, as a support to ensure compliance with stakeholder requirements, are extrinsically focused.

Finally, Table 11 reveals that the focus of the CS integration actions is mostly physical, independent of the combination of management system certificates. A more social focus was expected for the combinations with OHSAS 18001:2007 (2b and 3), this being a standard to ensure socially oriented topics, such as the health and safety of stakeholders.

3.5 Discussion

This research presents CS integration data from an external change agent's perspective. The data were collected during consultancy projects carried out within eighteen SMEs in the Netherlands. The tools were developed based on the long-term experience and knowledge of the consultancy firm with projects on CS integration. These tools derived from consultancy work shows a clear link with comparable tools mentioned in the literature on CS integration tools (see the description of the four tools in section 3.3.2.). From the explorative analysis in using the consultancy tools four issues emerge which are discussed below.

Firstly, the outcomes of the CS growth curve (see section 3.4.1.) show that having a holistic understanding of the triple issue focus on the corporate values (as was one of the three characteristics of all case studies in this research) seems to be a characteristic of companies seeking support in CS integration support. This is confirmed by Linnenluecke et al. (2009) and Lozano (2012a). Moreover, the outcomes show that these companies seeking support also include reactive companies (see Table 7). Additionally, even companies that were already defined as sustainable asked support to improve CS integration into their business activities. Therefore, pro-activeness as a precondition for companies looking for ways to contribute to sustainability, as mentioned by Lozano (2012a, p. 51) cannot be confirmed by this research.

Secondly, the outcomes of CS triggers tool (see section 3.4.2.) confirm that the main triggers for SMEs to integrate CS come from the supply chain or the company internally (see Table 8) as stated by Ciliberti et al. (2008). This confirmation can even be specified; both the external demands of customers and competitors integrating CS, and the vision of an internal group of employees are important triggers to integrate CS. This is confirmed by Székely & Knirsch (2005). Subsequently, the presence of the triggers of both external and internal stakeholders makes the integration of CS more successful. Related to this phenomenon, Dyllick & Hockerts (2002) stated that triggers from both direct and indirect external stakeholders are important. The outcomes of this research specify this by showing that customers and competitors, as external stakeholders, are important triggers for SMEs in starting to integrate CS (see Table 8).

Thirdly, the outcomes of the tool to integrate CS activities of both physical and social aspects show that a balance between these aspects is a prerequisite for a proper CS integration (see Table 10). When combining this required balance with the strong dependence of SMEs' growth on the development of their social component (Macpherson & Holt, 2007), and their focus on the creativity and competences of their employees (see the definition of sustainability growth stage by the consultancy firm in Table 3) it can be argued that SMEs pay potentially increased attention to socially focused activities. This enables SMEs to make the step to the sustainability stage as defined by the consultancy firm. A clear vision on CS integration was found as an important trigger for SMEs (see Table 8). To integrate this vision into the company's business activities, a change agent

is essential (see Table 9) in motivating people in the company to undertake CS integration activities. This is confirmed by the findings of Marion & Uhl-Bien (2001). A balance between a social and physical focus in both the CS vision and the CS integration activities could enable the change agent to improve its influence on the CS integration process and possibly avoid moderate outcomes as mentioned in Harris & Crane's (2002) study. With the CS integration projects included in this research being accompanied by an external change agent, the findings of this analysis show the importance of having an internal change agent carrying the responsibility of the CS integration process.

Fourthly, the outcomes of the elements to ensure CS integration show that the management system of the company is the least used element to ensure the integration of CS in business activities (see Table 9). As literature has already pointed out, there are several challenges for SMEs in using the management system in ensuring CS integration: the rigidity of the management system and the dynamic character of the SME practice (Moore & Manring, 2009) with the additional focus on the social issues (Graafland et al., 2003). This research confirms that the integration of CS in management system activities does not automatically lead to the necessary balance between the social and physical aspects, nor between external and internal triggers leading to CS integration. Therefore, the necessity of understanding the use of integrated management systems for the success of CS integration (Epstein & Widener, 2011) can be confirmed.

Additionally, the necessity of assessing the sustainability performance as an element to ensure CS integration (see Table 9) contradicts the arguments made by Siebenhüner & Arnold (2007). The primary focus of non sustainable companies on physical rather than on social activities (see Table 10), independently of the combination of management systems standards, indicates that compliance with requirements of management systems standards (i.e. having a management system certificate; as seen in Table 11) will not support a company making the step from proactive to sustainable. For companies seeking this final step in the CS growth curve, these activities should be physically and socially balanced (see Table 10). This makes it possible to connect the CS integration activities to the business culture (Baumgartner, 2009; Clarke & Roome, 1999; Cramer, 2005b). To the contrary, however, we observe that the importance of certifying their management systems with the use of these standards increases as companies grow towards the sustainability stage, (see Table 11).

3.5.1 Limitations of the research

The research focussed only on SMEs in the Netherlands. This geographic restriction could have influenced the findings of this research. Taking CS integration tools developed by a consultancy firm gives an exclusive view on how external change agents see the process of CS integration. The use of this method also brings possible biases. By letting the change agents gather the data, the conflict with the commercial consultancy could influence the data. In this research, we chose to draw on the change agents' long term expert knowledge by letting them gather the research data.

The influence of this external change agent on the presence of the internal change agent in the company was not part of this research. In many cases both these change agents influence and support each other, leading to more or less CS integration.

The findings show that only one company was specified as sustainable. Due to this low number, it is very difficult to generalize the findings related to this company.

Although the sample and the methods applied in this research do not allow for generalization of the results, this research gives insights and contributes to the theoretical discussion of CS integration in SMEs.

3.6 Conclusions

This chapter provides a closer look at the integration of CS in the business activities of eighteen SMEs in the Netherlands. The sample used and the method applied do not make it possible to generalize the findings but are meant to explore. The research shows that the integration of CS in business activities can be analysed by letting external change agents apply pragmatic tools in several case studies. Due to the agents' long term knowledge and experience with the companies, and the application of the tools, they were able to assign the sub elements of the tools to the companies' situations. The results of the tool's application served as an input for discussing future companies' activities to improve their CS integration. Moreover, this discussion was used as a validation check on the tool results.

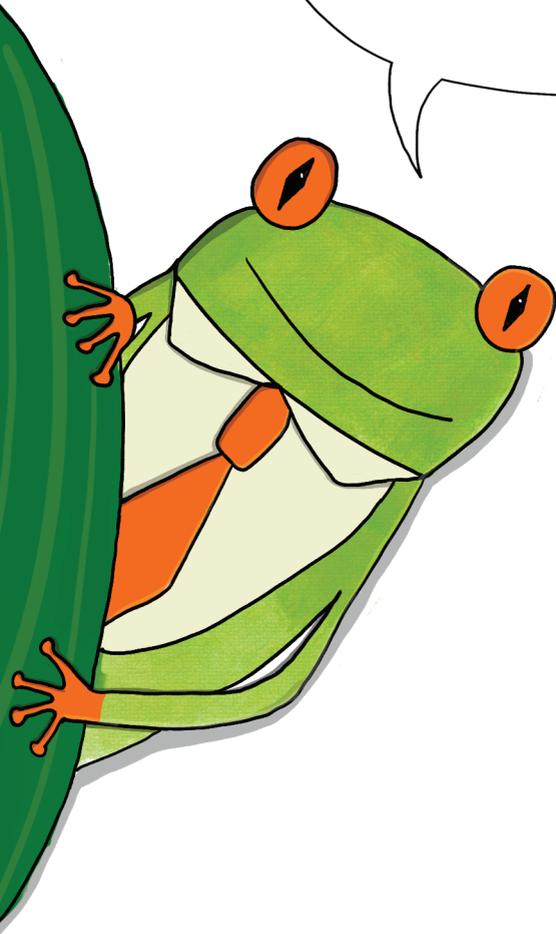
The findings of this research show that a company could have a vision on CS integration independently of the CS growth stage. This result widens the field of possible companies that will go for the integration of CS. Due to their potentially increased attention to socially focused activities, SMEs could be more successful at integrating CS than larger companies. Moreover, SMEs tend to achieve a balance between physical and social focus in their vision on CS, the CS integration activities, the conditions for the CS change agent and the CS assessment. Besides, the presence of the triggers of both external and internal stakeholders makes the integration of CS more successful. The research found that the management system played an ambiguous role in ensuring this balance and presence of both types of triggers while integrating CS in the business activities: the companies in a more advanced growth stage have more certifications for their management systems, but the same management system is not able to provide the companies with the necessary balance between a physical and social, and internal and external focus to ensure a successful integration of CS. Undoubtedly, the companies were supported by alternative approaches in their development on the CS growth curve.

To further explore the process of CS integration by companies, the authors recommend research on these approaches and its application in practice. The geographical scope of this research could also be broadened to include companies from outside The Netherlands. Due to the restricted time frame, this research relies on current activities. Literature showed that awareness of historic activities is

CHAPTER 3

important to determine the strategy on CS integration (Baumgartner, 2009; Dunphy et al., 2006; Robèrt et al., 2002). It is therefore suggested that the process of CS integration should also be explored retrospectively. In this retrospective view, the influence of the external and internal change agents in achieving successful integration of CS is also recommended as focus for further research. Moreover and finally, to explore the integration of CS in the company's culture, longitudinal empirical research should be executed accompanied by the use of qualitative or even ethnographic models.

Companies should be critical on its Corporate Sustainability strategy and past integration into its organisational system to improve future integration.





Chapter 4

On corporate sustainability integration and the support of tools

This chapter is based on the article published as Witjes, S., Cramer, J.M., Vermeulen, W.J.V., In Press. On Corporate Sustainability integration and the support of tools. *World Review of Entrepreneurship, Management and Sustainable Development*, 1–11.

Previous versions of this paper were presented at:

21st Annual International Sustainable Development Research Society (ISDRS) Conference, 10-12 July 2015, Geelong, Australia

Abstract: *Various tools have been developed to support companies integrating Corporate Sustainability (CS) into their organisational system. Research on the use of these tools does not clearly show how these tools support the integration process of CS. This chapter focuses on the CS integration support of three tools most often mentioned in the literature. We will question the contribution each tool can make in supporting CS integration, based on six integration process elements. The analysis shows a potential complementarity between the tools. Moreover, companies should be critical on where within the organisation the interventions for CS integration are needed and what improvement should be generated before choosing tools.*

4.1 Introduction

Companies have increasingly become a key focus of attention in the sustainability debate (Cannon, 1994; Elkington, 2002; Hart, 1997), since they are perceived to be responsible for many negative impacts on the environment and on societies (Dunphy et al., 2006). Elkington (1997) proposed that the impact of the social and environmental outcomes for people, planet, and profit (i.e. triple P) should be placed on the same level of importance as the economic outcomes (Wells, 2013). Companies should proactively search for this balance as well as for the inter-relations between the impacts on triple P issues due to business processes within the life cycle of products or services, or in society, taking into account the past, current and future situation (Vermeulen and Witjes, 2016). In this context, Dyllick & Hockerts (Dyllick and Hockerts, 2002) proposed the concept of Corporate Sustainability (CS) as: “...meeting the needs of a firm’s direct and indirect stakeholders, such as shareholders, employees, clients, pressure groups, communities without compromising its ability to meet the needs of future stakeholders as well”. Companies trying to meet stakeholder requirements on triple P issues now and in the future, find their conventional organisational system fundamentally challenged. Their current organisational system, existing of management processes, organisational structure and control systems, was created to steer the organisation toward a common goal (Hill and Jones, 2011; Ravichandran and Rai, 2000). However, companies willing to address sustainability should make interventions into their organisational system leading to adjustments to processes and products, revisions of communication strategies and, adaptation of value and knowledge systems (Azapagic and Perdan, 2005; Epstein and Buhovac, 2010; Siebenhüner and Arnold, 2007).

The integration of CS into the organisational system entails a continuous adjustment of the internal organisation to the ever-changing stakeholder requirements on triple P issues and, therefore, constitutes the interventions made to internal processes, structure, and management control of the organisational system to adhere to an established corporate vision on CS. The understanding of the success of past and present interventions into the organisational system is a prerequisite for the

contribution of CS to business goals (Vermeulen and Witjes, 2016). Continuous learning cycles on the success of CS integration interventions will, therefore, improve operations (Epstein and Roy, 2001a), improve the overall performance of the company (Eccles et al., 2014; Zangwill and Kantor, 1998) which can lead to companies outperforming equivalent companies over the long term (Eccles et al., 2014; Kurapatskie and Darnall, 2013).

Companies willing to address CS use a wide range of CS integration mechanisms, referred to as ‘tools’, initiatives and instruments (see Lozano (2012), Baumgartner (2014), Hahn et al. (2015) and Johnson and Schaltegger (2015)) to support the CS integration process (Epstein and Buhovac, 2014; Kuhndt, 2004; Robèrt et al., 2002). In this chapter, we will call all these mechanisms ‘tools’; where a tool is anything used as a means of accomplishing a task or purpose³, and we define a CS integration tool as a means to accomplish continuous learning cycles on the success of interventions into the organisational system contributing to the integration of CS.

With research on CS integration tools (see e.g. Hahn et al., 2015; Lozano, 2012; Robèrt et al., 2002; Johnson & Schaltegger, 2015) having been focussed on where within the organisational system (e.g. organisational levels (Robert et al., 2002 and Baumgartner, 2014) and organisational departments (Lozano, 2012)) tools are applied, there is a need to understand how these tools support CS integration. Subsequently, an overall analysis of CS integration tools should take a more holistic perspective on how the process of CS integration is incorporated (Hahn et al., 2015; Lozano, 2012). This chapter explores the contribution of tools in supporting companies with the process of CS integration into its organisational system. To understand these tools Section 4.2 contains an analysis of tools developed to support companies with the integration of CS, and discusses recent studies that aim to analyse the use of these tools in a corporate context. In analysing these CS integration tools we rely theoretically upon the integration-process perspective, as explained in Section 4.3. The resulting framework, as presented in Section 4.4, enables data gathering and analysis based on the integration process elements. The same section explains the operationalisation of this framework and, finally, introduces the three most prominent CS integration tools in professional and scientific publications. These three tools are analysed in Section 4.5 according to their integration support by the application of the framework. Section 4.6 discusses the findings in light of the literature of Sections 4.2, 4.3 and 4.4. The chapter finishes with conclusions and proposals for future research.

4.2 Tools to integrate Corporate Sustainability

Over the last decades, a large number of CS tools (for an overview of these tools see e.g. Baumgartner, 2014; Johnson and Schaltegger, 2015; Lozano, 2012; Robèrt et al., 2002) have been developed to support companies with integrating CS into their organisational system. CS integration

³ *Tool*. 2011. In Merriam-Webster.com. Retrieved April 15, 2016, from <http://www.merriam-webster.com/dictionary/tool>

tools provide necessary data for management decisions and inform companies' internal and external stakeholders about the impact of corporate processes on the triple P issues, the development of a corporate culture towards CS integration, and opportunities and risks (Baumgartner, 2014). Despite that most tools are identified using overarching terms (e.g. "management system") differences in setup (e.g. web-based or printed versions) and in application and scope (e.g. stand-alone tools or integrated tools), they have led to an evolution of a more integrative focus covering all triple P issues (i.e. environmental, social and economic; Johnson and Schaltegger, 2015). According to Kuhndt (2004) CS integration tools can be grouped into three categories:

1. **Tools for action**

Tools supporting companies to take action tend to make the link between corporate strategy and the core business activities on an operational level by integrating CS into the management control system (Engert et al., 2016): the physical and social dynamics (Vermeulen and Witjes, 2016) aimed at reducing the impact caused by a company's business operations. Creating action plans from CS strategy for each sustainability goal will demand employee engagement (Pojasek, 2012) to use these tools successfully. Since action tools lack an obligation for companies to set absolute targets for sustainability measures (Cramer, 1998), and managers at tactical levels lack strategic vision (Hahn et al., 2015), tools for CS action are not expected to fully support the integration of CS.

2. **Tools for analysis and evaluation**

Tools supporting companies to analyse and evaluate the company's CS performance are oriented towards the assessment of the supply and/or value chain of the product and/or services produced by the company (Searcy, 2016), or the level of CS integration into the organisational system (Vermeulen and Witjes, 2016).

3. **Tools for communication**

Tools supporting companies with the communication of their CS performance also support the strategy development process of the companies (Robèrt et al., 2002). This category of tool is mostly based on the back-casting process: by defining the desired future and looking at the current situation a possible path forward can be determined (Dreborg, 1996). Understanding the company's future vision in relation to CS and its current CS status is an essential focus of these tools (Baumgartner, 2014).

CS integration tools have been developed by a number of organisations and programmes (Robèrt et al., 2002). The resultant variation of setups and the foci of tools make them applicable to specific contexts, or specific sectors, or particular types of companies (Lozano, 2012). This variety of

specialised CS integration tools do not enable one tool to cover the broad range of triple P issues within a company's organisational system (Azapagic, 2003; Jamali, 2006), and has led to some confusion regarding the qualities and differences between various tools, and raised questions on how best to apply them (Robert et al., 2002). Consequently, the application of these tools may not necessarily lead to the CS integration support companies need (Doppelt, 2003a; Lozano, 2012; Siebenhüner and Arnold, 2007). With the nonexistence of a one-size-fits-all tool (Baumgartner, 2014; Jamali, 2006), research on CS integration tools is necessary to understand what support tools can offer companies willing to address the integration of CS into their organisational system (Hahn et al., 2015). Over the last 15 years, Robert et al. (2002), Lozano (2012), Baumgartner (2014) and Johnson and Schaltegger (2015) have been the main researchers trying to cover this gap by offering various insights into integrated analyses of CS tools. A summary of their research can be found in Table 12.

Authors	Summary	Analytical focus
Robert et al., 2002	This research maps essential elements for CS and documents how these elements related to the application of respective tools. The aim is to show how these tools relate to each other and build on each other when supporting CS integration.	This research divides the field of CS integration tools into 5 principle-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. Tools should support companies with a clear understanding and synergistic application of these levels for the process of CS integration to become more successful.
Lozano, 2012	This research provides an analysis of sixteen of the most widely used CS integration tools on how they contribute or address CS issues and the time dimension. For a successful integration, the tools should be applied and the organisational system.	The research compares the tools according to the organisational departments, triple P resulting in an alignment of all these departments.
Baumgartner, 2014	This research provides more insight into how a company can become more sustainable by the development of a management of the organisational structure: 1. strategic (top management), 2. tactical (middle management) and 3. operational (shop-floor) level. By adding the external and internal interrelated management levels. The research uses concepts dimension, the framework complements the framework used by Robert et al. (2002). For applied in business practice to understand the practical a successful integration, the tools should be applied resulting in an alignment of the levels perspective together with theoretical business instruments.	The research proposes a classification of CS integration tools according to the three levels of the organisational structure: 1. strategic (top management), 2. tactical (middle management) and 3. operational (shop-floor) level. By adding the external and internal interrelated management levels. The research uses concepts dimension, the framework complements the framework used by Robert et al. (2002). For applied in business practice to understand the practical a successful integration, the tools should be applied resulting in an alignment of the levels perspective together with theoretical business instruments.
Johnson and Schaltegger, 2015	This research discusses reasons why Small and Medium sized Enterprises (SME) should use CS integration tools and reveals that most tools are perceived to have little to no use in SMEs. Based on a list of key criteria for acceptance and application the internal and external criteria are discussed. Additionally, implications for future research, SME management, and public policy are drawn.	The research discusses the main barriers. Besides, facilitating barriers for using tools are identified.

Table 12 The main researches over the last 15 years contributing to the understanding of the support tools can offer companies with the integration of CS into the organisational system. The researches use different names for what, in this chapter, is referred to as tools

Although all the researchers mentioned in Table 12 take a different analytical perspective (i.e. Robert et al., 2002 - CS principal levels; Lozano, 2012 - the corporate system with its departments; Baumgartner, 2014 - organisational levels; Johnson & Schaltegger, 2015 - internal and external barriers) they generally conclude that since CS integration is specific for each organisation (Baumgartner, 2014; Lozano, 2012), each tool has advantages and disadvantages when it comes to the integration of the CS into any particular organisational system (Lozano, 2012).

Robèrt et al. (2002) conclude that, when planning the use of tools as a support for the integration of CS, an integrated and comprehensive strategic plan, and a systems perspective is often lacking. Besides, the activities in the organisation related to the corporate vision on CS are often selected and designed in an unclear way due to an equally unclear vision on CS. Although there is a growing awareness that proactivity is likely to improve CS integration (Baumgartner, 2014; Hahn et al., 2015), activities arising from the use of, mostly voluntary, CS integration tools rarely influence corporate decisions (Lozano, 2012). Lozano (2012) specifies procurement and marketing as the least addressed corporate departments when using tools for CS integration. With CS always being specific for each department within the organisational system (Baumgartner, 2014), companies are challenged to choose and implement a set of tools that is relevant to their particular situation to support CS integration (Johnson and Schaltegger, 2016).

To analyse whether the application and use of the tools leads to the integration support that companies need (Lozano, 2012), the researchers (Hahn et al., 2015; Lozano, 2012; Robèrt et al., 2002) emphasised the need to improve the understanding of how tools support the CS integration process by taking a more holistic perspective in which the process of CS integration is incorporated into an overall analysis of the tools. This corresponds with the need expressed by other CS integration researchers (e.g. Azapagic, 2003; Salzmann et al., 2005; Siebenhüner and Arnold, 2007; Weber, 2008) when demanding a more longitudinal research approach to highlight CS integration into the organisational system.

For example: Lozano (2012) analysed how CS tools address sustainability within the different elements of the organisational system (see Table 13): O&P (operations & production), M&S (management and strategy), OS (organisational system), P&M (procurement and marketing) and A&C (assessment and communication).

CHAPTER 4

CS integration tools	Sustainability				Elements of the organisational system				
	Issue 1	Issue 2	Issue 3	Time	O&P	M&S	OS	P&M	A&C
Tool 1									
Tool 2									
Tool 3									

Coding	
	Full contribution
	Limited contribution
	Variable contribution

Table 13 The analysis by Lozano (2012) on how CS tools address the different elements of the organisational system and Corporate Sustainability. The tools were scored full, limited and variable on addressing sustainability in the different organisational system elements.

The required more longitudinal research approach, highlighting CS integration into the organisational system, could be seen as an additional third perspective to Lozano’s analysis (see Figure 6): How do CS integration tools address sustainability (i.e. sustainability as the *first* perspective), within the organisational system (i.e. organisational system elements as the *second* perspective), by supporting the different elements of the integration process (i.e. integration process elements as the *third* perspective).

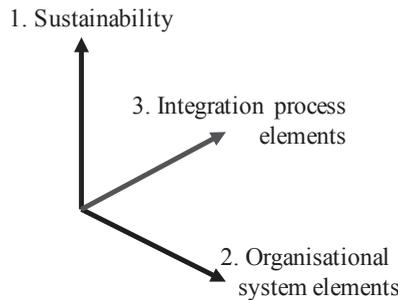


Figure 6 The three perspectives of the analysis of the support of tools for CS integration into the organisational system.

4.3 Corporate Sustainability integration

The integration of CS into the company’s organisational system demands learning from a continuous adjustment of the organisational processes in response to the ever-changing stakeholder demands on triple P issues (Hahn et al., 2015; Jamali, 2006; Maon et al., 2009). The interventions made to internal processes of the organisational system are aimed at adhering to the established corporate vision on CS (Vermeulen and Witjes, 2016).

Based on organisation theory and strategic management theory, an organisational system exists of rules, hierarchies and procedures that permit the organisation to engage in activities that are directly related to a set of goals as specified in the company’s vision statement (Hill and Jones, 2011;

Ravichandran and Rai, 2000). As a result of this vision, the company is linked to the demands of internal and external stakeholders resulting in a dependency relationship (Witjes and Lozano, 2016). With organisational activities having outcomes for stakeholders of the organisation, for the organisation itself, and for society (Tolbert and Hall, 2015), stakeholders have a considerable effect on the company's organisational system (Hienerth et al., 2011). To ensure compliance of organisational outcomes with ever-changing demands of internal and external stakeholders the organisational system must be adjusted accordingly. Continuous changes must be made to formalized and informal processes as part of the social dynamics (e.g. members and their relationships; (Linnenluecke et al., 2009)) and the physical dynamics (e.g. chemical and mechanical transformations; Scott, 2000), and their relationships within the organisational system (Epstein and Buhovac, 2010). Coordinated interventions by means of objects, activities or verbal expressions (Hatch and Cunliffe, 2013) aim for improving organisational processes by increasing the density of the relationships between the processes of the social and physical dynamics of the organisational system (Vermeulen and Witjes, 2016) in order to ensure compliance with stakeholder demands and the company's vision. Therefore, CS integration can be defined as the creation and sustaining of interventions leading to increased cohesion of the relationships between the social and physical dynamics of the organisational system and their impact on compliance with an established corporate vision on CS. As with the general corporate vision, the translation of the CS vision into interventions occurs through a learning process (Schein, 2010) achieved from gauging the success of the different interventions over time (Epstein and Buhovac, 2010), and is key to a successful integration of CS (Siebenhüner and Arnold, 2007). The continuous learning cycle of CS integration interventions entails the permanent improvement of the identification and control of the integration of CS into both the social and physical dynamics of the organisational system (Epstein and Buhovac, 2010; Vermeulen and Witjes, 2016).

4.4 Proposing a framework for understanding the support of tools for Corporate Sustainability integration

As corporate learning approaches differ widely, the following questions arise: When and why do companies pursue processes of learning and change to integrate CS; what effects does this integration have, and to what extent; and, what factors promote or inhibit learning of CS integration (Siebenhüner and Arnold, 2007). Consequently, an understanding of the outcomes of the process of CS integration (what are the outcomes of the intervention activities?), the overall goal of the company with the integration of CS (what does the company want to achieve with the integration of the vision?), and the triggers motivating the company to integrate CS (why does the company wish to integrate the vision; Rauter et al., 2015) is needed to understand the overall CS integration process (Baumgartner and Korhonen, 2010). Moreover, a selection of integration objects, activities or verbal expressions (Hatch and Cunliffe, 2013) will show how the company's vision on CS is integrated.

CHAPTER 4

The following must be taken into consideration: (1) distribution of the impact (how does the intervention change the organisation and its impact on triple P issues?); (2) outcomes of the interventions throughout the organisation, supply chain, or in society (where does the integration take place and have its impact?, (Searcy, 2016)); and, (3) the time dimension (when does the intervention take place and have its impact?). These considerations complete the integration process perspective (Zott and Amit, 2010). The resulting 6 integration process elements (What; Vision; Why; How; Where; and When) represent questions that, therefore, have to be asked to understand the potential contribution of a tool to the integration of a corporate vision into the organisational system (see Table 14).

Integration process element	Supporting questions
What?	What are the intended outcomes of the integration into the organisational system?
Vision	What does the company want to achieve with the integration? What is the company's end goal with the integration?
Why?	Why does the company want to integrate the vision? What are their motives?
How?	What intervention activities are needed for the integration?
Where?	Where does the intervention activity take place or how is the impact of the intervention and its outcomes distributed throughout the organisation, the supply chain, or in society?
When?	When does the intervention take place, and its impact occur?

Table 14 The integration process elements to understand the integration process of a company's vision into its organisational system.

To contribute to the understanding of how the support tools deliver for companies when integrating CS into the organisational system, this chapter proposes a framework using the integration process elements as a basis for the analysis of tools (see Table 15), instead of taking an analytical focus on organisational system elements, or the development of new management concepts (as in the case of e.g. Robert (2002), Baumgartner (2014), and Lozano (2012)).

CS integration tools	Integration process elements					
	What	Vision	Why	How	Where	When
EMS						
LCA						
SR						
etc.						

Table 15 The integration process elements to analyse the support tools deliver to companies when integrating CS into their organisational system.

4.4.1 Application of the framework

To provide insights into the support of CS integration offered by the different tools, the framework was constructed based on the integration process elements (see Table 15), with their specific guiding questions. The CS integration tools are analysed in a comparative way: scientific and professional literature on a specific tool was collected, analysed and interpreted to describe each integration process element. As Smith and Osborn (2008) suggest, the comparison of literature leads to the understanding by interpretative analysis of the role of the tool in the CS integration process. We illustrate this with three selected tools (see Section 4.4.2.). In most cases, clear answers and descriptions were given. However, in some cases the authors of literature on the selected tools did not elaborate on specific integration process elements and thus the description was based on interpretations of the underlying philosophy supporting each tool, and the mind-set of the originator(s).

4.4.2 Selection of CS integration tools

The most prominent CS tools mentioned in selected professional and scientific publications are summarized in Table 22 in Appendix 1 on page 88. This overview is based on an analysis of the appearance of CS integration tools from the results of our search with four internet search engines: Web of Science; Scopus; Google Scholar; and, Google web search. The tools were taken from four prominent papers (i.e. Baumgartner, 2014; Johnson and Schaltegger, 2015; Lozano, 2012; Robèrt et al., 2002)⁴ covering 15 years of CS integration tool analysis. By providing analyses of the qualities, differences and linkages (Robèrt et al., 2002) of widely used CS integration tools (Lozano, 2012), these researches contribute to the understanding of the support of these tools for management

⁴ Robèrt et al., 2002; Lozano, 2012; Baumgartner, 2014; Johnson and Schaltegger, 2015 use different names for what, in this chapter, is referred to as tools: Robert et al. (2002): tools; Lozano (2012): initiatives; Baumgartner (2014): instruments; Johnson and Schaltegger (2015): tools.

CHAPTER 4

decisions related to the integration of CS into the organisational system (Baumgartner, 2014). The appearance of a tool in the search engines shows the attention and importance for specific tools as a support for the integration of CS within the organisational system. This selection is not claimed to be complete but rather symbolises the range and importance of existing CS integration tools. The analysis shows that the most prominent CS integration tools are (see Table 17 in the Appendix of this chapter): Environmental Management System (EMS); Life Cycle Assessment (LCA); and, Sustainability Reporting (SR), and they are analysed according to their integration support by the application of the framework.

Environmental Management Systems (EMS)

EMS are administrative tools aimed at assessing the environmental impact of organisations in order to improve their environmental performance (Robèrt, 2000). With an evolution into a more integrative management perspective, EMS has opened new possibilities to explore integrative management systems (IMS) (Asif et al., 2011; Panagiotakopoulos et al., 2016), covering triple P issues simultaneously (Azapagic, 2003a).

When the broader CS principles and activities of EMS are put into a relevant administrative context, this allows for a guide to the planned EMS activities to integrate CS. These activities, in turn, are monitored, audited, and evaluated in order to direct and manage the continuous improvement cycle of activities captured by EMS (Pojasek, 2012; Robèrt et al., 2002). This means that for EMS to be useful as a tool for CS integration, the objectives coming from the CS vision need be incorporated into the structure of the EMS (Curkovic and Sroufe, 2011).

Life Cycle Assessment (LCA)

A LCA refers to the impact evaluation of processes in the life cycle of a product or service, ranging from downstream to upstream, including the use phase (DeSimone and Popoff, 1997). With the definition of the goal and scope as an ongoing activity during a LCA, the impact evaluation is primarily focused on quantifiable information that can help in the decision-making process (Hale, 1996). LCA is often used to compare products with equivalent functions, or to determine opportunities for improvement of the overall environmental impact of a specific product or service (Robèrt, 2000). Besides, the application of lifecycle techniques generally refers to physical products, and adopts the single company perspective (Peruzzini et al., 2013). With the development of Social Life Cycle Assessment permitting the inclusion of the social issues (Weidema, 2006), and the addition of Life Cycle Costing, LCAs can be used for CS decision-making by quantifying impacts of the life cycle of a product and/or service on more than just one of the triple P issues simultaneously (Azapagic, 2015; Kloepffer, 2008).

Sustainability Reports (SR)

The production of a SR is a voluntary activity to assess and report on the efforts and progress of addressing the organization's economic, environmental and social issues, and to communicate the outcomes to their stakeholders (OECD, 2002). With the assessment including ethics, environmental and/or social issues, a SR does not just focus on the corporate governance sections of Reports. A SR evaluates whether companies address the supervision of strategic management in relation to sustainability, codes of ethics and complaints procedures. With the possibility for companies to choose for an external audit of their SR, the reliability of the CS assessment can be confirmed (Kolk, 2008).

4.5 Illustration of the framework with three CS integration tools

The CS integration tools EMS, LCA and SR are analysed using each integration process element of the framework. This section ends with a synthesis of the findings.

4.5.1 What?

The scope of support SR offers companies, ranges from assessing triple P issue performance to guiding the development of the CS strategy. By forcing companies to assess their triple P issue performance (GRI, 2011) and comply with stakeholder requirements over time, SR also supports companies to continuously improve their CS performance (GRI, 2011; IIRC, 2014). Consequently, SR could contribute to the incremental redesign of the organisation and its activities towards all triple P issues. SR is a tool to assess the state of the organisation's triple P issues and to communicate these efforts and progress (Lozano and Huisingh, 2011) and, consequently, has the potential of becoming a tool that supports the company on strategic matters as well.

EMS supports organisational activity improvement through awareness creation aimed at reducing environmental impact. EMS is based on the continuous improvement of business activities constituted by interlinking the plan, do, check and act stages (ISO, 2009; Pojasek, 2012). The reduction of environmental impacts of these activities requires high employee participation and training resulting in increased environmental awareness. Despite a correct application of EMS, it is difficult to attribute environmental improvements directly to the certification of an EMS (Morrow and Rondinelli, 2002b).

LCA is applied to define impact improvement actions at product or process level, whether short term or long term depending on the scope chosen by the company itself (Goedkoop et al., 1998). Consequently, LCA contains a technological orientation through the assessment of the processes constituting the life cycle stages. The initial product data scope can be increased with full life cycles of other materials that are used for making the product or service (UNEP/SETAC LCI, 2009). The identification of the most significant impacts on triple P issues is used for decisions on system

CHAPTER 4

improvements or redesign (Azapagic, 2010), and is characterized by its complexity due to wide and far-reaching impacts and the close links between the triple P issues throughout the product's life cycle or in society (Azapagic, 2010; Vermeulen and Witjes, 2016). Moreover, it contributes to the transparency and accountability necessary to define the company's efforts to contribute to the sustainable development of society.

In summary for the "what" element: with SR covering all three triple P issues, LCA and EMS principally focus on environmental issues, with the potential to focus on all three triple P issue. The three tools relate in their CS integration support to different business activity improvements: where SR supports at the strategic level, and EMS demands participation, training and awareness, LCA is used to support the decision-making processes. Therefore, it is up to the company to choose the scope of the support.

4.5.2 *Vision*

The company's CS vision can be improved by applying SR with an integrated focus on all triple P issues. SR is a voluntary tool used to assess and to communicate the company's efforts and progress on the current state of a company's triple P issues (Lozano and Huisingh, 2011). With the scope of the report being limited to the organisation, the coverage of the triple P issues mentioned in the report has been developing from an original single issue focus (i.e. environment), towards a broader and more integrated issue focus, to include ethical/social and financial issues (Kolk, 2008). This is confirmed by the current discussions on Integrated Reporting (IR) (IIRC, 2014). Companies confirm that significant changes were made to their CS vision after the analysis of measurements from past CS performance, thanks to the use of IR (IIRC, 2014).

EMS gives the company freedom in defining the scope of their single issue (i.e. environment) CS vision. As with SR, EMS is also a voluntary tool although supply chain actors tend to require certified EMS for doing business. It focuses on the structure, implementation and maintenance of a formal single issue management system: the environmental impact of the company's activities (Curkovic and Sroufe, 2011). The definition of these activities depends on the scope set by the company and, when certified, included in the EMS certificate (ISO, 2004). This scope can range from a single process, or business unit, to the entire organisation, even extending towards multi-site certification covering more than one company.

LCA has the potential to support the complete triple P issues within the corporate CS vision for its products and processes, although LCA originally was a single-issue (i.e. environment) tool for the optimisation of products and processes. With recent developments showing that the scope has been broadened to include social and economic issues, allocation problems are still to be resolved before getting to a full sustainability LCA tool (Azapagic, 2015; Croes and Vermeulen, 2015). Moreover, LCA has been primarily applied to define impact improvement actions at product or process level

on the short, or long, term depending on the scope chosen by the company itself (Goedkoop et al., 1998).

The “vision” element in summary: all three tools support the company’s CS vision, but differ in covering the triple P issues in this support. The company has to take an active role by determining the scope of these triple P issues of its CS vision.

4.5.3 *Why?*

SR supports the company with the motives for CS integration from a stakeholder perspective. Because SR is a tool backed up by accounting principles (Adams and Frost, 2008; Kolk, 2008), companies tend to apply it to communicate the efforts and progress on quantitative indicators to their stakeholders. The development of guidelines for Integrated Reporting (IR) includes shared value principles; i.e. “new approaches to value creation and decision making require organisations to assess their performance in new ways” (IIRC, 2014, p. 5). Due to this market oriented view, companies applying SR strive to increase transparency and accountability (Ioannou and Serafeim, 2011; Kolk, 2008). Therefore, stakeholder inclusiveness, as one of the SR guiding principles, motivates the reporting company to identify stakeholders and communicate compliance with stakeholder requirements (GRI, 2012).

Many companies use EMS to satisfy stakeholder needs, although EMS could support a company developing an intrinsic motivation for integrating CS. EMS supports companies to improve the environmental impact of their activities and to demonstrate sound environmental management (ISO, 2009). The use of EMS can lead to improved organisation and documentation of the activities that generate an environmental impact, increased certainty of legal compliance, a better company image, and increased employee motivation (Morrow and Rondinelli, 2002b). Although the number of EMS certificates could indicate successful CS integration, Witjes et al. (Witjes et al., 2016) concluded that the management system itself is not always used as a support for CS integration. In the latter, the adoption of EMS is a paper-driven process of limited value (Curkovic and Sroufe, 2011) and is used to comply with external stakeholders’ requirements or to get access to environmentally advanced processes (Granly and Welo, 2014), instead of coming from an intrinsic motivation to contribute to the sustainable development of society.

LCA supports the company with the motive to integrate CS from a product life cycle process perspective. While using an integrative impact assessment, LCA is aimed at understanding the impacts of human interactions with the environment through the identification and quantification of environmental impacts of processes constituting the life cycle (i.e. cradle to grave) of a product or service (Azapagic, 2010; UNEP/SETAC LCI, 2009). Consequently, the motives for executing a LCA can differ from assessing the impact on triple P issues through the interpretation of

CHAPTER 4

improvement options for product design or process optimisation, to product labelling (Azapagic, 2010).

The “why” element in summary: the three tools differ on supporting a company with their motives on CS integration. With motives varying from an external towards internal stakeholders, the tools permit intrinsic CS integration motivation as well as the motivation of others.

4.5.4 *How?*

The success of SR lies in the hands of a single person or limited group of persons, mostly positioned at the top of the organisation or serving a staff function with a direct link to the board of the company (Cooper and Owen, 2007; Kolk, 2008). Initially it can be the case that top positions drive the reporting process (i.e. top-down), but by using the input of employees formerly related to SR, SR can initiate sustainability improvement processes throughout the company (IIRC, 2014). The application of SR is a gradual improvement process coordinated from the top down, and often linked to the publication frequency of the general annual report of the company (Adams and Frost, 2008). Although the goal of an SR is to strive for continuous improvement (GRI, 2011), this publication frequency results in a gradual improvement of the integration of CS.

The use of EMS is a systematic, formal and top down process for identifying and managing environmental impact improvements throughout the organisation (ISO, 2004). To apply an EMS, the company should assign the responsibility for reaching set objectives and targets for all relevant functions, 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 (Curkovic and Sroufe, 2011). Consequently, an EMS requires high employee participation and training (Azapagic, 2003a) guided by a top management’s commitment (Granly and Welo, 2014).

A LCA needs bottom up data to support top down strategic decisions to improve the impact of specific processes. The application of LCA is possible when people at the shop-floor and middle-management levels gather and analyse the large amounts of data (Azapagic, 2010) necessary to create the basis for interpreting and taking decisions at strategic level (Buxel et al., 2015). To enable the interpretation of life cycle data and assessment outcomes, an understanding of triple P issues and life cycle stages (i.e. Life Cycle Thinking) at all participating levels of the organisation is a prerequisite.

The “how” element in summary: the three CS tools are complementary on the integration direction, where SR is a tool merely for top management; while EMS needs a top-down approach to manage improvements in the whole organisation. On the other hand, LCA can be executed from the bottom up and affects only limited parts of the company. Besides, the three tools differ in their improvement support of the three bottom-line issues, where the application of a LCA enables a one-time

improvement, and SR, based on the yearly reporting scheme, supports gradual improvement, while EMS can support continuous improvement of the triple P issues, but could already be satisfied with yearly minimal steps forward.

4.5.5 *Where?*

The development of a SR needs people selected from within the organisation leading to outcomes applicable for a broad group of people. SR outcomes can be used for the internal improvement programmes, or disclosed information can help related stakeholders to focus their decisions, without adversely affecting the company's shareholders (Ioannou and Serafeim, 2011). Although a select group of people will take responsibility for developing and publishing a SR, the impact of the outcomes can be used by a broad range of internal and external stakeholders (Kolk, 2008).

By defining the EMS scope, the company determines the impacts of its development and outcomes. The dedication of a selected group of people is necessary when the company aims for an EMS certificate. Only when the organisation wants to get maximum results out of the application of an EMS, then all levels of the company should support its development and maintenance (Curkovic and Sroufe, 2011). The crucial elements for the continuous improvement of the environmental impact of business processes will be defined (Pojasek, 2012) by setting the scope of the EMS which can vary according to the sector and the geographical context of the company (Curkovic and Sroufe, 2011).

As with EMS, the definition of the impacts of the development and the outcomes of an LCA depends on the definition of its goal and scope. Although setting the goal and scope for a LCA is open to the company, it depends on the company's needs what part of the life cycle will be assessed (UNEP/SETAC LCI, 2009). The scope of the tool itself has been increasing from the assessment of environmental and economic issues towards including social issues. By doing so, LCA enables a contribution to the full assessment of products and services within the scope of CS. Consequently, this increase in the number of issues also results in a larger group of stakeholders to engage with (Benoît et al., 2010), both internal and external to the company. For the internal organisation, this broader scope of issues needs fundamental internal changes in culture and structure (Azapagic, 2010).

The "where" element in summary: the distributed impacts of integration for the organisation, value chain, or society of the three tools depends, in all three cases, on the goal and scope definitions set by the company. Where SR mainly focuses on external stakeholder demands, the focus of an EMS can be on both internal and external stakeholders, as is the case with LCA. SR and LCA need the backing of a selected group of people within the company. This selection is related to the goals and scope definitions set by the company. With EMS ideally needs support from everyone within the

CHAPTER 4

organisation, the company's goal and scope definitions could result in only a select number of people being needed to support EMS.

4.5.6 *When?*

SR has a double time-focus by looking retrospectively at the triple P issue performance in support of decisions for a CS vision, and actions for the future. With SR entailing the measurement and disclosure of business activity performance on the triple P issues, the application of SR enables a company to be accountable towards stakeholders and improve their contribution to the sustainable development of society (GRI, 2011). Past performances of processes on the triple P issues are measured over the period of the report, usually one year. By analysing and comparing more than one report, a continuous performance assessment can be achieved. SR is, therefore, becoming a tool for companies for long-term CS planning and development (Lozano and Huisinigh, 2011)

As with SR, EMS also has a double time-focus; the continuous improvement cycle of an EMS ensures that companies are aware of the past when establishing strategies and policies for future improvements of the company's environmental impact (Pojasek, 2012)). Although EMS enables a company to take advantage of long-term benefits, daily challenges can impede this (Curkovic and Sroufe, 2011)). Therefore, knowledge of the organisation's historical development and current situation and its processes is required to develop and apply an EMS.

With LCA assessing the present environmental performance with a view to performance improvements in the future, LCA also supports a back casting process aimed at reaching a total reduction of material flow (Robèrt et al., 2002), when the quantitative assessment of the environmental impacts of business activities is complemented by the qualitative perspective of Life Cycle Thinking. When combined with an EMS, LCA can lead to continuous improvement of the processes and the organisation (ISO, 2009).

The "when" element in summary: SR and EMS need a retrospective analysis (i.e. looking backwards) of the triple P issue impacts as a basis for CS vision and future actions. With LCA being a back casting (i.e. looking forwards) tool for assessing the present impact of specific processes, the combination with Life Cycle Thinking awareness-creation at all levels of the organisation can create a basis for SR or EMS resulting in a CS integration process in which the company defines its future strategy on CS integration, based on learning from past successes of CS integration.

4.5.7 *Synthesis*

The three tools support companies with the integration of CS in different and, for some activity elements, complementary ways. With all three tools encouraging companies to have a clear vision of what they want to achieve with the application of the tool on the strategic level of the organisational system, the scope of support (i.e. "what" element) of each tool on achieving outcomes

on triple P issues is different; for example, where LCA and EMS support a company in adopting a vision on primarily environmental issues, SR gives a company the choice for indicators of all three triple P issues. Recent developments of LCA (i.e. towards sustainability life cycle assessment) and EMS (i.e. towards CS or integrated management systems) enable companies to cover the triple P issues as well. Therefore, it is up to the company to decide the scope of the outcomes of the integration of CS.

All three tools are complementary when it comes to their support of the company’s purpose for the integration and the integration approach (i.e. “why” element). With motives varying from external to internal stakeholders, the three tools permit intrinsic CS integration motivation as well as the motivation of others to affect the integration of CS. For example, in the goal and scope phase LCA demands the company to define whether CS integration is for internal or external purposes. With SR and EMS demanding a top down approach of integration (i.e. “how” element), LCA can also be executed from bottom up. In the latter case, LCA and SR only need specific departments or people, mostly managing the needed data, of the company to participate, while EMS ideally needs the participation, training and awareness of all people in the organisation for the integration of CS. Therefore, the effect of CS integration in the organisational system (i.e. “where” element) depends in all three cases on the definition of the goal and scope of the integration as defined by the company. As with the integration purposes, the three tools are also complementary from an integration time perspective: with LCA being a tool for assessing the present quantitative impact of specific processes leading to a one-time improvement, SR and EMS need an analysis of the past impacts on triple P issues, leading, respectively, to a gradual and continuous improvement as the basis for CS vision and future actions. With EMS and SR supported by a retrospective analysis of the CS performance for the company, LCA as a back-casting tool when extended with Life Cycle Thinking awareness creation at all levels of the organisation, can complement SR or EMS. Therefore, the combined use of the three tools while integrating CS is to be recommended over the use of just one of the tools.

CS integration tools	Integration Process Elements					
	What	Vision	Why	How	Where	When
EMS						
LCA						
SR						

Coding	
	Full contribution
	Limited contribution
	Variable contribution

Table 16 The analysis of EMS, LCA and SR and their support of the integration process of CS into the organisational system according to the six integration process elements. Coding is done according to Lozano (2012) (i.e. full, limited and variable contribution) and is based on the findings described in this section.

CHAPTER 4

As can be seen in Table 16, only EMS has the potential to contribute in variable or full modus to the integration of CS. LCA and SR have their limitations in supporting CS integration with the vision-element and why-element (both due to the environmental focus of LCA and the focus on quantitative data of both tools), and when-element (while both tools are not operational planning or management tools). Applied together, EMS, LCA and SR have the potential to contribute fully to almost all integration process elements and therefore, cover almost the full integration process, emphasising the need for a combined use of the three tools. Before the application of the tools a proactive and critical input of the company itself is needed to decide what to focus on (i.e. the scope of the CS vision and the interventions into the organisational system).

4.6 Discussion

With the six integration process elements covering the factors proposed by several authors (e.g. Siebenhüner and Arnold (2007) and Zott and Amit (2010)) to promote learning about CS integration, the framework in this chapter contributes to the understanding of CS integration by taking a comparative approach emphasising how tools support the integration process (Hahn et al., 2015; Lozano, 2012; Robèrt et al., 2002).

The three tools analysed support motives for integrating CS coming from either internal or external stakeholders. With these motives being either internally or externally driven (as discussed by Rauter et al. (2015)), and differing in their outcomes for members of the organisation, the organisation itself and for society (as mentioned by Tolbert and Hall (2015)), the support for a suitable company response should come from a tool that fits the organisational system of the company (as emphasised by Epstein and Buhovac (2010)) and its CS integration motives. The three tools analysed show potential complementarity based on their differences in CS integration support, confirming the need to use several CS integration tools, as concluded by Jamali (2006) and Baumgartner (2014).

Firstly, EMS has the potential for supporting the continuous improvement of the density of the relationships between the organisational, social, and physical dynamics (as specified by Vermeulen en Witjes (2016)). LCA and SR mostly support strategic levels of the organisational system with, respectively, one-time or gradual improvement approaches aiming for an enhancement of the outcomes of the integration process (as defined by Hatch and Cunliffe (2013)). With LCA as the action tool on a tactical level potentially lacking an obligation to set absolute targets on the strategic levels for sustainability measures (as concluded by Cramer (1998)), and SR as the communication tool supporting policy development at strategic corporate level (according to Robèrt et al., 2002), the combined use of both tools could support sustainability impact improvements at both levels. Secondly, the retrospective basis of SR and EMS entails the joint learning process (as discussed by Edgar H. Schein (2010)) about the success of intervention activities (as concluded by Epstein and

Buhovac (2010)) such as are necessary for the translation of the CS vision into actions. This critical analysis of past CS integration activities forms the basis for the selection of the tools for future CS integration activities. With LCA being based on a back-casting approach (i.e. measure current impact to set future improvement targets), the combined use of EMS, SR and LCA could support closing the gap between top management CS strategy development and determining related actions by middle managers at tactical level (as indicated by Hahn et al. (2015)). Thirdly, the tools show a different integration direction, ranging from top-down (e.g. SR) towards bottom up (e.g. LCA), contributing to the cohesion of, especially, the social relationships within the organisation (as emphasised by Epstein and Buhovac (2010)). Fourthly, the tools differ in their coverage of the triple P issues in both the vision and the outcomes, as well as where the intervention activity should take place (as was concluded by Baumgartner (2014) and Lozano (2012)). Consequently, the use of only one of these tools does not lead to the needed density of the relationships between the organisational, social, and physical dynamics as was emphasised by Hatch and Cunliffe (2013). Fifthly, with the inter-linkages between the triple P issues (as proposed by (Lozano and Huisingh, 2011)) being necessary for the required cohesion of the relationships between the physical and social dynamics and their impact on the outcomes of the organisation (as proposed by Putnam (2000)), the support of more than just one of the illustrated tools is necessary. Finally, companies should proactively and critically define the scope of the processes to be analysed (as indicated by Robert et al. (2002)), and the distribution of the impacts of the execution and outcomes over the organisation, supply chain, and society (as discussed by Hahn et al. (2015)) as a necessary preparation for choosing suitable tools for supporting CS integration.

4.7 Conclusions

Integration of CS entails identification and coordination leading to increased cohesion of the relationships between the social and physical dynamics of the organisational system and their impact on compliance with an established corporate vision on CS. With the translation of this CS vision into future activities occurring through a joint learning process of past and present intervention activities, the continuous learning cycle of CS integration entails the permanent improvement of the identification and coordination of the intervention into the social and physical dynamics of the organisational system.

To contribute to the understanding of CS integration into the organisational system this chapter explores the contribution of tools in supporting companies with the process of CS integration into their organisational systems, and proposes a framework based on 6 integration process elements (i.e. What, Vision, Why, How, Where, and When). When applying the integration process elements from an analysis of the most prominent CS tools mentioned in selected professional and scientific publications, a potential complementarity between the tools is indicated due to several differences

CHAPTER 4

in their CS integration support (i.e. different support of improvement approaches (i.e. one-time or gradual improvements)), use at different organisational levels (i.e. strategic versus tactical), developmental perspective (back casting versus retrospective), integration direction (i.e. top-down versus bottom-up), and coverage of the triple P issues). With all three tools demanding a clear CS vision, the support of each tool for achieving the desired outcomes on triple P issues is different. Where the triple P scope of LCA and EMS is limited to environmental issues, SR covers all issues.

These differences and potential complementarity between the three tools emphasises the need for choosing both determining the goal and scope of their vision on the triple P issue outcomes of the integration of CS, and the intervention in the physical and social dynamics of the organisational system. Consequently, the company itself should still be proactive and critical in defining the scope of triple P issues, and about where in the organisation the interventions are needed.

Suggestions for further research

To further explore the process of CS integration by companies, the analysis on integration support should be extended to include more CS integration tools. Besides, the use of CS integration tools in companies should be analysed in practice by using the six integration process elements. With a retrospective analysis of the use of tools for CS integration as a basis for determining strategies on the future support of tools (Baumgartner, 2009; Dunphy et al., 2006; Robèrt et al., 2002), it is suggested that the use of tools to support CS integration should also be explored retrospectively by means of longitudinal empirical research.

Appendix of Chapter 4 - Analysis of CS integration tools

Table 17 presents an overview of the most prominent CS tools, based on tools mentioned in literature on CS integration (i.e. Baumgartner, 2014; Johnson and Schaltegger, 2016; Lozano, 2012a; Robèrt et al., 2002) with their appearances in four internet search engines: Web of Science, Scopus, Google Scholar and Google web search. The search was performed by using the term “corporate sustainability” and the tool name between quotation marks. For example, for the tool life cycle assessment the search was: “corporate sustainability” AND “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/>): without specifications.
- Google web search (<https://www.google.com/>): without specifications.

As can be seen in Table 17, the tools are grouped into three categories according to Kuhndt (i.e. 1. tools for action, 2. tools for analysis and evaluation, and tools for communication; 2004) and were ordered according their appearances in the four web searches. For the illustration of the framework in this chapter we selected the three highest scoring tools (for each category one) that were mentioned in at least three of the four articles (see Table 17 column seven “sum of articles”). This resulted in a selection of Environmental Management System (EMS) for the tools for action, Life Cycle Assessment (LCA) for the tools for analysis and evaluation, and Sustainability Reporting (SR) for the tools for communication as the tools to be used for the illustration of the framework proposed in this chapter.

CHAPTER 4

Kuhdt (2004) categories	CS integration tool	Mentioned in article					Appearances of tools in web searches				Average overall ranking
		Robert et al., 2002	Lozano, 2012	Baumgartner, 2014	Johnson & Schaltegger, 2015	Sum of articles	Web of Science	Scopus	Google Scholar	Googe Web Search	
	Policy					1	65	110	21500	917000	1
	Environmental management system	1	1	1	1	4	17	49	5900	101000	7
	Supply chain management				1	1	32	39	4250	89900	9
	Corporate citizenship		1			1	4	8	6880	59000	10
	Cleaner production	1	1	1		3	8	8	4930	23000	14
	Eco efficiency		1		1	2	14	18	4010	23000	15
	ISO 26000		1			1	6	4	1920	30100	21
	Industrial ecology		1			1	4	6	2120	12800	22
	Sponsoring			1		1	0	0	1520	53100	25
	Ecodesign/Design for the environment		1	1		2	2	1	854	38500	27
	Sustainable technology development	1				1	0	0	902	35200	29
	Better business plan				1	1	0	0	870	33404	30
	Green chemistry		1			1	1	8	344	23500	32
	European corporate sustainability framework		1			1	9	10	232	1030	33
	The natural step	1	1			2	0	2	657	14900	34
	CSR management				1	1	0	3	729	5260	36
	Natural capitalism	1				1	0	0	640	4090	37
	Sustainable livelihoods		1			1	0	0	349	9440	38
	Zero emission	1	1	1		3	0	0	279	11800	39
	Incentive systems			1		1	0	1	340	3960	42
	Employee volunteering			1		1	0	0	322	4180	43
	Factor X	1	1			2	0	0	265	2350	44
	Environmental shareholder value			1		1	0	1	193	1310	45
	Green engineering		1			1	0	0	173	3470	46
	Quality circle			1		1	0	1	53	953	47
	Sustainability evaluation and reporting system (SERS)				1	1	0	1	54	364	48
	Ecological rucksack	1	1			2	0	0	41	179	51
	Employee suggestion system			1		1	0	0	9	154	54
	Efficient entrepreneur calendar				1	1	0	0	5	45	57
	Education				1	1	21	24	15800	1330000	2
	Corporate social responsibility		1			1	138	167	16900	226000	3
	Balance				1	1	11	20	11700	176000	5
	Triple bottom line		1			1	29	58	8980	54400	6
	Benchmarking				1	1	13	25	4500	64500	11
	Controlling			1		1	3	4	5280	65700	12
	Audits				1	1	1	15	4340	85700	13
	Life cycle assessment	1	1	1	1	4	12	14	2520	26100	17
	(Sustainability) balanced scorecard		1		1	3	12	16	2420	18600	19
	Key performance indicators			1	1	2	10	9	2040	28200	20
	Budgeting			1		1	1	1	1070	90100	23
	Ecological footprinting	1				1	7	8	1640	13800	24
	Risk analysis			1		1	1	1	881	56300	26
	Environmental cost accounting		1	1	1	3	1	6	1060	10800	28
	Checklists		1			1	0	1	553	21000	35
	Scenario analysis					1	0	0	330	8150	41
	Sustainability assessment for enterprises				1	1	0	0	45	322	49
	Cross impact analysis			1		1	0	0	42	222	50
	Eco mapping				1	1	0	0	33	185	52
	EPM-KOMPAS				1	1	0	0	28	181	53
	Corporate environmental information systems			1		1	0	0	10	6	55
	VerDEE				1	1	0	0	6	23	56
	Total material flow	1				1	0	0	5	6	58
	Material inputs per unit of service		1			1	0	0	3	3	60
	Environmental investment accounting			1		1	0	0	2	3	61
	Sustainability reporting	1	1	1	1	3	75	126	8140	125000	4
	Dialogue				1	1	10	18	7010	109000	8
	Networking				1	1	2	2	3220	107000	16
	Labels			1		1	6	6	2750	41300	18
	Public-private partnership				1	1	2	3	640	34100	31
	Eco labelling		1			1	0	0	417	3420	40
	Dialog instruments			1		1	0	0	5	5	59

Table 17 Appearance of CS integration tools in web searches (21 February 2016)

Successful and well-considered interventions in the social dynamics of the organisational system are necessary to adjust the physical dynamics resulting from adherence to a strategy on Corporate Sustainability.





Chapter 5

Towards a more Circular Economy:
Proposing a framework linking sustainable
public procurement and sustainable business
models

This chapter is based on the article published as Witjes, S., Lozano, R., 2016. Towards a more Circular Economy: Proposing a framework linking sustainable public procurement and sustainable business models. *Resources, Conservation and Recycling* 112, 37–44.

Previous versions of this paper were presented at:

21st Annual International Sustainable Development Research Society (ISDRS) Conference, 10-12 July 2015, Geelong, Australia

Sustainable development workshop, 24-25 June 2016, Monash University Prato Centre, Prato, Italy
International Multidisciplinary Scientific Geoconference SGEM Vienna Green, 2-5 November 2016, Vienna, Austria

European Union Circular Procurement congress; The Next Step, 20-22 April 2016, Amsterdam, The Netherlands

Abstract: *Sustainability aims at addressing environmental and socio-economic issues in the long term. In general, the literature on sustainability has focused mainly on the environmental issues, whereas, more recently, a Circular Economy has been proposed as one of the latest concepts for addressing both the environmental and socio-economic issues. A Circular Economy aims at transforming waste into resources and on bridging production and consumption activities; however, there is still limited research focusing on these aspects. This chapter addresses the link between procurement and supply practices, and proposes changing from a traditional public procurement process, based on product-selling business models, to a more service-oriented system. The chapter proposes a framework to include technical and non-technical specifications of product/service combinations that improve resource usage efficiency through recovery. The framework also considers socio-cultural specifications and physical and social proximity between the stakeholders in the procurement process. The framework is based on collaboration, which is a vital link between the public procurement process and the development of more sustainable business models, where the experience gained in the collaboration process serves as the bases for suppliers and procurers in improving their contribution to CE, whilst at the same time securing economic benefits for both parties. Although, in this process, the specification setting may take longer, the relationships between procurer and supplier tend to be longer lasting and stronger. This research shows that collaboration between procurers and suppliers throughout the procurement process can lead to reductions in raw material utilisation and waste generation, whilst promoting the development of new, more sustainable, business models.*

5.1 Introduction

Sustainability is aimed at addressing environmental, and socio-economic issues of this and future generations (Hopwood et al., 2005b; Lozano, 2008; WCED, 1987b). In general, the sustainability literature has focused on environmental issues (e.g. Atkinson, 2000; Costanza, 1991; Rees, 2002; Reinhardt, 2000); although, a number of authors have highlighted the importance of balancing the sustainability issues (i.e. economic, environmental, and social; Elkington (1998)), and the time dimension, as well as their inter-connections (Lozano, 2008) through a holistic perspective (see Escobar, 1999; Hjorth and Bagheri, 2006). The concept of the Circular Economy (CE) has become one of the most recent proposals to address environmental sustainability (Murray et al., 2015). This is done through addressing economic growth, while at the same time considering the shortage of raw materials and energy (Yuan et al., 2008), as well as a new growing business construct (Murray et al., 2015). CE⁵ is based on ‘closing loops’ through different types and levels of recovery (Yong, 2007; Yuan et al., 2006) by transforming material into useful goods and services through resource

⁵ The concept of CE has been used since the 1930s in its original conception by Leontief (see Leontief (1928)); however, discourses relating it to environmental issues are recent, such as research in China and the Ellen McArthur foundation (Naustdalslid, 2014), CE still lacks a thorough definition.

efficiency (Klettner et al., 2013; Webster, 2013). Resource efficiency within CE is achieved by keeping the added value through the prudent use of raw materials and energy consumption throughout all stages of the value chain (Yuan et al., 2008), and by using products for as long as possible, thereby eliminating waste (Bilitewski, 2012).

According to the European Commission (2014), some of the ways to achieve resource efficiency include light-weighting, durability, efficiency, substitution, eco-design, industrial symbiosis, and leasing/renting. The transformations needed to achieve such resource efficiency are based on technical, social, and organisational innovations throughout the value chain, which connect production and consumption (The European Commission, 2014). The components that achieve these transformations include (The European Commission, 2014): (1) Skills and knowledge, including entrepreneurship and capacity-building and multi-disciplinarity; (2) Organisational innovation, including integrated solutions and systems, logistics, business models, and policy supporting tools; (3) Social innovation, including new production and consumption models, citizens' involvement, product service models, and design services; (4) Technological innovation, including design of materials and processes, product design, and resource management (waste, water, energy and raw materials); (5) Financial instruments; (6) Awareness, dissemination and internationalisation; and (7) Multi stakeholder involvement.

Government and companies have been two of the key players addressing a number of CE's components and transformations through redesigning their products and processes (Murray et al., 2015). The United Nations Environmental Programme (UNEP), as one of the outcomes of the Rio+20 conference in 2012, set up an initiative to promote sustainable public procurement (SPP) (UNEP, 2014). The goal of the initiative is to link the consumption side, through governmental public procurement, to the production side, through the development of more sustainable business models (SBM). Despite such calls, there has been little academic research focusing on linking SPP and SBM.

The aim of this chapter is to contribute to CE by expanding knowledge of the relationships between SPP and the development of more sustainable business models, and is structured in the following way: Section 5.2 discusses the literature on SPP; Section 5.3 reviews sustainable business models discourses; Section 5.4 focuses on collaboration, as a means to linking SPP activities and sustainable business models; Section 5.5 presents the methods used; Section 5.6 proposes a framework for linking the public procurement process with the development of business models to better contribute to CE; and Section 5.7 presents the conclusions.

5.2 The link between Public Procurement (PP), business models and sustainability

Public procurement (PP) is a key economic activity of governments (Brammer and Walker, 2011). It refers to the acquisition of goods and services by governments or public sector organisations through a public contract (Kiiver and Kodym, 2014), and allows public sector organisations to perform their functions and deliver its services (Uyarra et al., 2014).

PP includes education, leisure, and social services (Walker and Preuss, 2008). It ranges between 8 and 25 per cent of the gross domestic product (GDP) of countries falling under the Organisation for Economic Co-operation and Development (OECD) and 16 per cent of countries in the European Union (EU; Brammer & Walker, 2011).

According to UNEP (2014), the procurement process consists in four stages: (1) Preparatory stage, where the problem is defined, and an inventory is made of the demands of related internal and external stakeholders, resulting in a first set of specifications. This set is integrated into the first concepts of a product or service that will be procured; (2) Specification stage, where the first concepts are further analysed and developed, leading to the definite specifications of the product or service; (3) Sourcing stage, also called the tender process, where the product or service specifications are made public to potential suppliers, and where the selection of the supplier and their signature on the contract finishes the tender; and (4) Utilisation stage, where, after signing the contract, the product or service is supplied. Figure 7 shows the PP process including these four stages.

In the PP process, the tender process plays a central role, as it links governmental specifications to potential suppliers (Kiiver and Kodym, 2014). Contact between suppliers and the procurer is not allowed prior to the publication of a tender in order to ensure healthy competition (Kiiver and Kodym, 2014). With the publication of the tender, the procurer details the required specifications. The suppliers develop a particular business model to satisfy the procurer's specifications, such as operational excellence, product leadership or customer intimacy (Kamann, 2007). The procurer then selects the most suitable supplier (Kiiver and Kodym, 2014).

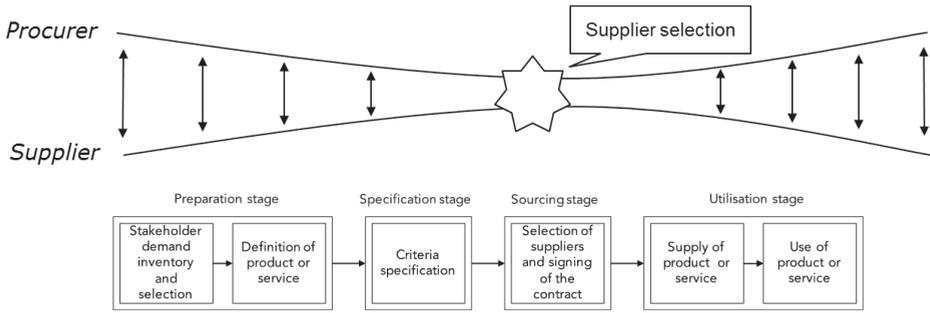


Figure 7 The changing contact between the procurer and supplier during the PP process showing the different stages from preparation to utilisation (based on UNEP (2014))

According to Uyerra et al. (2014), the influence of the PP process on a company’s business model is usually linear (see Figure 8), where over-specified tenders and price per unit are the main focus of negotiations between the supplier and procurer (Kiiver and Kodym, 2014). Once the procurer decides on the product’s technical specifications (e.g. size, weight and colour), the supplier defines the necessary raw materials for the production process, and the product is then delivered to the procurer as per specification. After the use period, the product partly becomes waste and the procurer decides whether to dispose of it. The optimization of used raw materials or generated waste is not explicitly addressed in the product’s technical specifications.

In linear frameworks, such as the one presented in Figure 8, raw materials are defined as inputs for the manufacture of the product, and the generation of waste as an output of product use. In a product specification, raw materials and waste are defined (e.g. specific environmental friendly materials, or a product that can be recycled), obliging suppliers to be aware of the need for efficiency of resources and processes that lie within or outside of the supplier’s direct sphere of responsibility (Preuss, 2009), and which focus on closing the life cycle of the product to be delivered (Guide and Wassenhove, 2009).

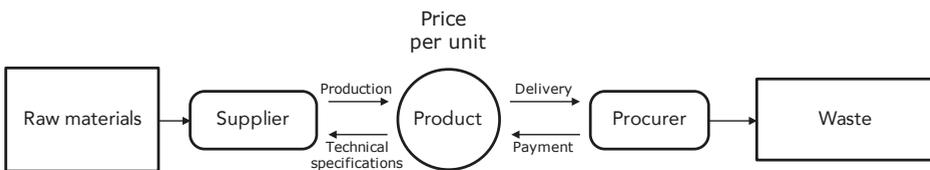


Figure 8 A linear framework of the PP process showing the influence on business models

5.2.1 Sustainable public procurement (SPP)

According to the EU Public Procurement Directive (The European Union, 2014), the procurer has to award a contract to the tender (i.e. select a supplier) that is economically the most advantageous. Depending on the choice of the contracting organisation, this could imply the tender offering: (1) the lowest price; (2) the lowest overall cost; or (3) the most value for money based on its price-quality criteria ratio. In the latter, the quality criteria could also include other non-pecuniary criteria (Parikka-Alhola, 2008), which allows for the incorporation of environmental or social oriented criteria into the product specification (Kiiver and Kodym, 2014; Rietbergen and Blok, 2013). Incorporating social, environmental and economic (i.e. sustainability) specifications into the PP process can have indirect effects on product development and on consumer demand for more sustainable products (Parikka-Alhola, 2008), which results in the promotion of improvement in the impact products or services have on society (Preuss, 2009; Srivastava, 2007). The incorporation of sustainability criteria (i.e. sustainability issues) into the tender and, therefore, into the procurement process embodies sustainable public procurement (SPP) (Brammer and Walker, 2011).

Given the purchasing power of public organisations, considerable demand for sustainable products and services can be promoted (Parikka-Alhola, 2008; Walker and Brammer, 2012), and can set a trend for other organisations (Day, 2005), and thereby enlarge the market for sustainable products or services (Uyarra et al., 2014). For example, if all public authorities in the European Union switched to green electricity, they would save more than 60 billion tonnes of carbon dioxide (CO₂), and if they used energy-efficient desktop computers, another 830,000 tonnes of CO₂ (Day, 2005).

Several countries have started using the potential of their purchasing power and have included SPP into their public policies. For example, Japan is a leading country in SPP (Thomson and Jackson, 2007). The Philippines has eco-procurement legislation that obliges federal government departments and agencies to adopt SPP programmes, while Canada has committed to implementing SPP policies (Day, 2005). The European Commission (EC) has also been engaging with European public authorities to include sustainability criteria in their procurement processes (The European Commission, 2011). For example, through a guideline for including environmental criteria in the PP process, and a guide on Socially Responsible Public Procurement, which proposes how to integrate social considerations into the PP process (UNEP, 2014). Within the European Union, Sweden has been top of the list of countries applying SPP, followed by Denmark, Germany, Austria, the United Kingdom, and the Netherlands (Brammer and Walker, 2011; Day, 2005; Melissen and Reinders, 2012).

5.2.2 Sustainable Business Models (SBM)

A business model is a comprehensive understanding of how a company does business (Beattie and Smith, 2013; Teece, 2010) and how value is created (Afuah, 2004), and it articulates the logic, the data, and other evidence that support a value proposition for the customer, and a viable structure of revenues and costs for the company delivering that value (Teece, 2010). By clarifying the chosen position of the company within the value chain, i.e. what are the key assets to own and control in order to capture value (Teece, 2010), a business model is a reflection of the company's strategy (Casadesus-Masanell and Ricart, 2010). As a result of this strategy, the company is linked to several stakeholders generating a dependency relation: the external stakeholder demands are converted into the stipulated characteristics constituting a product or service by the stakeholders having a considerable effect on the company's business model (Hienerth et al., 2011).

A business model is based on three main elements (Boons and Lüdeke-Freund, 2013; Osterwalder et al., 2010): (1) value proposition; (2) value creation and delivery; and (3) value capture. A selection of activities, the development of an activity system structure, and the definition of actors performing these activities are necessary to link the business model elements (see Zott and Amit, 2010). In general, business models should be seen through the lens of permanent interactions between these elements and activities, and the implications of their changes (Demil and Lecocq, 2010). This emphasises the need for a retrospective and prospective analysis of these interactions as a key to the understanding of how companies work and how they create value for the different internal and external stakeholders (DaSilva and Trkman, 2014). By ratifying this value creation process for stakeholders (e.g. through formalizing businesses with suppliers or customers) a company can reduce its costs (Boatright, 1996; Coase, 1937; Demsetz, 1988).

Since a company may have different value propositions, it may have more business models at different organisational levels (Demill and Lecocq, 2009) and, consequently, hierarchical relationships between these business models (Burkhart et al., 2012). All business models present in a company should coalesce to meet the company's overall strategic objectives (Burkhart et al., 2012). This coalescence is influenced by the stakeholder demands influencing the business model elements and activities (Perthen-Palmisano & Jakl, 2005).

With increasing stakeholder demands on sustainability issues encompassing the entire life cycle of a product or service, from downstream (i.e. extraction), to upstream (i.e. disposal), and its use, the third dimension (DeSimone & Popoff, 2000; Holliday, Schmidheiny, & Watts, 2002; Robert, 2000), the compliance of companies' business models with these evolutionary stakeholder issues must be addressed holistically (as highlighted by Linnenluecke, Russel, & Griffiths, 2009). With the concept

CHAPTER 5

of Corporate Sustainability (CS) defined as “...meeting the needs of a firm’s direct and indirect stakeholders, such as shareholders, employees, clients, pressure groups, communities without compromising its ability to meet the needs of future stakeholders as well” (Dyllick and Hockerts, 2002), it can be argued that CS is a journey for companies as they seek continuously to adjust and improve their business models (Jackson et al., 1994b; Lüdeke-Freund, 2010; W. Stubbs and Cocklin, 2008) and how they engage and empower stakeholders (Lozano, 2013).

The integration of CS into a company’s traditional business models (Baumgartner, 2009; Lozano, 2012; Murray et al., 2015) has driven companies to rethink and redesign their business models to better engage with stakeholders, while creating competitive advantages for customers, the company, and society (Jackson et al., 1994b; Lüdeke-Freund, 2010; W. Stubbs and Cocklin, 2008). Recently, a number of authors have discussed the redesign of business models in order to move to more sustainable business models (SBM)(e.g. Bocken et al., 2014; Bohnsack et al., 2014; Demill and Lecocq, 2009).

This redesign process can be classified into (see Bocken et al., 2014): 1) Technological (maximise material and energy efficiency, create value from ‘waste’, and substitute products and process with renewable and natural ones); 2) Social (deliver functionality, instead of having ownership, adopt a stewardship role, and encourage sufficiency); and 3) Organisational (re-purpose the business for society and the environment, and develop scale-up solutions). The choice of redesign process has implications for the business model elements (i.e. value proposition, value creation or value capture bases), and related activities (see section 5.3.1). A full integration of the redesign process classifications into the business model elements and interrelated activities helps in making a business model become more sustainable (Rauter et al., 2015).

The redesign of business models changes the relationship between the supplier and procurer of goods, and moves from fully product-focused to include service-focused operations (Lay et al. 2009). This change results in a shift from selling products to providing service solutions offering multi-issue (i.e. economic, environmental and social) value for the customer’s needs (Lay, Schroeter, & Biege, 2009; Mont, Dalhammar, & Jacobsson, 2006), including the time dimension. The customer moves away from being seen as just the person that pays for the product but includes other important stakeholders throughout the life cycle of the product, or even society in general (Vermeulen and Witjes (2016)).

A concept that could help to explain value-focused, more sustainable business models is ‘product-service systems’ (PSS), which is directed at reducing the total environmental burden of consumption (Mont, 2002), and could, therefore, contribute to the more efficient use of resources. According to

Mont (2002), PSS can be divided into: (1) products/services combinations/substitutions; (2) services at the point of sale; (3) different concepts of product use (subdivided into use oriented and result oriented); (4) maintenance services; and (5) revalorisation services. PSS models requiring close collaboration between producers and consumers (Lozano et al., 2014); however, shifting to PSS requires changes in the levels of information exchange between stakeholders, as well as in the nature of relationships between the stakeholders (Lockett et al., 2011).

The shift to PSS, the development of more sustainable business models, and the resulting integration of CS into business activities provide the bases for a company to better contribute to CE (Murray et al., 2015). Although a number of authors (e.g. Bocken et al., 2014; Bohnsack et al., 2014; Demil and Lecocq, 2010) have discussed sustainable business models, there are still limited studies on the contribution of more sustainable business models to CE (Rauter et al., 2015), or on the link between SPP and more sustainable business models (as discussed by Brammer and Walker, 2011).

SPP requires a collaborative supplier engagement strategy (Meehan and Bryde, 2011). Such collaboration directly affects the company's business model elements and activities (Hienerth et al., 2011), including adjustments throughout value chains, where producers, consumers, investors, distributors, and recyclers are better connected to ensure a fair distribution of costs and benefits (Bocken et al., 2014). In the SPP process, these adjustments are the result of a collaborative process between suppliers and procurers and the combination of their multiple business models (Uyarra et al., 2014).

5.2.3 *Collaboration*

Collaboration harvests its benefits from differences in perspectives, knowledge and approaches, solving problems while at the same time offering benefits to all those involved in the process (Lozano, 2007b). Collaboration requires exchange of information (Troy et al., 2008) and coordination of activities across interdependent organisational units, such as research and development, procurement, and sales (Cuijpers et al., 2011).

Collaboration can help a company in changing and redesigning its business models (see De Luca and Atuahene-Gima, 2007; Swink and Song, 2007; Troy et al., 2008) Collaboration increases the number of potentially useful ideas (Milliken and Martins, 1996), enhances flexibility of the workforce (Troy et al., 2008), and improves product performance (Olson et al., 2001). Collaboration may lead to less efficient decision making (Troy et al., 2008), conflicts over resources and technical issues (Troy et al., 2008), budget overruns (Olson et al., 2001), and project failures (Mishra and Shah, 2009; Swink and Song, 2007).

Some of the benefits of collaboration include the ability to optimise both financial and human capital, including better access to markets and knowledge, enriched creativity, avoidance of confrontation, a decrease in the time needed to accomplish objectives, increased trans disciplinary learning, and making processes more efficient (Fadeeva, 2004). However, collaboration has inherent difficulties (Lozano, 2007b) and costs (Cuijpers, et al., 2011), such as: (1) Coordination costs, referring to operational dependence between the activities of the different actors (Genefke, 2000); (2) Vulnerability costs, referring to the safeguarding of important and unique resources (Genefke, 2000); (3) Information, referring to who gets the benefits and the real, or hidden, agenda (Chilosi, 2003); (4) Bargaining, how to split the gains (Chilosi, 2003); and (5) Free riding, where those who choose not to participate still get the benefits (Chilosi, 2003).

In general, collaborative relations increase the level of cohesion within groups and between their members (Luukkonen and Nedeva, 2010). Such cohesion depends on the proximity between the members (Bansal and Roth, 2000; Glavič and Lukman, 2007). Borgatti (2003) proposed this proximity as the coalescence between the physical (i.e. propinquity) and the socio-cultural proximity (i.e. similarity of beliefs and attitudes, amount of interaction and affective ties of the individuals in a group). The physical and socio-cultural proximity between two members, such as a procurer and a supplier, is a prerequisite for a successful collaboration (Dietrich et al., 2010; Hannon, 2012; Walker and Brammer, 2012).

5.3 Methods

Grounded Theory (GT) helps to frame exploratory research, where the researcher has little control over the phenomena under study (in this chapter, how sustainable procurement leads to the development of more sustainable business models). GT allows the identification of causal connections between phenomena, and to generalise from a specific context (Bryman, 2004; Yin, 1984). GT was developed as a response to the neglect of theory discovery (Glaser & Strauss, 1999), the concerns over the predominance of quantitative methods in social sciences, and the tendency to test existing grand theories (Jupp, 2006). GT refers to the strategy that emphasises developing and building theory from data (Glaser & Strauss, 1999; Jupp, 2006; Saunders *et al.*, 2007; Strauss & Corbin, 1998. In this chapter the literature on sustainable procurement, more sustainable business models and collaboration). Glaser & Strauss (1999) proposed four general approaches to help analyse qualitative data using GT. This study uses the fourth, known as analytic induction, which is concerned with generating and providing an integrated, delimited, universally applicable theory of the causes accounting for a specific behaviour (here, the contribution of the collaboration between procurement and business models to CE). Two types of theory can be generated: (1) Substantive,

developed for a substantive or empirical area of inquiry, and (2) Formal, developed for a formal or conceptual area of inquiry (Glaser & Strauss, 1999). The latter is more appropriate for the objectives, and addressing the research questions, of this chapter. GT is based on generating conceptual categories or their properties from evidence, which is then used to illustrate or propose a concept (Glaser & Strauss, 1999). In this chapter, the generated concept is the proposed framework linking sustainable public procurement and business models.

5.4 Proposing a collaborative framework between SPP and SBM to contribute to CE

Government and companies have been two of the key players addressing a number of CE components and transformations. This section aims at proposing a collaboration-based framework linking SPP and SBM

Whilst in the traditional PP process the product unit is the main object of negotiation between suppliers and procurers (see Figure 8) and, in general, the tender is based on the lowest price or overall cost (see European Union, 2014). In the SPP process the focus of the tender is on the most value for money, where environmental or social specifications may be included (as discussed by Kiiiver and Kodym, 2014; Rietbergen and Blok, 2013). In this case, the main object of the negotiation between supplier and procurer switches from product oriented to PSS (see Mont (2002), thus switching from a price per product unit to price per delivered service, as the functional unit of the tender negotiations. Two important elements of this service-oriented functional unit are closing loops (as indicated by Yong, 2007; Yuan et al., 2006) and improving resource efficiencies through recovery (as discussed by Klettner et al. (2013) and Webster (2013)).

By incorporating sustainability criteria into their business models (as discussed by Lay et al., 2009) companies are more likely to fulfil SPP process specifications. This, however, requires closer proximity between the supplier and the procurer in the procurement process (as discussed by Meehan and Bryde, 2011). Collaboration between the procurer and potential suppliers changes to the beginning of the tender (i.e. the preparation stage), as illustrated in Figure 9, instead of the sourcing stage (see Figure 7).

Long term collaboration during the SPP process requires a shift from the technical specifications set up by the procurer to a more collaborative discussion on, and definition of, the proposed technical and non-technical specifications between the supplier and procurer. In addition, socio-cultural specifications, such as beliefs and attitudes of the people contributing to the procurement process (as proposed by Borgatti, 2003), must be included in the SPP process. While the technical and non-technical specifications drive the supplier and procurer to develop products or services aiming for

more resource efficiency, the socio-cultural specifications will help the parties to hire and train personnel specifically for the co-development process, addressing the Social innovation and Multi-stakeholder involvement components of the resource efficiency transformations proposed by the European Commission (2014).

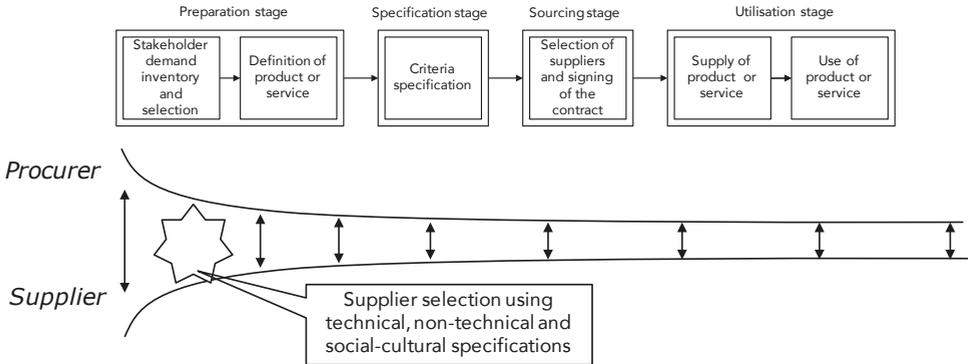


Figure 9 Procurer/supplier proximity and supplier selection during the SPP process (based on UNEP (2014))

During collaboration in the process between procurement and business models for CE, a company can gain experience in defining product or service specifications to close loops and optimise the use of resources at product or service level (as proposed by Mont, 2002). Such collaboration can provide experience for further partnerships between suppliers and procurers.

Considering the aforementioned transactional elements, it is possible to propose a CE alternative to the linear framework of the PP process presented in Figure 8. This new framework centres on reducing waste, and consequently raw materials, by changing from a product focus to a PSS where loops are closed through recovery. In this process, the value generation switches from price per unit to price per service (of a functional unit). The successful outcome of the process depends on the procurer and the supplier collaborating to establish the technical and non-technical specification, and a shared ownership of the PSS. The collaboration starts to take place in the preparation stage of the tender, rather than at the sourcing stage. Figure 10 shows the integration of these elements into a proposed “Procurement and business model collaboration for CE (ProBiz4CE)” framework.

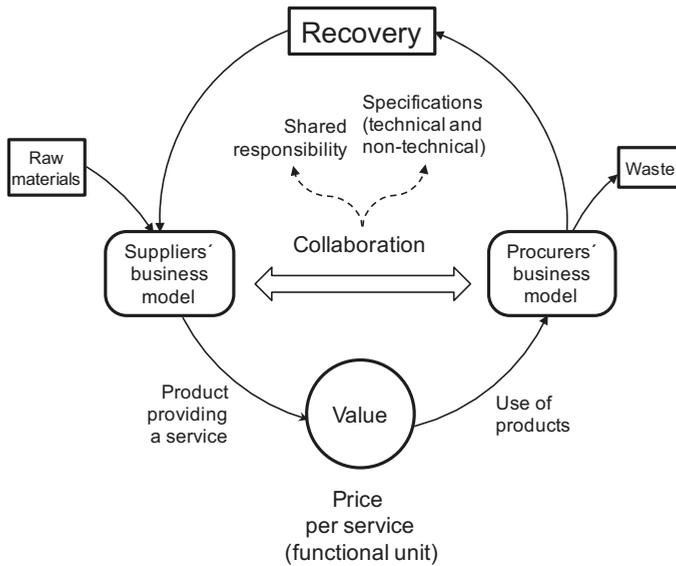


Figure 10 Collaboration between procurement and business models for CE (ProBiz4CE) framework

The procurement of an office desk by a governmental agency can provide an illustrative example of the ProBiz4CE framework. According to the linear framework, the technical product specifications (e.g. material, dimensions, and colour of the desk) are decided by the procurer (e.g. the R&D department) during the preparation and specification stage and before the sourcing stage (i.e. actual tender), without any input from the supplier. In a process following the ProBiz4CE framework, such technical specifications, as well as non-technical ones (e.g. maintenance and end-of-life take-back), are co-developed and decided between the government agency and the potential suppliers (e.g. office furniture manufacturers). In the tender stage, the agency decides which of the suppliers is the most suitable to fulfil the technical and non-technical specifications, depending of the economic and environmental characteristics of the business model proposed by the suppliers. The functional unit switches from number of desks sold to, for example, area of desk space needed. The interaction between the parties increases their propinquity in the preparation stage, and enables a more sustainable use of resources by focusing on closing loops throughout the life cycle of the desk. The supplier owns the desks and is responsible for their maintenance and final disposition, whilst the governmental agency is responsible for a fair use of the product and allowing the supplier to undertake any repairs and determine the ultimate disposing of the product. Both parties are responsible for reducing the environmental impact of the product/service. The ProBiz4CE framework can lead to better collaboration and conflict resolution between the parties, alignment of specifications, understanding of the possibilities and challenges in delivering the product/service combination, and closing loops that will reduce the amount of raw materials needed and waste generated, thus better contributing to CE.

5.5 Conclusions

Sustainability is aimed at addressing the environmental and socio-economic issues of this generation and future ones. The concept of CE has been proposed to address environmental issues by transforming waste into resources, and bridging production and consumption activities. The transition to a functioning CE regime requires a systemic multi-level change, including technological innovation, new business models, and stakeholder collaboration.

Although there have been calls to bridge production and consumption activities, there has been limited research on the topic. This chapter aims at bridging that gap by linking SPP and SBMs. The ProBiz4CE framework is based on CE by closing loops through recovery, while at the same time changing the scheme from price per unit to value provided per service, and including technical, non-technical and socio-cultural specifications and shared responsibility of the product/service combination. The ProBiz4CE framework was developed under the aegis of SPP. However, it may also be applicable in private procurement settings, where tenders are not usually advertised publicly. This facilitates decision-making by the parties, and may reduce the time needed to reach a mutually agreed outcome.

This research proposes that collaboration between procurers and suppliers can lead to reductions in raw material utilisation and waste generation, whilst promoting the development of more sustainable business models, thus better contributing to making societies more sustainable.

Further research is needed to help refine the ProBiz4CE framework. For example, a case study could provide insights into the practices of linking SPP and SBMs, whilst engaging with stakeholders could help identify the challenges in managing the relationship between SPP and new business models.

LEAPFROCS

patterns coming from the collaboration between academics, students and companies create company self-reflection on past success of Corporate Sustainability, integration and catalyse future corporate strategies for improving Corporate Sustainability, integration into organisational systems.





Chapter 6

Integration mechanisms for Corporate Sustainability: corporate self-reflection on patterns of successful integration for catalysing strategy improvement

This chapter is based on the article Witjes S., Vermeulen, W.J.V., Cramer, J.C., Integration Mechanisms for Corporate Sustainability: corporate self-reflection on patterns of successful integration for catalysing strategy improvement, submitted to the Resources, Conservation and Recycling journal

Previous versions of this paper were presented at:

Copernicus Symposium, 12 January 2015, Utrecht University, The Netherlands

Joint PhD Workshop on Organisational Sustainability Research, 26-28 January 2015, Utrecht University, The Netherlands

22nd Annual International Sustainable Development Research Society (ISDRS) Conference, 13-15 July 2016, Lisbon, Portugal

Abstract: *This article aims to shed light on mechanisms to integrate a strategy on Corporate Sustainability in companies. The analysis is based on a holistic method ('LEAPFROCS') derived from organisation theory, organisational behaviour theory and strategic management theory. The process of integration into the organisational system is explored by analysing the coalescence of organisational continuous improvement, structure and culture. The coherent use of integration mechanisms is defined as key for a successful CS integration. The LEAPFROCS method is presented to capture the success of integration mechanisms and their application. The LEAPFROCS method is tested using empirical data from 2 case studies. The results of the data analysis – the LEAPFROCS-patterns - were validated in discussion with company representatives. The results show that the process of CS integration is company-specific, as is the selection of LEAPFROCS patterns to create a self-reflection of companies on CS integration catalysing future corporate strategies for improving CS integration into the specific company's organisational systems.*

6.1 Introduction

Companies have increasingly attracted attention in the sustainability debate (Cannon, 1994; Elkington, 2002; Hart, 1997), since they play a major role in the generation of negative impacts on the environment, people, and their prosperity (Dunphy et al., 2006). To ensure long-term success, companies have to face pressures to address the current and future impacts on society which they directly or indirectly cause while managing their existing core business (Chen and Kannan-Narasimhan, 2015). Several authors (Baumgartner, 2009; Dunphy et al., 2006; Lozano, 2013) have stressed the increasing importance of Corporate Sustainability (CS) as the process of proactively determining the relative significance of economic, environmental, and social issues (i.e. CS issue dimension of the triple P issues: People, Planet and Prosperity (Dam, Ynte K. and Trijp, Hans C M, 2011; Hammond, 2006) related to business activities (Wells, 2013). The need for interpreting this consequential relation between company processes, and their impacts, is complemented by an emphasis on the inter-relations of triple P issues between individuals, the organisation, the supply chain, and the wider society (i.e. CS place dimension) (Vermeulen and Witjes, 2016), taking into account the past, present, and future (i.e. CS time dimension) (Lozano, 2012) (see Figure 11).

Over the last two decades of scientific work, many scholars in the field of CS (e.g. Cramer, 2005a; Doppelt, 2003; Epstein and Buhovac, 2010) have greatly contributed to the understanding of company practices when addressing CS. The focus of CS research has been developed from, mostly, a technological focus (Freidberg, 2014) and towards a managerial research focus (Baumgartner and Ebner, 2010a), adding an understanding of how companies manage to get CS into the heads and hearts of their employees. Consequently, CS research has changed from trying to understand the physical output of corporate processes on CS dimensions towards understanding the physical and social outcomes of the organisation as a system, and its effectiveness in adhering to its shared CS

strategy (Epstein and Buhovac, 2010; Hahn et al., 2015). With the organisational system entailing the organisational processes, and which outputs create a corporate impact on the three CS dimensions, concepts from different theories (Hatch and Cunliffe, 2013) are needed to analyse the effectiveness of the organisational system in adhering to its shared CS strategy. CS research has changed from understanding the outputs of business activities which impact on triple P issues, towards understanding the outcomes of business activities resulting in effective strategies for transformative change of the organisational system and how these can be spread out and controlled throughout the organisation (Epstein and Widener, 2010) to favourably influence the output of processes and products.

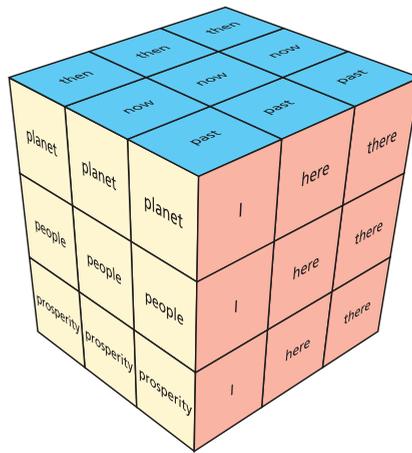


Figure 11 The three dimensions of Corporate Sustainability: issues (planet, people, prosperity), time (past, now, then) and place (I, here and there)

To address CS from an outcomes perspective, when determining the relative significance of the interrelations between the three CS dimensions companies are facing the paradoxical challenges of applying existing capabilities within the organisational system whilst exploring new ones (Danneels, 2002; Jansen et al., 2009; Vera and Crossan, 2004). Addressing CS, therefore, implies making interventions on business activities leading to changes in processes and products, revisions of communication strategies, and adaptation of value and knowledge systems (Azapagic and Perdan, 2005; Epstein and Buhovac, 2010; Siebenhüner and Arnold, 2007). Consequently, CS integration entails the application of such interventions made to internal processes, structure, and management control on the individual, group and organisation level (Lozano, 2007a) in order to adhere to an established shared CS strategy.

Understanding the efficiency of CS integration into organisational systems is focussed on the dynamic capabilities that enable companies to satisfy current demands while simultaneously being

prepared for tomorrow's developments (Gibson et al., 2004). There has been a dual trend to create understanding of the effectiveness of corporate change strategies supporting corporate dynamic capabilities towards CS integration by combining formal methods, focussed either on the accounting information systems or indicators on, for example, triple P issues (Maas et al., 2016a), or on informal methods, centred on analysing the influence of socio-cultural aspects as key variables (Carenys, 2012; Epstein and Buhovac, 2010). To understand CS integration, methods for analysis should include the setup of corporate processes (i.e. developing the structure of the organisation), performance measurement, and reward systems to measure success and to provide internal and external accountability (i.e. ensure continuous improvement of the organisation) (Maas et al., 2016b), but also the leadership, culture, and people's attitudes or values (i.e. the socio-cultural elements of the organisation) to support CS integration (Epstein and Buhovac, 2010). Moreover, these methods need to include cross relations between different theoretical perspectives (Sorge, 2004), often linked to a specific disciplinary background, each stressing their own specific viewpoint on the process of CS integration in time (Székely and Knirsch, 2005). This adheres to the need expressed to develop more holistic methods (Azapagic, 2003a; Hahn et al., 2015; Jamali, 2006; Maon et al., 2009) to understand the efficiency of CS integration retrospectively (Hahn et al., 2015). The application of these holistic and longitudinal methods with different theoretical perspectives contributes to the understanding of how past success of CS integration can support companies in developing future strategies on CS integration. New insights on the efficiency of CS integration could be gained by analysing historical information on CS integration into the organisational processes. This could be captured by the use of comprehensive methods for longitudinal and a more 'all-inclusive' perspective on CS integration interventions (Maon et al., 2009; Salzman et al., 2005; Siebenhüner and Arnold, 2007; Weber, 2008).

This study aims at contributing to an understanding of the functioning of interventions into the organisational system by analysing the integration of CS through a holistic method based on organisation theory, organisational behaviour theory, and strategic management theory. The research focusses on the success of the integration process resulting in improved organisational outcomes leaving the link with an improved output (i.e. improved sustainability performance of the company) for future research. Section 6.2. explores the process of integration into the organisational system by analysing the coalescence of continuous organisational improvement, structure and culture. Whereas integration mechanisms are proposed for the operational closing of the CS strategy-execution gap, a coherent use of these mechanisms results in the integration of CS into the organisational system. Section 6.3. presents the LEAPFROCS method as a holistic method to capture the success of integration mechanisms and their application. Section 6.4. presents the testing of the LEAPFROCS method using empirical data of two case studies. The study finishes with conclusions and proposals for future research.

6.2 CS integration into the organisational system

The study of interventions into the organisational system is logically based on the concepts of integration and differentiation as originally conveyed by Lawrence and Lorsch (1967): integration is the quality of collaboration within the company that is required to achieve a common goal, through unity of effort as dictated by the demands of the company's internal and external context. Differentiation encompasses the differences in cognitive and emotional orientations among managers in different functional departments, as manifested, for example, in specialized language, different systems of meaning, alternative thought-worlds, and differences in time-orientation (Bradley, 1997; Griffin and Hauser, 1996; Nambisan, 2002). Although a balance between integration and differentiation is optimal (Lawrence and Lorsch, 1967), an effective integration of a common goal is achieved by reducing differences between goals and tasks, functional departments, business units, product platforms, managerial levels, and organisational processes (Dougherty, 2001; Sheremata, 2000).

The integration of a CS strategy into a company's organisational system (Baumgartner, 2009; Lozano, 2007a; Murray et al., 2015) has driven companies to rethink their corporate strategies when facing the strategy-execution gap (Leinwand and Mainardi, 2016), while creating competitive advantages for customers, the company, and society (Lüdeke-Freund, 2010; M. Porter and Kramer, 2011; Wendy Stubbs and Cocklin, 2008). CS integration supports companies aiming for long-term success when faced with the challenges of an ever-changing internal and external context (Jansen et al., 2009). Based on a corporate strategy on CS, appropriate interventions in the organisational system improve the responsiveness of the company to the ever-changing demands of internal and external stakeholders, the adherence to a shared CS strategy (Witjes et al., n.d.), while simultaneously obtaining a differentiation advantage compared to its competitors (Kurapatskie and Darnall, 2013; Eccles et al., 2013; Zangwill and Kantor, 1998). Integration of a corporate strategy is defined as the way a company creates the organisational structures, procedures and activities (i.e. the organisational system) that permit the organisation to engage in activities that are directly related to a set of goals derived from a company's strategy (Hill and Jones, 2011; Ravichandran and Rai, 2000) on, for example, CS. Strategy integration involves assessing demands of internal as well as external stakeholders (Teece, 2010) and, above all, an evaluation of the outcomes and output of the organisational system with a shared CS strategy (Souto, 2015). While effective organisational performance is determined by the fit between an organisation's system and its environment (Hatch and Cunliffe, 2013), improved organisational design from interventions into the current organisational system economises on operating costs, lowers the costs of value creation activities, and enhances the ability of the company's value creation function to achieve superior efficiency while adhering to stakeholder demands (Hill and Jones, 2011). Although the existing organisational

CHAPTER 6

system may stand in the way of integrating a strategy (Hahn et al., 2015; Moon et al., 2011), adjustment of the organisational system enables technological innovation, coordination of value creation activities and pioneering individuals, to create value (Teece, 2010) and to make these consistent (Hill and Jones, 2011).

To steer an organisation toward a common goal and ensure adherence to stakeholder demands, the coordination of the value creation activities of the organisational systems must be aimed at making them interdependent and interrelated (Hill and Jones, 2011; Ravichandran and Rai, 2000). The integration of CS into a company's organisational system, consequently, demands learning from a continuous adjustment of the organisational processes to the ever-changing demands of internal and external stakeholders on CS issues (Hahn et al., 2015; Jamali, 2006; Maon et al., 2009). Therefore, continuous changes must be made to both formal and informal processes as part of the social dynamics (e.g. members and their relationships; Linnenluecke et al., 2009), and to the physical dynamics (e.g. chemical and mechanical transformations; Scott, 2000). The integration of CS into the organisational system results in organisational processes constituting these social and physical dynamics in addressing CS issues (Hahn et al., 2015), and a CS strategy seamlessly integrated into the corporate strategy (Amini and Bienstock, 2014; Baumgartner and Ebner, 2010a).

CS integration interventions are stratagems for closing the gap between the shared corporate strategies on CS and their execution by every-day business activities. The interventions are aimed at the necessary continuous changes that must be made to a company's formal and informal processes as part of the social and the physical dynamics, based on the ever-changing internal and external stakeholder requirements on CS issues (Cramer, 2005b; Hahn et al., 2015). As CS may be specific for each department within the organisational system (Baumgartner, 2014), the change magnitude that CS requires at individual, group and organisational levels makes it unlikely that companies will be able to provide substantive contributions to the sustainable development of society without the willingness and ability of the company to fully understand the CS integration process (Hahn et al., 2015). Interventions should, therefore, be tailored to a company's specific needs, and the context in which it operates, in order to generate the necessary paradigm shift away from the way traditional business is conducted (Azapagic, 2003a; Hahn et al., 2015; Jamali, 2006; Maon et al., 2009). This results in CS becoming an integrated and integrative part of the corporate strategy and processes (Maas et al., 2016a), whereby CS is not considered as an 'add on', but is systematically integrated into all of the formal and informal business activities (Azapagic, 2003a) of the organisational system, resulting in CS as an added value to the company's main business goals (Rauter et al., 2015).

6.2.1 *Organisational system design*

The design of an organisational system consists in the combination of organisational structure and control systems to shape the way people behave, and determine how they will act in an organisational setting (Hill and Jones, 2011). Since individuals are the sine qua non element of the organisation (Bansal and Roth, 2000), a humanistic approach to organisational structure and control puts people management, including the cultural and learning approach to management, in a pivotal position for organisational design (Wang and Ahmed, 2003). Consequently, organisational design is not conceived as a closed mechanistic system but rather as a system with social connotations and open to the influences of the members of the organisation and its environment (Carenys, 2012). Whereas organisational culture contributes to the identification of the influences of the behaviour of individuals for the organisation's objectives, thus facilitating their achievement (Carenys, 2012), organisational learning contributes to the understanding of the organisational process of continuously acquiring, processing, and disseminating knowledge about markets, products, technologies, and business processes (Ng, 2004). An effective organisational design could reach organisational effectiveness through continuous improvement of assigning responsibilities and roles to organisational members (i.e. organisational structure), and support the behaviour of individuals, groups and the organisation (i.e. organisational culture) (Sinding et al., 2014). Three main interrelated perspectives on the design of the organisational system can, therefore, be distinguished: 1. Continuous improvement of the organisation, 2. Organisational structure, and 3. Organisational culture. We use these three perspectives to understand the integration of CS into the organisational system.

6.2.1.1 *CS integration through continuous organisational improvement*

Organisations are seen as learning entities by encoding past interventions into routines that could guide behaviour in the present and for the future (Levitt and March, 1988). Organisational learning influences the behaviour of the members of the organisation (Hill and Jones, 2011), supported by the process of organisational control by which managers monitor the ongoing activities of an organisation and its members to evaluate whether activities are being performed efficiently and, if necessary, to take corrective action (Carenys, 2012). Organisational learning seeks to orient the decision-making process by contributing to the understanding of the organisational processes of continuously acquiring, processing, and disseminating knowledge about markets, products, technologies, and business processes (Ng, 2004). With business strategies needing to go through continuous improvement cycles in order to get closer to the strategy of the company and eventually have a complete match (Bagheri and Hjorth, 2007; Dieleman et al., 2007), a company can only improve its overall performance when the strategies are constantly measured and adapted to the goals visualized in the first place (Azapagic, 2003a; Székely and Knirsch, 2005). To support the

CHAPTER 6

process of uninterrupted performance adjustment and learning at individual, group and organisation level, organisational processes follow the high level format conceived of as a continuous improvement cycle of four stages: Plan, Do, Check, and Act (Arntz-Gray, 2016; Schmidt et al., 2015) , also known as the PDCA cycle (see Figure 12):

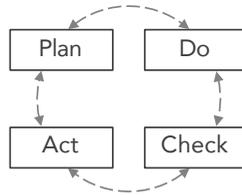


Figure 12 The cycle of continuous organisational improvement of Plan, Do, Check and Act

- **Plan:** The individual, group or organisation recognizes an opportunity and then plans a change. After establishing new goals, there is a need to think how to adapt the related processes to perform the change planned;
- **Do:** The individual, group or organisation implements the processes and tests the change;
- **Check:** After monitoring and evaluating the change, the individual, group or organisation reports the outcome, analyses the output/results and identifies the learning; and
- **Act:** The individual, group or organisation plans and applies actions based on what has been learned during the previous step. If the change was successful, there is a need to incorporate the learning into wider changes. If the change was unsuccessful, the PDCA cycle will be repeated and/or adjusted.

CS integration is an organisational change process based on innovative learning models and inspired by the principles that underpin the learning organisation construct based on the PDCA cycle (Jamali, 2006; Maon et al., 2010). With a growing awareness that proactivity is likely to improve CS integration (Hahn et al., 2015), enhanced corporate improvement regarding stakeholder expectations, and the specifics of the context, help to ensure that the organisational change is beneficial and supported by appropriate integration mechanisms (Maon et al., 2010). Continuous improvement in the success of interventions into the organisational system encourages companies to be proactive in their approach to addressing CS (Eccles et al., 2014; Zangwill and Kantor, 1998). The application of coherent improvement cycles on the success of CS integration interventions are a prerequisite for increasing the level of CS integration (Epstein and Roy, 2001a). With integration mechanisms potentially covering the Plan, Do, Check and/or Act stages, full coherence in the continuous improvement of the organisation covers all stages, and closes the current PDCA cycle.

6.2.1.2 *Integrating CS into organisational structure*

CS integration is determined by the situation in which any given company finds itself and includes the structural levels of the organisational types that allow a more complete understanding of complex organisational issues (Hatch and Cunliffe, 2013). The structure of an organisation determines how an organisation, as a system of consciously co-ordinated activities that allow groups of people to co-ordinate efforts, achieves shared goals (Sinding et al., 2014). The integration of CS into an organisation would be more successful if the organisational structure is taken into account during the CS integration process, implying the identification of leadership and key personnel, aligning responsibilities through key performance indicators, and communication via internal training and externally reporting the CS performance (Azapagic, 2003a). Throughout the evolution of the organisational structure field several researchers (e.g. Mintzberg, 1993; Ouchi, 1978) have proposed generally applicable perspectives on the structure of the organisational system. Within the CS field these perspectives have been refined by, for example, Robert et al. (2002) by proposing different system levels (i.e. constitution, outcome, process, actions and tools), Glavic & Lukman (2007) by defining strategies, tactics and principles, and Baumgartner (2014), by taking a strategic management focus defining operational, strategic and normative as three structural levels of the organisation. The structural levels of strategic, tactical and operational (as proposed by Barratt, 2004; Kuhndt, 2004; Ouchi, 1978) are chosen for this article, as they can be applied for individuals, groups and the entire organisation (Lozano, 2014; Sinding et al., 2014). Consequently, the structural levels of strategic, tactical and operational (see Figure 13) are used for a generally applicable representation of the organisational structure:



Figure 13 The strategic, tactical and operational levels of the organisational structure

CHAPTER 6

- Strategic
The strategic level contains planning and executive decision making (Katz and Kahn, 1978) on investment and acquisition (Kuhndt, 2004; Wrisberg et al., 2002);
- Tactical
The tactical level contains the middle managers with the responsibility to translate the strategic planning and goals into operational actions. They coordinate and control the implementation of these actions. Consequently, these middle managers are the lynch pin between processes at the strategic and operational level of the organisation;
- Operational
The operational level contains the activities related to the core business of the company (Katz and Kahn, 1978).

The development of an action plan for CS requires an exchange of views between the board of management at strategic level and the middle managers at tactical level, while the execution of particular actions is an issue for people from all levels of the organization (Cramer, 2005b). From an organisational structure perspective, achieving integration of CS, interventions into the organisational system are best leveraged throughout the organisational structure (Epstein and Buhovac, 2014) at individual and group levels. Besides, the integration of CS into the strategic, tactical and operational levels for individuals and groups should lead to integration of the strategy at organisational level (Aldama et al., 2009). With integration mechanisms potentially covering the strategic, tactical and/or operational levels of the organisation, 'full' coherence in the use of integration mechanisms covers all levels.

6.2.1.3 *Integrating CS into organisational culture*

Organisational culture is a key factor in ensuring the efficiency of organisational systems. Since organisational culture contributes to the identification of the individuals with the organisation's objectives it also facilitates their achievements (Hill and Jones, 2011). While managers have pluralistic perceptions of organisational culture, aiming for an ideal organisational culture for CS integration should be changed to aiming for a variable and adaptable organisational culture (Harris and Crane, 2002). In both cases achieving coherence between a strong organisational culture, active leadership, and employee commitment supports the company in achieving its strategy (Achtenhagen et al., 2013). While people within an organisation are not only moved by financial motivations, but also by the satisfaction of other needs, the coherence between the organisational culture elements should also include psychosocial mechanisms based on human relations and human information processing (Carenys, 2010). Consequently, enabling and maintaining an adaptable organisational culture can lead to the desired behaviour among employees in support of the corporate change

strategy towards CS integration (Hatch and Cunliffe, 2013). With the existence of different subcultures throughout an organisation, members of each subculture can hold different attitudes towards a common corporate strategy which are distinct from that of other subcultures (Harris and Crane, 2002). The culture of a group evolves and changes over time as a result of changes in various influencing factors such as business environment, leadership, management practices and formal and informal socialisation processes between the individuals in an organisation (Carenys, 2012; Baumgartner, 2009). When changing their organisational culture, companies face the challenge of individual employees seeking meaning and coherence in their personal and work lives (Liedtka, 2007).

According to Linnenluecke and Griffiths (2010), CS integration requires an adaptable organisational culture on three different levels:

1. Surface level

The integration of CS becomes visible at surface through artefacts. For example, these are visible in the form of: technical solutions, reports, key performance indicators, measures in performance evaluation, training (as also emphasised by Dunphy et al. (2003));

2. Value level

The integration of CS takes place through changes in values and beliefs at individual, group and organisational level towards more ethical and more responsible values (as also concluded by Harris and Crane (2002)), also related to the shared corporate CS strategy, all of which will be discernible from the available documentation of formalised values; and,

3. Underlying level

The adoption of corporate sustainability principles requires a change in basic assumptions regarding the interdependence of humans and ecological systems (as also stressed by Purser (1994)). These are more difficult to identify, but can be disclosed by applying observation methods or, for example, deep interviews.

Companies with a strategy focussing on every level of the organisational culture demonstrates the business case for integrating of CS in a long-term strategy (Baumgartner, 2009). Although changing the deepest level of the organisational culture (i.e. underlying level) is not an easy task, integration mechanisms addressing each level of the organisational culture (Baumgartner, 2009) contribute to ensures adherence to the company's CS strategy. Therefore, CS integration focuses on adjusting all three levels of the organisational culture (Linnenluecke and Griffiths, 2010). With integration mechanisms potentially covering surface, value and/or underlying levels of the organisational culture, 'full' coherence of the use of integration mechanisms covers all levels.

6.2.2 CS integration through integration mechanisms

The identification of mechanisms enables the integration processes (Karlsson et al., 2010) and establishes linkages across differentiated organisational units (Burgers et al., 2009). As a result, new corporate strategies are integrated into core business activities (Chen and Kannan-Narasimhan, 2015; Hill and Jones, 2011). The use of mechanisms to integrate newly developed strategies depends on the complexity and stability of the corporate context (Sinding et al., 2014). Whereas companies addressing CS are faced with the demands of ever-changing internal and external stakeholders (Witjes et al., n.d.), there is a need for the use of many coherent integration mechanisms (Sinding et al., 2014).

Companies have been developing numerous mechanisms to support interventions into the organisational system (Hatch and Cunliffe, 2013; Hill and Jones, 2011). For example, production of policy documents, regular meetings on specific topics, exchange of key performance data, can all be useful mechanisms for creating linkages across organisational units. The use of integration mechanisms entails determining and applying objects, activities or verbal expressions (Hatch and Cunliffe, 2013) leading to adjustments to processes and products, revision of communication strategies, and adaptation of value and knowledge systems (Azapagic and Perdan, 2005; Epstein and Buhovac, 2010; Siebenhüner and Arnold, 2007). Integration mechanisms mediate the relationship between structural differentiation and integration (Jansen et al., 2009) and can be distinguished between formal and informal mechanisms (Burgers et al., 2009; Chen and Kannan-Narasimhan, 2015). Where formal mechanisms are meant to coordinate and integrate differentiated activities through pre-established mechanisms (Ghoshal et al., 1994), informal mechanisms refer to emergent social properties (Galbraith, 1973; Tsai, 2002). Besides the formal-informal grouping of integration mechanisms (as discussed by Jansen et al. (2009)) or listed examples of possible interventions supporting the closing of the strategy-execution gap (as mentioned by Hill & Jones (2011)), classifications for the operationalisation of the analysis of integration mechanisms lack development (Chen and Kannan-Narasimhan, 2015). Consequently, for this study we developed proper classifications of integration mechanisms in the context of Corporate Sustainability.

To make these classifications applicable to this research, the classifications are based on fields related to the three perspectives of the organisational system (i.e. continuous organisational improvement, organisational structure, and culture). The continuous improvement of integration mechanisms for CS integration depends on employees who are responsible for accomplishing increased coherence between the stages and levels of all three organisational system perspectives (Pojasek, 2012; Sinding et al., 2014). As an organisation decides to integrate CS, it needs to formulate long-term strategies to achieve this aim (Kerkhof, Marleen and Wieczorek, 2005). CS

strategies are formulated to reach objectives on CS output and outcomes, and is partially captured in actions aimed at increasing the integration of CS (Baumgartner and Ebner, 2010b). While actions alone do not fully explain the integration of CS in an organisational system, the integration of CS also emerges from the interactions amongst, and in the thoughts of, employees in the organisation (Eccles et al., 2011). Moreover, the exchange of organisational process data, as expressed in their CS impact, can form a feedback for the organisation's individuals on its effectiveness (Searcy, 2012). Consequently, activities, interactions, thoughts and data exchange, as collections of integration mechanisms, embody what of CS is to be integrated:

1. Activities

Actions that happen at a specific moment in time with regard to activities, operations, programs, initiatives carried out by an organization (Hatch and Cunliffe, 2013);

2. Interactions

The organisational system is affected by the conditions for interaction (Marion and Uhl-Bien, 2001): communication between the individuals and/or groups within the organisation, or with individuals and/or groups outside of the organisation;

3. Thoughts

The rationale of individuals at different levels within an organisation before taking action or communicating. Rationale, and associated processes of 'knowing', allow firms to innovate, and are essential for competitive strategy and performance (Eisenhardt and Santos, 2002); and,

4. Data exchange

The exchange of organisational process data, and their impact on the three CS dimensions (i.e. triple P issue dimension, time dimension and place dimension), is related to company requirements or specifications, that can form feedback for individuals in the organisation on the effectiveness of the processes and, therefore, change the processes at hand (Searcy, 2012).

6.2.2.1 A coherent use of integration mechanisms

Effective organisational performance occurs when the elements of the three perspectives on the organisational system are coherently addressed by integration mechanisms increasing the synergetic worth of the contributing corporate activities (Csikszentmihalyi, 2008). The concept of 'coherence' is generally used in scientific literature without making it operational. From the view of strategic management, coherence is seen as a critical capability for continuous corporate growth (Achtenhagen et al., 2013). Our view on the coherent use of integration mechanisms seems to mirror configurational perspective literature, in that it uses the idea of coherence as a consistent set of relations between elements (Demil and Lecocq, 2010). We, therefore, define coherent as the use of interventions as mechanisms that adhere to the full cycle of continuous organisational improvement (i.e. Plan, Do, Check AND Act), thereby covering all organisational structure levels (i.e. strategic,

tactical, AND operational), and all levels of the organisational culture (i.e. surface, value, AND underlying).

The coherence between the elements (i.e. stages of continuous organisational improvement and levels of organisational structure and culture) of the three perspectives of the organisational system is key for the contribution of an integration mechanism to close the strategy-execution gap. The coherent use of integration mechanisms directly supports the improvement of the performance of the other processes of the organisational system and, consequently, the performance now and in the future of the company as a whole (Demil and Lecocq, 2010). Consequently, increasing the coherent use of integration mechanisms is a key strategizing action (Achtenhagen et al., 2013) resulting in CS as an added value to the main business goals (Rauter et al., 2015). A continuous improvement of the coherent use of integration mechanisms can be sustained by learning from the success of past and present interventions in the organisational system (Epstein and Buhovac, 2010). An understanding of the success of the coherent use of integration mechanisms is, therefore, a prerequisite for increasing the level of CS integration into the organisational system. To understand the success of integration mechanisms used by companies to integrate CS into their organisational system, a holistic method based on the elements of organisation theory, organisational behaviour and strategic management was developed, as explained in the following section.

6.3 The LEAPFROCS method: its framework and application

The LEAPFROCS method was developed to contribute to CS integration research supporting an outcome-focused analysis of the efficiency of CS integration into the organisational system (as emphasised by Azapagic, 2003; Hahn et al., 2015; Jamali, 2006). The acronym LEAPFROCS refers to: **Leadership Enabling Accelerated Performance by Ferreting out Retrospectively the Organisational Integration of Corporate Sustainability and the verb “to leapfrog”**. The application of the LEAPFROCS method supports companies in making, smaller or bigger, ‘leapfrogs’ towards adhering to their strategy on addressing CS by an analysis of the past success of corporate actions on addressing CS. By gathering and analysing, retrospectively, the integration mechanisms related to CS integration in a company, this covers the need for a method to capture CS integration longitudinally (as underlined by Hahn et al., 2015; Maon et al., 2009; Siebenhüner and Arnold, 2007). The method contributes to the development of holistic methods (Hahn et al., 2015; Jamali, 2006) for analysing both formal and informal processes (as emphasised by Carenys, 2012; Epstein and Buhovac, 2010) related to the integration of CS, by uniting the three perspectives on the organisational system (i.e. continuous organisational improvement, organisational structure and organisational culture). The success of the integration mechanisms in reaching CS integration by its coherent use (as proposed by Achtenhagen et al., 2013; Demil and Lecocq, 2010) is based on the categorisation of the integration mechanisms on the elements of the three perspectives (see Figure 14).

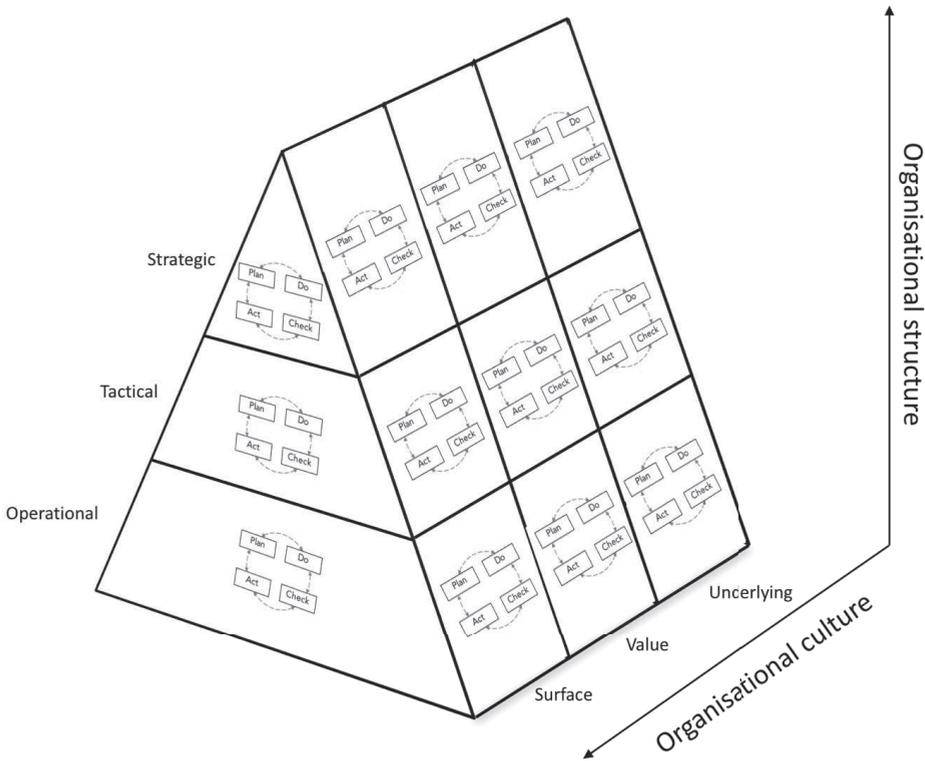


Figure 14 The three perspectives of the LEAPFROCS framework (i.e. continuous improvement, organisational structure and organisational culture) with the corresponding elements

6.3.1 The application of the LEAPFROCS method

The LEAPFROCS method was developed during 10 transdisciplinary case studies. With the existing need for theory building on CS integration (Linnenluecke and Griffiths, 2013), case study research, as a valid method for theory building (Eisenhardt & Graebner, 2007; McCutcheon & Meredith, 1993), facilitates the exploration of CS integration into organisational systems. The outcomes of the case studies served as practical knowledge to support strategic goals of the 10 participating companies as well as theoretical knowledge to support the development of the LEAPFROCS method. The final version of the LEAPFROCS method, as presented here, was tested through its application in two specific case studies: companies A and B (see Section 6.4.). Whereas the output of this research cannot be considered as generally applicable, its intention is to provide a theoretical perspective for the examination of CS integration cases (as emphasised by Yin (2009)).

The development and application of the LEAPFROCS method also includes the development of academic courses and research mentorship opportunities. Whereas academic curricula related to sustainability should include real-world learning opportunities (Bootsma et al., 2014), the creation

of course content based on LEAPFROCS and the inclusion of students in the LEAPFROCS method is aimed at shaping future change agents for CS integration. In both the development cases and the test cases the data was gathered and analysed by Master's students resulting in course reports and peer reviewed Master's theses (e.g. Denzel (2016); Fikkert (2015); Luiten (2015). Pannatier (2014); Van der Berg (2016)). Students from Master's programmes on Sustainable Development and Sustainable Business & Innovation at Utrecht University were invited to participate in the development and testing of the method because the content of both Master's courses addresses Corporate Sustainability. In preparation of their roles as LEAPFROCS researchers, the students detailed their knowledge on theoretical fields related to the three LEAPFROCS perspectives and the methodological implications of their role in a transdisciplinary case study research project. This preparation resulted in a peer reviewed research proposal of each of the students. As personal guidance for the students, the main LEAPFROCS researcher, and author of this thesis, was the first supervisor of their Master's theses. The scientific and societal validity of the research proposal and thesis reports are checked by a second reader: an academic from fields related to sustainability, business and/or innovation. A formal guideline for the application of the LEAPFROCS method supported the students to apply the LEAPFROCS method. The guideline existed of 7 steps:

6.3.1.1 Selection of the CS focus and projects

The researcher meets with the company representatives to select a guiding focus for the participation of the researcher. This focus is chosen from the company's broad corporate strategy on CS merely based on the company's interests and materiality analysis. Moreover, company projects that contribute to the chosen focus are identified for the student's participation. The projects are selected depending on the company's interests and the available time for the participation of the student (i.e. 6 months).

6.3.1.2 Selection of the interviewees

15 company employees related to the identified projects are selected from top management to shop-floor level and throughout all company departments related to the identified projects to be interviewed ensuring data gathering on integration mechanisms throughout the organisation. Depending on the focus and projects, the students develop a specific interview protocols and questions.

6.3.1.3 The research proposal

The students write a proposal supporting the validity of the project based on LEAPFROCS-related literature and the outcomes of the meeting with the company (i.e. focus, projects, interviewees). After this 8-week proposal-period, the scientific and societal validity of the proposal is checked by the second-reader.

6.3.1.4 *Data gathering through participation in company projects*

The student participates in the project(s) to gather additional data from the planned interviews (e.g. documents, notes from observations and informal conversations) related to the research focus. To capture both the physical and the social organisational dynamics of CS integration, and field based data (as proposed by Baumgartner, 2009; Hahn et al., 2015; Heijden et al., 2012; Lozano, 2012) is collected. Whereas most research on CS integration has been conducted using short term data gathering methods and, for example, questionnaires or checklists (e.g. Aya Pastrana & Sriramesh, 2014; Cramer, 2005; Jenkins, 2006; Klewitz & Hansen, 2014), the 6 months of participation of the student in company-projects results in long term qualitative data (i.e. documents, observation-notes) on past, present and planned integration mechanisms. This additional data was gathered through the application of participatory action research (PAR). PAR is a research method that permits transdisciplinary/co-productive research by simultaneously gathering case study evidence for theory building as well as to participate in organisational change processes (Bradbury-Huang, 2010; Cassell and Lee, 2012). The student is, therefore, embedded in the organisations' change processes to collect multiple sources of evidence: documents and observation notes. Together with the data from the interviews, this evidence creates the broad data sampling necessary for transdisciplinary research (as emphasised by Scholz and Tietje, 2002). Gathering data on the underlying levels of the organisational culture in the past implies gathering evidence on interventions by collecting data on, for example, intentions, feelings and emotions (according to Schwartz, 1999). Whereas data from corporate documents, interviews, and observation notes generally covers the evidence needed for the application of LEAPFROCS, integration mechanisms related to underlying organisational culture levels, but also thoughts in the past (i.e. retrospective point of view) demand an increased thoroughness of, especially, the interviews and observations (as also emphasised by Eisenhardt and Santos, 2002). Here we need to bear in mind that the method is aimed at creating a self-reflection on CS integration and to be a catalyser for further transformative learning, providing input for discussion on the collected data analysis with the company. For that reason, there is no need for full data coverage on the organisational system of the case study companies, but it needs to enable recognition and self-reflection by key stakeholders within the company.

6.3.1.5 *Data analysis*

The student analyses the data via interpretation and comparison (as emphasised by Zillman (1999)). Interpretive analysis leads to an understanding of why phenomena come about and how these unfold over time (Elliott and Timulak, 2005). Mostly, the interpretation of activities, interactions, thoughts or exchange of data - as integration mechanisms related to the focus and projects - are clear. However, in some situations the research data is less clear and thus the analysis is based on the students' interpretation of the philosophy and its underlying mind-set. Some mechanisms could entail other mechanisms. For example, compiling a sustainability report could entail company

meetings on a specific topic and the exchange of process data (see Figure 15). The success of the sustainability report as a mechanism for CS integration depends, consequently, on the success of the meetings and the exchange of process data. In all cases the students interpreted the collected data to find the lowest level of integration mechanisms. The interpretative analysis was supported by triangulation and comparison: data from the different sources (i.e. interview, documents and notes from observations) was assessed to justify the interpretation.

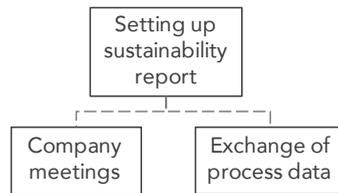


Figure 15 An example of different integration mechanisms

The analysis results in classification and categorisation of the integration mechanisms:

- Classification of the integration mechanisms - what kind of integration mechanism?

The integration mechanisms are classified according to type (i.e. activities, interactions, thoughts and/or exchange of data, their focus on organisational dynamics (i.e. physical and/or social), and the time perspective (i.e. past, present and/or future). Whereas the time perspective as a dimension of CS reflects when the impact of a business activities occurs (i.e. time perspective as a process output dimension), the time perspective as an integration mechanism classification indicates when the integration happened (i.e. time perspective as a process outcome classification). The classification of the integration mechanisms aims at understanding the kind of mechanism (i.e. non-normative).

- Categorisation of the integration mechanisms - how and where do the integration mechanisms apply?

The integration mechanisms are categorised according to the elements of the three LEAPFROCS perspectives of continuous organisational improvement (i.e. Plan, Do, Check and/or Act), organisational structure (i.e. strategic, tactical and/or operational) and organisational culture (i.e. surface, value and/or underlying). The categorisation aims at understanding the success of the coherent use of the integration mechanisms.

A coherent use of the integration mechanisms results in a high success rate: the more the integration mechanism is categorised on each of the elements of the three LEAPFROCS perspectives, the higher its success rate of coherent use. Consequently, a successful and coherent integration into the organisational system requires the integration mechanism to be:

- Planned, executed, checked AND adjusted (i.e. the Plan, Do, Check, Act of the continuous organisational improvement perspective of LEAPFROCS)
- Found implemented at strategic, tactical AND operational level (i.e. organisational structure perspective of LEAPFROCS); AND
- Found at the surface, value AND underlying levels (i.e. organisational culture perspective of LEAPFROCS).

For the success of the coherent use of an integration mechanism, the number of coded categories for one specific integration mechanism can, therefore, be divided by the maximum number of categories, i.e. ten: four continuous organisational improvement elements (i.e. plan, do, check and act); three organisational structure elements (i.e. strategic, tactical and operational); and three organisational culture elements (i.e. surface, value and underlying). So far, the representation of the success rate of integration mechanisms is plausible, and can be represented in the following formula:

$$\begin{aligned}
 & \textit{Integration mechanism succes rate} \\
 &= \left(\sum \textit{Coded elements on continuous organisational improvement} \right. \\
 &+ \sum \textit{Coded elements on organisational structure} \\
 &+ \left. \sum \textit{Coded elements on organisational culture} \right) \\
 & / 10 \textit{ as maximum coded elements}
 \end{aligned}$$

By classifying and categorising the integration mechanisms found during the case study research (i.e. the analysis of the integration mechanisms on their coherent use and consequent support for CS integration) this research intends to recognize patterns of relationships (as emphasised by Eisenhardt and Graebner (2007)) among the elements of the LEAPFROCS perspectives: the LEAPFROCS patterns. The LEAPFROCS method permits analysis of these patterns among the elements of the categorisation (i.e. of the three LEAPFROCS perspectives) using the different classifications of the intervention mechanisms, or the success-rate of the coherent use of the particular integration mechanism. For example, the patterns of the coherent use of the thought-type integration mechanism can be different from the interaction-type integration mechanism, the patterns of the coherent use of the integration mechanism of the mechanisms related to physical dynamics of the organisation can be different from the those related to the social dynamics of the organisation. The same analysis can be done from a time perspective: integration mechanisms from the past can have a different pattern of coherent use from current ones, or from prospective integration mechanisms. Consequently, the LEAPFROCS method can generate different patterns. The patterns depend on the support a specific

CHAPTER 6

company needs to improve their CS integration. For the testing of the LEAFPROCS method in this study (see Section 3), the patterns of the coherent use of the integration mechanisms, according to their integration success and the time perspective, resulted in both case study companies needing to define actions to improve their CS integration.

6.3.1.6 Outcome discussion

The outcomes of the analysis of the integration mechanisms are input for a discussion with the student, the researcher, and the representatives of the company. By discussing the LEAFPROCS patterns with the company representatives, the research analysis (the classification and categorisation of the identified integration mechanisms) was adjusted and/or validated assuring useful and acceptable outcomes (as underlined by Carew and Wickson (2010)). Moreover, discussion on these patterns encourages self-reflection on the part of the company with respect to CS integration, and is a catalyser for future corporate strategies for improving their CS integration.

6.3.1.7 Final reporting

In a final presentation to the company the recommendations are also validated by the company representatives. Subsequently, the outcomes of the discussion with the company are included in a report. The report includes a literature review, a critical explanation of the method, presentation of the LEAFPROCS data, the analysis (i.e. classification and categorisation of the integration mechanism, their success rate and applicable patterns), discussion of the data, considering the literature cited, the conclusions, and finally, the recommendations to the company.

6.3.2 Background information on the case study companies

The two case study companies used for testing the LEAFPROCS method proactively requested support on CS integration. These companies proved to be aware of the importance of sustainability for their businesses and had converted this awareness into action. Company A is a commercial cooperation of horticulturists; company B is a governmentally funded research institute on public health and sustainability. To preserve the anonymity of the companies, their real names are not mentioned.

Company A currently employs 360 people and has been engaging in CS practices for the past three years. Founded in 2005, company A is a Dutch technical service provider for the horticulture industry, manufacturer of substrate, and a supplier of horticulture tools and supporting products (e.g. fertilizer/pesticides). It is supportive of three main sectors: greenhouse vegetables; potted plants; and cut flowers. The company is part of a cooperation, in which the co-operative is the single shareholder. For this co-production action research, company A chose to focus the research on shared value creation. Three projects were selected, whose activities, in collaboration with supply chain partners, could lead to interventions in the organisational system of Company A and, therefore, to increased adherence to their CS strategy. The student participated in these three projects.

Although people external to the Company A were also related with the identified projects, only Company A employees were interviewed, and further data only on Company A was collected. The main representative of Company A was the commercial manager.

Company B, with a total of approximately 1,500 staff, carries out independent research on infectious diseases, public health, and consumer safety and it provides policy advice to assist government authorities. The main commissioning clients of company B are several Dutch ministries, governmental inspections, the EU and the UN. Since 2011, company B has a sustainability strategy for its own operations, and aims to become the most sustainable research institute in the Netherlands. For this co-production action research, company B chose their 2020 strategic plan as the focus. Company B wanted to know to what extent activities related to this strategic plan were successfully integrated into the organisational system. The student participated as a member of the sustainability department in projects related to this strategic plan. The main representatives of Company B were members of the sustainability team.

6.4 Testing the LEAFPROCS method

The researchers in both case studies gathered LEAFPROCS data on the integration mechanisms of the two case study companies while participating in the defined projects. The overall data resulted in 85 integration mechanisms for company A and 66 for company B, as can be seen in Tables 17 and 18. The analysis of the data can result in many plausible observations. The challenge is to recognize patterns in the data that can support each company to improve its strategy for integrating CS into its organisational system. With the integration mechanisms prioritized in accordance with their success rate, Tables 17 and 18 enable recognition of patterns (as described in 6.3.1.5) of the coherent use of the integration mechanisms. Tables 19 and 20 present additional patterns of integration mechanisms, from the time perspective. Whereas many more perspectives on the integration mechanisms can be generated from the data in Tables 17 and 18 (e.g. an integration mechanism-type perspective, or an organisational dynamic perspective), the discussions with company A and B showed the time perspective to be very useful to reflect on the use of the integration mechanisms. Consequently, patterns from all four Tables can create self-reflection on the use of CS integration mechanisms resulting in actions for improving CS integration into their organisational systems.

6.4.1 The integration mechanisms according to their successful coherent use

Tables 17 and 18 each consists of two main parts; classification AND categorisation. The first column of each part represents the integration mechanisms found. The coding of an integration mechanism on the elements of the classifications (i.e. what kind of integration mechanism?) and categorisations (i.e. how and where does the integration mechanism apply?) is represented with a

CHAPTER 6

“1”. The percentages in the last column of the categorisation part of both Tables represent the success-rate according to the formula in Section 6.3.1.5. The integration mechanisms of companies A and B are ranked as per their success rates.

As an example, integration mechanism # 28 of company A (see Table 17); company A decided on optimizing the teamwork of its employees by switching from a product-based to a sector-based approach. This integration mechanism was classified as an activity (type of integration mechanism; the decision was taken and implemented) influencing the social dynamics of the organisation (organisational dynamics, the teamwork that is influenced by the integration mechanism) in the present and for the future (when did the integration mechanism take place? It was implemented during the research project and was planned to reach into the future). The student and researcher categorised this integration mechanism at the plan-and do-phase of the continuous organisational improvement, while the integration mechanism was recently planned and implemented, but not yet checked or adjusted. The integration mechanism was found at the tactical and operational levels of the organisational structure, while the decision to implement it was taken at middle management (i.e. tactical) level, thus influencing teamwork at both tactical and operational levels. Finally, the adjusted teamwork focus was found at the surface, value and underlying levels, meaning that the change to a sector-focus was visible in practice, connected to the shared company values of the employees, and conforming to the beliefs.

INTEGRATION MECHANISMS FOR CORPORATE SUSTAINABILITY

Integration Mechanism	Classification - What kind of integration mechanism?										Integration Mechanism	Categorisation - How and where does the integration mechanism apply?										Success of CS Integration
	Type				Organisational system		Time		Continuous Improvement			Structure			Culture							
	Activity	Interaction	Thought	Data exchange	Physical dynamics	Social dynamics	Past	Present	Future	Plan		Do	Check	Act	Strategic	Tactical	Operational	Surface	Value	Underlying		
1	1	0	0	0	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	100.0%		
2	1	0	0	0	0	1	1	1	1	2	1	1	1	1	1	1	1	1	1	100.0%		
3	1	0	0	0	1	0	1	1	1	3	1	1	1	1	1	1	1	1	1	100.0%		
4	1	0	0	0	0	1	1	1	0	4	1	1	1	1	1	1	1	1	1	100.0%		
5	1	0	0	0	1	0	1	1	1	5	1	1	1	1	1	1	1	0	1	90.0%		
6	1	0	0	0	0	1	1	1	1	6	1	1	1	1	0	1	1	1	1	90.0%		
7	1	0	0	0	1	0	1	1	1	7	1	1	1	0	1	1	1	1	1	90.0%		
8	1	0	0	0	1	0	1	1	1	8	1	1	1	1	0	1	1	1	1	90.0%		
9	1	0	0	0	1	0	1	1	1	9	1	1	1	0	0	1	1	1	1	80.0%		
10	0	0	1	1	1	0	1	1	1	10	1	1	0	1	1	1	1	1	1	80.0%		
11	1	0	0	0	1	0	0	1	1	11	1	1	1	1	1	1	1	0	1	90.0%		
12	1	0	0	0	1	0	1	1	1	12	1	1	1	1	0	1	0	1	1	80.0%		
13	1	0	1	1	1	0	0	1	1	13	1	1	0	1	1	1	1	0	1	80.0%		
14	1	0	1	0	0	1	0	1	0	14	1	1	0	1	1	1	1	0	1	80.0%		
15	1	0	0	0	0	1	0	1	1	15	1	1	1	0	1	1	1	0	1	80.0%		
16	0	1	0	0	0	1	1	1	1	16	1	0	0	0	1	1	1	1	1	70.0%		
17	1	0	0	0	0	1	1	1	1	17	1	1	0	0	0	1	1	1	1	70.0%		
18	1	0	0	0	1	0	1	1	1	18	1	1	1	0	0	1	1	0	1	70.0%		
19	1	0	0	0	0	1	1	1	1	19	1	0	0	0	1	1	1	1	1	70.0%		
20	1	0	0	0	1	0	0	1	0	20	1	1	1	0	1	0	1	0	1	80.0%		
21	1	0	0	0	1	0	1	0	0	21	1	1	0	1	1	1	0	1	0	80.0%		
22	0	0	1	1	1	0	0	1	1	22	1	0	0	0	1	1	1	1	1	70.0%		
23	0	0	1	0	0	1	0	1	1	23	1	1	0	1	1	1	0	0	1	70.0%		
24	1	0	1	0	1	0	0	1	1	24	1	0	0	1	1	1	1	0	1	70.0%		
25	1	0	0	0	0	1	1	1	1	25	1	0	0	0	1	1	1	0	1	60.0%		
26	1	0	1	1	1	0	1	1	1	26	1	0	0	1	1	0	0	1	1	60.0%		
27	1	0	1	0	1	0	1	1	1	27	1	0	0	1	1	0	0	1	1	60.0%		
28	1	0	0	0	0	1	0	1	1	28	1	0	0	0	1	1	1	1	1	70.0%		
29	1	0	1	1	1	0	1	1	1	29	1	0	0	0	1	1	1	0	1	60.0%		
30	0	0	1	0	0	1	1	1	1	30	0	1	0	0	1	1	1	0	1	60.0%		
31	1	0	1	0	0	1	0	1	1	31	1	0	0	0	1	1	1	0	1	60.0%		
32	0	0	1	0	0	1	0	1	1	32	1	0	0	1	1	1	0	1	1	60.0%		
33	0	0	1	0	0	1	0	1	1	33	1	0	0	1	1	0	0	1	1	60.0%		
34	0	0	1	0	0	1	1	0	1	34	1	1	0	0	1	0	1	0	1	60.0%		
35	1	0	1	1	1	0	0	1	0	35	1	1	0	0	1	1	1	0	1	70.0%		
36	1	0	1	0	1	0	0	1	0	36	1	1	0	0	1	1	1	0	1	70.0%		
37	0	0	1	0	1	0	0	1	1	37	1	0	0	0	1	1	1	0	1	60.0%		
38	0	0	0	1	1	0	0	1	1	38	1	0	0	1	1	0	1	0	1	60.0%		
39	1	0	1	0	0	1	0	1	1	39	1	1	1	1	0	1	0	1	0	60.0%		
40	0	0	1	0	0	1	0	1	1	40	1	0	0	1	0	1	0	1	1	60.0%		
41	0	0	1	0	0	1	0	0	1	41	1	0	0	0	1	0	1	0	1	50.0%		
42	0	1	0	0	0	1	0	1	1	42	1	0	0	1	0	0	1	0	1	50.0%		
43	0	1	0	0	0	1	0	1	1	43	1	0	0	0	1	0	1	0	1	50.0%		
44	1	0	1	0	0	1	0	1	1	44	1	0	0	0	1	1	0	0	1	50.0%		
45	1	0	0	0	0	0	0	1	1	45	1	0	0	0	0	1	1	0	1	50.0%		
46	1	0	0	0	0	1	0	1	1	46	1	1	0	0	0	1	0	0	1	50.0%		
47	1	0	1	0	0	1	0	1	1	47	1	0	0	0	1	0	0	1	1	50.0%		
48	0	0	1	0	0	1	0	1	1	48	1	0	0	1	1	0	0	0	1	50.0%		
49	0	0	1	0	0	1	0	0	1	49	1	0	0	0	1	1	0	0	1	50.0%		
50	1	0	0	0	1	0	1	1	1	50	1	0	0	0	0	1	1	0	0	40.0%		
51	1	0	1	0	0	1	0	0	1	51	1	0	0	0	1	0	1	0	1	50.0%		
52	0	0	1	0	0	1	0	1	1	52	1	0	0	1	0	0	0	1	1	40.0%		
53	1	0	0	0	0	0	1	0	1	53	1	0	0	0	1	0	0	0	1	50.0%		
54	1	0	0	0	1	0	0	1	1	54	1	0	0	0	1	0	0	0	1	40.0%		
55	0	0	0	1	1	0	0	0	1	55	1	1	0	0	0	1	0	0	0	1	40.0%	
56	0	0	1	0	0	1	0	1	1	56	1	0	0	0	1	0	0	0	1	40.0%		
57	0	0	1	0	0	1	0	0	1	57	1	0	0	0	1	1	0	0	0	1	40.0%	
58	0	0	1	0	0	1	0	0	0	58	1	0	0	0	1	1	0	0	0	1	40.0%	
59	0	0	1	0	1	0	0	0	1	59	1	0	0	0	1	0	0	0	1	1	40.0%	
60	0	0	1	0	0	1	0	0	1	60	1	0	0	0	1	0	0	0	1	1	40.0%	
61	0	0	1	0	1	0	0	0	1	61	1	0	1	0	0	0	0	1	1	0	40.0%	
62	0	0	1	1	1	0	0	0	1	62	1	0	0	0	1	1	0	0	0	0	50.0%	
63	0	0	1	0	1	0	0	0	1	63	1	0	0	0	1	0	0	0	1	1	40.0%	
64	0	0	1	0	1	0	0	0	1	64	1	0	0	0	1	1	0	0	0	1	40.0%	
65	0	0	1	0	0	1	0	0	1	65	1	0	0	0	0	1	0	0	0	1	40.0%	
66	0	1	1	0	0	1	0	0	1	66	1	0	0	0	1	0	0	0	0	1	30.0%	
67	0	0	1	0	1	0	0	0	1	67	1	0	0	0	1	0	0	0	0	1	30.0%	
68	1	0	0	0	1	0	0	0	1	68	1	0	0	0	1	0	0	0	1	1	30.0%	
69	1	0	0	0	1	0	0	0	1	69	0	0	0	0	1	0	0	0	1	0	30.0%	
70	0	0	1	0	0	1	0	0	1	70	1	0	0	0	1	0	0	0	0	1	30.0%	
71	0	0	1	0	1	0	0	0	1	71	1	0	0	0	0	1	0	0	0	1	30.0%	
72	1	0	0	1	1	0	1	0	0	72	0	1	0	0	0	0	1	1	0	0	30.0%	
73	0	0	0	1	1	0	1	0	0	73	0	1	0	0	0	0	1	1	0	0	30.0%	
74	0	0	1	0	0	1	0	0	0	74	1	0	0	0	0	1	0	0	0	1	30.0%	
75	0	0	1	0	0	1	0	0	1	75	1	0	0	0	0	1	0	0	0	1	30.0%	
76	0	0	1	0	0	1	0	0	1	76	1	0	0	0	0	1	0	0	0	1	30.0%	
77	0	0	1	0	0	1	0	0	1	77	0	1	0	0	0	1	0	0	0	1	30.0%	
78	0	0	1	0	0	1	0	0	1	78	0	1	0	0	0	0	1	0	0	1	30.0%	
79	0	0	1	0	0	1	0	0	1	79	1	0	0	0	0	1	0	0	0	1	30.0%	
80	0	0	1	0	0	1	0	0	0	80	1	0	0	0	0	1	0	0	0	1	30.0%	
81	0	0	1	0	0	1	0	0	1	81	1	0	0	0	1	0	0	0	0	1	30.0%	
82	0	1	1	0	0	1	0	0	1	82	1	0	0	0	1	0	0	0	0	1	30.0%	
83	0	0	1	0	0	1	0	0	1	83	1	0	0	0	1	0	0	1	0	0	30.0%	
84	0	0	1	0	0	1	0	0	1	84	1	0	0	0	0	1	0	0	0	1	30.0%	
85	0	0	1	0	0	1	0	1	1	85	0	0	0	0	1	0	0	0	0	1	20.0%	

Table 18 The classification and categorisation of the integration mechanisms of Company A

As can be seen in Table 18, the ten most successful integration mechanisms of company A show an almost coherent use of the mechanisms, mostly being activities related to both the physical and social dynamics of the organisational system over time (i.e. past, present and future). The last four

CHAPTER 6

of this group of ten are more related to the physical dynamics, and show a gap at the strategic organisational level.

The second ten most successful integration mechanisms of company A show, again, predominantly activities that are, generally, equally distributed among the physical and social dynamics. These mechanisms were more often found in the present and future than in the past. Gaps in their coherent use can be seen in the continuous organisational improvement in the Check and Act phases, the organisational structure, and, specifically, on the strategic level, but also at the tactical and operational levels. The organisational culture shows gaps in the value level.

Further down the list of integration mechanisms, activities are taken over by thoughts but the equal distribution over the physical and social dynamics is maintained. Although mechanisms for the future are maintained, mechanisms from the past were rarely found. The coherent use of the integration mechanisms shows big gaps in the Check and Act phases of the continuous organisational improvement and on the operational level of the organisational structure. The coherence with the levels of the organisational culture shows big gaps at surface level, but with smaller gaps at the value level.

INTEGRATION MECHANISMS FOR CORPORATE SUSTAINABILITY

Integration Mechanism	Classification - What kind of integration mechanism?										Integration Mechanism	Categorisation - How and where does the integration mechanism apply?								Success of CS integration
	Type				Organisational system		Time		Continuous Improvement			Structure		Culture						
	Activity	Interaction	Thought	Data exchange	Physical dynamics	Social dynamics	Past	Present	Future	Plan		Do	Check	Act	Strategic	Tactical	Operational	Surface	Value	
1	1	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	100.0%
2	0	0	0	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	100.0%
3	1	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	90.0%
4	1	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	90.0%
5	1	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	90.0%
6	0	0	0	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	0	80.0%
7	1	0	0	0	1	0	1	1	1	1	1	1	1	0	1	1	1	1	0	80.0%
8	0	0	0	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	80.0%
9	1	0	0	0	0	1	1	1	1	0	1	1	1	1	1	1	1	1	0	80.0%
10	1	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	70.0%
11	1	0	0	0	0	1	0	1	1	1	1	1	1	0	1	1	1	1	0	80.0%
12	0	0	0	1	0	1	1	1	1	0	1	1	1	1	1	1	1	1	0	80.0%
13	0	0	0	1	0	1	0	1	0	1	1	1	1	1	1	1	1	1	0	80.0%
14	1	0	0	0	0	1	1	1	1	1	1	1	1	0	1	1	1	1	1	70.0%
15	1	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	60.0%
16	0	0	0	1	1	0	1	1	1	1	1	1	1	1	0	1	1	1	0	60.0%
17	0	0	1	0	1	0	0	1	1	1	1	1	1	1	0	1	1	1	1	70.0%
18	0	0	0	1	0	1	0	1	1	1	1	1	1	1	1	1	1	1	0	60.0%
19	1	0	0	0	0	1	1	1	1	1	1	1	1	0	1	0	1	1	0	50.0%
20	1	0	0	0	0	1	1	1	1	1	1	1	1	0	1	0	1	1	0	50.0%
21	0	0	0	1	1	0	1	1	1	0	1	1	1	1	0	0	1	0	0	60.0%
22	0	0	0	1	1	0	1	1	1	0	1	1	1	1	1	1	1	1	0	60.0%
23	0	0	0	1	1	0	0	1	1	0	1	1	1	1	1	1	1	1	0	60.0%
24	0	0	1	0	1	0	0	1	1	1	1	1	1	1	0	0	1	1	1	50.0%
25	1	0	0	0	0	1	1	1	1	0	1	1	1	1	1	1	1	1	1	50.0%
26	0	0	0	1	0	1	1	1	1	0	1	1	1	1	1	1	1	1	0	50.0%
27	0	0	0	1	1	0	1	1	1	0	1	1	1	1	0	0	0	0	0	50.0%
28	0	0	0	1	0	1	1	1	1	0	1	1	1	1	0	0	0	0	0	50.0%
29	0	0	1	0	0	1	0	1	1	1	1	1	1	1	1	1	1	1	1	50.0%
30	1	0	0	0	0	1	0	1	1	0	1	1	1	1	1	1	1	1	1	60.0%
31	1	0	0	0	0	1	1	1	1	0	1	1	1	1	1	1	1	1	0	60.0%
32	0	0	1	0	1	0	0	1	1	1	1	1	1	1	0	0	0	0	0	50.0%
33	1	0	0	0	0	1	1	1	1	0	1	1	1	1	0	0	0	0	0	50.0%
34	0	0	0	0	0	1	1	1	1	1	1	1	1	0	0	0	0	0	0	30.0%
35	0	0	1	0	0	1	0	1	1	1	1	1	1	0	0	1	0	0	0	40.0%
36	0	0	1	0	0	1	1	1	1	0	1	1	1	1	1	1	1	1	0	40.0%
37	0	0	1	0	1	0	0	1	1	0	1	1	1	1	0	0	0	0	0	40.0%
38	0	0	0	1	1	0	1	1	1	0	1	1	1	1	0	0	0	0	0	30.0%
39	0	0	1	1	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	30.0%
40	0	0	1	0	0	1	0	1	1	1	1	1	1	1	0	0	0	1	0	30.0%
41	0	0	1	0	1	0	0	1	1	0	0	1	1	1	1	1	1	1	0	40.0%
42	0	0	1	0	1	0	0	0	1	0	1	1	1	1	1	1	1	1	0	40.0%
43	0	0	1	0	1	0	0	0	1	0	1	1	1	1	1	1	1	1	0	40.0%
44	0	0	1	0	0	1	0	1	1	1	1	1	1	1	0	0	0	0	0	30.0%
45	0	0	1	0	0	1	0	1	1	0	1	1	1	1	1	1	1	1	0	40.0%
46	0	0	1	0	0	1	0	1	1	0	1	1	1	1	1	1	1	1	0	40.0%
47	0	0	0	1	0	1	0	0	0	1	0	0	1	0	0	0	0	0	0	30.0%
48	0	0	0	1	1	0	0	0	0	0	1	1	1	1	1	1	1	1	0	40.0%
49	0	0	1	0	1	0	0	0	0	1	0	0	0	1	0	0	0	1	0	30.0%
50	0	0	1	0	1	0	0	0	0	1	1	1	1	1	1	1	1	1	0	30.0%
51	0	0	1	0	1	0	0	0	1	0	0	0	1	1	1	1	1	1	0	30.0%
52	0	0	1	0	1	0	0	0	1	0	0	0	1	1	1	1	1	1	0	30.0%
53	1	0	0	0	0	1	0	0	0	1	0	0	1	0	0	0	1	0	0	40.0%
54	1	0	0	0	0	1	0	0	0	1	0	0	1	1	1	1	1	1	0	40.0%
55	1	0	0	0	0	1	0	0	0	1	0	0	1	0	1	0	1	0	0	40.0%
56	0	0	0	1	1	0	0	0	0	0	1	0	0	1	0	0	1	0	0	40.0%
57	0	0	1	0	0	1	0	0	0	1	0	0	1	0	0	0	1	0	0	30.0%
58	0	0	1	0	0	1	0	0	0	1	0	0	0	0	1	0	0	1	0	30.0%
59	0	0	0	1	0	1	0	0	0	1	0	0	0	1	0	0	1	0	0	30.0%
60	0	0	1	0	0	1	0	0	1	0	0	0	1	0	0	0	1	0	0	20.0%
61	0	0	1	0	0	1	0	1	0	0	0	0	1	1	0	0	0	0	0	20.0%
62	0	0	1	0	0	1	0	1	0	0	0	0	1	1	0	0	0	1	0	20.0%
63	0	0	0	1	1	0	0	0	0	0	0	0	1	0	0	0	1	0	0	30.0%
64	0	0	1	0	0	1	0	1	0	1	0	0	1	0	0	0	0	0	0	20.0%
65	0	0	1	0	0	1	0	1	0	0	0	0	0	1	0	0	1	0	0	20.0%
66	0	0	1	0	0	1	0	1	0	0	0	0	0	0	1	0	1	0	0	20.0%

Table 19 The classification and categorisation of the integration mechanisms of Company B

As can be seen in Table 19, the ten most successful integration mechanisms for company B are mostly based on activities, with some data exchange examples. The mechanisms are predominantly related to the social dynamics of the organisational system over time (i.e. past, present and future). The categorisation of this group of ten integration mechanisms shows coherence with the continuous organisational improvement and organisational structure, but with a gap at the underlying level of organisational culture.

The second ten most successful integration mechanisms for company B show both activities and data exchange, predominantly related to the social dynamics of the organisational system over almost all time perspective phases (i.e. past, present and future). Gaps in their coherent use can be

CHAPTER 6

seen in the continuous organisational improvement on Check and Act phases, in the organisational structure at several levels, and in the organisational culture on value and, more predominantly, the underlying level.

Further down the list of integration mechanisms thoughts take over, especially in present. The distribution over the physical and social dynamics becomes more equal. The coherent use of the integration mechanisms shows big gaps in the check and act phases of the continuous organisational improvement, and at the operational and tactical levels of the organisational structure. The coherence with the organisational culture shows gaps at all levels, with the gap at the underlying level being the most prominent.

6.4.2 The integration mechanisms as per the time perspective

In Tables 20 and 21, the classified and categorised integration mechanisms are grouped in columns for the past, present, and/or future phases indicating when the integration happened. This grouping results in patterns for the coherent use of an integration mechanism from a time perspective. Tables 19 and 20 both comprise of two parts: classification; and the categorisation of the integration mechanisms. The percentages shown in both Tables represent the outcomes of integration mechanisms from a specific time perspective (i.e. past, present or future phase) that were coded for each class or category, divided by the total number of integration mechanisms (i.e. 85 for company A and 66 for company B). The percentages in the last column of the categorisation part of both Tables represent the success rate according to the formula in Section 6.3.1.5. For the categorisation of the integration mechanisms the “perfect” pattern shows: 1. equal distribution of percentages between the elements of one LEAPFROCS perspective based on the aimed at coherent use of the integration mechanism; and, 2. high percentages.

Classification - What kind of integration mechanism?						
Company A	Type				Organisational system	
	Activity	Interaction	Thought	Output	Physical dynamics	Social dynamics
Past	80%	4%	28%	20%	64%	36%
Present	64%	5%	51%	20%	51%	49%
Future	43%	7%	64%	9%	49%	51%

Categorisation - How and where does the integration mechanism apply?											
Company A	Continuous Improvement				Structure			Culture			Success of CS integration
	Plan	Do	Check	Act	Strategic	Tactical	Operational	Surface	Value	Underlying	
Past	88%	100%	56%	40%	40%	80%	84%	92%	60%	88%	73%
Present	96%	87%	38%	25%	53%	82%	62%	67%	47%	95%	65%
Future	95%	64%	25%	17%	46%	66%	50%	47%	43%	88%	54%

Table 20 The classified and categorised integration mechanisms of company A from a time perspective. The black bar chart represents the percentages for each cell.

As can be seen from Table 20 on the integration mechanisms of company A, activities such as integration mechanisms decrease, while thoughts increase, when going from past, via present to future mechanisms. Integration mechanisms in all time-phases show an equal relationship with the physical and social dynamics of the organisational system. Looking at the categorisation, Table 20

shows that past integration mechanisms are related to the Plan and Do phases of continuous improvement, with the Check and Act phases making a lower contribution. Whereas present and future integration mechanisms show a decreasing relation with the Do, Check and Act phases, the relation to the Plan phase remains high. Past integration mechanisms were found at tactical and operational level. Although this changes from present to future mechanisms to a more equal distribution, the percentages are lower, resulting in the future phase showing an almost equal distribution over all organisational structure levels. From an organisational culture perspective, the integration mechanisms were, are, and will be strongly related to the underlying level. Integration mechanisms related to surface and value levels decrease when going from past, via present to future, resulting in an unequal distribution of the integration mechanisms. Finally, the categorisation of the integration mechanisms from a time perspective results in a decrease in the success of the coherent use of the integration mechanisms when going from past, via present to future mechanisms.

Classification - What kind of integration mechanism?						
Company B	Type				Organisational system	
	Activity	Interaction	Thought	Output	Physical dynamics	Social dynamics
Past	54%	0%	4%	38%	27%	73%
Present	31%	0%	40%	27%	33%	69%
Future	34%	0%	41%	22%	28%	75%

Categorisation - How and where does the integration mechanism apply?											
Company B	Continuous Improvement				Structure			Culture			Success of CS integration
	Plan	Do	Check	Act	Strategic	Tactical	Operational	Surface	Value	Underlying	
Past	92%	96%	65%	62%	92%	54%	58%	62%	42%	12%	63%
Present	79%	73%	40%	38%	83%	54%	54%	50%	52%	13%	54%
Future	97%	69%	41%	38%	84%	47%	59%	59%	66%	16%	58%

Table 21 The classified and categorised integration mechanisms of company B from a time perspective. The black bar chart represents the percentages for each cell.

As can be seen in Table 21 on the integration mechanisms of company B, activities and data exchange are higher in the past, but decrease in present and future phases. This leaves thoughts as the main integration mechanism in present and future phases. Integration mechanisms are more related to the social organisational dynamics for all time perspective phases. Looking at the categorisation, Table 21 shows that, from a continuous improvement perspective, integration mechanisms of all time perspective phases are more related to Plan and Do phases, rather than the Check and Act phases. Whereas present and future integration mechanisms show a decreasing relationship with Do, Check and Act phases, the relationship to the Plan phase remains high, especially for integration mechanisms related to the future. Distribution of the integration mechanisms over the three levels of the organisational structure remain the same over time, and most mechanisms are related to the strategic level and less to the other two levels. From an organisational culture perspective, the integration mechanisms were, are, and will be, more related to the surface and value levels than the underlying level. Finally, the categorisation of the integration mechanisms from a time perspective results in a quite stable success rate for the coherent use of the integration mechanisms when going from past, via present to future mechanisms.

6.4.3 *Actions for improving future CS strategies*

The analysis of patterns of the coherent use of the integration mechanisms and on integration mechanisms from a time perspective show different outcomes for both companies. The discussion of the patterns with the representatives of both companies resulted, therefore, in different consequential decisions for each company on improving CS integration into their organisational systems.

Company A chose to focus the research on shared value creation and let the student gather data on related integration mechanisms by participation in three shared value creation projects. The resulting data on 85 integration mechanisms show that Company A can improve their coherent use of integration mechanisms by closing gaps in all LEAPFROCS perspectives. From a continuous organisational learning perspective, Company A needs to include mechanisms for Check and Act into their strategy, while maintaining an equal distribution in relation to the physical and social dynamics of the organisational system. Besides, these integration mechanisms should present an increased focus on the strategic level while maintaining the focus at the tactical and operational levels. And lastly, an equal distribution of the three organisational culture levels can be obtained by more integration mechanisms related to the value and artefacts levels of the organisational culture. While analysing and discussing the LEAPFROCS patterns with the representatives of Company A they reflected on the support for employees with the control (i.e. Check) and evaluation (i.e. Act) of initiatives related to the CS strategy. Moreover, the company expressed the will to create a bridge between strategies and policies at strategic level, and initiatives at the other two organisational structure levels, while developing integration mechanisms that would make CS a more shared corporate value (i.e. at value level) and tangible (i.e. at surface level). This self-reflection of company A resulted in the appointment of the student, who gathered the research data, as the new business development manager after finishing his thesis. The student was assigned to support colleagues with integrating CS into their daily business activities and developing and executing integration mechanisms with an increased coherence of use, according to the above-mentioned needs, and related to the CS strategy.

Company B wanted to know how activities related to their strategic plan on CS resulted in successful CS integration into the organisational system. Consequently, the student gathered data on related integration mechanisms by being a member of the sustainability department in projects related to this strategic plan. The resulting data of 66 integration mechanisms show that Company B can improve the coherent use of integration mechanisms by closing gaps at all LEAPFROCS perspectives. Company B has a challenge to develop integration mechanisms for closing the cycle of continuous improvement, especially by mechanisms in Do, Check and Act phases. Whereas

Company B has been seeking CS integration, especially in the social dynamics-related integration mechanisms, there is a need for more integration mechanisms related to the physical organisational dynamics. Moreover, these mechanisms should aim for an equal distribution of CS integration over all levels of the organisational structure. From an organisational culture perspective, company B should increasingly emphasise the underlying level of the organisational culture.

While analysing and discussing the LEAPFROCS patterns with the representatives of Company B, they discussed how to support the organisation while reflecting upon and learning from (i.e. continuous organisational improvement) past CS integration. Additionally, they reflected upon the current high number of socially oriented mechanisms not connecting to the individual employees (i.e. underlying organisational culture level). Company B translated this self-reflection into developing an additional research study on how the psychological factors and personality characteristics of the internal change agents related to successful integration mechanisms. With this additional research, Company B aims at improving their understanding of the kind of person they should hire to lead the integration of CS into their organisational system.

6.5 Conclusions

This article presents the LEAPFROCS method as a more holistic, retrospective and longitudinal research approach to understand successful integration of CS into organisational systems. The transdisciplinary approach enables the LEAPFROCS method to support companies in improving the integration of CS into their organisational systems. A coalescence of elements stemming from different fields (as was proposed by Maas et al. (2016b)) (i.e. organisational theory, organisational behaviour and strategic management) forms the basis of the LEAPFROCS method. Additionally, the LEAPFORCS method permits analysis of the success of the integration of CS into the organisational culture as was emphasised by, for example, Epstein and Buhovac (2010). The concept of integration mechanisms is used to cross-relate the different elements, as was underlined by Sorge (2004), and facilitates the CS integration process. Whereas integration mechanisms lead to transformative changes throughout the organisational system (as underlined by Epstein and Widener (2010)), the coherent use of the mechanisms shows their contribution to the filling of the gap between a CS strategy and its execution (as concluded by Csikszentmihalyi (2008) and Achtenhagen et al. (2013)), resulting in CS being an added value for business goals (as concluded by Rauter et al., 2015).

To gather retrospective data on the link between integration mechanisms and continuous organisational improvement, and organisational structure and organisational culture, the researcher should be embedded in an organisation's change processes. Whereas other researchers (Hahn et al., 2015; Maon et al., 2009; Siebenhüner and Arnold, 2007) propose to capture CS integration longitudinally, the LEAPFROCS approach contributes by applying a participatory action research

CHAPTER 6

approach. The testing of the LEAPFROCS method with the two case study companies that proactively chose support with their CS integration shows that integration mechanisms for successful integration of CS are different in classification and categorisation: the coherence of its use.

The proposal of a formula to represent the success rate of integration mechanisms (see Section 6.3.1.5.) reflects the goal to reduce differences within the organisational system on a specific strategy (as emphasised by Dougherty (2001) and Sheremata (2000)) leading to actions for the integration of the strategy at all levels of the organisation (as concluded by Cramer (2005b)). Whereas the focus on the coherent use of integration mechanisms is directly supporting performance improvement of related processes (as underlined by Demil and Lecocq (2010)), learning from the success of past integration mechanisms (as proposed by Epstein and Buhovac (2010)) contributes to the improvement of the corporate strategy (as concluded by Achtenhagen et al. (2013)). In this way, the application of the LEAPFROCS method enables verification of the conclusions by, for example, Searcy (2012) and Engert et al. (2016) that integration of CS into the organisational system is different for each company. For the two case studies the representatives of the company, the students and the researchers chose a research focus based on each company's CS strategy. This focus helped the students to gather specific data on integration mechanisms, and related the integration mechanisms to the LEAPFROCS classes and categories.

The data analysis is aimed at the recognition of useful patterns of relationships (as underlined by Eisenhardt and Graebner (2007)) between the LEAPFROCS elements. For the two case studies, we decided to analyse two types of pattern: 1. patterns of coherent use of the integration mechanisms; and, 2. patterns for integration mechanisms from a time perspective. Whereas many more patterns on the integration mechanisms can be generated from LEAPFROCS data, the discussion of the data with both company A and B showed that these two patterns would suffice for them to take consequential decisions on improving CS integration into their organisational systems. The discussion on these patterns creates self-reflection by the companies on their CS integration mechanisms, becoming a catalyst for future corporate strategies for improving CS integration. Moreover, the participation of master students equipped future CS change agents with detailed knowledge of real-world CS integration cases (as emphasised by Bootsma et al. (2014)), and of the methodological implications of a transdisciplinary case study (as underlined by Bradbury-Huang (2010) and Cassell and Lee (2012)).

Whereas the LEAPFROCS method was developed under the aegis of CS, it may also be applicable for other transformative changes to the organisational system. In general, it supports proactive and forward-thinking companies in their challenge to increase the coherent use of integration mechanisms while integrating specific corporate strategies into their organisational systems, with a possible consequent, beneficial, exploitation of their business potential.

6.5.1 *Suggestions for further research*

To further develop the theory of company CS integration, the application of the LEAPFROCS method should be extended to include the gathering of data in cooperation with companies from different sectors, and by increasing the geographical scope to include companies from other countries. Moreover, we recommend extending the method to make the link between the output (i.e. the impact of the organisational processes on the three CS dimensions) and outcome (i.e. the efficiency of the organisational system based on the coherence between the organisational process elements) of CS integration more explicit. This proposed extension would broaden the research scope for determining the contribution of the outcomes of business activities that favourably influence the output of processes and products resulting in a positive impact on the CS dimensions.

We also recommend extending the geographical range of students participating in this research. Whereas the research for this study included collaboration with, and participation of, students of different levels, including students from other countries extends the development of academic courses and research mentorship opportunities as approaches to science and community action, and to foster future CS researchers or practitioners on a wider geographical scale.

The overall challenge is to create a critical mass of research data on CS integration in companies by the application of the LEAPFROCS method, as a transdisciplinary research approach. The academic community needs to play an essential triple role here: partly supplying approaches and tools for CS integration; partly critically analysing the progress made and testing the assumptions about effective strategies for transformative change towards CS integration; and partly educating present and future CS integration change agents. This study presents several steps, but it has also created a wide collaboration with academic and market actors in this common challenge as a basis for future transdisciplinary theory building activities on CS integration.

This thesis entails a 'tour d'horizon' on Corporate Sustainability integration. The method developed throughout the chapters aims to capture patterns of integration mechanisms. The discussion of these patterns support companies to self-reflect and take consequential decisions for improving CS integration into their organisational systems. The developed collaborative participatory action research approach permits collaboration between academia and companies and contributes to the expertise of present and future players in the CS field.





Chapter 7

Reflections on ferreting out sustainability integration within organisations

This PhD thesis presents a method for achieving the integration of Corporate Sustainability (CS) into an organisation, based on practical experience: after having advised and helped companies practically over many years with integrating CS into their organisational systems, company leaders expressed the need for a formalised and supported version of my vision and approach on how the organisation's sustainability performance can be accelerated through uncovering integration mechanisms. The answer to this desire also corresponded with the call from science for theory-building on the process of CS integration. Research linking the social dynamics with corporate sustainability performance, are providing checklist type solutions (e.g. sustainability reporting (Lozano and Huisinigh, 2011) and high-level strategic planning (Engert et al. (2016)), or the company's management system (Azapagic and Perdan, 2005; Hahn et al., 2015; Maon et al., 2009) as the vehicle for the application of CS strategy. Despite this research, there is still the need to uncover how people within companies can get CS imbedded into their heads and hearts (Linnenluecke and Griffiths, 2010). Consequently, there is a gap in the literature on the understanding and measurement of how the action and interaction between the people within an organisation results in the sustainability impact of corporate processes.

This thesis entails a 'tour d'horizon' on CS integration from different perspectives, coalescing in the development and testing of a method to capture integration mechanisms leading to transformational changes in the social dynamics of the organisational system. The LEAFPROCS method presented in Chapter 6 contains, consequently, what was gleaned from these different perspectives, as revealed in Chapters 2 through 5.

7.1 Reflections on the development of the outcomes

Chapter 2 includes a historical overview of what has been written on CS and its preceding concepts over the last three decades. We conclude that companies need a clear strategy development based on both the physical and social dynamics of the organisation and their impacts on the three dimensions of CS (i.e. issue, place and time). It is crucial to analyse how transformative learning from interventions in the social dynamics leads to adjusted strategies, and, finally, an improvement in the impact of corporate processes on the CS dimensions (i.e. contributing to an answer to the first sub-research question of this thesis). Whereas several researchers (e.g Baumgartner, 2014; Epstein and Buhovac, 2010; Hahn et al., 2015) have been contributing to an understanding of the development of a corporate strategy to adhere to CS, they do not further elaborate on the influence of the social dynamics, neither do they provide tools to analyse corporate learning on these strategy adjustments (see also Asif et al., 2011; Lindgreen and Swaen, 2010; Maon et al., 2009). The LEAFPROCS method of Chapter 6 analyses the interventions in the social dynamics and how companies can learn from the success of these interventions.

Chapter 3 analyses the integration process of CS in 18 companies from an external change agent perspective. Whereas CS integration initiatives are often isolated and not directly linked to the core business activities (Székely and Knirsch, 2005), this chapter presents empirical data for companies that proactively asked for guidance on integration to make CS part of their main corporate goals. Besides showing the process of CS integration in different companies, this chapter also elaborates on the role of external change agents, as a third party, that influence the process of CS integration (i.e. contributing to the answer to the third sub-research question of this thesis). Whereas consultancy practices are loosely coupled to a body of theoretical knowledge in organisation studies (Sorge, 2004), the outcomes of this chapter show that integration of CS can be analysed by letting external change agents apply pragmatic tools based on their long-term field knowledge and experience with the companies. We conclude that a corporate strategy for addressing CS integration is different for each company. It is, therefore, important for each company to clarify what their strategy on CS should be and how they will adhere to it: how they can best integrate the appropriate strategy on CS into the physical and social dynamics of their business activities. The clarification of the strategy on CS, based on the three CS dimensions and business activities contributing to this strategy are, consequently, the first two steps of the LEAFPROCS method outlined in Chapter 6.

Chapter 4 defines the process of CS integration into the organisational system leading to a framework to analyse the CS tools used by companies. Several researchers (e.g. Hockerts, 2015; Searcy, 2016) have taken an output perspective (i.e. adherence to a corporate strategy on the impact of corporate processes on, for example, CS dimensions), or a management systems view (e.g. Asif et al., 2011; Gianni and Gotzamani, 2015) on the integration of CS. We define the process of CS integration from an outcome perspective: the continuous learning of interventions into both the social and physical dynamics of the organisational system leading to an improved impact of corporate processes on the three CS dimensions. Several CS researchers (e.g. Hahn et al., 2015; Lozano, 2012) have expressed the need for a more holistic understanding of how tools support the integration of CS into the organisational system. Consequently, We developed an additional framework containing the core characteristics of the CS integration process (i.e. contributing to the answer to the first sub-research question of this thesis) aimed at analysing the integration support of CS tools. We give an overview of the tools mentioned in the literature, and apply the framework to the three most prominent tools (i.e. EMS, SR and LCA) (i.e. as an answer to the second sub-research question of this thesis). We conclude that none of these tools completely covers CS integration from an outcome perspective; especially that the support for CS integration into the social dynamics of the organisation obtains less attention. Consequently, companies should be critical and learn from the application of CS tools, and how they cover the company's needs for CS integration into its organisational system. To capture the continuous learning cycle of interventions into the organisational system, the LEAFPROCS method emphasises integration mechanisms (e.g. the use

CHAPTER 7

of CS tools) in supporting CS integration. The success of the coherent use of these integration mechanisms shows where a company's need for CS integration was fully covered.

Chapter 5 analyses supply chain actors as third parties affecting the process of CS integration (i.e. as an answer to the third sub-research question of this thesis). A conceptual framework is developed based on the influence of sustainability criteria in public procurement on the development of more sustainable business models. This framework proposes collaboration as a link between the actors in the public procurement process and the integration of sustainability in the business model of the related companies. Despite calls from society (UNEP, 2014) and science (e.g. Meehan and Bryde, 2011; Uyarra et al., 2014), there has been little academic research focusing on making this link between the procurement process and its influence on the organisational systems of the related companies. Several research studies focus on the public procurement process with respect to the technical specifications of the products (Kiiver and Kodym, 2014; Rietbergen and Blok, 2013). We conclude that more attention should be given to the specifications of the social dynamics of the procurement process. This chapter, therefore, emphasises interventions in the social dynamics as key to the improvement of the output of organisational processes. The LEAPFROCS method includes the organisational culture as one of its three perspectives, and is based on integration mechanisms as the analytical unit of the interventions in the social dynamics of the organisational system.

Finally, Chapter 6 includes the further development and testing of the LEAPFROCS method. By enabling the measurement of the CS integration success (i.e. as an answer to the fourth sub-research question of this thesis), the LEAPFROCS method contributes to calls from science to develop a holistic and longitudinal methodology (Maon et al., 2009; Salzmann et al., 2005; Siebenhüner and Arnold, 2007; Weber, 2008) to analyse, retrospectively, the influence of the social dynamics on the impact of corporate processes on the CS dimensions (Hahn et al., 2015). Most importantly, the LEAPFROCS method supports companies to self-reflect and take consequential decisions for improving holistic CS integration into their organisational systems.

7.2 Methodological reflections

This thesis contributes to uncovering CS integration into the social dynamics of the organisational system by the development and application of different perspectives culminating in the LEAPFROCS method. This approach adheres to the need for theory building on CS integration (as concluded by Linnenluecke and Griffiths, 2013). The outcome focus on CS integration permits the collection of longitudinal data on past, present and future CS integration (as proposed by (Hahn et al., 2015), and the context of the process of CS integration (as emphasised by van Breda et al. (2016).

A collaborative participatory action research approach formed the basis for the co-production of practical knowledge, oriented towards the strategic goals of the participating companies (as

proposed by Hessels and van Lente, 2008), and new theoretical knowledge on CS integration (as proposed by Pohl and Hirsch Hadorn, 2008). The participation in the corporate context enabled the collection of multiple-source data necessary for trans-disciplinary research (as emphasised by Scholz and Tietje, 2002). The trans-disciplinary research approach means that the LEAPFROCS method achieves a contribution to the co-production of practical knowledge (as emphasised by Hessels and van Lente, 2008), and the theoretical knowledge needed for providing new insights and understanding (as emphasised by Lang et al., 2012) on how companies could contribute to the development of a sustainable society. The complete LEAPFROCS method has resulted from the collaboration with companies expressing a need for CS support. The outcomes of the LEAPFROCS method (i.e. the LEAPFROCS patterns) show company-specific gaps in the use of integration mechanisms that could be used for future improvements at all three LEAPFROCS perspectives (i.e. continuous organisational improvement, organisational structure, and organisational culture). The selection and the discussion of LEAPFROCS-patterns with company representatives and the main researchers validated the research data. Neither the success of the coherent use of integration mechanisms nor the LEAPFROCS patterns pretend to be objective or normative, but are the researcher's views on the company-specific process of CS integration. The discussion of the researcher's view with company representatives provides the opportunity for company self-reflection on CS integration catalysing future corporate strategies for improving CS integration into their organisational systems.

This collaborative approach for the co-production of practical and scientific knowledge is becoming more common in the philosophy of science, especially for sustainability-related research. Because sustainability is related to ongoing societal developments, there is a demand for continuous development of multidisciplinary theories (Lang et al., 2012; Pohl et al., 2010). Efforts to understand ongoing societal developments with their very high levels of uncertainty have disclosed the limitations of conventional scientific approaches to theory testing by distant measurements, large n data-sets and cross sectional research designs (Fahy and Rau, 2013). Consequently, contemporary society has seen a transformation in the mode of new knowledge production: Mode 1 knowledge, representing traditional knowledge creation within a discipline, is increasingly being accompanied by; Mode 2 knowledge gleaned from the broader, trans-disciplinary, social and economic contexts (Gibbons et al., 1994; Nowotny et al., 2003). This PhD thesis contributes to Mode 2 knowledge creation on CS integration by connecting with practice, and participating in the transformational change processes leading to an increased contribution to the sustainable development of society. By taking a holistic and multidisciplinary perspective on the process of CS integration, this thesis aims to contribute to the current attempts for Mode 2 knowledge creation in environmental sciences as well as business administration.

Co-production of practical and scientific knowledge can lead to questions, or even doubts, about the validity of the research outcomes. Validity is key for Mode 1 knowledge production as it shows the degree to which conclusions about causal relationships can be made (i.e. internal validity), or whether findings can be validly generalized for other cases (i.e. external validity) (Bryman, 2008). Practitioners, on the other hand, might be sceptical about the practical relevance (i.e. salience) of the results of Mode 1 knowledge (Lang et al., 2012). For Mode 2 knowledge production, research outcomes should be meaningful for specific situations making field validity key. Whereas trans-disciplinary research goes beyond building knowledge for scientific purposes, or to provide decision support, there is a need for experience-based guidelines to generate meaningful data and thus satisfy all parties involved in trans-disciplinary research (Cash et al., 2003) to take away doubts on, for example, the reflective capability of the researcher (Hessels and Lente, Harro, 2008). The LEAFPROCS method assures the validity of its outcomes by the reflection of the researcher supervised by a main researcher AND a discussion with the company. The field validity is underlined by the decision of the company for improving future CS strategies, being based on LEAFPROCS patterns. In this way, the field validity of the research outcomes is as important as the contribution of these outcomes to the strengthening of the capabilities of companies themselves to integrating CS in a proactive manner. This co-existence of the need for qualitative, practical, AND scientific knowledge establishes a mutual benefit. Consequently, the collaboration between academia – with main researchers and students - and companies, implied in the LEAPFORCS method, contributes to the expertise of present and future players in the CS field.

7.3 Recommendations for future research

To further build theory on CS integration, recommendations for future collaboration with companies, AND the future development of knowledge and methods in science, can be given.

The further development of the LEAFPROCS method as a trans-disciplinary approach should be extended to include data gathering by increasing the geographical scope and co-production with more companies from different sectors. Including researchers and their students from other countries extends the development of academic courses and research mentorship opportunities, as it continues to foster future CS researchers or practitioners. Therefore, a community of practice should be developed containing different universities with master degrees related to Corporate Sustainability, AND a strong collaboration with companies. The application of the LEAFPROCS method by an increased group of researchers would demand detailed instructions, but also create a database with integration mechanisms from different company case studies in different contexts. This would add a new dimension to the application of the LEAFPROCS methods, and could form a bridge from Mode 2 knowledge production to Mode 1 knowledge production on CS integration.

In this thesis, in line with several researchers (e.g Baumgartner, 2014; Epstein and Buhovac, 2010; Hahn et al., 2015), I assume but not empirically prove a positive link between the organisational culture and an improved impact of the physical dynamics of the organisation. I, therefore, recommend an extension of the LEAPFROCS method by making a link between the output (i.e. the impact of the organisational processes on the three CS dimensions) and the outcome (i.e. the successful coherent use of integration mechanisms) of CS integration, thus rendering it more explicit. This extension broadens the research scope determining the contribution of the outcomes of business activities to positively influence the output of processes and products, resulting in an impact on the CS dimensions.

From a more practical perspective, the LEAPFROCS method could be further developed for its use by companies themselves. I recommend detailing the LEAPFROCS guidelines for their application by practitioners as well, including company employees. Consequently, the LEAPFROCS method, as a tool, could be used by companies to self-reflect on CS integration and catalyse future corporate strategies for improving CS integration into their organisational systems. While the internal validity for the LEAPFROCS method is assured by the presence of a group of academic researchers, the use of the LEAPFROCS method as a company tool needs to be validated by the practitioners themselves. Whether a corporate self-validation of LEAPFROCS outcomes will lead to an increase in self-reflection on CS integration and/, or a decrease in the meaningfulness of the LEAPFROCS outcomes remains to be seen. In all cases, the future application of the LEAPFROCS method, by academic researchers or company practitioners, will build knowledge and, finally, theory on CS integration by reflecting on retrospective data for future CS strategies. The interplay between past and future CS integration by means of present reflections entails, therefore, a collaboration between companies, academia and future CS practitioners aiming for a continuous critical rationalisation of where companies come from to better define where they could go to. Under the adagio “looking back for a brighter future” this thesis has provided a usable step forward for such a transdisciplinary learning process.

References

- Achtenhagen, L., Melin, L., Naldi, L., 2013. Dynamics of business models - strategizing, critical capabilities and activities for sustained value creation. *Long Range Plann.* 46, 427–442.
- Adams, C.A., Frost, G.R., 2008. Integrating sustainability reporting into management practices. *Account. Forum* 32, 288–302.
- Afuah, A., 2004. *Business models: A strategic management approach*, 1st ed, New York. McGraw-Hill/Irwin.
- Aguinis, H., Glavas, a., 2012. What We Know and Don't Know About Corporate Social Responsibility: A Review and Research Agenda. *J. Manage.* 38, 932–968.
- Aldama, L.R.P., Amar, P.A., Trostianki, D.W., 2009. Embedding corporate responsibility through effective organizational structures. *Corp. Gov.* 9, 506–516.
- Allen, D.T., Rosselot, K.S., 1994. Pollution prevention at the macro scale: Flows of wastes, industrial ecology and life cycle analyses, in: *Waste Management*. pp. 317–328.
- Amini, M., Bienstock, C.C., 2014. Corporate sustainability: an integrative definition and framework to evaluate corporate practice and guide academic research. *J. Clean. Prod.* 76, 12–19.
- Andersen, P.H., Kragh, H., 2010. Sense and sensibility: Two approaches for using existing theory in theory-building qualitative research. *Ind. Mark. Manag.* 39, 49–55.
- Arnold, M., 2010. Stakeholder Dialogues for Sustaining Cultural Change. *Int. Stud. Manag. Organ.* 40, 61–77.
- Arntz-Gray, J., 2016. Plan, Do, Check, Act: The need for independent audit of the internal responsibility system in occupational health and safety. *Saf. Sci.* 84, 12–23.
- Arthur, L., 2005. Reflections on the form and content of participatory action research and implications for social innovation research, *The International Handbook on Social Innovation*. Edward Elgar Publishing Limited, Cheltenham Glos, UK.
- Asif, M., Searcy, C., Zutshi, A., Ahmad, N., 2011. An integrated management systems approach to corporate sustainability. *Eur. Bus. Rev.* 23, 353–367.
- Astley, W.G., 1985. Administrative science as socially constructed truth. *Adm. Sci. Q.* 30, 497–513.
- Aya Pastrana, N., Sriramesh, K., 2014. Corporate Social Responsibility: Perceptions and practices among SMEs in Colombia. *Public Relat. Rev.* 40, 14–24.
- Azapagic, A., 2015. Sustainable Production and Consumption: A Decision-Support Framework Integrating Environmental, Economic and Social Sustainability, in: *12th International Symposium on Process Systems Engineering and 25th European Symposium on Computer Aided Process Engineering*. Elsevier, pp. 131–136.
- Azapagic, A., 2010. Assessing Environmental Sustainability: Life Cycle Thinking and Life Cycle Assessment, in: *Adisa Azapagic and Slobodan Perdan (Ed.), Sustainable Development in Practice*. John Wiley & Sons, Ltd, Chichester, UK, pp. 56–80.
- Azapagic, A., 2004. Developing a framework for sustainable development indicators for the mining and minerals industry. *J. Clean. Prod.* 12, 639–662.
- Azapagic, A., 2003b. Systems approach to corporate sustainability: a general management framework. *Process Saf. Environ. Prot.* 81, 303–316.

- Azapagic, A., Perdan, S., 2005. An integrated sustainability decision-support framework Part I: Problem structuring. *Int. J. Sustain. Dev. World Ecol.* 12, 98–111.
- Azapagic, A., Perdan, S., 2003. Managing corporate social responsibility: Translating theory into business practice. *Int. J. Corp. Sustain.* 44, 97–108.
- Baas, L., 2007. To make zero emissions technologies and strategies become a reality, the lessons learned of cleaner production dissemination have to be known. *J. Clean. Prod.* 15, 1205–1216.
- Baas, L., 1998. Cleaner production and industrial ecosystems, a Dutch experience. *J. Clean. Prod.* 6, 189–197.
- Bagheri, A., Hjorth, P., 2007. Planning for Sustainable Development : *Sustain. Dev.* 96, 83–96.
- Bansal, P., DesJardine, M.R., 2014. Business sustainability: It is about time. *Strateg. Organ.* 12, 70–78.
- Bansal, P., Roth, K., 2000. Why companies go green: a model of ecological responsiveness. *Acad. Manag. J.* 717–736.
- Barratt, M., 2004. Understanding the meaning of collaboration in the supply chain, *Supply Chain Management: An International Journal*.
- Bartholomew, K.M., Lindsey, T.C., Sparks, J.O., McKinley, D., 2008. Multi-state initiative to enhance pollution prevention technology diffusion using the ADOP2T model. *J. Clean. Prod.* 16, 686–692.
- Baumgartner, R.J., 2014. Managing Corporate Sustainability and CSR: A Conceptual Framework Combining Values, Strategies and Instruments Contributing to Sustainable Development. *Corp. Soc. Responsib. Environ. Manag.* 21, 258–271.
- Baumgartner, R.J., 2009. Organizational culture and leadership: Preconditions for the development of a sustainable corporation. *Sustain. Dev.* 17, 102–113.
- Baumgartner, R.J., Ebner, D., 2010a. Corporate Sustainability Strategies: Sustainability Profiles and Maturity Levels. *Sustain. Dev.* 89, 76–89.
- Baumgartner, R.J., Ebner, D., 2010b. Corporate Sustainability Strategies: Sustainability Profiles and Maturity Levels. *Sustain. Dev.* 89, 76–89.
- Baumgartner, R.J., Korhonen, J., 2010. Strategic thinking for sustainable development. *Sustain. Dev.* 18, 71–75.
- Beattie, V., Smith, S.J., 2013. Value creation and business models: Refocusing the intellectual capital debate. *Br. Account. Rev.* 45, 243–254.
- Bebbington, J., Brown, J., Frame, B., 2007. Accounting technologies and sustainability assessment models. *Ecol. Econ.* 61, 224–236.
- Benoît, C., Norris, G. a., Valdivia, S., Ciroth, A., Moberg, A., Bos, U., Prakash, S., Ugaya, C., Beck, T., 2010. The guidelines for social life cycle assessment of products: just in time! *Int. J. Life Cycle Assess.* 15, 156–163.
- Berg, J., van der, 2016. Identifying change agents for sustainability. Corporate sustainability integration at RIVM. Utrecht University, The Netherlands.
- Berkel, Rene, V., 2007. Cleaner production and eco-efficiency initiatives in Western Australia 1996-2004. *J. Clean. Prod.* 15, 741–755.
- Bertels, D.S., Papania, L., Papania, D., 2010. Embedding Sustainability in Organizational Culture- A Systematic Review of the Body of Knowledge. Ontario, Canada.
- Bilitewski, B., 2012. The circular economy and its risks. *Waste Manag.* 32, 1–2.

- Birkin, F., Polesie, T., Lewis, L., 2009. A new business model for sustainable development: an exploratory study using the theory of constraints in Nordic organizations. *Bus. Strateg. Environ.* 18, 277–290.
- Boatright, J.R., 1996. Business ethics and the theory of the firm. *Am. Bus. Law J.* 34, 217–238.
- Bocken, N.M.P., Short, S.W., Rana, P., Evans, S., 2014. A literature and practice review to develop sustainable business model archetypes. *J. Clean. Prod.* 65, 42–56.
- Bohnsack, R., Pinkse, J., Kolk, A., 2014. Business models for sustainable technologies: Exploring business model evolution in the case of electric vehicles. *Res. Policy* 43, 284–300.
- Boons, F., Lüdeke-Freund, F., 2013. Business models for sustainable innovation: state-of-the-art and steps towards a research agenda. *J. Clean. Prod.* 45, 9–19.
- Bootsma, M.C., Vermeulen, W.J.V. V, Dijk, Jerry, V., Schot, P.P., 2014. Added value and constraints of transdisciplinary case studies in environmental science curricula. *Corp. Soc. Responsib. Environ. Manag.* 21, 155–166.
- Borgatti, S., 2003. The Network Paradigm in Organizational Research: A Review and Typology. *J. Manage.* 29, 991–1013.
- Bowen, H., 1953. *Social responsibilities of the businessman*. Harper & Row, New York.
- Bradbury-Huang, H., 2010. What is good action research?: Why the resurgent interest? *Action Res.* 8, 93–109.
- Bradley, D.A., 1997. The what, why and how of mechatronics. *Eng. Sci. Educ. J.* 6, 81–88.
- Brammer, S., Walker, H., 2011. Sustainable procurement in the public sector : an international comparative study. *Int. J. Oper. Prod. Manag.* 31, 452–476.
- Braungart, M., McDonough, W., Bollinger, A., 2007. Cradle-to-cradle design: creating healthy emissions - a strategy for eco-effective product and system design. *J. Clean. Prod.* 15, 1337–1348.
- Breda, John, V., Musango, J., Brent, A., 2016. Undertaking individual transdisciplinary PhD research for sustainable development. *Int. J. Sustain. High. Educ.* 17, 150–166.
- Bryant, A., Charmaz, K., 2007. Sampling in Grounded Theory, in: *The SAGE Handbook of Grounded Theory*. p. 656.
- Bryman, A., 2008. *Social Research Methods*, Third ed. ed, Social Research. Oxford University Press, Oxford.
- Bu, M., Liu, Z., Wagner, M., Yu, X., 2013. Corporate social responsibility and the pollution haven hypothesis: evidence from multinationals' investment decision in China. *Asia-Pacific J. Account. Econ.* 20, 85–99.
- Burgers, J.H., Jansen, J.J.P., Bosch, Frans A. J., van den, Volberda, H.W., 2009. Structural differentiation and corporate venturing: The moderating role of formal and informal integration mechanisms. *J. Bus. Ventur.* 24, 206–220.
- Burke, L., Logsdon, J.M., 1996. How corporate social responsibility pays off. *Long Range Plann.* 29, 495–502.
- Burkhart, T., Wolter, S., Schief, M., Krumeich, J., Di Valentin, C., Werth, D., Loos, P., Vanderhaeghen, D., 2012. A comprehensive approach towards the structural description of business models, in: *Proceedings of the International Conference on Management of Emergent Digital EcoSystems - MEDES '12*. ACM Press, New York, New York, USA, p. 88.
- Burns, S., 1999. The natural step: A compass for environmental management systems. *Corp. Environ. Strateg.* 6, 329–342.

- Buxel, H., Esenduran, G., Griffin, S., 2015. Strategic sustainability: Creating business value with life cycle analysis. *Bus. Horiz.* 58, 109–122.
- Cagno, E., Trucco, P., Tardini, L., 2005. Cleaner production and profitability: Analysis of 134 industrial pollution prevention (P2) project reports. *J. Clean. Prod.* 13, 593–605.
- Cai, Y., Jo, H., Pan, C., 2012. Doing Well While Doing Bad? CSR in Controversial Industry Sectors. *J. Bus. Ethics* 108, 467–480.
- Calcott, P., 2010. Mandated self-regulation: The danger of cosmetic compliance. *J. Regul. Econ.* 38, 167–179.
- Callicott, J.B., 2005. Animal Liberation and Environmental Ethics: Back Together Again, in: Zimmerman, M.E., Callicott, J.B. (Eds.), *Environmental Philosophy: From Animal Rights to Radical Ecology*. Prentice Hall, Englewood Cliffs, NJ, pp. 130–138.
- Cannon, T., 1994. *Corporate responsibility. A textbook on business ethics, governance, environment: roles and responsibilities*. Pitman publishing, London.
- Carenys, J., 2012. Management control systems : A historical perspective. *Int. J. Econ. Manag. Soc. Sci.* 1, 1–18.
- Carenys, J., 2010. Management Control Systems : A Historical Perspective. *Int. Bull. Bus. Adm.* 7, 37–54.
- Carew, A.L., Wickson, F., 2010. The TD Wheel: A heuristic to shape, support and evaluate transdisciplinary research. *Futures* 42, 1146–1155.
- Carroll, A., 1979. A three-dimensional conceptual model of corporate performance. *Acad. Manag. Rev.* 4, 497–505.
- Carroll, A.B., 1999. Corporate Social Responsibility: Evolution of a Definitional Construct. *Bus. Soc.* 38, 268–295.
- Carroll, A.B., 1991. The pyramid of corporate social responsibility: Toward the moral management of organizational stakeholders. *Bus. Horiz.* 34, 39–48.
- Carroll, A.B., 1987. In search of the moral manager. *Bus. Horiz.* 30, 7–15.
- Carroll, A.B., 1978. Setting operational goals for corporate social responsibility. *Long Range Plann.* 11, 35–38.
- Casadesus-Masanell, R., Ricart, J.E., 2010. From Strategy to Business Models and onto Tactics. *Long Range Plann.* 43, 195–215.
- Cash, D.W., Clark, W.C., Alcock, F., Dickson, N.M., Eckley, N., Guston, D.H., Jäger, J., Mitchell, R.B., 2003. Knowledge systems for sustainable development. *Proc. Natl. Acad. Sci. U. S. A.* 100, 8086–8091.
- Cassell, C., Lee, B., 2012. Driving, Steering, Leading, and Defending: Journey and Warfare Metaphors of Change Agency in Trade Union Learning Initiatives. *J. Appl. Behav. Sci.* 48, 248–271.
- Chen, R.R., Kannan-Narasimhan, R.P., 2015. Formal integration archetypes in ambidextrous organizations. *R D Manag.* 45, 267–286.
- Chouinard, Y., Ellison, J., Ridgeway, R., 2011. The big idea: The sustainable economy. *Harv. Bus. Rev.*
- Christmann, P., Taylor, G., 2002. Globalization and the environmental: Strategies for international voluntary environmental initiatives. *Acad. Manag.* 16, 121–135.
- Ciliberti, F., Pontrandolfo, P., Scozzi, B., 2008. Investigating corporate social responsibility in supply chains: a SME perspective. *J. Clean. Prod.* 16, 1579–1588.
- Clarke, S., Roome, N., 1999. Sustainable business: learning - action networks as organizational assets. *Bus.*

- Strateg. Environ. 8, 296–310.
- Coase, R.H., 1937. The Nature of the Firm. *Economica* 4, 386.
- Cohen, S., Glaser, B.G., Strauss, A.L., 1969. The Discovery of Grounded Theory: Strategies for Qualitative Research. *Br. J. Sociol.* 20, 227.
- Cole, M.A., 2004. Trade, the pollution haven hypothesis and the environmental Kuznets curve: examining the linkages. *Ecol. Econ.* 48, 71–81.
- Collins, J., Porras, J.I., 2002. Built to last. Successful habits of visionary companies. HarperBusiness Essentials, New York.
- Constantinos, C., Sørensen, S.Y., Larsen, P.B., Alexopoulou et al., S., 2010. SMEs and the environment in the European Union. Brussels.
- Cooper, S.M., Owen, D.L., 2007. Corporate social reporting and stakeholder accountability: The missing link. *Accounting, Organ. Soc.* 32, 649–667.
- Cramer, J., 2005a. Experiences with structuring corporate social responsibility in Dutch industry. *J. Clean. Prod.* 13, 583–592.
- Cramer, J., 2005b. Company learning about corporate social responsibility. *Bus. Strateg. Environ.* 14, 255–266.
- Cramer, J., 1998. Environmental management: from “fit” to “stretch.” *Bus. Strateg. Environ.* 7, 162–172.
- Cramer, J., Heijden, A. van der, Jonker, J., 2006. Corporate social responsibility: making sense through thinking and acting. *Bus. Ethics A Eur. Rev.* 15, 380–389.
- Cramer, J., Loeber, A., 2004. Governance through learning: making corporate social responsibility in Dutch industry effective from a sustainable development perspective. *J. Environ. Policy Plan.* 6, 271–287.
- Croes, P.R., Vermeulen, W.J.V., 2015. Comprehensive life cycle assessment by transferring of preventative costs in the supply chain of products. A first draft of the Oiconomy system. *J. Clean. Prod.* 102, 177–187.
- Csikszentmihalyi, M., 2008. Flow: The Psychology of Optimal Experience. Harper Perennial Modern Classics, New York, New York, USA.
- Curkovic, S., Sroufe, R., 2011. Using ISO 14001 to promote a sustainable supply chain strategy. *Bus. Strateg. Environ.* 20, 71–93.
- Dam, Ynte K., V., Trijp, Hans C M, V., 2011. Cognitive and motivational structure of sustainability. *J. Econ. Psychol.* 32, 726–741.
- Danneels, E., 2002. The dynamics of product innovation and firm competences. *Strateg. Manag. J.* 23, 1095–1121.
- DaSilva, C.M., Trkman, P., 2014. Business Model: What It Is and What It Is Not. *Long Range Plann.* 47, 379–389.
- Davis, K., 1975. Five propositions for social responsibility. *Bus. Horiz.* 18, 19–24.
- Day, C., 2005. Buying green: the crucial role of public authorities. *Local Environ.* 10, 201–209.
- Delmas, M., 2003. In Search of ISO: An Institutional Perspective on the Adoption of International Management Standards. *SSRN Electron. J.* 1–51.
- Delmas, M.A., 2002. The diffusion of environmental management standards in Europe and in the United States: An institutional perspective. *Policy Sci.* 35, 91–119.

- Delmas, M., Toffel, M., 2008. Organizational responses to environmental demands: opening the black box. *Strateg. Manag. J.* 29, 1027–1055.
- Demill, B., Lecocq, X., 2010. Business Model Evolution: In Search of Dynamic Consistency. *Long Range Plann.* 43, 227–246.
- Demill, B., Lecocq, X., 2009. Business Models Evolution: Towards a Dynamic Consistency View of Strategy. *Universia Bus. Rev.* 86–107.
- Demsetz, H., Law, J., Spring, N., 1988. The Theory of the Firm Revisited The Theory of the Firm Revisited. *J. Law, Econ. Organ.* 4, 141–161.
- Denzel, D. van, 2016. Integrating Corporate Sustainability Strategy within a Dutch public agency. Utrecht University.
- DeSimone, L.D., Popoff, F., 1997. *Eco-efficiency: The business link to sustainable development*, MIT Press. MIT Press, Boston, Massachusetts, USA.
- Dicken, P., 2015. *Global Shift: Mapping the Changing Contours of the World Economy*, booksgooglecom. Guilford Publications.
- Dieleman, H., Hans, D., Dieleman, H., 2007. Cleaner production and innovation theory; social experiments as a new model to engage in cleaner production. *Rev. Int. Contam. Ambient* 23, 79–94.
- Dietrich, P., Eskerod, P., Dalcher, D., Sandhawalia, B., 2010. The dynamics of collaboration in multipartner projects. *Proj. Manag. J.* 41, 59–78.
- Doorman, F., 2007. *Crisis, Economics, and the Emperor's Clothes; Why economics fails to deal with society's economic, environmental and social problems – and what to do about it*. Lulu Internet Publishers, Hillsborough St. Raleigh, NC.
- Doppelt, B., 2003a. Overcoming the seven sustainability blunders. *Syst. Thinker* 14, 2–6.
- Doppelt, B., 2003b. *Leading Change Toward Sustainability: A Change-Management Guid for Business, Government and Civil Society*, Government and Civil Society. Greenleaf Publishing, Sheffield, UK.
- Dougherty, D., 2001. Reimagining the Differentiation and Integration of Work for Sustained Product Innovation. *Organ. Sci.* 12, 612–631.
- Dreborg, K.H., 1996. Essence of backcasting. *Futures* 28, 813–828.
- Du Pisani, J. a., Du, J.A., 2006. Sustainable development – historical roots of the concept. *Environ. Sci.* 3, 83–96.
- Dubois, A., Gadde, L.E., 2002. Systematic combining: An abductive approach to case research. *J. Bus. Res.* 55, 553–560.
- Dunphy, D., Griffiths, A., Benn, S., 2006. *Organizational Change For Corporate Sustainability: A guide for leaders and change agents of the future*, 2nd ed, *Organizational Change For Corporate Sustainability*. Routledge, New York City.
- Durfee, M., 1999. Diffusion of Pollution Prevention Policy. *Ann. Am. Acad. Pol. Soc. Sci.* 566, 108–119.
- Dyllick, T., Hockerts, K., 2002. Beyond the business case for corporate sustainability. *Bus. Strateg. Environ.* 11, 130–141.
- Eastwood, J.G., Kemp, L.A., Jalaludin, B.B., 2016. Realist theory construction for a mixed method multilevel study of neighbourhood context and postnatal depression. *Springerplus* 5, 1081.
- Eccles, R.G., Ioannou, I., Serafeim, G., 2014. The Impact of Corporate Sustainability on Organizational

- Processes and Performance. *Manage. Sci.* 60, 2835–2857.
- Eccles, R.G., Ioannou, I., Serafeim, G., 2011. The Impact of a Corporate Culture of Sustainability on Corporate Behavior and Performance. *SSRN Electron. J.* 57.
- EEA, 2015. The European environment — state and outlook 2015: synthesis report. Copenhagen.
- Eisenhardt, K.M., 1989. Building Theories from Case Study Research. *Acad. Manag. Rev.* 14, 532–550.
- Eisenhardt, K.M., Graebner, M.E., 2007. Theory building from cases: opportunities and challenges. *Acad. Manag. J.* 50, 25–32.
- Eisenhardt, K.M., Santos, F.M., 2002. Knowledge-Based View: A New Theory of Strategy? *Pettigrew* 56.
- Elkington, J., 2002. Corporate Strategy in the Chrysalis Economy. *Corp. Environ. Strateg.* 9, 5–12.
- Elkington, J., 1998. Partnerships from cannibals with forks: The triple bottom line of 21st-century business. *Environ. Qual. Manag.* 8, 37–51.
- Elkington, J., 1997. *Cannibals with forks: The Triple Bottom Line of 21st Century Business*, Conscientious Commerce, New Society Publishers. New Society Publishers, Gabriola Island, USA.
- Elliott, R., Timulak, L., 2005. Descriptive and interpretive approaches to qualitative research. *A Handb. Res. Methods Clin. Heal. Psychol.* 147–157.
- Engert, S., Rauter, R., Baumgartner, R.J., 2016. Exploring the integration of corporate sustainability into strategic management: a literature review. *J. Clean. Prod.* 112, 2833–2850.
- Epstein, M.J., Buhovac, A.R., 2014. *Making sustainability work: Best practices in managing and measuring corporate social, environmental, and economic impacts*. Berrett-Koehler Publishers, Oakland, CA, USA.
- Epstein, M.J., Buhovac, A.R., 2010. Solving the sustainability implementation challenge. *Organ. Dyn.* 39, 306–315.
- Epstein, M.J., Roy, M.J., 2001a. Sustainability in action: Identifying and measuring the key performance drivers. *Long Range Plann.* 34, 585–604.
- Epstein, M.J., Roy, M.J., 2001b. Sustainability in Action: Identifying and Measuring the Key Performance Drivers. *Long Range Plann.* 34, 585–604.
- Epstein, M.J., Widener, S.K., 2010. Identification and Use of Sustainability Performance Measures in Decision-Making. *J. Corp. Citizsh.* 2010, 42–73.
- Escobar, A., 1999. *El final del salvaje*, Colección. ed. Giro Editores Ltda., Bogotá, Colombia.
- Eskeland, G.S., Harrison, A.E., 2003. Moving to greener pastures? Multinationals and the pollution haven hypothesis. *J. Dev. Econ.* 70, 1–23.
- Espinosa, A., Reficco, E., Martínez, A., Guzmán, D., 2015. A methodology for supporting strategy implementation based on the VSM: A case study in a Latin-American multi-national. *Eur. J. Oper. Res.* 240, 202–212.
- European Commission, 2002. *The World Summit on Sustainable Development People, planet, prosperity*. Luxembourg.
- European Multistakeholder Forum on CSR, 2004. *European Multistakeholder Forum on CSR. Final results & recommendations* 131.
- Fahy, F., Rau, H., 2013. *Methods of Sustainability Research in the Social Sciences*. SAGE Publications, London, UK.
- Fernández, L. de L. (Luli) P., 2014. *Friendly Outsider or Critical Insider? An Action Research Account of*

- Oxfam 's Private Sector Engagement. Utrecht University, The Netherlands.
- Figge, F., Hahn, T., Schaltegger, S., Wagner, M., 2002. The Sustainability Balanced Scorecard - Management to Business Strategy. *Bus. Strateg. Environ.* 11, 269–284.
- Fikkert, J.P.B., 2015. Stakeholder engagement and sustainability integration; a case study of royal Ahold. Utrecht University.
- Frederick, W.C., 1994. From CSR1 to CSR2: The Maturing of Business-and-Society Thought. *Bus. Soc.* 33, 150–164.
- Frederick, W.C., 1960. The Growing Concern Over Business Responsibility. *Calif. Manage. Rev.* 2, 54–61.
- Freidberg, S., 2014. It's Complicated: Corporate Sustainability and the Uneasiness of Life Cycle Assessment. *Sci. Cult. (Lond)*. 5431, 1–26.
- Galbraith, J.R., 1973. Designing Complex Organizations, Organization development.
- Gallup, J., Marcotte, B., 2004. An assessment of the design and effectiveness of the Environmental Pollution Prevention Project (EP3). *J. Clean. Prod.* 12, 215–225.
- Ghoshal, S., Korine, H., Szulanski, G., 1994. Interunit Communication in Multinational Corporations. *Manage. Sci.* 40, 96–110.
- Gianni, M., Gotzamani, K., 2015. Management systems integration: lessons from an abandonment case. *J. Clean. Prod.* 86, 265–276.
- Gibbons, M., Limoges, C., Nowotny, H., Schwartzman, S., Scott, P., Trow, M., Schwarzman, H., Scott, S., 1994. *The New Production of Knowledge: The Dynamics of Science and Research in Contemporary Societies*, Information Processing & Management. SAGE Publications.
- Gibson, C.C.B., Birkinshaw, J., Gibson, C.C.B., Birkinshaw, J., 2004. The antecedents, consequences, and mediating role of organizational ambidexterity. *Acad. Manag. J.* 47, 209–226.
- Ginsberg, A., Abrahamson, E., 1991. Champions of change and strategic shifts: the role of internal and external change advocates. *J. Manag. Stud.* 28, 173–187.
- Glaser, B.G., Strauss, A.L., 2008. *The Discovery of Grounded Theory: Strategies for Qualitative Research*. Aldine Transaction, Piscataway, New Jersey, USA.
- Glavič, P., Lukman, R., 2007. Review of sustainability terms and their definitions. *J. Clean. Prod.* 15, 1875–1885.
- Goedkoop, M., Hofstetter, P., Müller-Wenk, R., Spriemsmma, R., 1998. The ECO-indicator 98 explained. *Int. J. Life Cycle Assess.* 3, 352–360.
- Gond, J.-P.P., Grubnic, S., Herzog, C., Moon, J., 2012. Configuring management control systems: Theorizing the integration of strategy and sustainability. *Manag. Account. Res.* 23, 205–223.
- Graafland, J., Ven, B. van de, Stoffele, N., 2003. Strategies and instruments for organising CSR by small and large businesses in the Netherlands. *J. Bus. Ethics* 47, 45–60.
- Graedel, T.E., 1996. on the Concept of Industrial Ecology. *Annu. Rev. Energy Environ.* 21, 69–98.
- Granek, F., 2011. Business value of toxics reduction and pollution prevention planning. *J. Clean. Prod.* 19, 559–560.
- Granly, B.M., Welo, T., 2014. EMS and sustainability: experiences with ISO 14001 and Eco-Lighthouse in Norwegian metal processing SMEs. *J. Clean. Prod.* 64, 194–204.
- Gravitis, J., 2007. Zero techniques and systems - ZETS strength and weakness. *J. Clean. Prod.* 15, 1190–1197.

- Grether, J.-M., Mathys, N.A., de Melo, J., 2012. Unravelling the worldwide pollution haven effect. *J. Int. Trade Econ. Dev.* 21, 131–162.
- GRI, 2012. Sustainability Reporting Guidelines G3.1 – Reference Sheet. Amsterdam, The Netherlands.
- GRI, 2011. Sustainability Reporting Guidelines. Amsterdam, The Netherlands.
- GRI Australia, KPMG, CPA Australia, 2014. From Tactical to Strategic; how Australian businesses create value from sustainability.
- Griffin, A., Hauser, J.R., 1996. Integrating R&D and Marketing: A Review and Analysis of the Literature. *J. Prod. Innov. Manag.*
- Guide, V.D.R., Wassenhove, L.N., 2009. Managing product returns for remanufacturing. *Prod. Oper. Manag.* 10, 142–155.
- Gummeson, E., 2003. All research is interpretive! *J. Bus. Ind. Mark.* 18, 482–492.
- Haberl, H., Fischer-Kowalski, M., Krausmann, F., Martinez-Alier, J., Winiwarter, V., 2011. A socio-metabolic transition towards sustainability? Challenges for another Great Transformation. *Sustain. Dev.* 19, 1–14.
- Haddock-Fraser, J., 2012. The Role of the News Media in Influencing Corporate Environmental Sustainable Development: An Alternative Methodology to Assess Stakeholder Engagement. *Corp. Soc. Responsib. Environ. Manag.* 19, 327–342.
- Hahn, T., Pinkse, J., Preuss, L., Figge, F., 2015. Tensions in Corporate Sustainability: Towards an Integrative Framework. *J. Bus. Ethics* 127, 297–316.
- Hahn, T., Scheermesser, M., 2006. Approaches to corporate sustainability among German companies. *Corp. Soc. Responsib. Environ. Manag.* 13, 150–165.
- Hale, M., 1996. Ecolabelling and cleaner production: principles, problems, education and training in relation to the adoption of environmentally sound production processes. *J. Clean. Prod.* 4, 85–95.
- Hallstedt, S., Ny, H., Robèrt, K.-H., Broman, G., 2010. An approach to assessing sustainability integration in strategic decision systems for product development. *J. Clean. Prod.* 18, 703–712.
- Halonen, T. (President of the R. of F.), Mkapa, B.W. (President of the U.R. of T.), 2005. A Fair Globalization: Creating Opportunities for All. *Globalizations* 2, 241–249.
- Hammond, G.P., 2006. “People, planet and prosperity”: The determinants of humanity’s environmental footprint. *Nat. Resour. Forum* 30, 27–36.
- Haney, L.H., 1920. *History of Economic Thought: A Critical Account of the Origin and Development of the Economic Theories of the Leading Thinkers in the Leading Nations - Revised*, Page iii by Lewis H. Haney. | Online Research Library: Questia. Macmillan, New York.
- Hannon, M.J., 2012. Co-evolution of innovative business models and sustainability transitions: The case of the Energy Service Company (ESCo) model and the UK energy system. The University of Leeds, Leeds, United Kingdom.
- Harris, L.C., Crane, A., 2002. The greening of organizational culture. *J. Organ. Chang. Manag.* 15, 214–234.
- Hart, S.L., 1997. Beyond Greening: Strategies for a Sustainable World. *Harv. Bus. Rev.* 75, 66–76.
- Hart, S.L., Milstein, M.B., 2003. Creating sustainable value. *Acad. Manag. Exec.* 17, 56–67.
- Hatch, M.J., Cunliffe, A.L., 2013. *Organisation theory, modern, symbolic, and postmodern perspectives*. OUP Oxford, Oxford, Great Britain.

- Heath, H., Cowley, S., 2004. Developing a grounded theory approach: A comparison of Glaser and Strauss. *Int. J. Nurs. Stud.* 41, 141–150.
- Heijden, A. van der, Cramer, J.M., Driessen, P.P.J., 2012. Change agent sensemaking for sustainability in a multinational subsidiary. *J. Organ. Chang. Manag.* 25, 535–559.
- Heijden, A. van der, Driessen, P.P.J.J., Cramer, J.M., 2010. Making sense of Corporate Social Responsibility: Exploring organizational processes and strategies. *J. Clean. Prod.* 18, 1787–1796.
- Heras, I., Arana, G., 2010. Alternative models for environmental management in SMEs: the case of Ekoscan vs. ISO 14001. *J. Clean. Prod.* 18, 726–735.
- Hessels, L.K., Lente, Harro, V., 2008. Re-thinking new knowledge production: A literature review and a research agenda. *Res. Policy* 37, 740–760.
- Hiennerth, C., Keinz, P., Lettl, C., 2011. Exploring the Nature and Implementation Process of User-Centric Business Models. *Long Range Plann.* 44, 344–374.
- Hill, C., Jones, G., 2011. *Essentials of strategic management*. Cengage Learning, Boston, Massachusetts, USA.
- Hjorth, P., Bagheri, A., 2006. Navigating towards sustainable development: A system dynamics approach. *Futures* 38, 74–92.
- Hockerts, K., 2015. A Cognitive Perspective on the Business Case for Corporate Sustainability. *Bus. Strateg. Environ.* 24, 102–122.
- Holmberg, J., Robert, K.-H., 2000. Backcasting — a framework for strategic planning. *Int. J. Sustain. Dev. World Ecol.* 7, 291–308.
- Holme, R., Watts, P., 2000. *Corporate Social Responsibility: making good business sense*, World Business Council for Sustainable Development. Geneva, Switzerland.
- Holton, I., Glass, J., Price, A.D.F., 2010. Managing for sustainability: findings from four company case studies in the UK precast concrete industry. *J. Clean. Prod.* 18, 152–160.
- Hoof, B. van, 2013. *Supply Networks for Cleaner Production: framework for environmental improvement of small and medium sized firms in emerging markets*. Erasmus University Rotterdam.
- Hopwood, B., Mellor, M., O'Brien, G., 2005. Sustainable development: Mapping different approaches. *Sustain. Dev.* 13, 38–52.
- Howie, P., Bagnall, R., 2015. A critical comparison of transformation and deep approach theories of learning. *Int. J. Lifelong Educ.* 1–18.
- Hunt, E.K., Lautzenheiser, M., 2011. *History of Economic Thought A Critical Perspective*. M.E. Sharpe, New York.
- IIRC, 2014. *Realizing the benefits: The impact of Integrated Reporting*. IIRC, London, UK.
- IISD, 2004. *Compendium of Sustainable Development Indicator Initiatives*. Int. Inst. Sustain. Dev.
- International Organization For Standardization, 2009. *Environmental management The ISO 14000 family of International Standards ISO in brief ISO and the environment*. *Environ. Manage.* 1–12.
- Ioannou, I., Serafeim, G., 2011. The Consequences of Mandatory Corporate Sustainability Reporting. *SSRN Electron. J.* 7387, 1–44.
- ISEAL Alliance, 2013. *ISEAL Code of Good Practice for Setting Social and Environmental Standards. Version 6.0*. London, UK.

- ISO, 2013. The ISO Survey of Management System Standard Certifications – 2012 Executive summary. Geneva, Switzerland.
- ISO, 2009. Environmental management: The ISO 14000 family of International Standards. NEN, Delft, The Netherlands.
- ISO, 2008. ISO 9001 Quality management systems - Requirements with guidance for use (ISO 9001:2008,IDT). NEN, Delft, The Netherlands.
- ISO, 2004. ISO 14001 Environmental management systems - Requirements with guidance for use (ISO 14001:2004,IDT). NEN, Delft, The Netherlands.
- ISO, GRI, 2014. GRI G4 Guidelines and ISO 26000 : 2010 How to use the GRI G4 Guidelines and ISO 26000 in conjunction. Geneva, Switzerland.
- ISSC, UNESCO, 2013. World Social Science Report 2013 - Changing Global Environments. Paris, France.
- ITC, 2011. The Impacts of Private Standards on Producers in Developing Countries: Literature Review Series on the Impacts of Private Standards - Part II, International trade centre technical series. Geneva, Switzerland.
- Jackson, G.C., Stoltman, J.J., Taylor, A., 1994. Moving Beyond Trade-offs. *Int. J. Phys. Distrib. Logist. Manag.* 24, 4–10.
- Jamali, D., 2006. Insights into triple bottom line integration from a learning organization perspective. *Bus. Process Manag. J.* 12, 809–821.
- Jansen, J.J.P., Tempelaar, M.P., Bosch, Frans A. J., van den, Volberda, H.W., 2009. Structural Differentiation and Ambidexterity: The Mediating Role of Integration Mechanisms. *Organ. Sci.* 20, 797–811.
- Jenkins, H., 2006. Small Business Champions for Corporate Social Responsibility. *J. Bus. Ethics* 67, 241–256.
- Johnson, M.P., Schaltegger, S., 2016. Two Decades of Sustainability Management Tools for SMEs: How Far Have We Come? *J. Small Bus. Manag.* 54, 481–505.
- Kamann, D.-J.F., 2007. Organizational design in public procurement: A stakeholder approach. *J. Purch. Supply Manag.* 13, 127–136.
- Karlsson, C., Taylor, M., Taylor, A., Taylor, M., Taylor, A., 2010. Integrating new technology in established organizations A mapping of integration mechanisms. *Int. J. Oper. Prod. Manag.* 30, 672–699.
- Katz, D., Kahn, R.L., 1978. *The Social Psychology of Organizations*. Wiley, Hoboken, New Jersey, USA.
- Keijzers, G., 2000. The evolution of Dutch environmental policy: the changing ecological arena from 1970–2000 and beyond. *J. Clean. Prod.* 8, 179–200.
- Kerkhof, Marleen, van de, Wieczorek, A., 2005. Learning and stakeholder participation in transition processes towards sustainability: Methodological considerations. *Technol. Forecast. Soc. Change* 72, 733–747.
- Kerr, I.R., 2006. Leadership strategies for sustainable SME operation. *Bus. Strateg. Environ.* 15, 30–39.
- Kiiver, P., Kodym, J., 2014. *The Practice of Public Procurement: Tendering, Selection and Award*. Intersentia Ltd., Cambridge, UK.
- Kitchenham, A., 2008. The Evolution of John Mezirow's Transformative Learning Theory. *J. Transform. Educ.* 6, 104–123.
- Klettner, A., Clarke, T., Boersma, M., 2013. The Governance of Corporate Sustainability: Empirical Insights into the Development, Leadership and Implementation of Responsible Business Strategy. *J. Bus. Ethics*

- Klewitz, J., Hansen, E.G., 2014. Sustainability-oriented innovation of SMEs: A systematic review. *J. Clean. Prod.* 65, 57–75.
- Kloepffer, W., 2008. Life cycle sustainability assessment of products. *Int. J. Life Cycle Assess.* 13, 89–95.
- Kolk, A., 2008. Sustainability, accountability and corporate governance: exploring multinationals' reporting practices. *Bus. Strateg. Environ.* 17, 1–15.
- Kovács, G., Spens, K.M., 2005. Abductive reasoning in logistics research. *Int. J. Phys. Distrib. Logist. Manag.* 35, 132–144.
- KPMG, 2013. *The KPMG Survey of Corporate Responsibility Reporting 2013*. Amstelveen, The Netherlands.
- Kuehr, R., 2007. Towards a sustainable society: United Nations University's Zero Emissions Approach. *J. Clean. Prod.* 15, 1198–1204.
- Kuhndt, M., 2004. Sustainable business development, in: *Eco-Efficiency and Beyond: Towards the Sustainable Enterprise*. Greenleaf Publishing in association with GSE Research, Saltaire, UK, pp. 64–72.
- Küpers, W.M., 2011. Integral responsibilities for a responsive and sustainable practice in organization and management. *Corp. Soc. Responsib. Environ. Manag.* 18, 137–150.
- Kurapatskie, B., Darnall, N., 2013. Which Corporate Sustainability Activities are Associated with Greater Financial Payoffs? *Bus. Strateg. Environ.* 22, 49–61.
- Laforet, S., 2011. A framework of organisational innovation and outcomes in SMEs. *Int. J. Entrep. Behav. Res.* 17, 380–408.
- Lang, D.J., Wiek, A., Bergmann, M., Stauffacher, M., Martens, P., Moll, P., Swilling, M., Thomas, C.J., 2012. Transdisciplinary research in sustainability science: practice, principles, and challenges. *Sustain. Sci.* 7, 25–43.
- Lawrence, P.R., Lorsch, J.W., 1967. Differentiation and integration in complex organizations. *Adm. Sci. Q.* 12, 1–47.
- Lee, M.-D.P., 2008. A review of the theories of corporate social responsibility: Its evolutionary path and the road ahead. *Int. J. Manag. Rev.* 10, 53–73.
- Leinwand, P., Mainardi, C., 2016. *Creating a Strategy That Works*. PWC Strateg. + Bus.
- Leiserowitz, A. a., Kates, R.W., Parris, T.M., 2006. Sustainability Values, Attitudes, and Behaviors: A Review of Multinational and Global Trends. *Annu. Rev. Environ. Resour.* 31, 413–444.
- Leisinger, K., Bakker, P., 2013. *The key challenges to 2030/2050: mapping out long-term pathways to sustainability and highlighting solutions that should be scaled up*. Paris, France.
- Lejárraga, I., Rizzo, H.L., Oberhofer, H., Stone, S., 2014. *Small and Medium-Sized Enterprises in Global Markets: A Differential Approach for Services?* OECD Trade Policy Pap. OECD Publ. 1–95.
- Lenzen, M., Kanemoto, K., Moran, D., Geschke, A., 2012a. Mapping the structure of the world economy. *Environ. Sci. Technol.* 46, 8374–8381.
- Lenzen, M., Moran, D., Kanemoto, K., Foran, B., Lobefaro, L., Geschke, A., 2012b. International trade drives biodiversity threats in developing nations. *Nature* 486, 109–112.
- Leontief, W., 1928. *Die Wirtschaft als Kreislauf*. Tübingen.
- Levinson, A., Taylor, M.S., 2008. Unmasking the Pollution Haven Effect. *Int. Econ. Rev. (Philadelphia)* 49,

- 223–254.
- Levitt, B., March, J.G., 1988. Organizational Learning Barbara Levitt ; James G . March. *Annu. Rev. Sociol.* 14, 319–340.
- Liedtka, J., 2007. Strategy Making and the Search for Authenticity. *J. Bus. Ethics* 80, 237–248.
- Lindgreen, A., Córdoba, J.-R., Maon, F., Mendoza, J.M., 2010. Corporate Social Responsibility in Colombia: Making Sense of Social Strategies. *J. Bus. Ethics* 91, 229–242.
- Lindgreen, A., Swaen, V., 2010. Corporate social responsibility, *International Journal of Management Reviews*.
- Lindgreen, A., Swaen, V.V., Johnston, W.J., 2009. Corporate social responsibility: An empirical investigation of U.S. organizations. *J. Bus. Ethics* 85, 303–323.
- Linnenluecke, M.K., Griffiths, A., 2013. Firms and sustainability: Mapping the intellectual origins and structure of the corporate sustainability field. *Glob. Environ. Chang.* 23, 382–391.
- Linnenluecke, M.K., Griffiths, A., 2010. Corporate sustainability and organizational culture. *J. World Bus.* 45, 357–366.
- Linnenluecke, M.K., Russell, S. V., Griffiths, A., 2009. Subcultures and sustainability practices: the impact on understanding corporate sustainability. *Bus. Strateg. Environ.* 18, 432–452.
- Lockett, H., Johnson, M., Evans, S., Bastl, M., 2011. Product Service Systems and supply network relationships: an exploratory case study. *J. Manuf. Technol. Manag.* 22, 293–313.
- Lovelock, J., 2003. Gaia: the living Earth. *Nature* 426, 769–70.
- Lozano, R., 2015. A holistic perspective on corporate sustainability drivers. *Corp. Soc. Responsib. Environ. Manag.* 22, 32–44.
- Lozano, R., 2014. Creativity and Organizational Learning as Means to Foster Sustainability. *Sustain. Dev.* 22, 205–216.
- 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. *Corp. Soc. Responsib. Environ. Manag.* 20, 275–295.
- Lozano, R., 2012. Towards better embedding sustainability into companies' systems: an analysis of voluntary corporate initiatives. *J. Clean. Prod.* 25, 14–26.
- Lozano, R., 2011. Addressing Stakeholders and Better Contributing to Sustainability through Game Theory. *J. Corp. Citizsh.* 2011, 45–62.
- Lozano, R., 2008. Envisioning sustainability three-dimensionally. *J. Clean. Prod.*, 39 16, 1838–1846.
- Lozano, R., 2007a. Orchestrating Organisational Changes for Corporate Sustainability. *Greener Manag. Int.* 57, 43–64.
- Lozano, R., 2007b. Collaboration as a pathway for sustainability. *Sustain. Dev.* 15, 370–381.
- Lozano, R., Carpenter, A., Lozano, F.J., 2014. Critical reflections on the Chemical Leasing concept. *Resour. Conserv. Recycl.* 86, 53–60.
- Lozano, R., Huisinsh, D., 2011. Inter-linking issues and dimensions in sustainability reporting. *J. Clean. Prod.* 19, 99–107.
- Lüdeke-Freund, F., 2010. Towards a conceptual framework of business models for sustainability, in: ERSCP-EMSU Conference, Delft, The Netherlands, October 25-29, 2010. pp. 1–28.

- Luiten, M.J., 2015. A Qualitative Embedded Case Study to Explore the Influence of Shared Value Creation on the Integration of Corporate Sustainability at Horticoop BV. Utrecht University.
- Luken, R., Castellanos-Silveria, F., 2011. Industrial transformation and sustainable development in developing countries. *Sustain. Dev.* 19, 167–175. doi:10.1002/sd.434
- Lunenburg, F.C., 2010. Managing Change: The Role of the Change Agent. *Int. J. Manag. Bus. Adm.* 13, 1–6.
- Luukkonen, T., Nedeva, M., 2010. Towards understanding integration in research and research policy. *Res. Policy* 39, 674–686.
- Lynham, S. a., 2002. The General Method of Theory-Building Research in Applied Disciplines. *Adv. Dev. Hum. Resour.* 4, 221–241.
- Maas, K., Schaltegger, S., Crutzen, N., 2016a. Integrating corporate sustainability assessment, management accounting, control, and reporting. *J. Clean. Prod.* 136, 237–248.
- Maas, K., Schaltegger, S., Crutzen, N., 2016b. Advancing the integration of corporate sustainability measurement, management and reporting. *J. Clean. Prod.* 133, 859–862.
- Mac, A., 2002. When firms make sense of environmental agendas of society. *J. Clean. Prod.* 10, 259–269.
- MacDonald, J.P., 2005. Strategic sustainable development using the ISO 14001 Standard. *J. Clean. Prod.* 13, 631–643.
- Macpherson, A., Holt, R., 2007. Knowledge, learning and small firm growth: a systematic review of the evidence. *Res. Policy* 36, 172–192.
- Maon, F., Lindgreen, A., Swaen, V., 2010. Organizational stages and cultural phases: A critical review and a consolidative model of corporate social responsibility development. *Int. J. Manag. Rev.* 12, 20–38.
- Maon, F., Lindgreen, A., Swaen, V., 2009. Designing and Implementing Corporate Social Responsibility: An Integrative Framework Grounded in Theory and Practice. *J. Bus. Ethics* 87, 71–89.
- Marion, R., Uhl-Bien, M., 2001. Leadership in complex organizations. *Leadersh. Q.* 12, 389–418.
- Marrewijk van, M., 2004. The social dimension of organizations: recent experiences with great palce to work assessment practices. *J. Bus. ethics* 55, 135–146.
- Marrewijk van, M., 2003. Concepts and definitions of CSR and corporate sustainability: between agency and communion. *J. Bus. Ethics* 44, 95–105.
- McCutcheon, D.M., Meredith, J.R., 1993. Conducting case study research in operations management. *J. Oper. Manag.* 11, 239–256.
- Meehan, J., Bryde, D., 2011. Sustainable procurement practice. *Bus. Strateg. Environ.* 20, 94–106.
- Melissen, F., Reinders, H., 2012. A reflection on the Dutch Sustainable Public Procurement Programme. *J. Integr. Environ. Sci.* 9, 27–36.
- Melnyk, S. a., Sroufe, R.P., Calantone, R., 2003. Assessing the impact of environmental management systems on corporate and environmental performance. *J. Oper. Manag.* 21, 329–351.
- Miles, M., Huberman, A., 1994. *Qualitative data analysis: An expanded sourcebook*, 2nd ed. Sage Publications, Inc, Thousand Oaks, California, USA.
- Miller, G., Burke, J., McComas, C., Dick, K., 2008. Advancing pollution prevention and cleaner production - USA's contribution. *J. Clean. Prod.* 16, 665–672.
- Mintzberg, H., 1993. *Structure in Five – Designing Effective Organizations*, Structures in fives, Cambridge, UK

- Moen, R., Norman, C., 2006. Evolution of the PDCA cycle. Georgetown, Texas, USA.
- Mont, O.K., 2002. Clarifying the concept of product – service system. *J. Clean. Prod.* 10, 237–245.
- Montiel, I., 2008. Corporate social responsibility and corporate sustainability: separate pasts, common futures. *Organ. Environ.* 21, 245–269.
- Moon, J., Grubnic, S., Herzog, C., Gond, J.-P., 2011. Management control for sustainability strategy. *Chart. Inst. Manag. Accountants* 7, 1–15.
- Moore, S.B., Manring, S.L., 2009. Strategy development in small and medium sized enterprises for sustainability and increased value creation. *J. Clean. Prod.* 17, 276–282.
- Morrow, D., Rondinelli, D., 2002. Adopting Corporate Environmental Management Systems: Motivations and Results of ISO 14001 and EMAS Certification. *Eur. Manag. J.* 20, 159–171.
- Moura-Leite, R.C., Padgett, R.C., 2011. Historical background of corporate social responsibility. *Soc. Responsib. J.* 7, 528–539.
- Murray, A., Skene, K., Haynes, K., 2015. The Circular Economy: An Interdisciplinary Exploration of the Concept and Application in a Global Context. *J. Bus. Ethics.*
- Nambisan, S., 2002. Complementary Product Integration by High-Technology New Ventures: The Role of Initial Technology Strategy. *Manage. Sci.* 48, 382–398.
- Naustdalslid, J., 2014. Circular economy in China – the environmental dimension of the harmonious society. *Int. J. Sustain. Dev. World Ecol.* 4509, 1–11.
- Ng, P.T., 2004. The Learning Organisation And The Innovative Organisation. *Hum. Syst. Manag.* 23, 93–100.
- Nijdam, D.S., Wilting, H.C., Goedkoop, M.J., Madsen, J., 2008. Environmental Load from Dutch Private Consumption: How Much Damage Takes Place Abroad? *J. Ind. Ecol.* 9, 147–168.
- Nowotny, H., Scott, P., Gibbons, M., 2003. Full-Text. *Minerva* 41, 179–194.
- Ochsner, M., Chess, C., Greenberg, M., 1995. Pollution prevention at the 3M corporation: Case study insights into organizational incentives, resources, and strategies. *Waste Manag.* 15, 663–672.
- OECD, 2002. Sustainable development strategies : a resource book. Organisation for Economic Co-operation and Development, Paris and United Nations Development Programme, New York, Paris and New York.
- OHSAS, 2007. OHSAS 18001 Occupational health and safety management systems – Requirements, Serie De Evaluacion En Seguridad Y Salud Ocupacional. NEN, Delft, The Netherlands.
- Olsson, A., & Olander Roese, M., 2005. Multi theoretical perspectives in an abductive action research study, in: 17th Annual NOFOMA Conference. Copenhagen, Denmark, pp. 0–12.
- Osterwalder, A., Pigneur, Y., 2010. Business Model Generation: A Handbook for Visionaries, Game Changers, and Challengers. John Wiley & Sons, Ltd, Hoboken, New Jersey, USA.
- Ouchi, W.G., 1978. The Transmission of Control Through Organizational Hierarchy. *Acad. Manag. J.*
- Panagiotakopoulos, P.D., Espinosa, A., Walker, J., 2016. Sustainability management: insights from the Viable System Model. *J. Clean. Prod.* 113, 792–806.
- Pannatier, M.J., 2014. Corporate Sustainability practices in SMEs in Colombia. Utrecht University.
- Parikka-Alhola, K., 2008. Promoting environmentally sound furniture by green public procurement. *Ecol. Econ.* 68, 472–485.
- Parris, T.M., Kates, R.W., 2003. Characterizing a sustainability transition: goals, targets, trends, and driving forces. *Proc. Natl. Acad. Sci. U. S. A.* 100, 8068–73.

- Pasquier, A., WBCSD, AccountAbility, 2004. Strategic challenges for business; in the use of corporate responsibility codes, standards, and frameworks. Geneva, Switzerland.
- Pauli, G., 2010. The Blue Economy: 10 years - 10 innovations - 100 million jobs. Academic Foundation.
- Perrini, F., Tencati, A., 2006. Sustainability and stakeholder management: the need for new corporate performance evaluation and reporting systems. *Bus. Strateg. Environ.* 15, 296–308.
- Peruzzini, M., Germani, M., Marilungo, E., 2013. Product-Service Sustainability Assessment in Virtual Manufacturing Enterprises, in: PRO-VE Conference. pp. 13–21.
- Petkoski, D., Twose, N., 2003. Public Policy for Corporate Social Responsibility, WBI Series on Corporate Responsibility, Accountability, and Sustainable Competitiveness.
- Pirsig, R.M., 2009. *Zen and the Art of Motorcycle Maintenance: An Inquiry Into Values*, Harper Perennial modern classics. HarperCollins.
- Pohl, C., Hirsch Hadorn, G., 2008. Methodological challenges of transdisciplinary research. *Natures Sci. Soc.* 16, 111–121.
- Pohl, C., Rist, S., Zimmermann, A., Fry, P., Gurung, G.S., Schneider, F., Speranza, C.I., Kiteme, B., Boillat, S., Serrano, E., Hadorn, G.H., Wiesmann, U., 2010. Researchers' roles in knowledge co-production: experience from sustainability research in Kenya, Switzerland, Bolivia and Nepal. *Sci. Public Policy* 37, 267–281.
- Pojasek, R.B., 2012. Implementing a sustainability management system. *Environ. Qual. Manag.* 22, 83–90.
- Polonsky, M., Jevons, C., 2009. Global branding and strategic CSR: an overview of three types of complexity. *Int. Mark. Rev.* 26, 327–347.
- Porter, M., Kramer, M., 2011. Creating shared value - How to reinvent capitalism and unleash a wave of innovation and growth. *Harv. Bus. Rev.* 39, 62–77.
- Porter, M., Kramer, M., 2006. Strategy and Society. *Harv. Bus. Rev.* 1–15.
- Porter, M.E., 1991. America's green strategy. *Sci. Am.* 264, 168.
- Porter, M.E., Kramer, M.R., 2011. The Big Idea Creating Shared Value. *Harv. Bus. Rev.* 89.
- Potts, J., Lynch, M., Wilkings, A., Huppe, G., Cunningham, M., Voora, V., 2014. The State of Sustainability Initiatives Review 2014 Standards and the Green Economy. Winnipeg.
- Preuss, L., 2009. Addressing sustainable development through public procurement: the case of local government. *Supply Chain Manag. An Int. J.* 14, 213–223.
- Purser, R.E., 1994. "Shallow" vs. "Deep" organization development and environmental sustainability. *J. Organ. Chang. Manag.* 7, 8–18.
- Putnam, R.D., 2001. *Bowling Alone: The Collapse and Revival of American Community*. Simon & Schuster, New York, New York, USA.
- Qi, G., Zeng, S., Yin, H., Lin, H., 2013. ISO and OHSAS certifications: How stakeholders affect corporate decisions on sustainability. *Manag. Decis.* 51, 1983–2005.
- Rauter, R., Jonker, J., Baumgartner, R.J., 2015. Going one's own way: drivers in developing business models for sustainability. *J. Clean. Prod. Forthcomin*, 1–11.
- Ravichandran, T., Rai, A., 2000. Quality Management in Systems Development: An Organizational System Perspective. *MIS Q.* 24, 381.
- Reason, P., Bradbury, H., 2006. *Handbook of Action Research, Participative Inquiry and Practice* London.

- Reichertz, J., 2009. Abduction: The logic of discovery of grounded theory. *Forum Qual. Sozialforsch.* 11.
- Reid, W., Cropper, a., Mooney, H., Capistrano, D., Carpenter, S., Chopra, K., Dasgupta, P., Hassan, R., Leemans, R., May, R., Others, 2005. Living beyond our means: natural assets and human well-being, statement form the board. *World Health.*
- Rietbergen, M.G., Blok, K., 2013. Assessing the potential impact of the CO2 Performance Ladder on the reduction of carbon dioxide emissions in the Netherlands. *J. Clean. Prod.* 52, 33–45.
- Robèrt, K.-H., 2000. Tools and concepts for sustainable development, how do they relate to a general framework for sustainable development, and to each other? *J. Clean. Prod.* 8, 243–254.
- Robèrt, K.-H., Schmidt-Bleek, B., Aloisi de Larderel, J., Basile, G., Jansen, J.L., Kuehr, R., Price Thomas, P., Suzuki, M., Hawken, P., Wackernagel, M., 2002. Strategic sustainable development — selection, design and synergies of applied tools. *J. Clean. Prod.* 10, 197–214.
- Robinson, J., 2004. Squaring the circle? Some thoughts on the idea of sustainable development. *Ecol. Econ.* 48, 369–384.
- Rocha, M., Searcy, C., Karapetrovic, S., 2007. Integrating Sustainable Development into Existing Management Systems. *Total Qual. Manag. Bus. Excell.* 18, 83–92.
- Rockström, J., Steffen, W., Noone, K., Persson, Å., Chapin, F.S., Lambin, E., Lenton, T.M., Scheffer, M., Folke, C., Schellnhuber, H.J., Nykvist, B., Wit, Cynthia a., D., Hughes, T., Leeuw, Sander, van der, Rodhe, H., Sörlin, S., Snyder, P.K., Costanza, R., Svedin, U., Falkenmark, M., Karlberg, L., Corell, R.W., Fabry, V.J., Hansen, J., Walker, B., Liverman, D., Richardson, K., Crutzen, P., Foley, J., van der Leeuw, S., Rodhe, H., Sörlin, S., Snyder, P.K., Costanza, R., Svedin, U., Falkenmark, M., Karlberg, L., Corell, R.W., Fabry, V.J., Hansen, J., Walker, B., Liverman, D., Richardson, K., Crutzen, P., Foley, J., 2009. Planetary boundaries: Exploring the safe operating space for humanity. *Ecol. Soc.* 14, 472–475.
- Rourke, D.O., 2005. Market Movements Nongovernmental Organization Strategies Consumption. *J. Ind. Ecol.* 9, 115–128.
- Salzmann, O., Ionescu-somers, A., Steger, U., 2005. The Business Case for Corporate Sustainability: *Eur. Manag. J.* 23, 27–36.
- Schaltegger, S., Beckmann, M., Hansen, E.G., 2013. Transdisciplinarity in Corporate Sustainability: Mapping the Field. *Bus. Strateg. Environ.* 22, 219–229.
- Schein, E.H., 2010. *Organizational culture and leadership*, 4rd ed, Vasa. Jossey-Bass, San Francisco, USA.
- Schmidt, M.T., Elezi, F., Tommelein, I.D., Lindemann, U., 2015. Towards recursive plan-do-check-act cycles for continuous improvement, in: *IEEE International Conference on Industrial Engineering and Engineering Management*. pp. 1486–1490.
- Scholz, R.W., Tietje, O., 2002. *Embedded Case Study Methods: Integrating Quantitative and Qualitative Knowledge*. SAGE Publications, Thousand Oaks, California, USA.
- Schrader, C., Freimann, J., Seuring, S., 2012. Business Strategy at the Base of the Pyramid. *Bus. Strateg. Environ.* 21, 281–298.
- Schwartz, S.H., 1999. A Theory of Cultural Values and Some Implications for Work. *Appl. Psychol.* 48, 23–47.
- Scott, J., 2012. *Social network analysis*. Sage Publications, Thousand Oaks, California, USA. doi:10.1370/afm.344

- Searcy, C., 2016. Measuring Enterprise Sustainability. *Bus. Strateg. Environ.* 25, 120–133.
- Searcy, C., 2012. Corporate Sustainability Performance Measurement Systems: A Review and Research Agenda. *J. Bus. Ethics* 107, 239–253.
- Searcy, C., 2011. Updating corporate sustainability performance measurement systems. *Meas. Bus. Excell.* 15, 44–56.
- Seth, A., Thomas, H., 1994. Theories of the Firm: Implications for Strategy Research. *J. Manag. Stud.* 31, 165–191.
- Sewell, W.H.J., 1992. A Theory of Structure: Duality, Agency, and Transformation. *Am. J. Sociol.* 98, 1–29.
- Shermata, W.A., 2000. Centrifugal and Centripetal Forces in Radical New Product Development under Time Pressure. *Acad. Manag. Rev.* 25, 389.
- Siebenhüner, B., Arnold, M., 2007. Organizational learning to manage sustainable development. *Bus. Strateg. Environ.* 16, 339–353.
- Sinding, K., Waldstrom, C., Kreitner, R., Kinicki, A., 2014. Organisational behaviour.
- Siva, V., Gremyr, I., Bergquist, B., Garvare, R., Zobel, T., Isaksson, R., 2016. The support of Quality Management to sustainable development: A literature review. *J. Clean. Prod.*
- Skarmeas, D., Leonidou, C.N., 2013. When consumers doubt, Watch out! The role of CSR skepticism. *J. Bus. Res.* 66, 1831–1838.
- Smith, A., 1759. *The Theory of Moral Sentiments*. A. Millar, A. Kincaid & J. Bell, Edinburgh, UK.
- Smith, J. a, Osborn, M., 2008. Interpretative Phenomenological Analysis, in: *Doing Social Psychology Research*. The British Psychological Society and Blackwell Publishing Ltd, Oxford, UK, pp. 229–254.
- Sorge, A., 2004. The (Non)Sense of Organizational Change: An Essai about Universal Management Hypes, Sick Consultancy Metaphors, and Healthy Organization Theories. *Organ. Stud.* 25, 1205–1231.
- Souto, J.E., 2015. Business model innovation and business concept innovation as the context of incremental innovation and radical innovation. *Tour. Manag.* 51, 142–155.
- Spence, L.J., Schmidpeter, R., 2003. SMEs, Social Capital and the Common Good, in: *Journal of Business Ethics*. pp. 93–108.
- Srivastava, S.K., 2007. Green supply-chain management: A state-of-the-art literature review. *Int. J. Manag. Rev.*
- Starke, L., 2012. *State of the world 2012; moveing toward sustainable prosperity*, Worldwatch Books. Wahsington, USA.
- Steger, U., 2000. Management Systems: Empirical Evidence and Further Perspectives. *Eur. Manag. J.* 18, 23–37.
- Stevenson, R.S., 2004. An assessment of the design and effectiveness of the ASEAN Environmental Improvement Program. *J. Clean. Prod.* 12, 227–236.
- Stokols, D., 2006. Toward a Science of Transdisciplinary Action Research. *Am. J. Community Psychol.* 38, 79–93.
- Strauss, A., Corbin, J., 1998. *Basics of qualitative research: Techniques and procedures for developing grounded theory* (2nd ed.), *Basics of qualitative research: Techniques and procedures for developing grounded theory* (2nd ed.).
- Strauss, A.L., 1987. *Qualitative analysis for social scientists*, *Qualitative analysis for social scientists*.

- Stuart, I., McCutcheon, D., Handfield, R., McLachlin, R., Samson, D., 2002. Effective case research in operations management: A process perspective. *J. Oper. Manag.* 20, 419–433.
- Stubbs, W., Cocklin, C., 2008. Conceptualizing a “Sustainability Business Model.” *Organ. Environ.*
- Stubbs, W., Cocklin, C., 2008. An ecological modernist interpretation of sustainability: the case of Interface Inc. *Bus. Strateg. Environ.* 17, 512–523.
- Székely, F., Knirsch, M., 2005. Responsible Leadership and Corporate Social Responsibility: *Eur. Manag. J.* 23, 628–647.
- Teece, D.J., 2010. Business models, business strategy and innovation. *Long Range Plann.* 43, 172–194.
- The European Commission, 2006. Implementing the Partnership for Growth and Jobs: Making Europe a Pole of Excellence on CSR, COM(2006)136 final. European Commission.
- The European Commission, 2014. Towards a circular economy: A zero waste programme for Europe. Brussels, Belgium.
- The European Commission, 2011. A renewed EU strategy 2011-14 for Corporate Social Responsibility. Brussels, Belgium.
- The European Commission, 2001. Green Paper - Promoting a European framework for corporate social responsibility. Brussels, Belgium.
- The European Union, 2014. Directive 2014/24/EU of the European Parliament and of the Council of 26 February 2014 on public procurement and repealing Directive 2004/18/EC, Official Journal of the European Union. Brussels, Belgium.
- Thomson, J., Jackson, T., 2007. Sustainable procurement in practice: Lessons from local government. *J. Environ. Plan. Manag.* 50, 421–444.
- Tinsley, S., 2002. EMS models for business strategy development. *Bus. Strateg. Environ.* 11, 376–390.
- Tolbert, P.S., Hall, R.H., 2015. Organizations: Structures, processes, and outcomes: Tenth edition, Organizations: Structures, Processes, and Outcomes: Tenth Edition, Pearson international edition. Pearson Prentice Hall, Upper Saddle River, New Jersey. USA.
- Tsai, W., 2002. Social Structure of “Coopetition” Within a Multiunit Organization: Coordination, Competition, and Intraorganizational Knowledge Sharing. *Organ. Sci.* 13, 179–190.
- Tukker, A., Emmert, S., Charter, M., Vezzoli, C., Sto, E., Munch Andersen, M., Geerken, T., Tischner, U., Lahlou, S., 2008. Fostering change to sustainable consumption and production: an evidence based view. *J. Clean. Prod.* 16, 1218–1225.
- Uhlander, L.M., Berent, M.M., Jeurissen, R.J.M., de Wit, G., 2010. Family ownership, innovation and other context variables as determinants of sustainable entrepreneurship in SMEs: An empirical research study. *EIM Res. Reports*, Ref. 1–29.
- UNDP, 2015. Human Development Report 2015; Work for Human Development. New York, New York, USA.
- UNEP, 2014. Buying for a Better World; A Guide on sustainable procurement for the UN system. Paris, France.
- UNEP, 2011. Towards a Green Economy: Pathways to Sustainable Development and Poverty Eradication, Sustainable Development. Paris, France.
- UNEP, 2007. Sustainable consumption and production in South East Europe and Eastern Europe, Caucasus

- and Central Asia. Paris, France.
- UNEP/SETAC LCI, 2009. Guidelines for Social Life Cycle Assessment of Products. Paris, France.
- Uyarra, E., Edler, J., Garcia-Estevéz, J., Georghiou, L., Yeow, J., 2014. Barriers to innovation through public procurement: A supplier perspective. *Technovation* 34, 631–645.
- Van, Marrewijk, M., Werre, M., 2003. Multiple Levels of Corporate Sustainability. *J. Bus. Ethics* 44, 107–119.
- Van, M., Marcel, 2004. A value based approach to organization types: towards a coherent set of stakeholder - oriented management tools. *J. Bus. Ethics* 55, 147–158.
- Vera, D., Crossan, M., 2004. Strategic Leadership and Organizational Learning. *Acad. Manag. Rev.* 29, 222–240.
- Vermeulen, W.J.V., 2010. Sustainable supply chain governance systems: conditions for effective market based governance in global trade. *Prog. Ind. Ecol.* 7, 138.
- Vermeulen, W.J.V., Witjes, S., 2016. On addressing the dual and embedded nature of business and the route towards corporate sustainability. *J. Clean. Prod.* 112, 2822–2832.
- Vermeulen, W.J. V., 2015. Self-Governance for Sustainable Global Supply Chains: Can it Deliver the Impacts Needed? *Bus. Strateg. Environ.* 24, 73–85.
- Vermeulen, W.J. V., 2006. The social dimension of industrial ecology: on the implications of the inherent nature of social phenomena. *Prog. Ind. Ecol. an Int. J.* 3, 574–598.
- von Ahnen, A., 2013. The Integration of Quality, Environmental and Health and Safety Management by Car Manufacturers - a Long-Term Empirical Study. *Bus. Strateg. Environ.*
- Walker, H., Brammer, S., 2012. The relationship between sustainable procurement and e-procurement in the public sector. *Int. J. Prod. Econ.* 140, 256–268.
- Walker, H., Preuss, L., 2008. Fostering sustainability through sourcing from small businesses: public sector perspectives. *J. Clean. Prod.* 16, 1600–1609.
- Wang, C.L., Ahmed, P.K., 2003. Organisational learning: a critical review. *Learn. Organ.* 10, 8–17.
- Watts, P., Holme, Lord, 1998. Corporate Social Responsibility: Making Expectations Meet, World Business Council for Sustainability Development. WBCSD, Geneva.
- WBCSD, 2010a. Vision 2050: The new agenda for business, WBCSD. Geneva, Switzerland.
- WBCSD, 2010b. Pathway toward a sustainable 2050: Mural. Geneva, Switzerland.
- WCED, 1987. *Our Common Future*, First. ed. Oxford University Press, Oxford, UK.
- Weber, M., 2008. The business case for corporate social responsibility: A company-level measurement approach for CSR. *Eur. Manag. J.* 26, 247–261.
- Webster, K., 2013. What might we say about a circular economy? Some temptations to avoid if possible. *World Futur. J. New Paradig. Res.* 69, 542–554.
- Weick, K.E., 1989. Theory Construction as Disciplined Imagination. *Acad. Manag. Rev.* 14, 516–531.
- Weidema, B.P., 2006. The Integration of Economic and Social Aspects in Life Cycle Impact Assessment. *Int. J. Life Cycle Assess.* 11, 89–96.
- Wells, G., 2013. The sustainable firm as an ethical construct, in: Wells, G. (Ed.), *Sustainable Business: Theory and Practice of Business under Sustainability Principles*. Edward Elgar Publishing Limited, Cheltenham, UK, pp. 52–62.

- West, C., 2011. Action Research as a Professional Development Activity. *Arts Educ. Policy Rev.* 112, 89–94.
- Witjes, S., Cramer, J.M., Vermeulen, W.J.V., article in press, On corporate sustainability integration and the support of tools. *World Rev. Entrep. , Manag. Sustain. Dev.* article in press.
- Witjes, S., Lozano, R., 2016. Towards a more Circular Economy: Proposing a framework linking sustainable public procurement and sustainable business models. *Resour. Conserv. Recycl.* 112, 37–44.
- Witjes, S., Vermeulen, W.J.V., Cramer, J.M., 2016. Exploring corporate sustainability integration into business activities. Experiences from 18 small and medium sized enterprises in the Netherlands. *J. Clean. Prod. Forthcomin*, 1–11.
- World Commission on Environment and Development, 1987. *Our Common Future (The Brundtland Report)*.
- Wrisberg, N., Udo de Haes, H.A., Triebswetter, U., Eder, P., Clift, R., 2002. *Analytical Tools for Environmental Design and Management in a Systems Perspective*. Springer International Publishing, Berlin, Germany.
- WWF, 2014. *Living Planet Report 2014*. Gland, Switzerland.
- Yin, H., Schmeidler, P.J., 2009. Why do standardized ISO 14001 environmental management systems lead to heterogeneous environmental outcomes? *Bus. Strateg. Environ.* 18, 469–486.
- Yin, R.K., 2013. Validity and generalization in future case study evaluations. *Evaluation* 19, 321–332.
- Yin, R.K., 2009. *Case Study Research: Design and Methods, Essential guide to qualitative methods in organizational research*.
- Yong, R., 2007. The circular economy in China. *J. Mater. Cycles Waste Manag.* 9, 121–129.
- Yuan, Z., Bi, J., Moriguchi, Y., 2008. The Circular Economy: A New Development Strategy in China. *J. Ind. Ecol.* 10, 4–8.
- Zangwill, W.I., Kantor, P.B., 1998. Towards a Theory of Continuous Improvement and the Learning Curve. *Manage. Sci.* 44, 910–920.
- Zillman, D., 1999. Exemplification Theory: Judging the Whole by Some of Its Parts. *Media Psychol.* 1, 69–94.
- Zorpas, A., 2010. Environmental management systems as sustainable tools in the way of life for the SMEs and VSMEs. *Bioresour. Technol.* 101, 1544–1557.
- Zott, C., Amit, R., 2010. Business Model Design: An Activity System Perspective. *Long Range Plann.* 43, 216–226.

Summary

Major advances in human development and industrialisation have created an unprecedented degradation of ecosystems. Sustainable Development (SD) has been proposed as an alternative to restore the balance between human society and nature. Companies have increasingly become a key focus of attention in the SD debate since they are perceived to be responsible for many negative impacts on the triple P issues (i.e. people, planet and prosperity) in society. Developments in the last decades have shown that decreasing the negative impact of business activities will increase operational efficiency and improve overall corporate performance. Thus, a growing number of companies embrace the concept of Corporate Sustainability (CS).

Companies willing to address CS are looking for guidance to establish a CS strategy and determine mechanisms to integrate CS into their daily business routines, leading to CS as an added value to the main business goals. The integration of CS into the processes of the organisational system entails the implementation of a consistent set of transformative organisational change processes throughout the whole organisation. Integration mechanisms resulting in these organisational changes favourably influence the output of business activities on the three CS dimensions of triple P issues (i.e. people, planet, prosperity), time (i.e. past, present, future) and place (i.e. the individual, here, there).

To contribute to the generation of theory on the integration of CS, this PhD thesis focuses on the CS integration process leading to CS becoming an added value to the main corporate goals. Trans-disciplinary methods were developed to co-produce knowledge on CS integration between academics and companies. These methods rely upon perspectives from different related fields: organisational behaviour; organisational theory; and, strategic management. To explore company cases, the methods enable data-gathering on CS integration, focussing on the organisational system, the role of third parties, supporting tools, and direct supply chain partners. The case study outcomes revealed the main characteristic of the CS integration process and the determination of integration success. Chapters 2-5 of this thesis address the process of CS integration from different perspectives, presenting answers to the sub research questions of this PhD thesis namely:

- a. What are the core characteristics of the CS integration process?
- b. What is the role of CS integration tools?
- c. What is the role of third parties in integrating CS?
- d. How can CS integration success be measured?

Chapter 6 presents a holistic multidisciplinary method to analyse CS integration into the organisational system of a company by uniting the outcomes of chapter 2 through 5.

Chapter 2 presents an exploration of developments in the field of CS over the last three decades. Based on prior theoretical knowledge, research in the field of CS and management practices - including the link to other fields - was analysed, leading to the development of a holistic framework.

This framework emphasises a full transformative learning approach for a strategy on the integration of CS into both the physical and social dynamics of the organisation. To test the framework on its holistic character and applicability, we call for the development of trans-disciplinary methods. These methods should critically analyse transformative corporate changes towards CS integration, and support companies addressing CS.

In Chapter 3 we co-produce knowledge on CS integration between academics, external change agents and companies by gathering data on transformative corporate changes towards improved CS performance. An action research approach was used to explore how companies integrate CS into their business activities. While supporting eighteen SMEs to improve their integration of CS, the external change agents gathered research data by applying four CS integration tools (i.e. CS growth curve, CS triggers, the elements to ensure CS, and the physical and social focus of CS integration activities). The tools stemmed from their long-term experience in use with the eighteen companies, and CS integration support in general. The outcomes of the data analysis were validated by a discussion with the company representatives and supported the companies in improving the integration of CS into their organisational systems. We concluded that companies should ensure an equal focus on both the physical and social dynamics of their corporate CS strategy, the interventions supporting CS integration, as well as the CS assessment. Although the companies used tools to support the integration of CS, their strategies were primarily focussed on the physical organisational dynamics. We therefore call for a more holistic and integral analysis of the integration process—support CS integration tools offer companies in addressing CS.

In Chapter 4 we investigated the role of the most prominent CS tools mentioned in selected professional and scientific publications, with the aim of understanding how these tools support companies with their CS integration process. The literature review led to the definition of the CS integration process, and the development of a method to analyse CS tools in support of the CS integration process. The method is illustrated with an analysis of the three most prominent CS tools (i.e. Environmental Management Systems, Life Cycle Assessment and Sustainability Reporting). We conclude that, although none of the three separate tools offers a full coverage of the CS integration process, their concurrent use covers the CS integration process. Companies should, therefore, select a mixture of CS tools to fit their CS strategy and organisational system. Consequently, a critical analysis of its CS strategy and past integration into its organisational system is needed for a company to determine this fit.

Chapter 5 critically analyses integrations into the organisational system by taking a supply chain perspective. This chapter aims to understand the influence of implementing sustainability criteria in the procurement process on the integration of CS into the organisational systems of affected

companies. A literature analysis on public procurement, sustainable business models, and organisational change management led to the development of the ProBiz4CE-framework. This framework proposes collaboration between supply-chain actors to understand the link between the integration of sustainability requirements into the procurement process and the consequential development of more sustainable business models. We concluded that successful and well-considered interventions in the social dynamics are necessary to adjust the physical organisational dynamics resulting from the adherence to a corporate CS strategy.

Chapter 6 unites the outcomes of the previous four chapters to present a holistic, multidisciplinary, method to analyse CS integration into the organisational system of a company. A literature review on organisation theory, organisational behaviour and strategic management led to the development of the LEAPFROCS method with the coherent use of integration mechanisms as key for a successful CS integration. By applying participatory action research, the LEAPFROCS method enables a retrospective analysis of the coherent use of integration mechanisms in their support for CS integration into the organisational system. Based on the trans-disciplinary approach, the outcomes of the data analysis – the LEAPFROCS patterns - were validated in discussion with company representatives, and served as inputs for improving future CS strategies. We conclude that the process of CS integration is company-specific, and that LEAPFROCS patterns create company self-reflection on CS integration, thereby catalysing future corporate strategies for improving CS integration into their organisational systems.

The outcomes of these five chapters generate an answer to the main research question of this PhD thesis: ‘How do companies integrate Corporate Sustainability into their organisational system over time?’

Corporate Sustainability (CS) entails transformational organisational change processes, leading to the integration of a corporate strategy on how to address the impact of business activities on the three CS dimensions, namely:

- The issue dimension: the impact on people, planet and prosperity issues;
- The place dimension: the impact on the individual (i.e. person), here (i.e. within the organisation) and there (i.e. within the supply chain or further in society); and,
- The time dimension: the impact in the past, present and future.

CS integration aims at adherence to a CS strategy and constitutes learning for a continuous adjustment of the organisational processes. The transformational changes are triggered by interventions made in response to the ever-changing corporate internal and external context. This full transformative learning approach aims at the coherent use of integration mechanisms while

adhering to the company's CS strategy. The coherence entails a consistent set of relations between the elements of:

1. The organisational structure: the strategic, tactical and operational level;
2. The organisational culture: the surface, value and underlying level; and,
3. The continuous organisational improvement (the Plan, Do, Check and Act phases).

The coherent use of integration mechanisms will lead to a fruitful reinforcement of transitions in the physical dynamics and, therefore, to a link between the efficiency of organisational processes as the outcome of the organisational system and the impact of organisational processes as the output of business activities. Consequently, CS integration is based on learning from holistic coherence in past use of integration mechanisms while aiming for adherence to a CS strategy. We believe that increasing the coherent use of integration mechanisms for CS integration will contribute to CS becoming an integral part of the organisation and added value to business activities. Moreover, it will support companies to increase the exploitation of their business potential.

Samenvatting

Grote industriële ontwikkelingen van de afgelopen decennia hebben, voornamelijk in de Westerse wereld, geleid tot verbeterde omstandigheden voor de mens maar ook tot een verslechtering van het milieu. Het concept duurzame ontwikkeling is een alternatief met als doel de balans tussen de menselijke samenleving en de natuur weer te herstellen. Bedrijven zijn in de toenemende mate in de spotlight komen te staan in het debat rond duurzame ontwikkeling daar zij verantwoordelijk worden geacht voor vele negatieve impacts op de „triple P” (mens, planeet en welvaart) in de samenleving. Recente ontwikkelingen hebben aangetoond dat het verminderen van deze negatieve impacts ook de operationele efficiëntie en daardoor de algemene prestaties van de bedrijven verbeterd. Als gevolg daarvan zijn er steeds meer bedrijven die overgaan op een duurzamere bedrijfsvoering (DB).

Bedrijven met de wens over te willen gaan op een DB, zijn op zoek naar ondersteuning voor het opstellen van een duurzaamheidsstrategie met bijbehorende mechanismes die tot de integratie van duurzaamheid in hun dagelijkse bedrijfsprocessen leidt. De integratie van duurzaamheid in de bedrijfsvoering behelst de implementatie van een consistente set aan transformatieve organisatieveranderingsprocessen door het gehele bedrijf. Integratie mechanismen, die leiden tot transformatieve organisatieveranderingsprocessen, beïnvloeden op een positieve manier de output van bedrijfsprocessen gerelateerd aan de drie dimensies van DB (i.e. de „triple P”, tijd (i.e. verleden, heden, toekomst) en plaats (i.e. het individu, hier en daar)).

Om tot een bijdrage tot de ontwikkeling van theorie over de integratie van DB in de organisatie te kunnen komen, focust dit proefschrift op het integratieproces zelf. Dit integratieproces leidt tot duurzame bedrijfsvoering als een toegevoegde waarde voor de belangrijkste bedrijfsdoelen. Transdisciplinaire onderzoeksmethodes zijn ontwikkeld gedurende het proefschrift om te kunnen komen tot kennis over de integratie van DB welke nuttig is voor zowel de academie als voor de bedrijven zelf. Deze methodes zijn ontwikkeld vanuit verschillende wetenschapsvelden: bv. organisatiegedrag; organisatietheorie en strategisch management. Deze methodes maken het mogelijk om verschillende bedrijfscases te kunnen onderzoeken door data te verzamelen over het integratieproces van DB met een focus op het organisatiesysteem van het bedrijf, derde partijen, ondersteunende instrumenten en directe partners uit de productketen. De uitkomsten van de bedrijfscases behelzen de karakteristieken van het integratieproces van DB alsmede een bepaling van het integratiesucces.

In hoofdstuk 2 tot en met 5 wordt het integratieproces van DB behandeld vanuit verschillende oogpunten komende tot een antwoord op de sub onderzoeksvragen van dit proefschrift:

- Wat zijn de essentiële karakteristieken van het integratieproces van DB?
- Wat is de rol van ondersteunende instrumenten voor de integratie van DB?
- Wat is de rol van derde partijen bij de integratie van DB?
- Hoe kan het succes van de integratie van DB worden gemeten?

Hoofdstuk 6 beschrijft een holistische en multidisciplinaire methode om de integratie van DB in het organisatiesysteem van een bedrijf te analyseren. Deze methode komt voort uit de resultaten van de hoofdstukken 2 tot en met 5.

Hoofdstuk 2 beschrijft een verkenning van de ontwikkelingen in veld van DB over de afgelopen 3 decennia. Gebaseerd op eerdere theoretische kennis, een analyse van wetenschappelijk onderzoek in gerelateerde velden leidt tot de ontwikkeling van een holistisch raamwerk. Dit raamwerk benadrukt een volledige transformatieve leeraanpak als basis voor een strategie voor de integratie van DB in zowel de fysieke alsmede de sociale dynamieken van de organisatie. Om het holistische karakter en de toepasbaarheid van het raamwerk te testen, wordt aangeraden om trans-disciplinaire methoden te ontwikkelen. Deze methodes zouden de transformatieve organisatieveranderingen die bijdragen aan de integratie van DB moeten analyseren alsmede de bedrijven ondersteunen bij hun aanpak om te komen tot DB.

Hoofdstuk 3 beschrijft de coproductie van kennis over de integratie van DB tussen academici, externe veranderagenten en bedrijven. De kennis komt van de verzameling van data over de transformatieve organisatieveranderprocessen leidende tot verbeterde duurzaamheidsprestaties van bedrijven. Hiervoor wordt een actie-onderzoek aanpak gebruikt om te begrijpen hoe bedrijven DB in hun bedrijfsprocessen integreren. De onderzoeksdata wordt verzameld door externe veranderagenten terwijl zij achttien bedrijven ondersteunden bij het verbeteren van de integratie van DB in hun organisatiesysteem. Hierbij wordt gebruik gemaakt van vier instrumenten (i.e. de DB-groeicurve voor duurzame bedrijfsvoering, DB-triggers, DB-borgingselementen, en de fysieke en sociale focus van de DB-integratie activiteiten) voortkomend uit de ervaring van deze agenten met de achttien bedrijven en het integreren van DB in organisatiesystemen. De uitkomsten van de dataverzameling zijn gevalideerd door een discussie met bedrijfsvertegenwoordigers. Daarnaast ondersteunt deze discussie het bedrijf bij het verbeteren van de integratie van DB in hun organisatiesysteem. We concluderen dat voor DB-integratie een gelijke verdeling van aandacht voor zowel fysieke alsmede sociale organisatiedynamieken nodig is bij het ontwikkelen van een DB-strategie, interventies die DB-integratie ondersteunen én de meting van DB-integratie. Ondanks dat de achttien bedrijven instrumenten gebruiken om de integratie van DB te ondersteunen, waren de

bedrijfsstrategieën voornamelijk gefocust op de fysieke organisatiedynamieken. Daarom wordt aangeraden om het holistische en integrale karakter van de ondersteuning voor DB-integratie van deze instrumenten te analyseren.

In hoofdstuk 4 wordt de rol van meest prominente DB-instrumenten vanuit geselecteerde professionele en wetenschappelijk publicaties onderzocht. Het doel is om te begrijpen hoe deze instrumenten bedrijven ondersteunen met de integratie van DB. De literatuuranalyse leidde tot een definitie van het DB-integratie proces en de ontwikkeling van een methode om de ondersteuning van de instrumenten bij het integreren van DB te analyseren. Deze methode wordt geïllustreerd door middel van een analyse van de drie meest prominente DB-tools (i.e. milieu managementsystemen, productlevenscyclus analyses en duurzaamheidsrapportages). Deze analyse leidt tot de conclusie dat, ondanks dat geen van de drie instrumenten het DB-integratieproces volledig afdekt, het gezamenlijk gebruik van de drie instrumenten wel tot een volledige afdekking zou kunnen leiden. Bedrijven zouden daarom een mix van DB-instrumenten moeten kiezen welke past bij hun DB-strategie en organisatiesysteem. Een kritische analyse van de DB-strategie en activiteiten die geleid hebben tot DB-integratie in het organisatiesysteem in het verleden is een vereiste om tot de keuze van de juiste instrumenten te kunnen komen.

Hoofdstuk 5 beschrijft een kritische analyse van DB-integratie in het organisatiesysteem vanuit een ketenperspectief. De analyse heeft als doel om de invloed van duurzaamheidscriteria in het inkoopproces op de ontwikkeling van DB-integratie in organisatiesystemen van betrokken bedrijven te begrijpen. Een analyse van literatuur over overheidsinkopen, duurzamere businessmodellen en verandermanagement van organisaties leidt tot de ontwikkeling van het ProBiz4CE-raamwerk. Dit raamwerk poneert de samenwerking tussen acteurs in de leveringsketen om de verbinding tussen de integratie van duurzaamheidscriteria in het inkoopproces en de ontwikkeling van duurzamere businessmodellen te begrijpen. Dit leidt tot de conclusie dat succesvolle en wel overwogen interventies in de sociale organisatie dynamieken nodig zijn om de fysieke dynamieken te kunnen beïnvloeden en daarmee de DB-strategie te kunnen borgen.

Hoofdstuk 6 brengt de uitkomsten van de voorgaande 4 hoofdstukken samen en presenteert een holistische en multidisciplinaire methode om de integratie van DB in het organisatiesysteem van het bedrijf te kunnen analyseren. Een analyse van organisatie-theorie-, organisatie gedrag en strategisch management literatuur leidt tot de ontwikkeling van de LEAFPROCS-methode. Deze methode is gebaseerd op het coherent gebruik van integratie mechanismes als zijnde de sleutel voor succesvolle integratie van DB. Door toepassing van participatief actie-onderzoek maakt de LEAFPROCS-methode het mogelijk om een retrospectieve analyse uit te voeren van het coherent gebruik van mechanismen die leiden tot integratie van DB in het organisatiesysteem. Gebaseerd op een transdisciplinaire aanpak worden de uitkomsten van de data-analyse (de LEAFPROCS-patronen)

gevalideerd in een discussie met bedrijfsvertegenwoordigers en gebruikt om toekomstige DB-strategieën te verbeteren. Door de toepassing van de LEAPFORCS-methode kan geconcludeerd worden dat het DB-integratieproces bedrijfsspecifiek is en dat de LEAPFROCS-patronen leiden tot een zelfreflectie van het bedrijf over DB-integratie in het organisatiesysteem. Deze zelfreflectie fungeert als een katalysator voor toekomstige strategieën om de integratie van DB in het organisatie systeem te verbeteren.

De uitkomsten van de 5 hoofdstukken leiden tot een antwoord op de belangrijkste onderzoeksvraag van dit proefschrift: Hoe integreren bedrijven Duurzame Bedrijfsvoering in hun organisatie systemen metertijd?

Duurzame bedrijfsvoering (DB) behelst transformatieve organisatieveranderprocessen die leiden tot de integratie van een bedrijfsstrategie voor het aanpakken van de impact van bedrijfsprocessen op de drie DB-dimensies, namelijk:

- De issue-dimensie: de impact op mens, planeet en welvaart;
- De plaats-dimensie: de impact voor het individu, hier (i.e. in de organisatie) en daar (i.e. in de keten of verderop in de samenleving) en;
- De tijd-dimensie: de impact in het verleden, nu en in de toekomst.

De integratie van DB heeft als doel om een DB-strategie te borgen. Deze strategie vormt het leren van een continue aanpassing van de organisatieprocessen. Interventie-acties die genomen worden in reactie op de continu veranderende interne en externe bedrijfscontext triggeren transformatieve organisatieveranderingen. Deze aanpak van volledig transformatief leren doelt op het coherent gebruik van integratie mechanismen om een DB-strategie te kunnen borgen. De coherentie behelst een consistente set van relaties tussen de elementen van:

- De organisatiestructuur: het strategische, tactische en operationele nivo;
- De organisatiecultuur: het oppervlakkige, waarde en onderliggende nivo, en;
- De continue organisatieverbetering (de Plan, Do, Check en Act fases).

Het coherent gebruik van integratie mechanismen zal leiden tot een versterking van transitie in de fysieke dynamieken en, daardoor, tot een verbinding tussen de efficiëntie van organisatieprocessen (als de uitkomst van het organisatiesysteem) en de impact van de organisatieprocessen (als de output van de bedrijfsprocessen). Derhalve, DB-integratie is gebaseerd op het leren van de holistische coherentie van integratie mechanismen uit het verleden die als doel hebben de DB-strategie te borgen. Het verbeteren van het coherent gebruik van integratie mechanismen voor DB-integratie draagt bij aan DB als een integraal deel van de organisatie en een toegevoegde waarde voor de

bedrijfsactiviteiten. Bovendien, het ondersteunt bedrijven om optimaal gebruik te maken van het aanwezige potentieel.

Acknowledgements

This PhD is a reflection on my professional life until today: a retrospective analysis to ferret out the successful mechanisms throughout the last 18 years. The patterns coming from this analysis show a golden thread of doing research in different forms, at different levels and from different perspectives. Consequently, I owe many thanks to people that I have encountered throughout my life and that have contributed to the road that has led to where I am now. Because this road has passed through different countries with different languages, I express my gratitude in the corresponding language.

Als eerste zou ik mijn ouders hartelijk willen bedanken voor hun continue ondersteuning in mijn ontwikkeling. Al was het in mijn babytijd waar ik, als onderzoeker-in-spé, kevers minuscuul uit elkaar peuterde, in mijn middelbareschooltijd waar ik moest knokken voor een VWO-advies en uiteindelijk echt onderzoek mocht doen vanuit onze garage of in samenwerking met de Sporthochschule in Köln in de vakken biologie en natuurkunde, in de tijd dat mijn tennis- en schoolcarrière naast elkaar liepen en ik de grote stap naar Charleston waagde, of tijdens mijn tijd in Delft waar ik al snel van studie veranderde en uiteindelijk echt de wijde wereld introk. Maar ook bij mijn verdere verrichtingen hebben jullie mij altijd ondersteund en de vrijheid gegeven om mijzelf te ontwikkelen. Deze promotie is weer zo'n stap in mijn ontwikkeling waarbij jullie ook weer een belangrijke rol hebben gespeeld.

Jan Buijs verdient alle dank daar hij ooit het zaadje gepland heeft voor deze promotie. Als enige hoogleraar in Delft die mijn ambities om in het buitenland af te studeren accepteerde, heeft hij mij de unieke mogelijkheid gegeven in te stromen in de samenwerking met het Center for Design Research van de Stanford Universiteit en bedrijven in Silicon Valley. Na mijn afstuderen heeft hij mij onder zijn hoede genomen en hebben we het Product Innovation Management vak gedraaid waarbij ik voor het eerst de mogelijkheden zag van de samenwerking tussen academie en bedrijven om studenten klaar te stomen voor hun verdere leven. Hij heeft geprobeerd om mij over te halen toen al aan mijn promotie te gaan werken. Ik was er toen nog niet klaar voor. Helaas is Jan pasgeleden overleden.

A mis amigos colombianos debo un montón. Ellos me mostraron que el calor humano es primordial en la vida y que el ritmo holandés, a veces, no deja espacio para dar, ni disfrutar de este calor humano. Con la conclusión de mi doctorado que el mundo empresarial debe enfocarse más en lo social, espero haber creado también más atención para la cultura latina en general y la colombiana específicamente en cómo poder lograr este enfoque. Mis colegas Uniandinos agradezco por haberme dado el campo de construir cursos en diferentes niveles y proyectos con diferentes organizaciones que generaron insumos para el desarrollo de estudiantes y empresas, pero, más importante, para el desarrollo de mi persona.

A

BMD Centraal Nederland en hun leden hebben de mogelijkheid gegeven mijn ideeën en overtuigingen in de praktijk in te zetten. Door de samenwerking met BMD collega's maar zeker ook met de mensen binnen de verschillende bedrijven heb ik in verschillende sectoren en op verschillende manieren mensen mogen ondersteunen in hun zoektocht naar een betere bedrijfsvoering. Het waren een aantal van deze bedrijven die mij uiteindelijk konden overtuigen dat het moment voor het doen van een promotietraject aangebroken was: schrijf al die ideeën die je met ons deelt en die ons vooruit helpen nou eens op!

Mijn twee directe begeleiders verdienen alle lof. Walter Vermeulen heeft mij de mogelijkheid gegeven om een volgende stap in mijn ontwikkeling echt mogelijk te maken, ondanks het feit dat ik ver van een standaard promovendus met een niet standaard onderzoek ben geweest. Walter heeft mij het houvast gegeven dat ik voornamelijk in het begin maar zeker ook in moeilijke tijden nodig had. Daarnaast heeft hij mij de vrijheid gegeven op de momenten dat ik mijn vleugels wilde openen. De combinatie van begeleider van mijn proefschrift en directe collega binnen de SBI master en de Toolbox 2 en BSI vakken was dan ook gebouwd op vertrouwen. Dit vertrouwen werd nog versterkt door de momenten tijdens conferenties, maar zeker ook in Utrecht of Kleve, waarbij we even niet aan onderzoek of onderwijs hoefden te denken en het konden hebben over onze gezinnen, levens of door gewoon de toerist uit te hangen. Bovenal hebben onze gesprekken vol gezeten met plannen voor het nu en de toekomst. Hierdoor voelt het nu ook niet echt aan als het einde van een (PhD-) periode, maar meer het begin van de doorontwikkeling van waar we tijdens mijn PhD onderzoek aan hebben gewerkt.

Daarnaast fungeerde Jacqueline Cramer als een klankbord voor inhoudelijke, maar zeker ook sociale uitdagingen tijdens mijn onderzoek. Ik heb genoten en ook zeer veel geleerd van onze overleggen en vond het dan ook erg jammer als deze weer voorbij waren. Het is voor mij een voorrecht geweest om jou als promotor te mogen hebben.

Un agradecimiento muy especial es para Rodrigo Lozano. Como compañero de oficina, co-profesor de la maestría SBI, investigador en temas relacionados, co-autor de textos, pero también simplemente como amigo Rodrigo ha contribuido en su forma al éxito de este doctorado. Siempre estaba listo de escucharme o darme consejos. A pesar de que no siempre te hice caso, fuiste un faro en el mundo de la ciencia.

David Cromie deserves all the credits for proofreading almost all sections of my PhD. Daarnaast gaan alle credits voor het grafisch ontwerp naar Esther Mols die hier een angst uit haar jeugd voor moest overwinnen.

This PhD thesis would not have been possible without a very special group of people: the students. Being part of bachelor or master programmes of Utrecht University, Universidad de los Andes and the Hochschule Rhein Waal, they gave me the possibility to add an – almost – unique third

dimension to this research: besides the academy and the companies you supported this PhD thesis by applying and criticizing my methods, collecting and analysing research data, and participating in the discussions of the outcomes with the companies. It fills me with pride to see you contributing to CS integration in the different roles you occupy in the “real world”.

I would like to express my sincere thanks to my colleagues of the Copernicus Institute for Sustainable Development. Our collaboration has generated a wonderful SBI master programme ready for the future. The many discussions we had have surely contributed to the development of my PhD research.

Speciaal wil ik Ellen Moors, Annemarieke Otten, Martin Wassen en Marko Hekker bedanken dat ik naast mijn PhD onderzoek ook mijn werk als docent/onderzoeker kon doen. Op twee cruciale momenten hebben zij zich in bochten gewrongen om mijn aanstelling mogelijk te maken. Zonder deze bochten zou mijn onderzoek er waarschijnlijk heel anders uit hebben gezien. De gesprekken met Ellen, als mijn direct leidinggevende, hebben mij altijd rust gegeven. Ondanks de vele verantwoordelijkheden die Ellen heeft, is zij voor mij altijd een mensen-mens geweest. Iets wat ik erg in je respecteer!

I want to express a special thanks to the members of the International Sustainable Development Research Society. Thanks to the discussions about the content of my research with several of you, I could improve the content of my texts and enhance the understanding of Corporate Sustainability Integration.

Mis agradecimientos más grandes van a mis tres colombianas. En su acompañamiento durante mi doctorado, ellas me han mostrado que hay cosas más importantes que sentarse detrás de un computador o leer artículos. Gracias a ustedes me mantuve conectado a la vida real durante este periodo de mi vida y pude ser parte de momentos, pequeños o grandes, pero compartidos. Momentos que forman la historia que estamos creando como familia. Les quiero muchísimo!

Kleve, 4 April 2017

A

Biography Sjors Witjes

Sjors is a corporate sustainability expert. Raised as an Industrial Design Engineering (IDE) in Delft, Sjors became familiar with innovation management research and education in collaboration with companies. He did his master thesis on the development of a method to grasp the experience of project managers of New Product Development teams in the Netherlands. As a visiting researcher at Stanford's Center for Design Research, the method was also applied in several companies in Silicon Valley. To put his experience directly into practice, Delft professor Jan Buijs asked Sjors to co-teach the product innovation management course of the IDE master. Subsequently, Sjors became an assistant professor at Los Andes University in Bogotá, Colombia and taught Corporate Sustainability management (e.g. Environmental management systems) and tools (e.g. Cleaner production, LCA, eco design) based on the developments in these topics in Delft. Sjors initiated the DIPS research group aiming to grasp Colombian Corporate Sustainability by doing transdisciplinary research with Colombian public and private organisations. Some important DIPS projects: the international roundtable on resettlement financed by the World Bank; the presidency of the technical committee 36 (i.e. the development of the ISO 14040/44 standard) of the Colombian normalisation institute; and an LCA project for General Motors, Colombia. From 2007-2014 Sjors worked as an innovation management consultant for many big SMEs in Europe and supported with the integration of QHSE and sustainability issues into organisational systems. Sjors' consulting, research and educational experiences were synthesised in his PhD thesis. This thesis contains the development of a method for retrospectively determining the success of interventions in the social dynamics of the organisation. In his thesis, Sjors calls for more mode 2 research by applying longitudinal transdisciplinary methods and a close collaboration with companies. Besides his PhD, Sjors has been working as a researcher and lecturer at Utrecht University on Corporate Sustainability (e.g. courses on organisational ambidexterity, management control systems, stakeholder management and tools for Corporate Sustainability) and has been supporting the initiation and coordination of the Sustainable Business & Innovation master which started in September 2013. An important research project Sjors co-acquired, coordinated and executed was on the influence of sustainable procurement on the development of more sustainable business models executed under the European ReBus-project. This project resulted in several scientific and professional publications, conferences and the recognition of Utrecht University as a centre of expertise on sustainable public procurement. Sjors has also reviewed many papers for several scientific journals and is an active member of the ISDRS (International Sustainable Development Research Society) and co-chair of the ISDRS track on corporate sustainability strategies.

But above all, Sjors is a loving husband and a father of two wonderful daughters.

B

Publications of Sjors Witjes included in this thesis

Vermeulen, W.J.V., Witjes, S., 2016. On addressing the dual and embedded nature of business and the route towards corporate sustainability. *Journal of Cleaner Production* 112, 2822–2832.

Witjes, S., Vermeulen, W.J.V., Cramer, J.M., 2016. Exploring corporate sustainability integration into business activities. Experiences from 18 small and medium sized enterprises in the Netherlands. *Journal of Cleaner Production*, Forthcoming, 1–11.

Witjes, S., Cramer, J.M., Vermeulen, W.J.V., Forthcoming. On Corporate Sustainability integration and the support of tools. *World Review of Entrepreneurship, Management and Sustainable Development*, In press, 1–11.

Witjes, S., Lozano, R., 2016. Towards a more Circular Economy: Proposing a framework linking sustainable public procurement and sustainable business models. *Resource Conservation Recycling* 112, 37–44.

Witjes, S., Vermeulen, W.J.V., Cramer, J.C., Integration Mechanisms for Corporate Sustainability: corporate self-reflection on patterns of successful integration for catalysing strategy improvement, submitted to the *Resource Conservation & Recycling Journal*