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Customer pressure and innovativeness: Their role in sustainable supply chain management

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ABSTRACT

This work investigates how sustainable supply chain management develops within a company and evolves from internal to external practices. Specifically, the relationships among sustainable process management (internal practices), sustainable supply management (external practices), customer pressure and innovativeness are elaborated in a conceptual model, which is tested using a survey approach. Partial least squares (PLS) methodology is applied to data collected from a sample of 77 Italian manufacturing firms. Our results highlight that customer pressure and innovativeness positively and significantly affect SPM. We also observe that SPM fully mediates the relationships between such factors and SSM. Finally, innovativeness negatively and significantly moderates the effect customer pressure has on SPM. This study is relevant because it shows what driving and enabling factors influence the development of SSM, providing guidance for companies that wish to achieve further social and environmental improvements in their supply chains.

1. Introduction

Sustainability is a key issue for firms (MIT, 2009). Academic contributions on this topic have typically been limited to individual firms and how they should behave to limit their non-economic impacts. Recently, however, attention has focused on sustainable supply chains (Krause et al., 2009; Linton et al., 2007). The greater the extent to which companies rely on supply chains to source and manufacture, the greater the extent to which their environmental and social sustainability depends on their suppliers.

Sustainable supply chain management (SSCM) is far from being a novel subject, and hundreds of works have been published over the last decade highlighting the relevance of this topic (Ahi and Searcy, 2013; Carter and Rogers, 2008; Seuring and Muller, 2008; Srivastava, 2007). However, it remains unclear how SSCM develops within a company and evolves from internal to external practices as well as what driving and enabling factors influence this process. First, the literature recently identified two distinct groups of SSCM practices. Sustainable process management (SPM) comprises four environmental and social practices that are commonly employed without direct supplier involvement (e.g., EMS, Eco-design, Health and safety, social campaigns) (Gavronski et al., 2011; Zhu et al., 2012, 2013). Practices that include transactions with suppliers (e.g., sustainable supplier assessment and collaboration) are instead part of sustainable supply management (SSM) (Gavronski et al., 2011; Klassen and Vereecke, 2012; Large and Gimenez Thomsen, 2011; Vachon and Klassen, 2006). Research on the relationship between these two distinct groups of practices can be enriched as it remains unclear whether adopting SPM benefits SSM (Darnall et al., 2008; Gavronski et al., 2011; Klassen and Vachon, 2003; Meehan et al., 2006; Pagell and Wu, 2009; Zhu et al., 2012, 2013). Second, the literature does not provide conclusive results regarding the role that customer pressure plays in the development of sustainable supply chains. While certain authors consider customer requirements to be an important motivator for SPM practices (e.g., Ateş et al., 2011; Christmann, 2004; Deephouse and Heugens, 2009; González-Benito and González-Benito, 2006), the link between customer pressure and SSM practices has yet to be completely explored (e.g., Carter and Jennings, 2004; Ehrgott et al., 2011; Zhu et al., 2013). As it has been suggested that "a firm is only as sustainable as its suppliers" (Krause et al., 2009), the question becomes whether customers are able to drive companies towards the adoption of SSM (external practices). Third, in addition to other enablers, such as top management support and organisational commitment, Innovativeness or a company's willingness/ability to change processes, products and management systems, mainly through architectural/radical innovation, is frequently cited in the literature on sustainability (Christmann, 2000; Klassen and Vereecke, 2012, Nidumolu et al., 2009; Pagell and Wu, 2009; Porter and Van der Linde, 1995; Wu and Pagell, 2011). For instance, Porter and Van der Linde (1995) suggested

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that "ignorance" and "a static mind-set" prevent companies from understanding that environmental (and social) performance can be improved while reducing costs, thus constraining the development of SSCM practices. More recently, based on case data, Klassen and Vereecke (2012) suggested that innovation capability is becoming critical for the management of social issues in operations. This preliminary evidence call for further empirical investigation on the relationship between innovativeness and sustainability and on the role of the former in shaping organizational responses to social and environmental pressure.

Therefore, the aim of this study is to shed further light on the way SSCM develops within a company and evolves from internal to external practices, and we contribute to the literature by addressing the following research questions:

RQ1. To what extent does sustainable process management impact the development of sustainable supply management?

RQ2. To what extent do customers drive the development of sustainable process management and sustainable supply management?

RQ3. To what extent does innovativeness assist or sustain the development of sustainable process management and sustainable supply management? Does innovativeness affect a company's response to customer pressure?

To answer these research questions, this study develops and empirically tests a conceptual model linking sustainable supply management, sustainable process management, customer pressure and innovativeness. We argue that this research is relevant because it clarifies how SSCM develops and what driving and enabling factors influence this development, thereby providing the basis for further research. According to the World Bank (2003), the International Chamber Of Commerce (2007) and recent literature (e.g., Zhu et al., 2012), enhancing the understanding of how SSCM develops is critical for guiding companies to augment their ability to deliver further social and environmental improvements in their supply chains.

2. Background and hypothesis development

Drawing from the literature, in this section, we describe the constructs of interest (i.e., SPM, SSM, customer pressure, and innovativeness) and our conceptual model.

2.1. Sustainable supply chain management

Essentially, for companies, "sustainable development means adopting business strategies and activities that meet the needs of the enterprise and its stakeholders today [shareholders, customers, employees, suppliers, government and local communities] while protecting, sustaining and enhancing the human and natural resources that will be needed in the future" (International Institute for Sustainable Development (1992)). Increasingly, practitioners and researchers in different fields consider the implications that business sustainability has on traditional practices. Supply chain management (SCM) is one of these areas.

Since its introduction in the early 1980s, SCM has been used to describe the planning and control of materials, information flows, and the manufacturing and logistics activities coordinated internally within a company and externally between companies (Cooper et al., 1997; Gibson et al., 2005; Mentzer et al., 2001; Stock and Boyer, 2009). A key characteristic of SCM has always been the distinction between, and coordination of, internal and external practices. For example, supply chain management was described by many researchers (Harland, 1996; Harland et al., 1999; Tan, 2001) as managing business activities and relationships both internally within an organisation and externally with suppliers. The literature clearly demonstrates that the most successful manufacturers have carefully linked their internal processes to external suppliers (and customers) (Flynn et al., 2010; Frohlich and Westbrook, 2001).

Sustainability pressures have led to the emergence of Sustainable SCM (SSCM). While there is currently no consensus regarding its definition, SSCM is advocated as a new archetype for companies to meet stakeholder requirements and improve profitability and competitiveness while improving ecological efficiency and social responsibility in their supply chains (e.g., Ahi and Searcy, 2013; Zhu et al., 2005). Mirroring SCM, SSCM can be observed at the level of internal and external practices (Darnall et al., 2008; Gavronski et al., 2011; Meehan et al., 2006; Pagell and Wu, 2009; Zhu et al., 2012).

In line with previous published research (Gavronski et al., 2011; Zhu et al., 2012, 2013), SPM refers to a firm's institutionalisation of four environmental and social practices that are commonly employed without direct supplier involvement. This institutionalisation essentially includes environmental management systems (ISO 14001) (Daily and Huang, 2001; Darnall et al., 2008), environmentally friendly eco-design (e.g., Design for Environment, Life cycle assessment) (Zhu and Sarkis, 2004), health and safety certifications (Robson et al., 2007) and social campaigns (e.g., codes of conduct, corporate social activities) (Zairi and Peters, 2002). By undertaking SPM, companies develop a set environmental and social capabilities, defined as the set of physical, financial, human, technological and organisational resources coordinated by organisational routines and deployed within a company to improve its environmental and social performance (e.g., Gavronski et al., 2011).

According to several authors (e.g., Ageron et al., 2012; Awaysheh and Klassen, 2010; Gavronski, et al., 2011; Large and Gimenez Thomsen, 2011; Lee and Klassen, 2009; Zhu et al., 2012), SSM refers to two complementary sets of activities that are implemented at the firm level and require transaction with suppliers to assess and improve their environmental and social performance: supplier assessment and supplier collaboration. The first comprises those activities using markets or arm's-length transactions conducted by the buying organization to assess (and control) suppliers' sustainability performance (Gavronski et al., 2011; Klassen and Vereecke, 2012; Large and Gimenez Thomsen, 2011, Vachon and Klassen, 2006). Typical activities are establishing supplier assessment criteria, gathering and processing supplier information, and evaluating the environmental and social performance of suppliers. In contrast, the second consists of the direct involvement of the firm in its suppliers to build their capabilities to improve the environmental and social impacts of products and operations (i.e., supplier collaboration) (Gavronski et al., 2011; Klassen and Vereecke, 2012; Large and Gimenez Thomsen, 2011, Vachon and Klassen, 2006). Typically, supplier collaboration consists of activities such as undertaking joint development efforts for greener product design or process modification, reducing logistical waste, sponsoring supplier summits to encourage the sharing of sustainability information and the management of environmental and social risks.

Some studies indicate a link between internal and external environmental investments, suggesting that the latter fosters the former (Vachon and Klassen, 2008; Zhu et al., 2012). For instance, Zhu et al. (2012) argue that developing collaborative relationships with suppliers is favorable for the adoption and development of internal environmental technologies. That is, external green practices affect internal ones, which in turn, influence manufacturer performance. Although there is some merit in that causal claim, it opposes the findings of other studies in both the SCM literature (e.g., Flynn et al., 2010) and the SSCM literature (Gavronski et al.,