
Sustainable supply chain management capabilities: a review from the resource-based view, the dynamic capabilities and stakeholder theories

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Abstract: A semi-structured literature review was performed to understand sustainable supply chain management (SSCM) capabilities mainly from the perspectives of the resource-based view of the firm, dynamic capabilities view and stakeholder theory, including exploring their nature, origins and effects on firm performance. The capabilities construct remains scarce in the SSCM literature and literature reviews are almost non-existent. Particularly, the dynamic capability construct has barely been applied in the SSCM field. The nature of most SSCM capabilities studied to date is static and needs the support of organisational antecedents like supply management capabilities, strategic purchasing and corporate social and environmental proactivity, and is likely to positively impact firm performance. SSCM capabilities appear to be triggered not only by diverse pressures from external stakeholders, industry and markets, but also by internal factors independent of external sources.

Keywords: sustainable supply chain management; SSCM; responsible supply chain; supply chain management capabilities; green supply capabilities; organisational capabilities; social and environmental supply chain capabilities; dynamic capabilities; DCs; corporate responsibility; resource-based view; RBV; stakeholder theory; sustainable development.

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1 Introduction

The sustainable development concept¹ was introduced by the Brundtland Commission in 1987 as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (WCED, 1987). In the organisational context, corporate sustainability is defined as “meeting the needs of a firm’s direct and indirect stakeholders (such as shareholders, employees, clients, pressure groups, communities, etc.), without compromising its ability to meet the needs of future stakeholders as well” [Dyllick and Hockerts, (2002), p.131]. This concept is based on the logic that organisations and their supply chains, environment and society are not separate entities, but rather are mutually dependent, so that businesses cannot merely seek short-term profitability for shareholders at the expense of environmental damage and negative social effects (Paulraj, 2011; Wolf, 2011).

This study thus draws on the strategic management literature on capabilities and applies it to the context of sustainable supply chain management (SSCM) to understand the capabilities that are necessary to include sustainability into supply chain management (SCM). The research questions thus are formulated to understand these SCM capabilities holistically rather than focusing on analysis of a specific business or industry.

This paper intends to present work-in-progress on SSCM capabilities and will address the following research questions:

- 1 What are the organisational capabilities that firms adopt to implement sustainability initiatives within the SCM?
- 2 What are the organisational antecedents required to develop these capabilities?

The findings then are structured to discuss SSCM capabilities with a focus on its environmental and social dimensions and a theoretical background based on the resource-based view (RBV) of the firm, stakeholder theory (ST) and the dynamic capabilities view (DCV).

To help achieve these objectives, this paper first briefly reviews the concept of sustainable development and then defines SSCM. Next, it presents a background on the theoretical perspectives that guided our review. This is followed by selection and analysis of relevant papers on specific capabilities associated with SSCM (those dealing with environmental and/or social issues are included in the review). Capabilities are then examined, with a particular focus on their organisational antecedents, nature and effects on organisational performance. We then discuss the study findings, implications and limitations, as well as our suggestions, and conclude by summarising the findings and presenting directions for future research.

2 Study background

2.1 SSCM

The sustainable development concept was introduced by the Brundtland Commission in 1987 as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (WCED, 1987). In the organisational context, corporate sustainability is defined as “meeting the needs of a firm’s direct and indirect stakeholders (such as shareholders, employees, clients, pressure groups, communities, etc.), without compromising its ability to meet the needs of future stakeholders as well” (Dyllick and Hockerts, 2002, p.131). This concept is based on the logic that organisations and their supply chains, environment and society are not separate entities, but rather are mutually dependent, so that businesses cannot merely seek short-term profitability for shareholders at the expense of environmental damage and negative social effects (Paulraj, 2011; Wolf, 2011).

The pressures from various stakeholders amount to one specific challenge facing the business community today (Hall, 2000; Waddock et al., 2002; Aschehoug et al., 2012), and cause increasing surveillance of ethical, social and environmental performance across the product life cycle, and thus force the supply chain/network management of focal companies to transcend simple economics and incorporate sustainability in their strategy-formulating process (Andersen and Skjoett-Larsen, 2009; Boström et al., 2012; Aparecida Barbieri da Rosa et al., 2013).

That is why researchers and practitioners are increasingly concerned with the need to link the sustainable development concept with SCM and overall business strategies (Pirachicán-Mayorga et al., 2014). Here, “the systemic, strategic coordination of the traditional business functions and the tactics across these business functions within a particular company and across businesses within the supply chain” [Mentzer et al., (2001), p.18] is expanded to consider economic, environmental and social aspects considered throughout the entire supply chain and the entire product life cycle, from

design, production, transportation, distribution (including reverse logistics), to product use and end of life (Harms, 2011; Lee and Kashmanian, 2013; Linton et al., 2007).

This connection between SCM and sustainability has enabled scholars to study diverse sets of topics, such as SSCM (Stock et al., 2010; Min and Kim, 2012; Winter and Knemeyer, 2013), which is also becoming a promising research topic for Latin America (Jabbour and Jabbour, 2014). However, SSCM is also found in the literature with alternative names and definitions, such as green SCM or responsible chain management (de Bakker and Nijhof, 2002; Jabbour et al., 2013; Taticchi et al., 2013).

2.2 *The capability approach to SSCM*

Consensus exists among scholars and practitioners that companies and their supply chains must develop and apply specific organisational capabilities to face the challenges posed by sustainable development, and to respond to pressures from different stakeholders (de Bakker and Nijhof, 2002; Gavronski et al., 2011; Shi et al., 2012; Reuter et al., 2010; Sarkis et al., 2010; Sarkis, 2012; Vachon and Klassen, 2006). Following Hall et al. (2012), we believe that only given social and environmental pressures from stakeholders, will a company actively seek to develop sustainable supply chains.

Supply chains are usually understood from the perspective of a focal firm and its upstream and downstream inter-relationships (Miemczyk et al., 2012; Yakovieva et al., 2009). A focal company governs the tasks of other firms that belong to its supply chain/network, such as suppliers, designs its own products, and is either active in environmental or social aspects or has direct contact with customers (Seuring et al., 2005; Seuring, 2011). To understand the nature of the capabilities needed by the focal company, we rely on organisational theoretical perspectives from strategic management that will be addressed below.

The RBV of the firm assumes that companies are heterogeneous because of strategic resources they own or control, and that these resources are not perfectly mobile across firms because of four attributes:

- 1 value
- 2 rarity
- 3 being imperfectly imitable
- 4 exploitability by firm organisational processes.

These assumptions become sources of sustained competitive advantage (Barney and Clark, 2007).

The natural-resource-based view (NRBV) explains firm competitive advantage based on the connection between the emergence of societal demands for improved environmental performance and the deployment of firm resources to maintain three interconnected strategic capabilities in response to such demands, namely pollution prevention, product stewardship and sustainable development (Hart, 1995). Through stakeholder integration, the *voice of the environment* can be incorporated into the product design and development process (Hart and Dowell, 2011). However, as Hart and Dowell (2011, p.1469) have stated, the study of the factors that affect the ability of a firm to develop competitive advantage from product stewardship is less mature relative to the pollution prevention domain.

By capabilities we understand here a firm's capacity to deploy resources, usually in combination, using organisational processes, to generate a desired end (Amit and Schoemaker, 1993), which amounts to what the organisation actually does (Aguilar Zambrano and Hernández Romero, 2012).

Complementary, the relational view (RV) assumes that the idiosyncratic relationships between firms (e.g., inter-firm cooperation or collaboration) can lead to the acquisition or development of resources and capabilities, which in turn can become a source of relational rents and competitive advantage (Duschek, 2004; Dyer and Singh, 1998). In turn, ST explains the relationships businesses should seek to create with stakeholders to achieve organisation goals (Freeman et al., 2004). Banerjee et al. (2010) suggest that the instrumental perspective has prevailed in ST, and accordingly, firms respond to concerns of the interested parties because it becomes a source of business opportunities (Mitchell et al., 1997; Frooman, 1999; Kassinis, 2012).

Conversely, the DCV explains the ability of the firm to deal with rapidly changing environments (Helfat et al., 2007). The DCV emerged as a response to the static assumptions of RBV that were not appropriate to understand how firms could face the dynamism of their markets and the frequently changing demands of stakeholders (de Bakker and Nijhof, 2002). The seminal definition of the dynamic capabilities (DCs) construct was proposed by Teece et al. (1997, p.515), referred as to "the firm's ability to integrate, build, and reconfigure internal and external competencies to address rapidly changing environments". This definition puts the emphasis on DCs as managerial and organisational processes for altering the organisation's resource base to develop new strategies (Helfat et al., 2007).

The authors of this paper that believe that the application of theory is necessary to the maturation of a emergent field like SSCM, giving it support and scoping its domains and key issues. Another reason is given by de Lange (2010), who suggests that RBV and ST are two of the three² theories most frequently used to study sustainability in organisations, while Touboul et al. (2011) and de Lange (2010) suggest that these same theoretical lenses are the most used in SSCM theoretical articles and appropriate for investigating capabilities from a SSCM perspective.

3 Methodology

Most of the literature studied is from peer-reviewed journals, mainly in English, with a management focus and with empirical and conceptual content. We relied on databases such as Emerald, Wiley, Science Direct, JSTOR Business, EBSCO, and Scopus. The authors interrogated the databases searching for 'sustainable' OR 'sustainability' or 'green' or 'responsible' or 'reverse logistics' or 'social' and 'SCM' and 'capabilities' and 'ST', in the titles, abstracts and key words of papers published between 1990 and 2013. The criteria for selecting works since 1990 is associated with the origins of SSCM, which started with the incorporation of reverse logistics by the mid 1990s (Kim et al., 2014). Webster and Watson (2002) suggest to use the snowballing approach as alternative method to systematic review to find relevant literature, so the rest of the works were obtained by backward snowballing (from the reference lists) and forward snowballing (finding citations to the papers) and examined in line with research questions and a starting set of papers from leading journal in the SSCM area.

We expect a review of the literature on SSCM capabilities to identify relevant studies, but are also aware that the chosen methodology, which involves a non-systematic approach and search criteria, will inevitably result in some exclusions.

4 SSCM capabilities

SSCM capabilities are rooted in environmental management (Jabbour et al., 2013; Srivastava, 2007) and an important example is the seminal work of Hart (1995), which arose as an extension of the RBV that suggested firm competitive advantage was based on internal resources (Reuter et al., 2010). Building on the RBV, Hart (1995) proposed a new perspective called the NRBV of the firm. He argued that when a firm develops innovative and interconnected environmental strategies, these lead to the development of capabilities for SSCM, such as stakeholder integration, continuous improvement and shared vision.

The first strategy is named pollution prevention, and requires a continuous improvement capability. The second strategy is named product stewardship and requires the development of a capability called stakeholder integration. The third strategy is a shared vision for sustainable development, which requires a deep and long-term value-based commitment and collaborative relationships with various stakeholders to reduce firm environmental impact through low-impact technologies and products.

Sharma and Vredenburg (1998) later applied the RBV lens to suggest that the behaviour of firms responding proactively to the environmental impacts of their activities leads to the emergence of three capabilities that may be useful for SSCM:

- 1 external stakeholder integration capability
- 2 higher-order learning capability
- 3 continuous innovation capability.

Based on the RBV, Litz (1996) developed the social responsibility model, in which firm survival depends on the development of capabilities (built from resources owned and controlled by an enterprise) in response to stakeholder pressures. The first capability was named stakeholder perception. This was followed by second and third capabilities, in the form of ethical deliberation and issues management.

SSCM capabilities are also grounded in the SCM literature (Beske, 2012; Linton et al., 2007; Jabbour et al., 2013; Srivastava, 2007) and one of the first studies on SCM is referred by the model of Bowen et al. (2001). According to Bowen et al. (2001), supply management capabilities (SMC) comprise bundles of skills and resources (BSR). The model of Bowen et al. suggests:

- 1 that SCM require the previous development of corporate environmental proactivity and strategic purchasing and supply
- 2 that green supply capabilities (product-based green supply capability and greening supply process capability) originate in a firm's SCM, strategic purchasing and supply and environmental proactivity, and all these capabilities and resources are interconnected and become pre-requisites for SSCM strategy implementation

- 3 that the possession of strategic purchasing and supply capability is insufficient to implement a green supply approach.

Drawing on RBV and DCV (Teece, 2012; de Bakker and Nijhof, 2002) proposed a capability framework to respond to environmental and social stakeholder concerns. These authors named this framework 'responsible chain management' (RCM), in which management is important to capability building. According to this framework, a firm must develop the following capabilities:

- 1 interpretation
- 2 integration
- 3 monitoring
- 4 communication.

Similarly, based on the RBV, Marcus and Anderson (2006) investigated the organisational antecedents of two organisational capabilities in the retail food industry:

- 1 business capability of supply chain management (BCSCM)
- 2 social capability of environmental management (SCEM).

It is suggested that the first capability originates in a general dynamic capability (GDC), namely the ability of the firm to develop new competencies in response to the changing business environment (Teece et al., 1997). Regarding the second capability, GDC is necessary but insufficient, and the firm must include in its mission the demands of different stakeholders (corporate mission) and provide managers with technical assistance regarding social issues (technical assistance). Restated, something such as BCSSCM that leads to competitive advantage does not necessarily drive SCEM (de Lange, 2010).

Klassen and Vereecke (2012) proposed an integrative framework for the management of social issues in the supply chain, in which social responsibility, based on NRBV, comprises basic social management capabilities (SMC). SMC involves monitoring, collaboration and supply chain innovation. Monitoring and collaboration practices enable a company to manage its operational risk. Finally, collaborative practices and social innovation can improve performance in terms of market expansion, market preservation or supply chain cost reduction (Klassen and Vereecke, 2012).

Paulraj (2011) proposed a sustainable supply management (SSM) capability grounded within the RBV tradition whereby one of the firm-specific antecedents of SSM (supplier selection, environmental collaboration and supplier evaluation) is a proactive environmental approach and environmental sensitivity by top management. Another organisational antecedent for SSCM is the strategic purchasing function. The author also finds that SSM partially mediates the relationship between entrepreneurship and strategic purchasing (antecedents), and sustainability performance (economic, environmental and social).

Beske (2012) proposed a framework of DCs in SSCM in which the company is the focus of analysis. Accordingly, SSCM involves five interconnected dynamic capabilities:

- 1 knowledge assessment
- 2 supply chain partner development, which is the process through which a partner improves
- 3 co-evolution
- 4 reflexive supply chain control
- 5 supply chain re-conceptualisation.

The above capabilities have the following organisational antecedents that support their implementation:

- 1 sustainability orientation
- 2 supply chain continuity
- 3 risk management
- 4 pro-activity.

Finally, Beske (2012) suggested that these organisational antecedents could lead to at least temporary competitive advantage. According to these authors, the exploitation of dynamic capabilities in SSCM, if implemented sequentially, could transform temporary advantage into sustained competitive advantage.

Peters et al. (2011) discussed the implementation of proactive SSCM strategies based on the institutional and RBV literature. They suggested that six static capabilities are necessary to undertake voluntary sustainability initiatives:

- 1 external stakeholder integration
- 2 cross-functional integration
- 3 management of loosely coupled business
- 4 supply chain implementation
- 5 process improvement
- 6 cultural framing.

Similarly, grounded in the RBV, Gavronski et al. (2011) proposed a model for the development of green supply management (GSM) capabilities. Accordingly, these authors suggest that three green SCM capabilities exist:

- 1 supplier selection
- 2 supplier monitoring
- 3 supplier collaboration.

Before the implementation of the above capabilities, Gavronski et al. (2011) suggested that firms need green manufacturing capabilities that comprise firm internal environmental management practices (e.g., environmentally friendly design, life cycle analysis, ISO 14001, pollution prevention, top management support, cross-functional team work). In turn, green manufacturing capabilities would draw on the following plant resource antecedents (Gavronski et al., 2011):

- 1 internal knowledge exchange
- 2 external knowledge exchange,
- 3 top management commitment
- 4 environmental investments.

These plant resource antecedents are seen as capital expenditures that enhance plant environmental outcomes.

Shi et al. (2012) proposed a structural model of natural-resource-based green SCM and its relationships. They suggested that green SCM comprises two bundles of resource-capabilities:

- 1 causally ambiguous resources, or internal proactive environmental practices, intended to prevent pollution arising from firm processes
- 2 socially complex resources, or inter-organisational environmental practices (green purchasing, DfE and green distribution).

Shang et al. (2010) use RBV and NRBV to suggest the existence of green SCM capabilities, as follows:

- 1 green manufacturing and packaging
- 2 environmental participation
- 3 green marketing
- 4 green supplier
- 5 green stock
- 6 green eco-design.

With regard to firm performance arising from SSCM capabilities, the survey by Shang et al. (2010) suggests that firms can improve their performance by developing SSCM capabilities.

Based on RBV and ST, Black and Härtel (2003) proposed five interconnected corporate social responsiveness capabilities:

- 1 engagement of stakeholders
- 2 valued attuned public relations
- 3 dialogue
- 4 ethical business behaviour
- 5 accountability.

Seuring (2011) proposed a set of hypotheses that could suggest focal firm SCM capabilities for sustainable products:

- 1 assessment of the performance of focal firm products throughout their life cycle based on life cycle assessment methods
- 2 monitoring of the performance of key suppliers based on social and environmental criteria derived from life cycle assessment

- 3 communication and cooperation in relation to environmental and social issues with supply chain partners of the focal firm
- 4 a commitment by the focal firm to develop lean capabilities in their suppliers for SSCM.

Finally, Table 1 features some of the relevant constructs for a capability-based SSCM theory found in the extant literature.

Table 1 SSCM capabilities and their organisational antecedents

<i>Organisational SSCM capabilities</i>	<i>Organisational antecedents of SSCM capabilities</i>	<i>Author(s)</i>
Continuous improvement, stakeholder integration, shared vision	Cross-functional team work, firm management with a strong sense of social-environmental purpose	Hart (1995)
Stakeholder perception, ethical deliberation, issue management	Not specified	Litz (1996)
Stakeholder integration, higher-order learning, innovation	Environmental proactivity	Sharma and Vredenburg (1998)
Product-base green supply and greening of supply process	Supply management capabilities, strategic purchasing and supply and corporate environmental proactivity	Bowen et al. (2001)
Interpretation, integration, monitoring and communication	The role of managerial decision-makers in capability building	de Bakker and Nijhof (2002)
Stakeholder engagement, value oriented public relations, dialogue, ethical business behaviour and accountability	Not specified	Black and Härtel (2003)
Sustainable supply management (supplier selection, environmental collaboration and supplier evaluation)	Strategic purchasing (resource), environmental proclivity and top management sensitivity	Paulraj (2011)
Environmental selection of suppliers, environmental monitoring of suppliers and environmental collaboration with suppliers	Green manufacturing capabilities	Gavronski et al. (2011)
LCA supplier monitoring, supplier evaluation, supplier communication and cooperation (lean and green)	Not specified	Seuring (2011)
Monitoring, collaboration and social innovation	No specified	Klassen and Vereecke (2012)
External stakeholder integration, cross-functional integration, management of loosely coupled business units, supply chain implementation, process improvement and cultural framing	Not specified	Peters et al. (2011)

Source: Authors

Table 1 SSCM capabilities and their organisational antecedents (continued)

<i>Organisational SSCM capabilities</i>	<i>Organisational antecedents of SSCM capabilities</i>	<i>Author(s)</i>
Intra-organisational and inter-organisational environmental practices	Not specified	Shi et al. (2012)
Dynamic capabilities for: knowledge assessment, supply chain partner development, co-evolving, reflexive supply chain control and supply chain re-conceptualisation	Sustainability orientation in firm decision-making process and top management support for a supply chain strategy, supply chain continuity, risk management and proactivity	Beske (2012)

Source: Authors

5 Discussion

Similarly to what other authors have found (see Beske and Seuring, 2014; Zhu et al., 2012; Seuring, 2011; Sarkis, 2012), our review shows that the literature in the SSCM field is in the middle of a theory-building phase, where the foundations of a SSCM theory are being searched for in the field of management studies and even beyond it. For example, the process-centred focus in the optimisation of environmental factors has moved to include the entire supply chain of products (Seuring, 2004; Linton et al., 2007), which makes product stewardship (e.g., life cycle management) an area of study that can be closely linked to green SCM (Sarkis, 2012; Zhu and Sarkis, 2004).

In consequence, as it has been stated by Sarkis (2012), “the integration of environmental concerns within supply chain management has itself evolved into a separate and growing field...[where] theory and more complete understanding for this inchoate discipline are currently evolving”. Integrated systems-based frameworks have been proposed by several authors reviewed here (e.g., Carter and Rogers, 2008; Seuring, 2011; Sarkis, 2012; Shi et al., 2012) which rely on the representation of the boundaries and flows of a supply chain system to capture the activities and relationships demanded by green and/or social supply chains. As this review suggests, the inclusion of the sustainable development concept in SCM is complex and requires more research (Ambrosini et al., 2009; Beske, 2012; Teuteberg and Wittstruck, 2010).

Some studies on SSCM capabilities focused at the SCM level, while others focused on the supply side (e.g., dyad supplier relationships). This is probably because facing the challenges and complexity of a SSCM strategy requires the involvement of company supply chain and a diversity of other stakeholders to collaboratively solve the different problems faced by chain actors.

However, the purchasing approach (e.g., supplier selection, supplier assessment and supplier collaboration) or purchasing function (procurement or sourcing) remains a useful dimension in SSCM, as has been acknowledged by authors such as Green et al. (1996, 1998). Meanwhile, Carter and Carter (1998), and Ferrari et al. (2010) suggest that the purchasing function plays important roles like the management of all external resources, and hence can be used to achieve competitive advantage by ensuring the environmental/

social quality of the products or supply chain of the focal company, including not just immediate suppliers but also the suppliers of those suppliers.

Regarding sustainability dimensions, the reviewed literature on SSCM capabilities emphasised environmental aspects and neglected the social and human dimensions. Fertile ground thus appears to exist to join research efforts to highlight the antecedents and consequences of the management of social aspects across entire product life cycles or supply chains (Stock et al., 2010). It is beyond the scope of this review to include all sustainability dimensions. The economic dimension has traditionally been part of SCM, focusing as it does on aspects like cost minimisation or profit maximisation and service level (Lamming et al., 1999; Bouzon et al., 2012; Taticchi et al., 2013; Luthra et al., 2014; Varsei et al., 2014). Also, applying the same criteria as Kotzab et al. (2005), we assumed that the economic dimension is present, at least to some extent, in the reviewed literature on SSCM capabilities because of its origins lying in the strategic management literature.

On the nature of capabilities in SSCM, we first observe that capabilities are usually treated as static organisational capabilities. This may be due to researchers and practitioners continuing to see RBV as a very useful theory to explain SSCM capabilities in specific industry environments, yielding highly consistent findings across the strategy management domain (Barney and Clark, 2007; Hoskisson et al., 1999; Shang et al., 2010).

Within the RBV, SSCM can be seen from different perspectives:

- 1 a strategic management issue, whereby scholars continue to try to understand how firms developed specific SSCM capabilities to achieve competitive advantage
- 2 an evolution of traditional SCM and purchasing activities and corporate environmental/social management, with RBV partly explaining how this evolution fits to and can be integrated into overall firm business objectives (Touboulis et al., 2011).

The ST complements SSCM capabilities based on RBV and their extensions, providing guidance to identify the various stakeholders within or outside firm supply chains, and the importance from a business perspective of attending to their environmental and social concerns.

With regard to firm organisational antecedents of SSCM capabilities, we found the following firm-specific antecedents to stand out most:

- 1 Environmental proactivity, understood as voluntary actions beyond those necessary to comply with regulatory requirements that companies take to reduce the generation of waste, energy and toxic materials from their operations and products (Sharma and Vredenburg, 1998)
- 2 Top management support and commitment emerges as another important antecedent for building organisational capabilities, and as a driver of sustainability in the supply chain (Nagel, 2003). Top management commitment is understood here as resource allocation and deployment decisions necessary to effect change (Colwell and Joshi, 2013).

- 3 Another key antecedent is the purchasing function at a strategic level, which is referred to here as strategic purchasing and supply, a name borrowed from Bowen et al. (2001). This antecedent is understood as the strategic level of firm purchasing and supply activity.

The dynamic capability view (DCV) appears to have been little used in SSCM. For instance, DCV is not mentioned in the review of Touboulic et al. (2011) on theoretical perspectives on SSCM. Few studies applied DCV in the field of SSCM. This is probably because this perspective is less mature than RBV, yet because of the theoretical and practical importance of developing and applying DCV to explain firm competitive advantage in complex and dynamic environments, this approach has attracted extensive scholarly attention and remains important in strategic management research (Ambrosini et al, 2009; Ambrosini and Bowman, 2009).

Some scholars like Beske (2012) and de Bakker and Nijhof (2002) have seen that understanding of SSCM capabilities can be increased through an extension of the RBV, such as via the DCV. This may be a sign that SSCM remains an exploratory field, and nothing said to date is definitive. For example, the work of Beske (2012) and de Bakker and Nijhof (2002) is based on the idea that SSCM is a complex issue best understood by using other theoretical lenses like DCV, and is probably a tacit manifestation of the need to question the RBV theory, because it does not capture the effects on firm strategic position of rapid changes in markets and how firms in turn also shape those markets (Zollo and Winter, 2002; Helfat et al., 2007; Defee and Fugate, 2010).

Some of these antecedents suggested by Beske (2012) closely resemble those of static SSCM capabilities like environmental and social proactivity, top management support for a SCM strategy, long term social and environmental cooperative relationships with suppliers and customers, and environmental and social monitoring. Once these organisational antecedents are in place they become the micro-foundations (processes and routines) that support the dynamic capabilities for SSCM (Beske, 2012; Eisenhardt and Martin, 2000). These antecedents are observed in companies engaged in SSCM, and so once these practices are functioning, those companies can be said to become truly proactive and creative, both of which characterise companies involved in SSCM strategy (Beske, 2012). Conversely, the 'dynamic' aspect of de Bakker and Nijhof's (2002) capability assessment framework should be understood as a continual process, similar to the Deming cycle of plan-do-check-act, intended to maintain alignment with a volatile and rapidly changing firm environment, forcing companies to continually reconfigure their activities to respond to the changing desires of critical stakeholders (external and internal).

With regard to the influence of SSCM static capabilities on firm performance, it was expected that studies would find SSCM capabilities improve firm competitive advantage as a result of their incorporating the RBV characteristics given to resources and capabilities (valuable, rare, imperfectly imitable and non-replaceable). For example, because of the tacit knowledge involved in environmental and social process management capabilities (ESPMC), such capabilities become causally ambiguous, and hence difficult to imitate and a source of competitive advantage. Capabilities like stakeholder integration, social and environmental supplier selection, environmental and social monitoring and collaboration also become strategic since they require working closely with stakeholders such as customers and suppliers, which generates causally

ambiguous resources that are difficult to duplicate and hence a source of sustained competitive advantage.

Drawing from the literature in the management sciences as well as in other disciplines, we have organised the constructs and relationships discussed in this paper into a capability-based SSCM framework (see Figure 1). We believe that the nature of such a framework is *strategic* as it explains the foundations of a *successful* – in terms of leading to achieve social and environmental supply chain leadership – SSCM strategy.

Figure 1 A capability-based framework for a successful social and environmental supply chain strategy (see online version for colours)



Source: Authors

6 Conclusions

This study examined SSCM capabilities through a literature review, and its main findings are summarised below. The capabilities construct remains scarce in the SSCM literature, and literature reviews are almost non-existent. Particularly, the dynamic capability construct has barely been taken up in the SSCM field, and consequently the literature on SSCM static and dynamic capabilities remains inadequately reviewed, a finding that seems to coincide with the studies of Gold et al. (2010), Beske and Seuring (2014) and Beske (2012). This is also a signal that SSCM remains an emergent field of research, and moreover remains at the conceptual and exploratory stage, meaning no definite results have been obtained and thus further research is needed to reach consensus regarding rules and concepts.

From the traditional RBV perspective, most capabilities in SSCM studied to date are static and likely to positively impact firm performance results. SSCM capabilities appear to be triggered not only by diverse pressures from stakeholders, industry and markets but also by purely internal factors. We have found that SSCM capabilities originate or derive support from organisational antecedents. For example, social and environmental proactivity are associated with a social and environmental aspect, while a strategic level purchasing function is not. Thus, for firms to respond to sustainability concerns regarding their supply chains requires two interconnected and reinforcing types of capabilities:

- 1 internal or intra-organisational capabilities
- 2 relational or inter-organisational capabilities.

The first category comprises several capabilities found in the literature: intra-organisational environmental practices suggested by Shi et al. (2012), green manufacturing capabilities proposed by Gavronski et al. (2011), the social competency of environmental management discussed by Marcus and Anderson (2006), certain capabilities suggested by Peters et al. (2011) (cross-functional integration, management of loosely coupled business units and process improvement), the ethical deliberation capability and issues of management capability suggested by Litz (1996), the ethical business behaviour capability proposed by Black and Härtel (2003), and green manufacturing and packaging, environmental participation and green stock capabilities proposed by Shang et al. (2010).

The second category (i.e., relational capabilities) includes:

- 1 the stakeholder integration capability, which – drawing from ST – stresses the importance of identifying and understanding stakeholder demands, or the ‘voice of the environment’, represented by multiple perspectives, in particular by stakeholders with non-economic interests
- 2 the social and environmental supplier selection capability
- 3 the environmental and social monitoring capability
- 4 environmental and social collaboration capability.

7 Implications and limitations of this study and future research directions

7.1 Implications

From the perspectives of RBV, ST and DCV, our study has contributed to the research on sustainable supply chain by clarifying the nature and organisational antecedents of SSCM capabilities and their effects on firm performance. Besides, the research considered both the theoretical basis and empirical content of studies, and provided elements to conceptualise the SSCM capabilities construct. For practitioners, our research suggests that the incorporation of sustainability in supply chains is complex and difficult, and no universal formula exists for doing so. However, signals that can act as guides do exist, such as the need to develop idiosyncratic organisational capabilities, and the literature can help understand these signals, giving managers an opportunity to incorporate more information into their decision making.

7.2 Limitations

This research sought to gain insights into SSCM capabilities using a theoretical lens borrowed from the management field. However, the findings have limited generalisability, because the research was not based on a systematic literature review and the selected research literature comprised a mix of conceptual and empirical studies and was relatively scarce because of SSCM being a field in its infancy.

7.3 Future research

We consider that other theoretical lenses are required to develop shared knowledge and understanding of SSCM capabilities, as well as their key constructs and interrelationships. The right combinations of theories thus can also explain management decisions involving the incorporation of sustainability into SCM. More studies with a practical emphasis can illuminate SSCM capabilities as an emergent field and consider social aspects, which are more complex and less clear than ecological and economic issues (Shi et al., 2012).

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Notes

- 1 The SSCM literature uses the terms sustainability development interchangeably (e.g., Beske, 2012; Taticchi et al., 2013).
- 2 The other one is institutional theory.