

2 Sustainability Beyond Boundaries

Paper No. 1: Sustainability Management beyond Organizational Boundaries - Sustainable Supplier Relationship Management in the Chemical Industry¹

2.1 Introduction

Sustainability and the inherent concept of the triple bottom line (TBL) (Elkington, 1998; Kleindorfer et al., 2005) have advanced to a dominant topic within academic research and among practitioners. The concept encompasses an expanded spectrum of values and criteria for measuring organizational success, and highlights the need to focus concurrently on the social, environmental and economic impact of corporate activities (Henriques and Richardson, 2004; Van Tulder and Van der Zwart, 2006).

At the same time, a growing share of a firm's total expenditure accounts for purchased materials and components (Lee and Klassen, 2008). As a consequence, focal firms, which we define as firms who own or govern a supply chain (cf. Seuring and Mueller, 2008), rely on a complex, interconnected supply base (Reuter et al., 2010). In the context of outsourcing, it becomes evident that the perception and reputation of a focal firm, in terms of sustainability, depends on its own operations and to certain extents on the operations of its supply chain members, namely its suppliers (Awaysheh and Klassen, 2010; Krause et al., 2009). Hence, despite not being legally responsible for underlying sustainability issues at suppliers, focal firms are pressured to actively manage sustainability standards beyond their own organizational boundaries due to the reputational and economic risks, which could result from supplier misconduct.

The chemical industry is particularly affected by sustainability issues in all three dimensions of the TPL. In comparison to other industries, the costs for environmental protection are among the highest, and focal firms have increasing-

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ly been made responsible for environmental misconduct of their suppliers (cf. Fick et al., 2009). Moreover, responsible social behavior is of utmost importance for chemical firms because stakeholders closely scrutinize the industry's high profitability and operations, in order to avoid fatal incidents, similar to those which occurred in the 1980s and 1990s (Cheah et al., 2007; Christmann, 2000). Finally, chemical firms rely on materials and input factors (e.g. oil derivatives), whose exploration is critically observed by the public and non-governmental organizations (NGOs).

In academic literature, the question of how focal firms are able to simultaneously manage environmental and social sustainability beyond their own corporate boundaries remains rather unexplored to this point in time (Maignan et al., 2002). Authors in the field of SCM stress the relevance of boundary-spanning research on sustainability in a supply chain context (e.g. Carter and Rogers, 2008). It is the objective of this paper to fill this void by investigating the sustainable supplier relationship management (SSRM) practices of seven European chemical companies. In more detail, we (1) explore how firms, which are considered to be *sustainability leaders*, differentiate themselves, in terms of SSRM, from firms which are better described as *sustainability followers* and (2) identify relationship patterns between the identified SSRM practices within each of the two sample groups and within the sample as a whole.

In the context of this research, the term SSRM is defined as the buying-firm-induced effort for coordinated and cooperative actions over an extended period of time, in order to achieve increased levels of sustainability in the dyadic supply chain for the benefit of both firms. The paper is structured as follows: First, we review the literature on sustainability and supplier relationship management and introduce a theoretical framework related to sustainability in corporate business activity. Second, based on this framework, we analyze the findings from our cases in order to identify communalities and differences between *sustainability leaders* and *sustainability followers*. Finally, we discuss our findings in the light of the current state of literature in order to derive the key influential factors, which explain the divergence in the intensity with which firms pursue SSRM in purchasing and supply management (PSM).

2.2 Literature Review and Theoretical Basis

2.2.1 *Current State of Sustainability Research in PSM*

Since the Brundtland Commission was created to establish policies for more a sustainable economic and social development (WCED, 1987), research has been conducted on the social, environmental and economic dimensions of corporate activity, as well as on the management of the corporate supply chain in particular (cf. Henriques and Richardson, 2004; Van Tulder and Van der Zwart, 2006). However, research on sustainability in supply chain management often focuses only on the environmental dimension of the TBL (cf. Seuring and Mueller, 2008; Zhu and Sarkis, 2004). Notable exceptions in this field are the contributions of Basu and Palazzo (2008), Carter (2005) and Carter and Jennings (2004).

Increased outsourcing of production and administrative processes (Krause et al., 2009) has caused the PSM function to become vital in a firm's sustainability effort (cf. Bernardes, 2010; Pagell et al., 2009), since environmental and social misconduct among suppliers are a major risk to a company's reputation and profits (Carter and Jennings, 2004; Cousins et al., 2004; Harwood and Humby, 2008). Consequently, this development leaves PSM with the responsibility of ensuring sustainability beyond corporate boundaries and across all three dimensions of the TBL (Carter and Rogers, 2008). Yet, the focus on social and environmental criteria often stands in contrast to traditional objectives of PSM (e.g. reduction of purchasing costs, increase of flexibility, or minimization of lead time) (Cousins and Lawson, 2007). In practice, short-term economic perspectives prevail and are reflected by a focus on cost savings and other finance-oriented measures (e.g. Harwood and Humby, 2008). Moreover, there is yet a limited understanding of the internal alignment of PSM with a firm's corporate sustainability strategy, even though the alignment itself is regarded as essential for business success (González-Benito, 2007).

Researchers note that responsible PSM practices lead to increased efficiency, reduced likelihood of supply disruption, and safeguard an organization's image (Sharma and Henriques, 2005). This perception has been expanded from 1st tier suppliers to 2nd and 3rd tier suppliers (Krause et al., 2009). In this context, established models were extended to encompass sustainability factors in order to give guidance to PSM executives (cf. Pagell et al., 2009). Additionally, researchers have developed models for collaboration and certification related to sustainability (e.g. Zhu and Sarkis, 2004), as well as concepts for educating suppliers and sub-suppliers (Rao and Holt, 2005).

Overall, corporate boundary-spanning PSM research in the context of the TBL is still at an early stage. In this paper, we seek to close this gap by analyzing differentiators of *sustainability leaders* and *sustainability followers* in managing their global supply chain based on a holistic framework.

2.2.2 *Current State of Sustainability Research in PSM*

Supplier relationship management encompasses business practices related to supplier selection, supplier evaluation and supplier development (Schiele, 2007). Supplier development, supplemented by supplier collaboration, belongs to a research stream on buyer-supplier relationships. The extension of this stream towards “collaborative partnerships” by Hoyt and Huq (2000) is based on the notion that firms experience a higher level of interdependence through globalization and extended workbenches (Williamson, 1985). The positive performance implications of these collaborative partnerships among supply chain actors have been supported in various empirical studies (e.g. Frohlich and Westbrook, 2001; Vickery et al., 2003), as well as the positive performance effects of indirect supplier development (Wagner, 2006). Nevertheless, some authors point to potential risks and financial disadvantages of collaborative partnerships, for instance if firms overinvest in supplier integration (Das et al., 2006), or if suppliers share commonly developed knowledge or technology with the buying firm’s competitors (Cousins and Lawson, 2007). However, most scholars in the field mainly examined the effects of close buyer-supplier relationships on economic or financial performance metrics (e.g. Chen et al., 2004; Sánchez-Rodríguez et al., 2003), while only a limited number of authors focused on the effects on the TBL (e.g. Lee and Klassen, 2008).

Even though Nagel (2003) identified green supplier development capabilities as a core competence, research on the question of how sustainability can be achieved via supplier management is still at an early stage (Koplin et al., 2007). In particular, it is not clear how firms deal with the supplier-inherent risk in the context of sustainability (Cousins et al., 2004) and how they align their PSM activities with the firm’s corporate sustainability strategy, in the case such a strategy exists. Hence, this field needs to be examined further in order to draw a boundary-spanning picture of SSCM, which also takes internal and external influential factors into account. In this paper, we particularly address the corporate sustainability strategy alignment, as well as the risk perception from supplier misconduct.

2.2.3 A Theoretical Framework for Analyzing Sustainable Business Practices

We address the aforementioned research gap by combining the concept of the TBL with the framework for sustainable business practices from Svensson et al. (2010). The framework is based on the notion that sustainable business behavior and business practices should be in line with ethical concerns of a company's internal and external stakeholders (Svensson, 2010). Furthermore, it describes sustainable corporate activities and therefore divides the business practices of a corporation into five separate, but interconnected elements and 19 subsequent artefacts (see Figure 1). We will use the framework for structuring the analysis of the case firms' SSRM practices. In the context of our research, we consider suppliers as one group of external stakeholders.

2.3 Methodology

2.3.1 Research Design

We opted for case study research since knowledge on how firms adopt SSRM in their PSM function is still in an exploratory stage (Basu and Palazzo, 2008). Furthermore, case study research allows for investigating complex phenomena via researcher interaction with informants and for considering multiple sources of information (Yin, 2009). Employing different information sources and data collection techniques (e.g. personal interviews, questionnaires, publicly available reports) allowed us to compare and contrast the content of the multiple data sources, also referred to as triangulation (Jick, 1979; Gerring 2007). Multiple interview questions for the same phenomenon enabled within-method triangulation. The simultaneous application of a quantitative questionnaire, a qualitative interview and publicly available data - which further mitigated the social-desirability bias inherent in the sustainability topic - enabled cross-method triangulation (Crane, 1999).

2.3.2 Case Selection

This study focuses on the chemical industry (Standard Industrial Classification [SIC] 28). Chemical companies serve customers in a business-to-business context and manufacture a variety of products ranging from basic chemicals to specialties. All case companies can be characterized by capital- and resource-

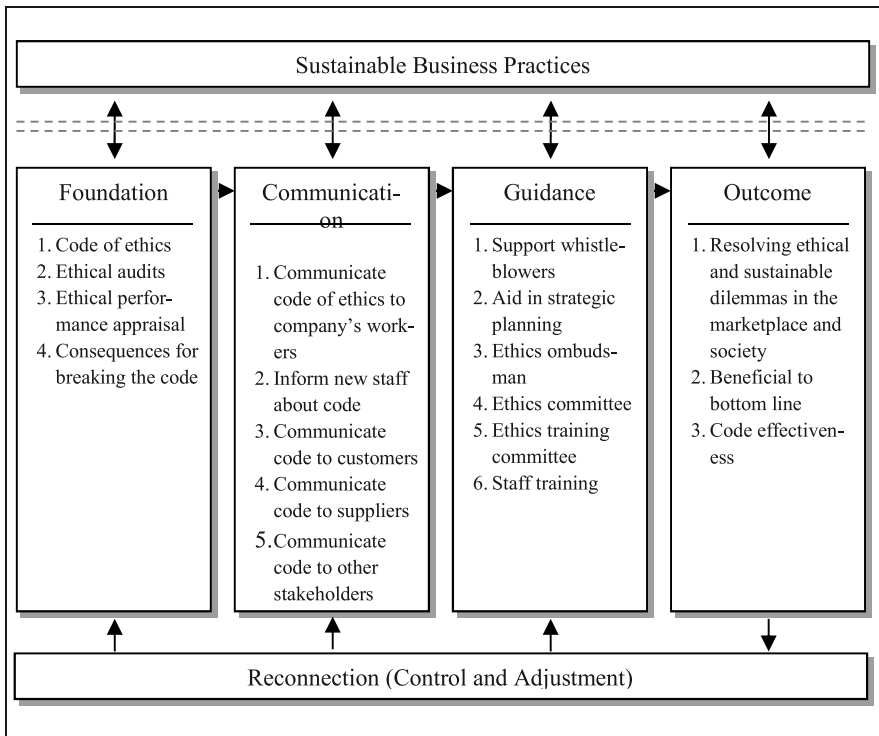


Figure 1: Model of Sustainable Business Practices – Elements and Artefacts (Svensson et al., 2010)

intensive, non-discrete chemical production processes, which are typical for this process industry. Based on reviewed literature and preliminary expert-interviews, we developed a sampling frame (Perry, 1998). In order to contrast the SSRM practices of *sustainability leaders* in the industry with companies lacking a reputation for sustainability, we chose the group sampling technique as a method for comparison and divided our sample in two groups: the first group consisted of companies listed in both the Dow Jones Sustainability Group Index (DJSI) and the FTSE4Good Index (López et al., 2007). In the second group, we approached *sustainability followers*, which were defined as those companies which were either not listed at all, or which made the listing in only one of the two indices.

Table 2: Case Company Information

	Sustainability leaders*				Sustainability-followers**		
<i>Company</i>	<i>Mercury</i>	<i>Venus</i>	<i>Earth</i>	<i>Mars</i>	<i>Jupiter</i>	<i>Uranus</i>	<i>Neptune</i>
<i>Company size^a</i>	> 55,000	> 50,000	> 95,000	> 95,000	> 15,000	> 20,000	> 30,000
<i>Main Products</i>	Pharmaceutical chemicals; Specialty chemicals;	Pharmaceutical chemicals; Specialty chemicals;	Pharmaceutical chemicals; Specialty chemicals;	Industrial chemicals; Pharmaceutical chemicals; Paints; Organic chemicals	Pharmaceutical chemicals & intermediates Agricultural chemicals; Industrial chemicals	Silicones and silicates; Pharmaceutical chemicals;	Pharmaceutical chemicals; Industrial chemicals; Specialty chemicals;
<i>Level of implementation of company-wide sustainability strategy</i>	Medium	High	Medium-High	High	Low	Low	Low-Medium
<i>Perceived levels of value-at risk for selected performance dimensions</i>	Shareholder value; Internal customer satisfaction; Purchasing prices	Corporate reputation; Shareholder value	Security of supply; Corporate reputation	Future sales volumes; Corporate reputation; Security of supply	none	Rising purchasing prices	Shareholder value
<i>Size of purchasing department^a</i>	350	500	800	650	290	160	250
<i>Informant's job title</i>	VP International Sourcing; Purchasing Manager Sustainable Purchasing	Head of Sourcing; Adviser Sustainable Sourcing	Chief Purchasing Executive Germany; VP Enabling and Steering	Director of Global Strategic Sourcing; Purchasing Manager ^b	Chief Procurement Executive; Project Advisor Purchasing	Director of Global Sourcing; Purchasing Manager ^b	Chief Purchasing Executive; VP International Sourcing
* The company is listed in the FTSE4Good Index and in the DJSI Index at the same time							
** The company is listed in none or only one of the two indices							
^a Size measured as the number of employees							
^b Telephone interview							

The listing in both indices was considered as an objective indication for being a *sustainability leader*, since admittance depends on the fulfillment of certain sustainability criteria, even though these criteria do not necessarily cover SSRM practices. The DJSI lists firms, which demonstrate a high level of transparency and disclosure in terms of the TBL. Hence, the index only indirectly considers criteria related to supply chain management in the evaluation process. For inclusion into the FTSE4Good index, companies need to fulfill a broad set of envi-

ronmental and social criteria, such as the availability of environmental policies and codes of conduct, the compliance with human rights standards, or the insurance of supply chain labor standards. However, the criteria related to supply chain labor standards only need to be fulfilled by so-called high risk companies, a group none of the *sustainability leaders* in our sample belongs to. Nevertheless, we assumed that meeting the index requirements is positively associated with the maturity of SSRM practices within the firm, as we expected spill-over effects from the fulfillment of the general index criteria to the PSM function.

In order to obtain a sample with homogenous antecedents for the development of sustainability initiatives, we geographically limited our sampling frame to Europe. Based on these criteria, we approached the PSM executives of the largest European chemical companies by revenue (Howard et al., 1999) via email and follow-up telephone calls. In total, seven firms - four *sustainability leaders* and three *sustainability followers* - agreed to participate in our study. The characteristics of the participating firms are summarized in Table 2.

2.3.3 Data Collection

Primary data were collected in two phases between August and November 2008. In preparation of the semi-structured interviews, the informants were asked to complete a questionnaire about their position within the firm, the purchasing organization and the degree of sustainability implementation in the PSM function. Based on these responses and on information retrieved from the firm's sustainability reports, we developed the guiding questions for the semi-structured interview (Perry, 1998). The interviews lasted between 1.5 and 2 hours and were jointly conducted by the same two authors at the company sites. Notes of answers and presented documents were taken during the interviews and immediately written down by each author. These observations were reviewed and compared by the team of authors, and corrected if necessary. In order to account for reliability, we established a case database, where we stored individual notes, transcripts from the interviews, the questionnaires, content from the companies' websites, as well as sustainability reports and annual reports (Yin, 2009).

2.4 Data Analysis

Individual within-case analysis was conducted in order to structure, reduce and contextualize information, and to become acquainted with each single case.

Table 3: Identified SSRM Practices Related to the Research Framework

			Sustainability leaders*				Sustainability-followers**			
Element	Related sustainable business practice	Derived SSRM practice	Mer-cury	Ve-nus	Earth	Mars	Jupi-ter	Ura-nus	Ne-ptune	Total 'Y'
Founda-tion	Code of ethics	Separate procurement governance policy	Y	Y	Y	N	N	N	L	3
	Ethical audits	Supplier code of conduct signed by all suppliers	Y	N	Y	Y	N	N	L	3
		Supplier self declaration	Y	Y	Y	Y	Y	Y	Y	7
		Audits at all suppliers related to supplier guidelines	L	Y	Y	Y	N	N	N	3
		Supplier risk assessment on social/economical factors	Y	Y	Y	Y	N	N	Y	5
	Consequences for breaking the code	Standardized process in case of supplier 'non-compliance'	L	Y	Y	Y	N	Y	L	4
Communi-cation	Communicate code of ethics to workers	Communicate code of conduct to procurement staff	Y	Y	Y	Y	L	N	L	4
	Communicate code to customers	Report SSRM to society and customers	L	Y	Y	Y	N	L	L	3
	Communicate code to suppliers	Communicate definition of 'non-compliance' to suppliers	Y	Y	L	Y	L	L	N	3
	Communicate code to stakeholders	Report attainment of social/environmental targets	Y	L	Y	Y	N	N	L	3
Guidance	Aid in strategic planning	Standardized conditions for supplier development	Y	Y	Y	Y	N	L	Y	5
		Particular threshold for supplier development	L	Y	L	Y	N	N	L	2
	Ethics ombudsman Staff training	Defined compliance manager	Y	N	N	Y	N	N	L	2
		Sustainable procurement trainings	Y	N	Y	Y	N	N	N	3
Outcome	Effectiveness of the code	Assess impact of supplier development	Y	Y	Y	Y	N	N	L	4
		Audit follow-up actions in case of non-compliance	Y	L	Y	Y	N	L	N	3
Re-con-nec-tion	Control and ad-justment	Monitor compliance at 1st tier level	Y	Y	Y	Y	N	Y	Y	6
		Monitor compliance at 2nd tier level	N	L	Y	L	N	N	L	1
		Measure impact of sustainability initiatives	Y	Y	L	Y	N	N	N	3
		Actively monitor compliance	L	Y	L	Y	L	N	N	2
		Total: 20 Total 'Y':	14	14	15	18	1	2	4	

'Y' = Yes, the company engages in SSRM practice related to the affected business practice in significant amounts
'N' = No, the company does not engage in an SSRM practice related to the affected business practice
'L' = The company shows limited engagement into SSRM practice related to the affected business practice
* The company is listed in the FTSE4Good Index and in the DJSI Index at the same time
** The company is listed in none or only one of the two indices

Potential contamination from the researchers' biases was controlled by avoiding coding and model building until all data were collected (Miles and Huberman, 1994). The coding of the collected information from the various sources, e.g. interview transcripts, company reports and articles, was structured and classified by each author individually. The classification was then compared and discussed among the authors in order to work out a jointly agreed upon coding scheme. Simultaneously, we matched the observations with the elements and subsequent artefacts of our research framework.

Based on the aforementioned within case analysis, we conducted a cross-case analysis in order to detect communalities and differences in patterns of SSRM practices across the studied cases (Eisenhardt and Graebner, 2007; Yin, 2009). We structured the results according to the elements of our research framework by a "cut and paste" process. The detailed information on the identified practices were "cut" from the case-individual data sheet and "pasted" onto the dimension-individual data sheet. As a result, we identified 20 unique SSRM practices bundled along the five dimensions of our research framework (see Table 3).

2.5 Results

Even though all companies operate in a similar business environment, the case firms show a great deal of variance in the breadth and intensity with which they pursue SSRM, in particular when comparing the pre-defined *sustainability leaders* with *sustainability followers*.

2.5.1 Foundation

In our theoretical framework, the 'foundation' element deals with the availability of sustainability standards within an organization, such as codes, policies and guidelines. Stajkovic and Luthans (1997) view codes as one key antecedent for influencing the ethical standards of people and organizations, and hence a company's SSRM practices. These codes become even more effective if combined with e.g. supplier audits and predefined consequences in the case of non-compliance with the standards (Svensson et al., 2010).

In our sample, all four *sustainability leaders* have written codes of ethics specific to PSM, such as codes of conduct, procurement governance policies or supplier guidelines. These codes are combined with standardized processes for the case that either side of the dyad disobeys the standards. In contrast, from the

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