

UNDERSTANDING DIFFUSION
OF CORPORATE SUSTAINABILITY
STANDARDS THROUGH SUB-
SUPPLIER MANAGEMENT IN THE
FOOD SUPPLY CHAIN

WORKING PAPER NO. 2012-25

DECEMBER 2012

By Jörg H. Grimm, Joerg S. Hofstetter, and
Joseph Sarkis



NATURAL

CONSTRUCTED



CLARK UNIVERSITY
George Perkins Marsh Institute

**Submission to Special Issue of International Journal of Production Economics
on “Sustainable Food Supply Chain Management”**

December, 2012

Understanding Diffusion of Corporate Sustainability Standards through Sub-Supplier Management in the Food Supply Chain

Jörg H. Grimm¹, Joerg S. Hofstetter², and Joseph Sarkis^{3*}

¹ Chair of Logistics Management, University of St. Gallen, Dufourstrasse 40a, 9000 St. Gallen, Switzerland; joerg.grimm@unisg.ch

² Chair of Logistics Management, University of St. Gallen, Dufourstrasse 40a, 9000 St. Gallen, Switzerland; joerg.hofstetter@unisg.ch

³ Graduate School of Management, Clark University, 950 Main Street, Worcester, MA 01610-1477, USA

* Corresponding Author: Graduate School of Management; Clark University; 950 Main Street; Worcester, MA 01610; 508-793-7659 tel.; 508-793-8822 fax; jsarkis@clarku.edu

Abstract: The food industry and its supply chains have significant sustainability implications. Effective supply chain management requires careful consideration of multiple tiers of partners, especially with respect to sustainability issues. Firms increasingly approach their sub-suppliers to drive compliance with social and environmental efforts. A number of complexities make sub-supplier management more difficult than direct supplier management. The literature has not investigated from either a sustainability or standards perspective the critical success factors for firms’ sub-supplier management. Using data and information from a one-year field study in two food supply chains, our research identified 14 critical success factors (CSF) that potentially influence the success of the sub-supplier management outcome of sub-suppliers’ compliance with corporate sustainability standards (CSS). The identified CSF can be classified into (1) focal firm-related, (2) relationship-related, (3) supply chain partner-related, and (4) context-related CSF. We expand on the theory of critical success factors by expanding the theory to sustainability and sub-supplier management. For each CSF we provide a foundational definition and analyze them with respect to existent literature. CSF’s unique importance to sub-supplier management success was highlighted and exemplified by field study insights from practitioners. Respective research avenues are highlighted.

Keywords: sub-supplier management, sustainable supply chain management, corporate sustainability standards, theory of critical success factors, field study

1. Introduction

Firms increasingly face pressure from external stakeholders (e.g. NGOs, customers, regulators) to maintain sustainable supply chains. Focal firms, buyers, are required to take responsibility of their suppliers ensuring the actions of their supply chain in a sustainable manner. Oftentimes, external stakeholders do not differentiate the behavior of the focal firm from its suppliers and hold the focal firm responsible for all activities within product manufacture (Rao, 2002; Koplin et al., 2007). Any party in the supply chain not complying with the focal firm's corporate sustainability standards (CSS) can potentially damage corporate reputation and/or harm customer confidence. Mattel (Barbie), Nike (Football) and Nestlé (Kit Kat) are prominent examples that demonstrated how firms' brands can suffer from non-compliant sub-suppliers (Barnett and King, 2008; Choi and Linton, 2011; Wagner et al., 2009).

Sustainable supply chain management (SSCM) comprises the “management of material, information and capital flows as well as cooperation among companies along the supply chain while taking goals of all three dimensions of sustainable development, i.e. economic, environmental and social, into account which are derived from customer and stakeholder requirements” (Seuring & Müller, 2008, p. 1700). Past SSCM research has extensively discussed the management of direct suppliers' sustainability performance, but little research has shed light beyond the first tier supplier level, neglecting sub-suppliers' relationships, roles, and activities.

This research takes a multifaceted perspective of evaluating how to ensure CSS adoption and diffusion through the supply chain. CSS expresses and organization's social and environmental sustainability commitment, which commonly exceeds regulatory requirements (Bansal and Hunter, 2003; Barnett and A. A. King, 2008). Although our research emphasizes efforts in the food supply chain, the issues set the stage for investigation into general sub-supplier supply chain management.

The sub-supplier management literature highlights how focal firms may apply managerial practices to sub-suppliers to increase a sub-supplier's level of CSS compliance. These sub-supplier management practices can be classified into the two dimensions: assessment (e.g. informal site visits, audits) and collaboration (e.g. trainings, workshops, corrective action plans), having similar characteristics to those applied to direct suppliers (Vachon and Klassen, 2006; Klassen and Vachon, 2003; Vachon and Klassen, 2008). However, a lack of contractual relationships with sub-suppliers, inability to put direct pressure on sub-suppliers, incomplete knowledge about the existence and level of involved sub-suppliers in a focal firms' supply chain reflect some challenges that make managing sub-suppliers unique (Choi & Linton, 2011a). Given that the food industry and its supply chains have significant sustainability implications (Yakovleva et al., 2012; Roth et al., 2008) we view their concerns to be an especially sensitive, timely and important focus.

Research has not comprehensively addressed what enables or hinders the management of sub-suppliers, in any industry, much less the food industry (Lee, 2008; Stefan Seuring and Muller, 2008; Fawcett and Magnan, 2002; Millington, 2008). Focal firms require assistance on identifying and ultimately influencing factors, which lead them to successfully implement CSS at sub-suppliers. Consequently, our guiding research questions are:

- 1) *What are the critical success factors (CSF) for the management of sub-suppliers to ensure their compliance with corporate sustainability standards in food supply chains?*
- 2) *What are the perspectives of various players in food supply chains related to these CSF?*
- 3) *What research needs to be completed to more fully address and build on this important research concern?*

To address these research questions, the remainder of this paper is organized as follows: Firstly, we provide a literature review on sub-supplier management in the sustainability context. Theoretically positioning this work within the critical success factors theoretic lens we aim for the identification of CSF, seeking to extend the theory of critical success factors to supply chain management in general and SSCM in particular. Secondly, we present the exploratory field study methodology. Thirdly, the results section describes the identified CSF for the management of sub-suppliers with linkages to field study empirical evidence that results from two multi-tier supply chains in the food industry. Avenues for further research are proposed throughout. Our paper ends with a discussion of our research findings, and a provision of managerial implications guiding managers who seek to approach issues beyond the first-tier supplier level, especially from a sustainability perspective in the food supply chain.

2. Literature Review

In this section we look to the sustainable supply chain management (SSCM) literature to provide some foundation for understanding interactions with sub-suppliers. We then extend our review to critical factors that either reflect barriers or enabled engagement in SSCM.

2.1. Sub-Suppliers in Sustainable Supply Chain Management

SSCM literature has extensively investigated managerial practices and relationships between focal firms and their direct suppliers (Brammer et al., 2011; Bai and Sarkis, 2010a). These relationship practices have been classified into two dimensions: assessment and collaboration (Vachon and Klassen, 2006; Klassen and Vachon, 2003; Vachon and Klassen, 2008).

Assessment practices enable the firm to evaluate suppliers' sustainability performance and give an indication about the level of compliance with a firm's CSS. During an initial contracting/tendering phase, firms may apply defined sustainability criteria in order to select "capable" suppliers upfront and to reduce the risk that these suppliers do not comply with the firms' CSS (Reuter et al., 2010; Foerstl et al., 2010). Firms increasingly request certifications by suppliers in these early stages, proving that suppliers fulfill social or environmental requirements (Delmas and Montiel, 2009). Conducting audits allows an in-depth assessment of supplier sites and processes and consequently the identification of non-compliances with CSS (Boyd et al.,

2007; Darnall et al., 2009; Teuscher et al., 2006). Supplier monitoring serves as a continuous assessment approach to observe suppliers' sustainability performance (Brammer et al., 2011).

Collaboration practices are typically more supportive activities that seek to improve the relationships or practices between the buyer and supplier. Therefore, firms may implement supplier development programs in which collaborative activities such as training, workshops, or employee transfers are applied in order to develop suppliers' CSS identified capabilities (Bai and Sarkis, 2010a; Bai and Sarkis, 2010b).

Despite the large body of literature on "traditional" supplier management, relatively minimal research has addressed the challenge of managing suppliers beyond the first-tier level, which we refer to as sub-suppliers (Lee, 2008; Millington, 2008; Stefan Seuring and Muller, 2008). Past research has typically mentioned sub-suppliers as an aside. The existent literature does indicate that focal firms can generally manage and approach sub-suppliers with similar practices of traditional supplier management. Practically, Hewlett-Packard (HP) operates dedicated sub-supplier initiatives in which comprehensive assessment (e.g. sub-supplier site visits and audits) and collaboration practices (e.g. trainings and workshops) with HP's sub-suppliers take place (DCCA, 2008). Examples also include focal firms gathering information from suppliers and sub-suppliers to map their supply chain partners for the identification of hidden sustainability risks (Boyd et al., 2007) or to assess carbon emissions for their multi-tier supply chain (Wolf, 2011).

In food supply chain research Hamprecht et al. (2005) report on how a global food manufacturer made use of control points of the food safety systems to trace back material flows to agricultural production. The increased transparency gave the food manufacturer the opportunity to evaluate risky suppliers concerning their sustainability performance. Tool development for such as benchmarking tools for multiple stages of sustainable food supply chains has been addressed (Yakovleva et al., 2012), with partners in the supply chain including growers, processors, distributors, and retailers. The focus on multiple dimensions of sustainability, organizational types, and industries make for difficult benchmarking and management effort. Risk management plays a significant role in the food supply chain and its sub-suppliers, especially social sustainability issues such as health and human risks (e.g. Diabat, Govindan, & Panicker, 2011). The focus of this research has been on descriptive and planning issues, with very little focus on direct issues of sub-supplier management.

Directly approaching sub-suppliers bears several unique challenges that are not existent within traditional supplier management. There is a lack of direct control and dependence between the focal firm and the sub-supplier. The focal firm is dependent on its direct suppliers' willingness to disclose sub-suppliers and to manage the dependent relationship. The focal firm might not be able to put direct pressure, normative or coercive, on the sub-supplier. Commonly, there is no direct contractual relationship that exists between the firm and its sub-suppliers. Issuing approved "sub-suppliers lists", which dictate firm's direct suppliers from which supplier (i.e. sub-supplier) they must source, could clear a hurdle (Choi and Linton, 2011), but specific control or collaboration at these lower tier levels is very difficult to manage. The relational complexity of managing sub-suppliers just leads many firms to rely on their direct suppliers to

manage their sub-suppliers (Lee and Klassen, 2008; Spence and Bourlakis, 2009; Gonzalez et al., 2008).

Although some literature describes managerial practices with respect to sub-suppliers, there is little knowledge about what aids focal firm success in managing these sub-suppliers. To identify potential insights into this issue, we extend our literature review to examine critical factors for SSCM in general.

2.2. Critical Factors to Sustainable Supply Chain Management

Critical SSCM factors may be classified into internal or external enablers and barriers (Walker et al., 2008). Table 1 summarizes critical factors that we identified in the literature.

| CF to SSCM | Source |
|---|---|
| Internal CF | |
| Costs, lack of financial resources | (Ageron et al., 2012; Walker et al., 2008; Min and Galle, 1997; Min and Galle, 2001; Hervani et al., 2005; Wycherley, 1999) |
| Investment reluctance (defining scope and evaluating return-on-investment) | (Ageron et al., 2012; Walker et al., 2008; Peters et al., 2011) |
| (Lack of) competences, and skills | (Bowen et al., 2001) |
| (Lack of) personnel commitment | (Cooper et al., 2000; Walker et al., 2008) |
| Trainings | (Bowen et al., 2001; Carter and Dresner, 2001; Cooper et al., 2000) |
| Top management support | (Carter and Dresner, 2001; Zhu et al., 2008) |
| External CF | |
| (Lack of) power | (Ciliberti et al., 2008) |
| Stakeholder partnerships (e.g., with NGOs, suppliers or industry fellows) | (Grimm et al., 2011; Granek and Hassanali, 2006; Pesonen, 2001; Walker and Preuss, 2008) |
| Stakeholder pressures (e.g., regulatory incentives, NGO pressures, or customer demands) | (Argenti, 2004; Stefan Seuring and Müller, 2008; Peters et al., 2011) |
| (Lack of) commitment and trust between supply chain partners | (Wycherley, 1999; Walker et al., 2008; Jenkins, 2006) |
| (Lack of) supplier competences | (Ageron et al., 2012) |
| (Lack of) information and transparency | (Ciliberti et al., 2008; Awaysheh and Klassen, 2010) |
| Cultural and language differences | (Ciliberti et al., 2008; Awaysheh and Klassen, 2010) |
| Geographical distance | (Awaysheh and Klassen, 2010) |

Table 1 Literature review of critical factors to SSCM

Internal critical factors

Many firms struggle to engage in sustainable supply chain management due to *high costs and a lack of financial resources*. SSCM practices such as conducting audits or running supplier development programs is costly and time consuming. Typically a small proportion of the entire supply base might be covered by SSCM practices (Kolk and van Tulder, 2002; Ciliberti et al., 2008). Cost efficiency pressures might lead to cost cutting in SSCM before other operations are affected. Despite difficulties of defining scope and evaluating the return-on-investment and *reluctance to invest in SSCM*, firms might seek to explicitly outline the business case of SSCM (Ageron et al., 2012; Walker et al., 2008; Peters et al., 2011).

Beside costs and financial factors, personnel related factors such as *competences*, *skills* (Bowen et al., 2001), and *commitment* (Cooper et al., 2000; Walker et al., 2008) play a major role in the failure or success of a firm's SSCM initiative. Thus, firms need to assure that their personnel receive required *training* and build up the necessary competences and skills to address sustainability factors and to understand how these factors are embedded within supply chains (Bowen et al., 2001; Carter and Dresner, 2001). *Top management support* further ensures commitment and resources for effective implementation of organizational SSCM initiatives (Carter and Dresner, 2001; Zhu et al., 2008).

External critical factors

A *lack of power* over their "independent" suppliers could hinder enforcing suppliers' compliance with a firm's CSS. Thus, the focal firm might be unable to positively influence a supplier's social and environmental behavior and to implement their auditing and supplier development programs at supplier sites (Ciliberti et al., 2008). However, involving further stakeholders into a firm's SSCM approach and making use of *stakeholder pressures* (e.g., regulatory incentives, NGO pressures, or customer demands) can positively contribute to influence supply chain partners' behavior (Argenti, 2004; Stefan Seuring and Müller, 2008; Peters et al., 2011).

A *lack of commitment and trust between the supply chain partners* (i.e. the focal firm and its suppliers) may further hinder close collaboration on sustainability factors or the participation of suppliers in a firm's SSCM activities (Wycherley, 1999; Walker et al., 2008; Jenkins, 2006).

Even if suppliers show a willingness to follow a firm's SSCM strategies, *suppliers' low competence level* may force the focal firm to put higher investments into the supplier relationship in order to develop respective competences at supplier sites (Ageron et al., 2012).

Lacking *information and transparency* about supply chain partners, their processes or policies are major barriers for identifying and assess sustainability risks in supply chains (Ciliberti et al., 2008; Awaysheh and Klassen, 2010). Furthermore, *cultural and language differences* make SSCM collaboration more difficult and requires additional effort to gain a common understanding (Ciliberti et al., 2008; Awaysheh and Klassen, 2010). These differences may also be related to *geographical distance*, which may further hamper the implementation of auditing programs or the set-up of necessary collaboration (Awaysheh and Klassen, 2010; Koplín et al., 2007; Sarkis, 2012a).

Several of these hindering critical factors could be countervailed by strategic *stakeholder partnerships*, for example with NGOs, key suppliers or industrial associations. Such partnerships help to demonstrate the relevance of a firm's SSCM and bundles necessary resources to improve sustainability conditions in its supply chains (Grimm et al., 2011; Granek and Hassanali, 2006; Pesonen, 2001; Walker and Preuss, 2008).

These findings concerning internal and external critical factors equally refer to small and medium sized enterprises (SMEs) engaging in SSCM. However, SMEs might face more difficulties to overcome barriers due to their more limited resources and lower bargaining power compared to larger firms (Ciliberti et al., 2008; Ciliberti et al., 2010).

Most of the cited critical factors primarily refer to general SSCM settings and do not describe critical factors targeting management settings of suppliers (exceptions may be critical factors such as missing personnel competences and skills, and supply chain partner commitment and trust, language and cultural differences). The typical SSCM context refers to direct relationships between the focal firm and its direct suppliers. Sub-supplier critical factors for SSCM practices success have not been addressed in the literature. This is the purpose and contribution of our investigation.

3. Theoretical Positioning of the Study

Our study is well positioned within the theory of critical success factors. The theory of critical success factors (CSF) has its foundation within strategy research (Dinter, 2012; Daniel, 1961; Rockart, 1979) and is defined as “the limited number of areas in which results, if they are satisfactory, will ensure successful competitive performance for the organization”. The theory of CSF argues that poorly aligned CSF will lead to less desirable results. Consequently, CSF pinpoint on “the areas in which good performance is necessary to ensure attainment of those goals” (Rockart, 1979, p. 85).

CSF and related activities should be consistently monitored for proper management decisions. Key performance indicators measuring the CSF and their integration into performance management systems are means for effective management decisions. Besides focusing on CSF themselves, the necessary actions on how to get there, i.e. process, should be considered as well. Ideally, a clear causal relationship between actions and target outcomes can be drawn (Kaplan and Norton, 1992; Kaplan and Norton, 1996).

In addition to the theory of CSF applicability to a firm’s overall strategic competitive advantage, the theory of CSF has been linked to diverse fields such as project management and information systems management (Belassi and Tukel, 1996; Zwikael and Globerson, 2006; Shenhar et al., 2002; Poon and C. Wagner, 2001). Past research in these fields has shown that the presence of specific CSF resulted in project implementation success, eventually increasing overall organizational success (Dinter, 2012).

Field of study idiosyncrasies require the identification of varying CSFs separately. There are difficulties in identifying and determining CSF’s relative importance to achieve targets (Leidecker & Bruno, 1984). “Success” is not always easy to define and it depends on the taken perspective (Chan et al., 2002), the theory of critical success factors can thus be linked to strategic and organizational contingencies.

Considering focal firms’ objectives in our research context, success is achieved when a sub-supplier's performance is compliant with a focal firm's CSS. In order to achieve this ultimate goal, it is necessary to identify and to get access to the sub-supplier, thus being able to conduct necessary assessment and collaboration practices if deficiencies are revealed. Consequently, identifying relevant critical factors can be important contributions to successful sub-supplier management.

Our literature review highlighted several enablers and barriers. The specific consideration of critical factors for SSCM such as implementing sustainable supply chain strategies to ensure sub-suppliers' compliance with a firm's CSS is not covered in the literature. Firms who face the unique challenges of managing sub-suppliers would highly benefit from such guidance. Thus, within the framework and understanding of the theory of CSF, we seek to identify factors that contribute to successful sub-supplier SSCM implementation.

Subsequently, we present our methodology to identify CSF for successful sub-supplier management within focal firm SSCM initiatives.

4. Methodology

Due to the immaturity of sub-supplier management research and the complexity of multi-tier supply chain partners and their interactions in food supply chains, we have chosen an exploratory, qualitative, field study research approach. Aiming for an investigation of critical factors for successful sub-supplier management for SSCM, we collaborated with two multi-level food supply chains. Semi-structured interviews were completed in group settings and with individual representatives of each supply chain. A number of site visits to the focal companies and some of their suppliers were completed.

4.1. Sample

The sample represented two multi-tier food supply chains consisting of the focal firm, a direct supplier, and a sub-supplier directly supplying the supplier. Chocolate/sugar and fruit/juice product supply chains were selected. These supply chains were targeted and selected because the two focal firms sought to ensure compliance with their CSS throughout their entire food supply chains. One key aspect was the management of sub-suppliers with respect to CSS compliance. The CSS comprised social and environmental sustainability criteria with linkages to existing cross-industry sustainability standards such as the Business Social Compliance Initiative Code of Conduct (BSCI, 2011a; BSCI, 2011b). In the following we provide a brief overview of the focus group participants (also see table 2).

SC1: the chocolate/sugar supply chain

The focal firm «*Maestrani*» is a Swiss producer of chocolate and confectionery specialties. The company is a relatively small player in the chocolate market. Their major supply products are cocoa butter and cocoa paste which - besides sugar, milk powder and flavoring - account for the main ingredients.

«*ZMR*», one of the strategic Swiss-based direct suppliers of Maestrani, operates a sugar mill in Switzerland and specializes in the production and trading of sugar products. They offer white refined sugar, cane sugar, and bio-sugar. Their suppliers are from Switzerland, European neighboring countries, and overseas.

«*ZAF*», a direct supplier of ZMR and an indirect sub-supplier of Maestrani, operates two major sugar mills in Switzerland. ZAF is the only processor of sugar beets and has a leading position in the Swiss sugar market.

SC2: the fruit/juice supply chain

The second focal firm «Obermeilen» is specialized in the processing of fruits and the creation of flavours and extracts. In 2010, Obermeilen acquired the jam business of a major Swiss consumer goods manufacturer. It purchases about 1000 different product types from 200 national and international suppliers per year, among them sugar and fruits. Depending on demand fruits arrive in multiple forms: entirely, puréed, frozen, diced, as concentrate or mousse.

«Allfood», the direct supplier, is a Swiss trading company and imports and exports food and raw materials. Among their products are fruit juices and fruit juice concentrates or purees, beverage bases, and fruit and vegetable for industrial purposes. Most of their products are sourced from South America (Brazil, Ecuador, Argentina, Peru, etc.), but also from India, the Philippines and South Africa.

«Capricorn», a direct supplier of Allfood and an indirect sub-supplier of Obermeilen, is an India-based food-processing company specialized in manufacturing pulp, purees and concentrates. Capricorn processes fresh tropical fruits (e.g. mango, pineapple, guava, papaya, banana, etc.) and vegetables (e.g. gherkins, peppers, beans, potatoes and green peas etc.) in frozen form.

| Role | The chocolate/sugar supply chain | The fruit/juice supply chain |
|-----------------------|--|---|
| Focal firm | Maestrani Maestrani Schweizer Schokoladen AG www.maestrani.ch turn-over: ca. CHF 45 mio. employees: ca. 130 <u>Project members/informants:</u> Chief Operations Officer Head of Procurement (*) | Obermeilen Obermeilen Schweizer Getränke AG www.obermeilen.ch turn-over: ca. CHF 50 mio. employees: ca. 100 <u>Project members/informants:</u> Chief Executive Officer Head of Procurement & Logistics (*) |
| Direct supplier | ZMR Zuckermühle Rapperswil AG www.zuckermuehle.ch turn-over: n/a employees: ca. 55 <u>Project members/informants:</u> Chief Executive Officer Senior Sourcing Manager (*) Quality Manager | Allfood Allfood AG www.allfood.ch turn-over: n/a employees: <10 <u>Project members/informants:</u> General Manager Deputy General Manager (*) |
| Indirect sub-supplier | ZAF Zuckerfabriken Aarberg + Frauenfeld AG www.zucker.ch turn-over: ca. CHF 210 mio. employees: ca. 270 <u>Project members/informants:</u> Head of Quality & Sustainability (*) | Capricorn Capricorn Food Products India Ltd. www.capricorngroup.com turn-over: n/a employees: n/a <u>Project members/informants:</u> Assistant Manager Exports (*) |

(*) Interviewee for structured interview for CSF identification

Table 2 Project participants of the two focus group supply chains

4.2. Data Collection

Initial CSF evidence on sub-supplier management in the field study supply chains was observed and gathered by interactively working with these organizations in a project setting, where specific managerial issues were addressed. In addition to these collaborative, field-based interactions, two rounds of semi-structured interviews with members of the two focus groups to support the systematic identification of CSF were also completed (Eisenhardt, 1989b). The semi-structured interview details are provided below and in Appendix A.

The supply chain participants sought to implement their CSS within their entire supply chains, including sub-suppliers beyond the tier-1 level. Study participants included “C-level” managers, purchasing managers or additional employees with sourcing/quality/sustainability functions. Research team members were also embedded within the supply chain decision and project management process (especially with the focal organizations) for approximately a year. Observational information was gathered and field notes taken throughout the year and transcribed.

In order to enable a more systematic and structured identification of targeted CSF, the research team conducted additional semi-structured interviews with the most experienced project members of each company. To enable broader, holistic identification of issues, three different interview guideline protocols were developed. Each protocol was adapted to the perspective of the interviewed supply chain partner, namely (1) the focal firm, (2) the direct supplier and (3) the sub-supplier. The interview guidelines are summarized in Appendix A.

Not all members of the supply chain were physically interviewed. The interview with the Indian-based sub-supplier Capricorn was conducted via telephone, all other interviews took place at company sites, where observations could also be made. The targeted interviews on CSF lasted between 60 and 90 minutes and were recorded, transcribed, and subsequently verified by interviewees.

4.3. Data Analysis

Coding was initiated only after data collection was completed. The coding process followed multiple steps as recommended by Miles & Huberman (1994). The coding process was combined with template analysis techniques for capturing, ordering and interpreting the qualitative interview data (King, 2004; Waring & Wainwright, 2008).

In a first stage two researchers individually performed a content analysis with template coding to be summarized in tabular form. Coding was completed to identify CSF that could enable or hinder the management of sub-suppliers in the sustainability context. CSF coding was also linked to critical factors that were identified through the initial literature review. Where applicable, these literature linkages are further described below to support the respective CSF. Coding was also based on common terminology used among participants, since our objective was to identify CSF that are particular important or even unique to the management of sub-suppliers within SSCM, which might have not been reported in the SSCM literature yet. After transcriptions by two researchers, codes were jointly discussed until agreement was reached. An iterative process was utilized to refine the final CSF based on the coding.

Study respondents (participants) provided feedback on the final CSFs and the CSF definitions. All focus group members understood the used terms and definitions for the CSF.

5. Results

5.1. Identification of critical success factors

Our field study research identified 14 critical success factors (CSF) for managing sub-suppliers. Table 3 summarizes these CSF with identified case study responders who emphasized the critical factors.

In the following sections each of the 14 CSFs are individually reviewed. In each case, a definitional foundation for the CSF and evidence for the CSF resulting from study participants input are provided. Reconciliation between participant input and literature is also completed. Potential research avenues are outlined.

| Identified critical factors | The chocolate/sugar supply chain | | | The fruit/juice supply chain | | |
|--|----------------------------------|-----------------|---------------------|------------------------------|---------------------|---------------------------|
| | Maestrani Focal firm | ZMR Supplier | ZAF Sub-supplier | Obermeilen Focal firm | Allfood Supplier | Capricorn Sub-supplier |
| CSF1 Trust between focal firm and direct supplier | X | X | | X | X | |
| CSF2 Trust between direct supplier and sub-supplier | | X | | | X | X |
| CSF3 Focal firm's buyer-power (over direct supplier) | | | X | X | | |
| CSF4 Direct supplier's buyer-power (over sub-supplier) | | X | X | X | | |
| CSF5 Committed long-term relationship between direct supplier and sub-supplier | | X | X | X | X | X |
| CSF6 Supply-know-how of focal firm | | | | X | X | |
| CSF7 Direct supplier's willingness to disclose sub-suppliers | | X | | X | X | |
| CSF8 Involvement of direct supplier | X | X | X | X | | X |
| CSF9 Perceived value for direct supplier | X | X | | X | X | |
| CSF10 Perceived value for sub-supplier | X | X | X | | | X |
| CSF11 Low risk of supplier-by-passing | X | X | | X | X | |

| | | | | | | |
|-------|---|---|---|--|---|---|
| CSF12 | Sub-supplier's capability to comply with requested sustainability standards | | X | | X | X |
| CSF13 | Geographical distance between supply-chain-partners | X | X | | X | X |
| CSF14 | Cultural distance between supply-chain-partners | | X | | X | X |

Table 3 Identified CSF and provided evidence within the focus group

“Trust between focal firm and direct supplier” (CSF1).

Trust between a buying firm and its direct supplier can be described by the relationship in which the two parties perceive each other as credible and benevolent (Doney & Cannon (1997). Trust is critical for strategic supply chain partnerships (Handfield and Bechtel, 2002).

The study participants frequently mentioned trust as one of the key factors. Greater mutual trust between the focal firm and a supplier resulted in greater information disclosure and access with respect to the suppliers’ supply base. Suppliers would also be more proactive in supporting the focal firm within sub-supplier initiatives. In less trustful relationships suppliers may fear risks associated with focal firms bypassing the supplier and directly sourcing from the respective sub-supplier, or put pressures on both the supplier and sub-supplier resulting in unfavorable economic outcomes.

These observations were supported by both the focal firms and their direct suppliers as the two following quotes highlight:

“When trust between us and a direct supplier exists, we don't need to force this supplier to allow us the management of his sub-supplier, he rather supports us.” (Obermeilen, Head of Procurement & Logistics)

“An essential prerequisite is a trustful relationship to the buying firm. Otherwise, we would not enable them to approach our suppliers [i.e. firm's sub-suppliers].” (Allfood, Deputy General Manager)

These observations are in line with the existent SSCM literature. The trust described in this literature was needed to for general buy-in into the focal firm’s SSCM approach (e.g. Walker et al., 2008). In our context the willingness to disclose sub-supplier information and partner on sub-supplier activities are the goals.

In both contexts, direct and sub-supplier relationships, trust plays a major role. The “trust threshold” for building new relationships and operations versus disclosing sub-suppliers’ operations will differ. Consequently, further research on how the various facets of trust can be distinguished in these relationships, is needed.

“Trust between direct supplier and sub-supplier” (CSF2).

Similar to the focal firm-direct supplier relationships, trust between the supplier and sub-supplier is considered a critical factor. Trust in this situation is defined the same way as in CSF1.

In a trusting relationship a sub-supplier, in response to CSS requirements, must not fear retribution for CSS non-compliance. Rather the sub-supplier would expect support to overcome deficiencies, as the following quote highlights:

“We respond to sustainability requirements if we believe that they will keep us as a preferred supplier. For example at Coca Cola there is nothing explicitly written. It’s just a business commitment which we have with them, which is based on trust between them and us.” (Capricorn, Assistant Manager Exports)

This perspective was supported by statements at the direct supplier level:

“Sub-supplier management is successful, when our supplier [(i.e. firm's sub-supplier)] knows that we are a trustful partner, who continuously sources from them and does not terminate a contract, if things aren't immediately as expected.” (ZMR, Senior Sourcing Manager)

These observations support some of the suppositions of CSF1. Although the concept of trust is well grounded in SSCM and other fields, our context includes another entity in the interorganizational trust equation. Even when a direct supplier and sub-supplier develop mutual trust, uncertainty still remains on how the focal firm would react. Some examination on the mediating relationships between the various levels of trust is required. Since the sub-supplier does not maintain a contractual relationship with the focal firm and both entities commonly do not build up on a long-term relationship, it is yet unknown what factors may particularly contribute to facilitate trust between these more distant and independent entities.

“Focal firm's buyer-power (over direct supplier)” (CSF3).

Focal firm's buyer-power over its direct supplier is determined by a direct supplier's dependence on the focal firm for valued resources (e.g. revenue) (Cox, 2001). Transaction cost economics (Williamson, 2008) and resource dependency theory (Crook and Combs, 2007) play significant explanatory roles in understanding these power relationships.

The focal firms within our focus group members expressed their “power” as important vehicles for enabling sub-supplier management practices adoption. If the direct supplier did not see the relevance of managing sub-suppliers or was less willing to support the focal firm, putting pressure on the supplier counters their reluctance. However, managers stated that pressuring a business partner is not a desirable method.

“If we anticipated any non-compliance at sub-supplier sites, we initially stress our direct supplier to take actions. In case the direct supplier perceives us as an unimportant customer, he may take us not seriously, but if we are a key account, the response to our requests is much better.” (Obermeilen, Head of Procurement & Logistics)

In turn, representatives of the direct suppliers confirmed that they would more likely respond to a buyer's request if they felt dependent on the buying firm due to the buying firm's demand volume.

These observations are in line with existent research that examined how suppliers responded to pressure and adjusted their own operations. For example 'voluntary' environmental measures, such as ISO14001 certification, implementation in response to focal company requests (Delmas and Montiel, 2009; Zhu and Sarkis, 2007; Gonzalez et al., 2008). Often these requirements are anchored as contractual elements. Since in our context, a firm's request concerns sustainability issues outside of supplier's organizational boundaries, a supplier may be more pressure resistant compared to more "traditional" situations.

“Direct supplier's buyer-power (over sub-supplier)” (CSF4).

Similar to trust as a double-link factor, buyer-power can be defined in a similar context. Whereas CSF4 enables the focal firm to reveal a sub-supplier's entity (i.e. disclosure of sub-suppliers due to focal firm pressure) a direct supplier's buyer-power is an important factor that allows for greater focal firm-sub-supplier access for direct interactions. The joint approach of a focal firm's CSS requirements and a direct suppliers' assistance combined with their buyer power, will result in higher response rates by sub-suppliers, as stated by study respondents:

“Our market position and power over a supplier [i.e. Maestrani's sub-supplier] helps a lot to motivate them in favor of any sub-supplier management activities.” (ZMR, Senior Sourcing Manager)

Making use of "power" to influence direct supply chain partners is well supported by the literature as diffusion of practices through normative institutional pressures is greater in power situations. Given two dyadic power relationships (CSF3 and CSF4), a question arises on how these two dyadic power relationships may influence or complement each other. Does a focal firm's power over its supplier have direct influence on the sub-supplier as well? One focal firm respondent reported attempt direct pressure effort on their sub-supplier although no contractual relationship existed between the two.

“(...) or we try to directly put pressure on the sub-supplier, this works depending on how valuable the sub-supplier perceives the supply channel to us.” (Obermeilen, Head of Procurement & Logistics)

Considerations of multiple separate dyadic power relationships do exist (Cox et al., 2001; Cox, 2004). However, no "boundary-expanding" power interactions effects have been considered in the literature. A multistage supply chain "power" construct is required to effectively investigate these issues.

“Committed long-term relationship between direct supplier and sub-supplier” (CSF5).

Well-established business relationships that partners consider so important that it requires significant effort and resources exemplify committed long-term relationships (Ganesan, 1994; Morgan and Hunt, 1994).

Respondents frequently stated that long-term oriented relationships between the direct supplier and sub-supplier ease sub-supplier initiative implementation. These types of relationships allow for mutual trust development and openness about issues. Both suppliers and sub-suppliers stated that they are more willing to invest time and resources into requests by the focal firm, if they knew that these investments have long term implications. Comments such as these were prevalent:

“We pay attention to sub-supplier management requests, especially if we maintain a long-term relationship to that [sub-]supplier, since it means much to us too.” (Allfood, Deputy General Manager)

“We totally understand that the customer may have difficulties with agreeing to a long-term contract. But at the same time we should be given a preference as a supplier if we invested in sustainability compliance with a longer term relationship in mind.”(Capricorn, Assistant Manager Exports)

SSCM literature states a supplier is more open or puts in more effort, if they are embedded in a long-term relationship (e.g. Walker et al., 2008; Wycherley, 1999). However, in our study’s context, both the sub-supplier and the direct supplier are required to be responsive to a focal firm’s requests. In this situation both sides want to make sure that they do not waste their resources for a one-time-request.

Noticing that the supplier and the sub-supplier are “coupled” by means of committed long-term relationship may enable a focal firm to pass its requirements through to the sub-supplier—even without contractual relationships. Future research might examine how the term of a relationship between the supplier and sub-supplier effects the relationship to other parties such as the focal firm (Watson, 2001). A specific research question is whether this situation puts a focal firm in a more favorable position.

“Supply-know-how of focal firm” (CSF6).

Supply-know-how of the focal firm reflects the firm’s comprehensive knowledge of its supply chain—including knowledge of procured products, related processes, and characteristics of sourcing markets (e.g. cultural specificities).

Focal firm respondents in our study outlined the importance of having developed in-depth supply knowledge such as supply chain structure, inherent processes, involved people and other contextual factors. Lacking this knowledge, firms could not purposefully and effectively address sustainability issues with their supply chain partners. The firms would be more dependent on external business partners such as consultants and auditors to achieve their objectives. In addition, this involvement would further tighten available resources that are available for firm’s SSCM initiatives.

“Managing a sub-supplier would be particularly difficult for us, if we don't understand the local market conditions, the processes, or the mentality.” (Obermeilen, Head of Procurement & Logistics).

Similarly, the literature highlights how comprehensive supply management capabilities can positively influence a firm's financial and operational outcomes (Carr and Pearson, 1999; Sánchez-Rodríguez et al., 2003). SSCM research proposed that these more generic supply management capabilities build the foundation to build up sustainability focused supply management capabilities (Reuter et al., 2010; Foerstl et al., 2010).

We can argue that the focal firm initially requires this basic supply chain knowledge before it can diffuse sustainability capabilities through its supply chain. Research may examine what roles basic supply chain knowledge level relates to sustainability diffusion.

“Direct supplier's willingness to disclose sub-suppliers” (CSF7).

CSF7 describes the willingness of the direct supplier to reveal its sub-suppliers to the focal firm.

“In general, we don't just simply disclose our suppliers. We carefully evaluate to whom we do and to whom we don't.” (ZMR, Senior Sourcing Manager)

The willingness to provide sub-supplier information is an important antecedent to broader direct supplier involvement. The willingness to disclose sub-supplier information is not a prominent concept within supply research, but this item could be related to information sharing effort in general. It can also be rooted into general principal-agent-settings (Eisenhardt, 1989a; Sarkis et al., 2011). The agent (i.e. direct supplier) hides information (i.e. entity and performance of sub-suppliers) from the principal (i.e. focal firm).

Current codes of conduct of voluntary sustainability initiatives such as the Business Social Compliance Initiative (BSCI) or the Electronic Industry Citizenship Coalition (EICC) require any members' supplier to disclose their supply base (BSCI, 2011a; EICC, 2009). Respondents in this study stated that not every supplier is willing or could be required to supply this information. Thus, supplier's disclosure willingness reflects one of the key CSF for sub-supplier adoption of sustainability practices. We did observe inter-relationships between supplier's willingness for disclosure and other CSF such as power, existent trust or perceived value. Antecedents to willingness to share sub-supplier information remain unclear. Further study of principal-agent theory lenses could be furtherer grounded within SSCM and sub-supplier management (Sarkis et al., 2011).

“Involvement of direct supplier” (CSF8).

“Involvement of direct supplier” reflects a direct supplier's active mediating role within the sub-supplier management activities. The coordination and processing of the sub-supplier management initiative is not left to the focal firm itself, rather support of the direct supplier is required.

Focus group members of all supply chain tiers underlined the importance of CSF8. The focal firm emphasized that the direct supplier involvement brings them “closer” to the sub-supplier. In this situation, the focal firm becomes more rapidly familiar with sub-supplier characteristics.

“If you would like to visit a sub-supplier site, the respective direct supplier needs to join. He knows the sub-supplier, I do not. It will only be effective, if we take action jointly.”
(Maestrani, Head of Procurement)

Furthermore, the interviewed managers of the direct suppliers explained that they can mitigate some of sub-suppliers potential concerns with respect to firm’s engagement.

“If we approach our supplier and explain to them the relevance and that one of our strategic customers wants to process certain activities such as site visits or audits, there is a good chance that our supplier accepts—without our involvement the chances of success may be almost zero.” (ZMR, Senior Sourcing Manager)

The sub-suppliers in our studies underlined the importance of having the direct supplier (i.e. their customer):

“(…) we insist on the involvement of our direct customer. We are the sub-supplier and haven’t been in touch with the focal company. We have been dealing with the direct supplier. They understand our business as well as the focal company’s business (…) the involvement is more convenient for us.” (Capricorn, Assistant Manager Exports)

Research has shown that the involvement of competent partners lead to higher success rates of sustainability initiatives (Hart, 1995; Sharma and Vredenburg, 1998; Pagell and Wu, 2009). In line with relational view theory, a firm’s sub-supplier initiative can benefit from direct supplier’s complementary resources (Dyer and Singh, 1998) by exploring and exploiting supplier’s knowledge and resources (e.g. trustful relationship to sub-supplier or process knowledge) (Carmin et al., 2003; Roome and Wijen, 2005; Roloff, 2008).

Distinguishing from past research, we observed that the focal firm does not benefit within its own organizational boundaries from business partner involvement, but that the positive effect was transferable and took place within the indirect business relationship to the sub-supplier.

At least two research questions arise from direct supplier involvement in sub-supplier management—(1) when does a supplier take on the role of a “gatekeeper” to the sub-supplier, and (2) what supplier resources are important to ensure effective sub-supplier management from a sustainability perspective?

“Perceived value for direct supplier” (CSF9).

CSF9 focuses the direct supplier's perceived value from the execution of sub-supplier management activities or from further aspects in sub-supplier related activities with the focal firm. Value can be described as a trade-off between benefits and sacrifices and includes both monetary and non-monetary elements (Walter and Ritter, 2003; Walter et al., 2001).

Both direct suppliers participating in our study stressed the amount of effort required to be involved in sub-supplier management practices. They are only willing to support sub-supplier management if they perceive benefits from these efforts.

“We are open to enabling sub-supplier management for strategic customers. But if a customer [i.e. focal firm] only buys a few hundred Kilos per year, the efforts for coordination and data processing are just too high.” (ZMR, Senior Sourcing Manager)

“Order volumes play a major role. From an economic perspective, there must be an appropriate balance between effort and benefits. Gathering information or even taking actions at sub-supplier sites mean a lot of efforts to us. Consequently, our willingness to support sub-supplier management is connected with order volumes and a prospected long-term relationship, both with the customer [i.e. focal firm] and the supplier [i.e. sub-supplier].” (Allfood, Deputy General Manager)

If sub-supplier management is meant to help green supply chains, a supplier would like to see returns on it (Castka and Balzarova, 2008). Whether it pays off to be “green” may be part of this debate (Ambec & Lanoie, 2008; Hart, Ahuja, & Arbor, 1996; King & Lenox, 2001). The ‘it pays to be green’ discussion from a supplier perspective has yet to be fully addressed. Especially not the consideration of supplier’s value deriving from their engagement in sub-supplier management, thus the business case needs to be made.

“Perceived value for sub-supplier” (CSF10).

Sub-supplier's perceived value in being involved in their customer’s customer’s initiatives can be defined similarly to CSF9. It can be direct or indirect benefits that it perceives or accrues, but a cost/benefit evaluation is probably needed.

Sub-supplier respondents in our study explained that fulfilling compliance with the focal firm’s CSS clearly identified costs and effort are required. They consequently justified these “sacrifices” with sales volumes or price premiums they could achieve by fulfilling CSS compliance.

“Any compliance comes with costs. If there are new requirements, we have to change systems or need to increase the amount of documentation. To justify these costs we have to explain it to the management in terms of sales being supported with those costs.” (Capricorn, Assistant Manager Exports)

“Additional work and expenses must be convincingly justified. If they are willing to pay premium for the additional expenses, then we are willing to participate in certain initiatives.” (ZAF, Heady of Quality and Sustainability)

Sub-supplier’s perceived value does not only result from the relationship to the sub-supplier’s customer, but also indirectly from the business relationship between the focal firm and the direct supplier. This situation is especially true when both the direct supplier and the sub-supplier are highly dependent on the focal firm’s order volumes. In these circumstances the sub-supplier views complying with CSS standards as a “benefit” by maintaining a sales channel to the focal firm. Having a CSS may also provide greater future opportunities for the sub-supplier with other organizations who may have similar compliance requirements. Similar to CSF9, further research is required to have a comprehensive understanding about what sub-suppliers do value when approached by focal firms.

“Low risk of supplier-by-passing” (CSF11).

“Risk of supplier-by-passing” is the risk that the focal firm terminates a business relationship with the direct supplier and starts to source directly from the sub-supplier. This activity has also been defined as disintermediation in the literature (Rossetti and Choi, 2008; R. E. Spekman et al., 2002).

Direct supplier respondents in the study made it clear that they are more reluctant to support any sub-supplier management initiative if it threatened their business. This dimension is also an important contributor to level of trust. This risk may be high, if: (1) the focal firm has capabilities for direct sourcing to the sub-supplier or (2) both the focal firm and the sub-supplier have a low commitment to the business relationship with the direct supplier.

“If we know, that our customer does not directly source from comparable suppliers in similar regions or neither has the respective skills to do so, we are more open to disclose our suppliers and to enable access to them.” (Allfood, Deputy General Manager)

“It happened for commodities, which we only traded basically: customers started to directly source from our suppliers. In such cases, we would not easily disclose our supply base and enable sub-supplier management.” (ZMR, Senior Sourcing Manager)

Existent SSCM research has not explicitly evaluated the risk of supplier-by-passing and disintermediation. Although more efficient supply network design may include fewer supplier linkages, explicit evaluation based on the resources supplied by sub-suppliers has not been an issue for investigation. The fact is that disintermediation is not necessarily a barrier for SSCM itself, and may serve as a way of making the supply chain more sustainable. The major issue is this direct supplier risk hinders a direct supplier’s willingness to share information about their supplier base. This issue is a barrier for managing sub-suppliers.

A recent study by Choi & Linton (2011) provided examples of how firms sought to set up direct contracts with critical sub-suppliers. Sustainability was found to be one driver; other drivers included ensuring product supply and maintaining control of prices. The relationship between this factor and trust, information sharing, and supplier risk management requires investigation.

“Sub-supplier’s capability to comply with requested sustainability standards” (CSF12).

CSF12 focuses on a sub-supplier’s sustainability performance and their ability to fulfill a focal firm’s sustainability standards (e.g. working hours, wages or biodiversity).

From the study respondents, we observed “sub-supplier’s level of compliance” as a recognizable factor influencing both suppliers and sub-suppliers’ preparedness for participation in sub-supplier management initiatives.

“We would be a little bit reluctant to support sub-supplier management immediately if we also perceived this sub-supplier as not capable of fulfilling certain requirements. We fear the possibility of not meeting an exclusionary criterion for exclusion and eventually lose the business.” (Allfood, Deputy General Manager)

“We are actually prepared to comply with any sustainability program of any other company as well. So we are willing to cooperate.” (Capricon, Assistant Manager Exports)

We find the factor of “sub-supplier’s compliance” to be twofold and reflects a dilemma. On the one hand, expected low levels of compliance may lead the supplier and sub-supplier to fear consequences and be less open to sub-supplier management practices. Alternatively, low levels of compliance give the focal firm the initial reason to engage in sub-supplier management.

Although SSCM literature has called for more research examining supplier compliance with sustainability standards (Millington, 2008), few studies consider levels of suppliers’ compliance (Jiang, 2009b; Jiang, 2009a; Egels-Zandén, 2007). A challenge exists in finding reliable and objective compliance data. Existing studies consider only the compliance of direct suppliers. Evaluating sustainability in a multi-tier supply chain is even more difficult requiring sustainability compliance data from suppliers beyond the tier-1 level.

“Geographical distance between supply-chain-partners” (CSF13).

CSF13 refers to the geographical (physical) proximity between the location of a focal firm, direct supplier and sub-supplier.

Respondents felt that significant geographical distance between suppliers and sub-suppliers made it more difficult to acquire insights into their operations and processes due to greater effort and resource requirements, especially for site visits. Supply chain partner communication is typically limited to phone and email. Face-to-face meetings are less frequent than less distant organizations. Consequently, a focal firm is less familiar with sub-supplier’s sustainability performance.

Existent SSCM literature acknowledges that increasing distance negatively influences data gathering, assessment, and collaboration (Awaysheh and Klassen, 2010). Sub-supplier management practices related to issues of geographical distance between the focal firm and its (sub-)supplier do not exist.

“Cultural distance between supply-chain-partners” (CSF14).

The culture and society in which the supply chain partners are embedded play an important role in sustainability compliance dimensions (Hofstede, 1980; Awaysheh and Klassen, 2010).

The study respondents at all supply chain levels explained difficulties in interactions deriving from cultural differences amongst supply chain members. The cultural differences were rooted to norm differences and included language, habits, or values.

“Communication difficulties and differing mentalities can be major barriers.” (Allfood, Deputy General Manager)

In many cases, cultural and geographical distances go along with each other.

“I noticed, that especially German (sub-) suppliers take us seriously, although we source relatively small volumes from them. I think it has to do with the shorter distance and the very similar cultural area.” (Obermeilen, Head of Procurement & Logistics)

Our observations are in line with past research that highlighted how firms struggle to implement their sustainable supply chain strategies in foreign countries with differing cultures (Sarkis, 2012a; Sarkis, 2012b). Commonly, supply chain partners embedded in similar cultural structures can build up on similar rules, norms, and values (Awaysheh & Klassen, 2010). Two directions for future research can be used to examine this issue. Further knowledge is required sub-supplier management adaptation practices to differing cultural contexts. Second, future research might examine whether sources such as regulatory quality index could indicate regions in which implementation of a firm's CSS is more likely to be successful.

6. Discussion and Analysis

Fourteen CSFs were determined from the field study investigation. The overall results mapped well to identified factors from the literature. Some of the SSCM CSFs which were identified in the initial literature review were not directly observed within the exploratory field study findings. For example: (1) top management support, (2) personnel commitment, and (3) lack of (financial) resources were not explicitly identified by the respondents. One explanation might be that interviewed managers were already committed to the subject matter and also represented senior management level themselves. Without having a minimum level of resources, any effort for managing sub-suppliers would not be feasible. In fact, due to the embeddedness of sub-supplier management in SSCM, the unobserved CSF might already have been implicit prerequisites. In turn, our research highlighted (1) perceived value for direct supplier and (2) sub-supplier, (3) low risk of disintermediation, and (4) sub-supplier's current compliance with requested sustainability standards as important CSF. These CSFs have not been extensively considered in existent SSCM research due to the preponderance of research focusing on dyadic direct supplier relationships.

6.1. Theoretical Implications

As the theory of critical success factors acknowledges, CSF are not only key for achieving high firm performance, but also particularly important for any strategy implementation and individual project success (Dinter, 2012; Shenhar et al., 2002; Zwikael and Globerson, 2006). It has even been highlighted that CSF are contingent on the individual settings (Chan et al., 2002). Little knowledge exists about CSF for sustainable supply (chain) management context (Ageron et al., 2012), and much less related to sub-suppliers. Our research has sought to contribute to a better understanding of contingent CSF in sub-supplier management settings.

Traditional SSCM literature reports critical factors (mainly barriers) from the perspective of the focal firm. Thus, they are commonly classified into internal and external critical factors (Walker et al., 2008). We extended the organizational boundaries for our research and took a more multifaceted perspective by individually considering perspectives of the focal firm, suppliers and sub-suppliers to identify CSF for sub-supplier management. Responding to this, identified CSF can be classified into:

- focal firm-related (i.e. internal) CSF (e.g. focal firm's supply-know-how)
- relationship-related CSF (e.g. trust between focal firm and direct supplier)
- supply chain partner-related CSF (e.g. sub-supplier's current CSS compliance), or
- context-related CSF (e.g. little cultural distance)

Whereas internal CSF can be directly influenced by the focal firm, other CSF are not as easily observable (e.g. trust between supplier and sub-supplier) much less measurable. However, having recognized the importance of those CSF for the effectiveness of sub-supplier management, a focal firm should be conscious of these CSF during any interactions with suppliers and sub-suppliers. Early consideration of those CSF during supplier selection and contracting phases might be key for later sub-supplier management outcome. In fact, incorporating sub-supplier management practices into evaluation, monitoring, and selection of suppliers are important for organizations seeking to diffuse sustainability standards throughout their supply chains. This situation is unlike other business performance aspects such as delivery reliability, quality, and cost, where the focus can be almost entirely on the immediate supplier, who will have to worry about economic and market factors and focus on those concerns. Sustainability activities are typically voluntary and organizations (suppliers) may not have the same motivation or expertise in diffusing these typically voluntary and very difficult to measure outcomes.

Expanding the theory of critical success factors to strategic supply chain management and especially sustainable supply chain management can provide many benefits to organizations and their supply chains. Some of the critical success factors identified in this study will require significant development and effort. In our observations we also note that CSFs are interrelated. In many cases the respondents would discuss a number of factors jointly. Thus, a relatively complex web of interactions is observed. This is not surprising since we believe that internal CSFs and external CSFs have a more complex set of interactions than a simple two category grouping. Arriving at the four dimensions above further exemplifies the additional levels of CSF complexity that can be investigated. Critical success factor theory of the firm should seek to examine these interactions as well as the direct influence of the CSFs.

The theory of critical success factors observes that critical success factors exist, further study is needed to further evaluate the relative success of these factors. Contingencies are also part of the theory of critical success factors, whether CSS diffusion differs and by how much from internal sustainability CSFs need to be evaluated. Whether CSS diffusion to sub-suppliers differs from other non-CSS (e.g. quality, cost) management of sub-suppliers is another general direction of research.

6.2. Managerial Implications

Our findings highlight CSF's influence on the outcome of sub-supplier management in SSCM. Firms who aim for CSS compliance throughout their supply chain including sub-supplier need to take particular attention on the identified CSF. For example, purchasing managers should consider these CSF in any strategic sourcing decisions. Whereas specific sustainability criteria included in supplier selection processes give indication about supplier's current sustainability performance, the additional consideration of the identified CSF provide the foundation for the subsequent potential to implement CSS at sub-supplier sites. Furthermore, the CSF can be handled as guidelines to assess the boundaries of sub-supplier management success.

Before starting any sub-supplier management initiative managers should be aware of the characteristic of each CSF for the specific situation. This consequently helps sourcing managers

to better align required resources for managing sub-suppliers, ultimately achieving higher success rates.

Potential food safety issues as well as other social and environmental misbehaviors in food supply chains pressure firms to achieve traceability throughout their supply chains upstream to the raw material (Maloni, Brown, & Brown, 2006). Although food supply chains seem to be less complex compared to other industries (e.g. automotive or aerospace), the difficulties to achieve traceability was highlighted in this study. In many cases traceability is not fully achievable even though food safety regulations (including traceability requirements) exist (Berman & Swani, 2010; Hamprecht et al., 2005; Roth et al., 2008). Traceability challenges are particularly linked to sub-suppliers. Our research findings give further guidance what factors should be considered and might be particular important to manage sub-suppliers in food supply chains to increase transparency and sustainability.

There are a number of general CSF managerial implications, each specific CSF will have its own implications as well, we have only presented a broad-brushed set of implications based on the theory of critical success factors.

7. Conclusions

The present research focused on the identification of critical success factors (CSF) for managing sub-suppliers within sustainable supply chain management (SSCM) settings.

Based on this one year field study in two food supply chains, our research identified 14 CSF that eventually influence the success of the sub-supplier management outcome, reflected by sub-suppliers' compliance with corporate sustainability standards (CSS). For each CSF we provided a foundational definition and analyzed them with respect to existent literature. CSF's unique importance to sub-supplier management success was highlighted and exemplified by field study insights and comments from participants. Since not all CSF were specific to the sustainability context, our research might also contribute to other fields, where sub-suppliers need particular attention such as quality, inventory, or further risk management.

The theory of critical success factors provided an effective theoretical lens that underlined our research. This strategic theory can effectively be applied to projects and supply chains as observed in our findings. Thus, we view this issue as an important step in developing a stronger theoretical foundation for multi-tier supplier management, especially for situations where sustainability strategy is important for supply chain versus supply chain competition.

To extend the organizational boundaries from dyadic considerations between firms and direct suppliers, future research needs further examination of, at least, triadic relationships including sub-suppliers. Furthermore, we observed several important inter-relationships between CSF. These interrelationships of CSF will need further investigation, from multiple organizational perspectives. Future research can investigate how these interrelationships could be structured and further evaluated to provide managers better guidance how to influence CSF and to highlight potential synergies (Fu et al., 2012). Performance measuring approaches for CSF

need further examination. Whether the identified CSFs are actually CSFs and prioritizing (e.g. necessary and/or sufficient) needs further investigation.

Limitations of our study are self-evident. Our observations and findings are limited to two food supply chains. Further field studies may take place within differing industries and include companies with other characteristics in terms of sizes and resource levels. A subsequent large-scale quantitative (empirical) research approach will help to validate and generalize our research findings.

References

- Ageron, B., Gunasekaran, A. and Spalanzani, A., 2012. Sustainable supply management: An empirical study. *International Journal of Production Economics*, 140(1), 168-182.
- Ambec, S. and Lanoie, P., 2008. Does It Pay to Be Green? A Systematic Overview. *Academy of Management Perspectives*, 22(4), 45-62.
- Argenti, P.A., 2004. Collaborating with Activists: how Starbucks Works with NGOs. *California Management Review*, 47(1), 91-116.
- Awaysheh, A. and Klassen, R.D., 2010. The impact of supply chain structure on the use of supplier socially responsible practices. *International Journal of Operations & Production Management*, 30(12), 1246-1268.
- BSCI, 2011a. About BSCI.
- BSCI, 2011b. The BSCI Code of Conduct.
- Bai, C. and Sarkis, J., 2010a. Green supplier development: Analytical evaluation using rough set theory. *Journal of Cleaner Production*, 18(12), 1200-1210.
- Bai, C. and Sarkis, J., 2010b. Integrating sustainability into supplier selection with grey system and rough set methodologies. *International Journal of Production Economics*, 124(1), 252-264.
- Bansal, P. and Hunter, T., 2003. Strategic explanations for the early adoption of ISO 14001. *Journal of Business Ethics*, 46(3), 289-299.
- Barnett, M.L. and King, A.A., 2008. Good fences make good neighbors: A longitudinal analysis of an industry self-regulatory institution. *Academy of Management Journal*, 51(6), 1150-1170.
- Belassi, W. and Tukel, O.I., 1996. A new framework for determining critical success/failure factors in projects. *International Journal of Project Management*, 14(3), 141-151.
- Bowen, F., Cousins, P., Lamming, R. and Faruk, A., 2001. The role of supply management capabilities in green supply. *Production and Operations Management*, 10(2), 174-189.
- Boyd, D., Spekman, R., Kamauff, J and Werhane, P., 2007. Corporate social responsibility in global supply chains: A procedural justice perspective. *Long Range Planning*, 40(3), 341-356.

- Brammer, S., Hojmosse, S. and Millington, A., 2011. Managing sustainable global supply chains.
- Carmin, J., Darnall, N. and Mil-Homens, J., 2003. Stakeholder involvement in the design of U.S. voluntary environmental programs: Does sponsorship matter? *Policy Studies Journal*, 31(4), 527-543.
- Carr, A.S. and Pearson, J.N., 1999. Strategically managed buyer – supplier relationships and performance outcomes. *Journal of Operations Management*, 17(5), 497-519.
- Carter, C.R. and Dresner, M., 2001. Purchasing 's Role in Environmental Management : Cross-Functional Development of Grounded Theory. *Journal of Supply Chain Management*, 37(3), 12-27.
- Castka, P. and Balzarova, M.A., 2008. ISO 26000 and supply chains—On the diffusion of the social responsibility standard. *International Journal of Production Economics*, 111(2), 274-286.
- Chan, A., Scott, D. and Lam, E., 2002. Framework of Success Criteria for Design/Build projects. *Journal of Management in Engineering*, 18(3), 120-128.
- Choi, T.Y. and Linton, T., 2011. Don't let your Supply Chain control your Business. *Harvard Business Review*, (December), 112-117.
- Ciliberti, F., Pontrandolfo, P. and Scozzi, B., 2008. Investigating corporate social responsibility in supply chains: a SME perspective. *Journal of Cleaner Production*, 16(15), 1579-1588.
- Ciliberti, F., Pontrandolfo, P. and Scozzi, B., 2010. Small Business Social Responsibility in the Supply Chain: A Literature Review. In L. Spence and M. Painter-Morland, eds. *Ethics in Small and Medium Sized Enterprises - A Global Commentary*. Dordrecht: Springer Netherlands, pp. 291-311.
- Cooper, R.W., Frank, G.L. and Kemp, R.A., 2000. A Multinational Comparison of Key Ethical Issues, Helps and Challenges in the Purchasing and Supply Management Profession: The Key Implications for Business and the Professions. *Journal of Business Ethics*, 23(1), 83-100.
- Cox, A., 2004. The art of the possible: relationship management in power regimes and supply chains. *Supply Chain Management: An International Journal*, 9(5), 346-356.
- Cox, A., 2001. Understanding buyer and supplier power: A framework for procurement and supply competence. *IEEE Engineering Management Review*, 29(3), 87–94.
- Cox, A., Sanderson, J. and Watson, G., 2001. Supply Chains and Power Regimes : Toward an Analytic Framework for Managing Extended Networks of Buyer and Supplier Relationships. *The Journal of Supply Chain Management*, 37(2), 28-35.
- Crook, T.R. and Combs, J.G., 2007. Sources and consequences of bargaining power in supply chains. *Journal of Operations Management*, 25(2), 546-555.
- DCCA, 2008. Small suppliers in global supply chains.
- Daniel, D., 1961. Management information crisis. *Harvard Business Review*.
- Darnall, N., Seol, I. and Sarkis, J., 2009. Perceived stakeholder influences and organizations' use of environmental audits. *Accounting, Organizations and Society*, 34(2), 170-187.

- Delmas, M. and Montiel, I., 2009. Greening the supply chain: When is customer pressure effective? *Journal of Economics & Management Strategy*, 18(1), 171–201.
- Diabat, A., Govindan, K. and Panicker, V.V., 2011. Supply chain risk management and its mitigation in a food industry. *International Journal of Production Research*, 50(11).
- Dinter, B., 2012. Success factors for information logistics strategy — An empirical investigation. *Decision Support Systems*, 1-12.
- Doney, P.M. and Cannon, J.P., 1997. An Examination of the Nature of Trust in Buyer-Seller Relationships. *Journal of Marketing*, 61(2), 35-51.
- Dyer, J.H. and Singh, H., 1998. The relational View: Cooperative strategy and sources of interorganizational competitive advantage. *Academy of Management Review*, 23(4), 660-679.
- EICC, 2009. Electronic Industry Code of Conduct.
- Egels-Zandén, N., 2007. Suppliers' Compliance with MNCs' Codes of Conduct: Behind the Scenes at Chinese Toy Suppliers. *Journal of Business Ethics*, 75(1), 45-62.
- Eisenhardt, K.M., 1989a. Agency Theory: An Assessment and Review. *The Academy of Management Review*, 14(1), 57-74.
- Eisenhardt, K.M., 1989b. Building Theories from Case Study Research. *The Academy of Management Review*, 14(4), 532-550.
- Fawcett, S.E. and Magnan, G.M., 2002. The rhetoric and reality of supply chain integration. *International Journal of Physical Distribution & Logistics Management*, 32(5), 339-361.
- Foerstl, K., Reuter, C., Hartmann, E. and Blome, C., 2010. Managing supplier sustainability risks in a dynamically changing environment—Sustainable supplier management in the chemical industry. *Journal of Purchasing and Supply Management*, 16(2), 118-130.
- Fu, X., Zhu, Q. and Sarkis, J., 2012. Evaluating green supplier development programs at a telecommunications systems provider. *International Journal of Production Economics*, 140(1), 357-367.
- Ganesan, S., 1994. Determinants of Long-Term Orientation in Buyer-Seller Relationships. *Journal of Marketing*, 58(April), 1-19.
- Gonzalez, P., Sarkis, J. and Adenso-Diaz, B., 2008. Environmental management system certification and its influence on corporate practices: Evidence from the automotive industry. *International Journal of Operations & Production Management*, 28(11), 1021-1041.
- Granek, F. and Hassanali, M., 2006. The Toronto Region Sustainability Program: insights on the adoption of pollution prevention practices by small to medium-sized manufacturers in the Greater Toronto Area (GTA). *Journal of Cleaner Production*, 14(6-7), 572-579.
- Grimm, J.H., Hofstetter, J.S., Mueggler, M. and Peters, N.J., 2011. Institutionalizing proactive sustainability standards in supply chains: Which institutional entrepreneurship capabilities matter? In A. Marcus, P. Shrivastava, Sanjay Sharma, and S. Pogutz, eds. *Cross-Sector Leadership for the Green Economy. Integrating Research and Practice on Sustainable Enterprise*. New York: Palgrave Macmillan, pp. 177-193.

- Hamprecht, J., Corsten, D., Noll, M. and Meier, E., 2005. Controlling the sustainability of food supply chains. *Supply Chain Management: An International Journal*, 10(1), 7-10.
- Handfield, R.B. and Bechtel, C., 2002. The role of trust and relationship structure in improving supply chain responsiveness. *Industrial Marketing Management*, 41(4), 367-382.
- Hart, S.L., 1995. A natural-resource-based view of the firm. *The Academy of Management Review*, 20(4), 986-1014.
- Hart, S.L., Ahuja, G. and Arbor, A., 1996. Does it pay to be green? An empirical examination of the relationship between emission reduction and firm performance. *Business Strategy and the Environment*, 5, 30-37.
- Hervani, A. a., Helms, M.M. and Sarkis, J., 2005. Performance measurement for green supply chain management. *Benchmarking: An International Journal*, 12(4), 330-353.
- Hofstede, G.H., 1980. *Culture's Consequences, International Differences in Work-related Values*, New York: Sage.
- Jenkins, H., 2006. Small Business Champions for Corporate Social Responsibility. *Journal of Business Ethics*, 67(3), 241-256.
- Jiang, B., 2009a. Implementing Supplier Codes of Conduct in Global Supply Chains: Process Explanations from Theoretic and Empirical Perspectives. *Journal of Business Ethics*, 85(1), 77-92.
- Jiang, B., 2009b. The effects of interorganizational governance on supplier's compliance with SCC: An empirical examination of compliant and non-compliant suppliers. *Journal of Operations Management*, 27(4), 267-280.
- Kaplan, R.S. and Norton, D.P., 1992. The Balanced Scorecard—Measures that Drive Performance. *Harvard Business Review*, 70(1), 71-79.
- Kaplan, R.S. and Norton, D.P., 1996. Using the balanced scorecard as a strategic management system. *Harvard Business Review*, 74(1), 75-85.
- King, A.A. and Lenox, M.J., 2001. Does It Really Pay to Be Green? An Empirical Study of Firm Environmental and Financial Performance: An Empirical Study of Firm Environmental and Financial Performance. *Journal of Industrial Ecology*, 5(1), 105-116.
- King, N., 2004. Using Templates in the Thematic Analysis of Text. In C. Cassell and G. Symon, eds. *Essential Guide to Qualitative Methods in Organisational Research*. London: Sage Publications, pp. 256-270.
- Klassen, R.D. and Vachon, S., 2003. Collaboration and evaluation in the supply chain: The impact on plant-level environmental investment. *Production and Operations Management*, 12(3), 336–352.
- Kolk, A. and van Tulder, R., 2002. The Effectiveness of Self-regulation : Corporate Codes of Conduct and Child Labour. *European Management Journal*, 20(3), 260-271.
- Koplin, J., Seuring, S and Mesterharm, M., 2007. Incorporating sustainability into supply management in the automotive industry – The case of the Volkswagen AG. *Journal of Cleaner Production*, 15(11-12), 1053-1062.

- Lee, S.-Y., 2008. Drivers for the participation of small and medium-sized suppliers in green supply chain initiatives. *Supply Chain Management: An International Journal*, 13(3), 185–198.
- Lee, S.-Y. and Klassen, R.D., 2008. Drivers and enablers that foster environmental management capabilities in small- and medium-sized suppliers in supply chains. *Production and Operations Management*, 17(6), 573-586.
- Miles, M.B. and Huberman, A.M., 1994. *Qualitative data analysis: An expanded sourcebook*, Thousand Oaks, CA: Sage Publications.
- Millington, A., 2008. Responsibility in the supply chain. In *The Oxford Handbook of Corporate Social Responsibility*. New York: The Oxford University Press, pp. 363-383.
- Min, H. and Galle, W.P., 1997. Green Purchasing Strategies: Trends and Implications. *International Journal of Purchasing and Materials*, 33(3), 10-17.
- Min, H. and Galle, W.P., 2001. Green purchasing practices of US firms. *International Journal of Operations & Production Management*, 21(9), 1222-1238.
- Morgan, R.M. and Hunt, S.D., 1994. The Commitment-Trust Theory of Relationship Marketing. *Journal of Marketing*, 58(July), 20-38.
- Pagell, M. and Wu, Z., 2009. Building a more complete theory of sustainable supply chain management using case studies of 10 exemplars. *Journal of Supply Chain Management*, 45(2), 37-56.
- Pesonen, H.-L., 2001. Environmental Management of Value Chains: Promoting Life-cycle Thinking in Industrial Networks. *Greener Management International*, (33), 45-58.
- Peters, N.J., Hofstetter, J.S. and Hoffmann, V.H., 2011. Institutional entrepreneurship capabilities for interorganizational sustainable supply chain strategies. *The International Journal of Logistics Management*, 22(1), 52-86.
- Poon, P. and Wagner, C., 2001. Critical success factors revisited: success and failure cases of information systems for senior executives. *Decision Support Systems*, 30(4), 393-418.
- Rao, P., 2002. Greening the supply chain: A new initiative in South East Asia. *International Journal of Operations & Production Management*, 22(6), 632–655.
- Reuter, C., Foerstl, K., Hartmann, E. and Blome, C., 2010. Sustainable global supplier management: The role of dynamic capabilities in achieving competitive advantage. *Journal of Supply Chain Management*, 46(2), 45–63.
- Rockart, J.F., 1979. Chief executives define their own data needs. *Harvard Business Review*, 57(2), 81-93.
- Roloff, J., 2008. Learning from multi-stakeholder networks: Issue-focussed stakeholder management. *Journal of Business Ethics*, 82(1), 233-250.
- Roome, N. and Wijen, F., 2005. Stakeholder power and organizational learning in corporate environmental management. *Organization Studies*, 27(2), 235-263.
- Rossetti, C.L. and Choi, T.Y., 2008. Supply Management Under High Goal Incongruence: An Empirical Examination of Disintermediation in the Aerospace Supply Chain. *Decision Sciences*, 39(3), 507-540.

- Roth, A.V., Tsay, A.A., Pullman, M.E. and Gray, J.V., 2008. Unraveling the Food Supply Chain: Strategic Insights From China and the 2007 Recalls. *The Journal of Supply Chain Management*, 44(1), 22-39.
- Sarkis, J., 2012a. A boundaries and flows perspective of green supply chain management. *Supply Chain Management: An International Journal*, 17(2), 202-216.
- Sarkis, J., 2012b. Models for compassionate operations. *International Journal of Production Economics*, 139(2), 359-365.
- Sarkis, J., Zhu, Q. and Lai, K.-hung, 2011. An organizational theoretic review of green supply chain management literature. *International Journal of Production Economics*, 130(1), 1-15.
- Seuring, Stefan and Muller, M., 2008. From a literature review to a conceptual framework for sustainable supply chain management. *Journal of Cleaner Production*, 16(15), 1699–1710.
- Seuring, Stefan and Müller, M., 2008. Core Issues in Sustainable Supply Chain Management – a Delphi Study. *Business Strategy and the Environment*, 17(8), 455-466.
- Sharma, S. and Vredenburg, H., 1998. Proactive corporate environmental strategy and the development of competitively valuable organizational capabilities. *Strategic Management Journal*, 19(8), 729–753.
- Shenhar, A.J., Tishler, A., Dvir, D., Lipovetsky, S. and Lechler, T., 2002. Refining the search for project success factors: a multivariate, typological approach. *R&D Management*, 32(2), 111-126.
- Spekman, R.E., Spear, J. and Kamauff, John, 2002. Supply chain competency: learning as a key component. *Supply Chain Management: An International Journal*, 7(1), 41-55.
- Spence, L. and Bourlakis, M., 2009. The evolution from corporate social responsibility to supply chain responsibility: The case of Waitrose. *Supply Chain Management: An International Journal*, 14(4), 291-302.
- Sánchez-Rodríguez, C., Martínez-Lorente, Á.R. and Clavel, J.G., 2003. Benchmarking in the purchasing function and its impact on purchasing and business performance. *Benchmarking: An International Journal*, 10(5), 457-471.
- Teuscher, P., Grueninger, B. and Ferdinand, N., 2006. Risk management in sustainable supply chain management (SSCM): Lessons learnt from the case of GMO-free soybeans. *Corporate Social Responsibility and Environmental Management*, 13(1), 1–10.
- Vachon, S. and Klassen, R.D., 2008. Environmental management and manufacturing performance: The role of collaboration in the supply chain. *International Journal of Production Economics*, 111(2), 299-315.
- Vachon, S. and Klassen, R.D., 2006. Extending green practices across the supply chain: The impact of upstream and downstream integration. *International Journal of Operations & Production Management*, 26(7), 795-821.
- Wagner, T., Lutz, R.J. and Weitz, B.A., 2009. Corporate hypocrisy: Overcoming the threat of inconsistent corporate social responsibility perceptions. *Journal of Marketing*, 73(6), 77–91.
- Walker, H. and Preuss, L., 2008. Fostering sustainability through sourcing from small businesses: Public sector perspectives Helen Walker. *Journal of Cleaner Production*, 16(15), 1600-1609.

- Walker, H., Di Sisto, L. and McBain, D., 2008. Drivers and barriers to environmental supply chain management practices: Lessons from the public and private sectors. *Journal of Purchasing and Supply Management*, 14(1), 69-85.
- Walter, A. and Ritter, T., 2003. The influence of adaptations, trust, and commitment on value-creating functions of customer relationships. *The Journal of Business & Industrial Marketing*, 18(4/5), 353-365.
- Walter, A., Ritter, T. and Gemünden, H.G., 2001. Value Creation in Buyer–Seller Relationships. *Industrial Marketing Management*, 30(4), 365-377.
- Waring, T. and Wainwright, D., 2008. Issues and Challenges in the Use of Template Analysis: Two Comparative Case Studies from the Field. *The Electronic Journal of Business Research Methods*, 6(1), 85-94.
- Watson, G., 2001. Subregimes of Power and Integrated Supply Chain Management. *The Journal of Supply Chain Management*, 37(2), 36-41.
- Williamson, O.E., 2008. Outsourcing: Transaction Cost Economics and Supply Chain Management. *Journal of Supply Chain Management*, 44(2), 5-16.
- Wolf, J., 2011. Sustainable supply chain management integration: A qualitative analysis of the german manufacturing industry. *Journal of Business Ethics*, 1–15.
- Wycherley, I., 1999. Greening supply chains: the case of The Body Shop International. *Business Strategy and the Environment*, 8(2), 120-127.
- Yakovleva, N., Sarkis, J. and Sloan, T., 2012. Sustainable benchmarking of supply chains: the case of the food industry. *International Journal of Production Research*, 50(5), 1297-1317.
- Zhu, Q. and Sarkis, J., 2007. The moderating effects of institutional pressures on emergent green supply chain practices and performance. *International Journal of Production Research*, 45(18-19), 4333-4355.
- Zhu, Q., Sarkis, J., Cordeiro, J. and Lai, K.-hung, 2008. Firm-level correlates of emergent green supply chain management practices in the Chinese context. *Omega*, 36(4), 577-591.
- Zwikael, O. and Globerson, S., 2006. From Critical Success Factors to Critical Success Processes. *International Journal of Production Research*, 44(17), 3433-3449.

Appendix A

Interview guideline for the identification of critical success factors

| No. | Questions asked to the focal firm | Questions asked to the direct supplier | Questions asked to the indirect sub-supplier |
|-----|---|---|---|
| 0 | Which social and environmental corporate sustainability standards do you require from your suppliers and sub-suppliers? | Which social and environmental corporate sustainability standards are required by your direct customers? Are these standards understandable, and practicable for your producing region (e.g. required terms of working, minimum wage) and for the one of your supplier? | Which social and environmental corporate sustainability standards are required by your direct customers (or customers' customers)? Are these standards understandable, and practicable for your producing region (e.g. required terms of working, minimum wage)? |
| 1 | Are you aware of all your sub-suppliers? If not, what are challenges? | Do you support customers in their sub-supplier management initiatives? Please explain. | In general, are you willing to cooperate with a focal company (your customer's customer) in terms of sustainability compliance? Please explain. |
| 2 | Which sub-suppliers do you know, which not? Why? | Do your customers know your suppliers (i.e. their sub-suppliers)? Please explain. | |
| 3 | In which situation do your direct suppliers disclose their own suppliers (i.e. your sub-suppliers)? And in which situation they do not? | In which situations are you willing to disclose your suppliers and in which not? Please explain the relationships to your customer and supplier for the respective situations. What are reasons for giving your customers access to your suppliers? | Under which circumstances are you willing to collaborate with a focal company which requests your compliance with its social and environmental corporate sustainability standards? What kind of collaboration do you accept (e.g. self-assessment questionnaire, informal site-visits, audits, etc.)? What are reasons not to cooperate with a focal company? |
| 4 | What barriers do you face, when you seek to approach upper-tier sub-suppliers? | In situations in which you disclose your suppliers and allow access to them, what factors might enable or hinder your customers' success in managing these suppliers? What are the prerequisites? | Do you insist on the involvement of your direct customer in this context? Please explain. |
| 5 | In which situation are you able to assess your sub-suppliers? | How would you describe your role within your customers' sub-supplier management approach? | |
| 6 | What enables you to manage sub-suppliers? | | In the case you are willing to cooperate. What are critical factors: (1) which hinder/complicate the implementation of social and environmental corporate sustainability standards during the collaboration? (2) which enable/promote the collaboration |

performance?

| | | |
|----|---|---|
| 7 | In which situation do you not have any control of your sub-suppliers? | Could you describe the relationship between you and your direct customer for both: (1) a case in which you are willing to cooperate with the focal company and (2) a case in which you are not? |
| 8 | What are factors allow you to develop your sub-supplier? | In case of any identified non-compliance with a social and environmental sustainability standard at your company: Do you take counter-measures, responding to focal company's requests? Please explain. |
| 9 | What additional factors make it challenging or even impossible to assess or collaborate with sub-suppliers? | Would you rather take counter-measures, if your direct customer encourages you together with the focal company? |
| 10 | What do you further consider as particularly important to manage sub-suppliers successfully? | What are the critical factors for the implementation of social and environmental corporate sustainability factors in general? |
