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Implementing sustainability in multi-tier supply chains: Strategies and contingencies in managing sub-suppliers

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ABSTRACT

Buying firms must pay increased attention to supply chain sustainability issues, as stakeholders might hold them responsible for non-sustainable supply chain activities. Frequently, sustainability problems occur upstream at the sub-supplier level. Building on the literature on multi-tier supply chains (MSCs), we investigated the sustainability management strategies of buying firms in the food, apparel, packaging, and consumer electronics with regard to second-tier suppliers and beyond. In particular, we analyzed seven cases of global MSCs and found four different characteristic MSC types—open, closed, third party, and “don't bother”. We identified three main factors—supply chain complexity, the sustainability management capabilities of the first-tier supplier, and the type of sustainability in focus (i.e., environmental or social sustainability)—that determine when and how buying firms actually extend their sustainability strategies to their sub-suppliers.

1. Introduction

Sustainability increasingly depends on the holistic implementation of practices beyond the boundaries of a buying firm (Glover et al., 2014; Golini et al., 2014; Schoenherr et al., 2014). Non-adherence to sustainability standards across lower tiers in the supply chain bears the risk of negative publicity for global brands. According to this “chain liability effect” (Van Tulder et al., 2009), buying firms can be held accountable for actions that take place within their globally dispersed supply chains (Reuter et al., 2010).

Sub-suppliers also frequently carry out non-sustainable actions that lead to negative publicity for global brands. For example, in 2007, Mattel had to recall toys that were coated with toxic paint. An investigation revealed the source of this toxic paint was a subcontractor of Mattel's first-tier (T1) supplier. Another example involves the parent company of the clothing and accessories retailer, ZARA. Inditex was repeatedly denounced for “sweatshop-like” working conditions in the subcontractor facilities of AHA, ZARA's main supplier (Butler, 2015). Although Inditex argued that it cannot be held responsible for AHA's unauthorized subcontracting, Brazilian authorities responded that “[ZARA's] raison d'être is making clothes (…) and it follows that it must know who is producing its garments” (Burgen and Phillips, 2011). These incidents highlight the growing necessity for buying firms to actively think about the management of both direct suppliers and sub-suppliers.

However, implementing sustainability practices for sub-suppliers is a challenging task due to the lack of contractual relationships between a buying firm and its second-tier (T2) suppliers (Choi and Linton, 2011; Grimm et al., 2014). Initial studies have explored the different strategies buying firms use to manage sub-suppliers, ranging from “delegating authority” (Choi and Hong, 2002) to T1 suppliers for metrics such as quality, delivery, and sustainability (Choi and Linton, 2011) to “closed triads” (Mena et al., 2013) in which buying firms directly manage sub-suppliers. Recent efforts to build a “theory of multi-tier supply chains” (Mena et al., 2013; Wilhelm et al., 2016) have highlighted how these chains operate in terms of their structure, behavior, and performance (e.g., Mena et al., 2014; Tachizawa and Yew Wong, 2014) and have identified critical success factors for implementing sustainability (Grimm et al., 2014).

While these studies seem to have an implicit assumption that firms “increasingly extend (…) their reach deeper into the supply chain” (Mena et al., 2013: 59), in practice, managing sub-suppliers—particularly in the context of sustainability—is still the exception rather than the rule. The main reasons for this lack of control are limited information about the exact number or identity of sub-suppliers (Choi et al., 2001) and limited means of exerting

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influence over them, as they often represent only a small percentage of the business of a lower-tier supplier (Plambeck et al., 2012; Tachizawa and Yew Wong, 2014). The fact that sub-suppliers are also increasingly located in emerging economies that are geographically and institutionally distant compounds the challenge of managing such relationships (Awaysheh and Klassen, 2010; Carter and Carter, 1998). Consequently, there is a need to develop a better understanding about why and how buying firms extend their reach deeper into the supply chain. We are particularly interested in buying firms' strategies and their underlying contingencies for managing sustainability in their multi-tier supply chains. The investigation of contingencies is important, as it provides the necessary context for managers to implement the right strategies in their specific situations. Furthermore, it allows researchers to develop, test, and refine theories (Boyd et al., 2012). Therefore, our research questions are as follows: *Which strategies do buying firms choose to manage sub-suppliers' sustainability in different supply chains? Which contingencies determine the choice of a particular strategy?*

As little is known about the actual practices firms use to manage their sub-suppliers' sustainability in different supply chains, our paper is explorative, with the aim of elaborating theory (Ketokivi and Choi, 2014). To this end, we study the sustainability strategies of four buying firms active in three different industries (food, apparel, and consumer electronics [CE]) in seven multi-tier supply chains (MSCs) and explore the contingencies involved in managing sub-suppliers. Our findings contribute to MSC theory (Tse and Tan, 2011), particularly in the context of sustainability. Multi-tier supply chains represent a helpful basis of analysis to study the challenges of extending sustainability to sub-suppliers (Grimm et al., 2014; Mena et al., 2014; Tachizawa and Yew Wong, 2014), as they constitute a middle ground by avoiding "some of the complexities of networks without the drawbacks of the dyad" (Mena et al., 2013: 59).

In the following, we will first discuss the relevant literature relating to our research questions. We will then detail the research methodology leading to the data analysis section that comprises an intra- and cross-case analysis. Subsequently, we will discuss our findings in light of existing research and develop research propositions. Finally, we will consider the study's limitations and recommend future research avenues.

2. Literature review

2.1. Strategies for extending sustainability to sub-suppliers

A growing body of research suggests that companies should expand their sustainability strategies beyond the boundaries of their firm to the supply chain level (e.g., Brockhaus et al., 2013; Carter and Jennings, 2002; Linton et al. 2007), including sub-suppliers (e.g., Choi and Linton, 2011; Tse and Tan, 2011). We follow the widespread understanding of sustainability as the explicit consideration of social, environmental, and economic issues, commonly referred to as the triple bottom line (Bansal, 2005; Dyllick and Hockerts, 2002; Elkington, 1997; Gimenez et al., 2012). Sustainable supply chain management therefore 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 and Müller, 2008: 1700).

However, it remains unclear how buying firms can implement sustainability standards and practices in light of the growing complexity of modern, globalized supply chains. As sustainability risks usually originate from minor, less visible suppliers (Plambeck et al., 2012; Roth et al., 2008) that are "sheltered" from the scrutiny of the general public (Lee et al., 2012), there is an increasing need to monitor sub-suppliers and incorporate the assessment of risks stemming from non-adherence to quality or sustainability standards into the supplier evaluation process (Tse and Tan, 2011). Such risks of supply chain glitches that have particularly low "visibility" for buying firms, such as environmental pollution due to manufacturing or the use of child labor, can nevertheless cause huge chain liability effects and result in a negative reputation.

Even though there is now agreement among supply chain management scholars that buying firms should manage sub-suppliers' sustainability (Grimm et al., 2014), there is still little understanding about how this can be achieved. Mena et al. (2013) were the first to differentiate between three strategies of extending sustainability to suppliers, resulting in different MSC structures. The "open" MSC is characterized by a structure with a linear flow of information and products and no direct connection between the buying firm and the T2 supplier. This can mean, for example, that the buyer delegates the authority for managing T2 suppliers to the T1 supplier (Choi and Hong, 2002; Wilhelm et al., 2016). In a "closed" MSC, the buying firm and the T2 supplier have established a mutual relationship that can be managed in a more formal or informal way. A "transitional" MSC establishes a middle ground and develops when the buying firm and the T2 supplier "stretch out to each other and begin building a link and initiating a move toward a 'closed MSC'" (Mena et al., 2013: 62). This structure can be found, for example, in the practice of "directed sourcing" in the automotive industry (Choi and Hong, 2002). Tachizawa and Yew Wong (2014): 651 later extended this typology to include "any lower-tier supplier (i.e., so not only the second tier)" and added two types: "work with third parties" (such as NGOs, government, competitors, etc.) and "don't bother" (when the buying firm has only an internal or first-tier supplier focus regarding sustainability). We will build on these typologies and will explore their contingencies in more depth, that is, we will explore the contexts in which these approaches are chosen (Sousa and Voss, 2008).

2.2. Contingencies for sustainable sub-supplier management

Despite the importance of the concept of managing sub-suppliers, we know little about which approaches buying firms are choosing in real life and the underlying contingencies of sustainable sub-supplier management. In the wider sustainable supply chain context—but not specifically with respect to MSCs—Awaysheh and Klassen (2010) provide initial cues indicating when firms are more likely to engage in sustainability management of their next-tier supplier.

Awaysheh and Klassen (2010) look at the influence of supply chain structure—operationalized as supply chain transparency, dependence between the firm and other members of the supply chain, and distance between supply chain members—on the lead firm's use of the supplier's social sustainability practices, such as audits and codes of conduct. Dependence represents the degree to which a firm relies on other members of the supply chain for critical resources, components, or capabilities, and influences a firm's ability to control and stimulate change in its suppliers' operations. There was only weak support for the hypothesis that dependence on a customer would lead to increased use of socially responsible practices by the focal firm; the effects of supplier dependence were unclear. Distance encompasses three sub-dimensions: geographical, cultural, and organizational distance. Organizational distance, measured by the total length of the supply chain, particularly results in firms making use of multiple suppliers which "translates into greater complexity and uncertainty" (Awaysheh and Klassen, 2010: 1260). Moreover, greater supply