Managing the Transition to Sustainable Supply Chain Management Practices
Evidence from Dutch leader firms in the Philippines

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Abstract
Governance literature identifies so called 'leader firms' as the directors of global value chains. But in what direction are they leading? Some leader firms actively try to make a transition towards sustainable supply chain practices, but how can this be assessed? Supply chain management literature provides fragmented insights into the antecedents of transition processes. They adopt a largely 'top-down', 'inside-out' perspective rather than (also) take a 'bottom-up' and 'outside-in' perspective in which the consequences for the business models of supplying firms at the bottom of the supply chain are rarely taken into account. This contribution develops a more integrated eclectic approach on sustainable supply business models. We conceptualize antecedents of change along consecutive stages of management that combines different supplier 'upgrading' approaches with different ways in which leader firms integrate suppliers in their purchasing strategies. We apply this model to the strategies of seven leading Dutch companies active in the Philippines.

Key words: SSCM, Dutch leader companies, Transition, sector effects

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INTRODUCTION: A MYOPIC MANAGEMENT AREA

Since the mid-1990s, the scientific attention for corporate social responsibility has developed in two directions: to more general questions of sustainability and value creation and to more specific questions on implementing sustainability strategies in the functional operations of firms. The literature on sustainable supply chain management (SSCM) provides an excellent example of the latter. The proliferation of global sourcing practices by Multinational Enterprises (MNEs) – combined with growing pressure of critical stakeholders (Andersen and Skjoett-Larsen 2009) - created a strong impetus for understanding the strategic antecedents of more sustainable supply chains that go beyond ethical attention triggered by events like child labour in apparel and commodity supply chains, health and safety violations, or deforestation. Most incidents are increasingly considered an indication of more structural and systemic problems. They create pressure for change also in the core character of the leader firm: its business model. Some lead companies are moving beyond supplier codes of conduct and trade-marks. As are international organisations such as the OECD, UN, EU and ISO that started to address more systemic problems by introducing extended guidelines for responsible business (van Tulder with van der Zwart 2006). Recent examples include the integration of the 'protect, respect and remedy framework' by John Ruggie, the special representative of the Secretary-General of the UN and the renewed OECD guidelines for multinational organisations (OECD 2011). The Global Reporting Initiative (GRI) reviewed their (self)reporting guidelines in 2013 and specified that companies should be particularly transparent on their supply chain activities and impact. In the Netherlands, a primer covenant on sustainable supply chains in the apparel industry was recently concluded in which industry organisations, trade unions and civil-society organisations participated under the tutelage of the Dutch government (SER 2016).

Governance initiatives seek to go beyond a company's direct operations and extend into the whole supply chain. They consider the overall effect of business on society and the environment (Maloni and Brown 2006; Ahi and Searcy 2013; Beske et al. 2014). Ruggie's framework e.g. introduces 'spheres of influence' - taking the view that the responsibility of firms involves primary, but also secondary stakeholders while dealing with a broad set of issues at the same time. Still, most regulation remains voluntary and based on relatively general principles that prove difficult to translate realistically to the actual core of corporate practices in a competitive environment. The question whether companies will actually be able to move ahead on the way towards more sustainable supply chains, therefore, still lays with the business models these companies themselves can and will implement - in cooperation, but also in competition with others. Most of the existing corporate initiatives should be framed as re-active 'risk management' and 'liability channelling' strategies, rather than as more active or pro-active 'sustainable' or 'responsible' supply chain strategies in which companies adopt a vision on what the whole value chain sh/could look like (cf. van Tulder et al. 2009; van Tulder et al. 2013). This requires also that "multiple entities across supply chains must be involved to efficiently and effectively fulfil these societal responsibilities.' (Winter and Knemeyer 2013:18). The question how managers can actually make/manage the transition towards really sustainable practices remains only vaguely addressed by this literature. Academic research remains largely prescriptive, anecdotal or based on case studies from purchasing

practice and only recently moved towards the development of more concrete and integrative business models for sustainable supply chains (ibid: 31). Regarding business models of lead firms a rather myopic top-down perspective exists.

This paper aims to contribute to broader insights on how to manage the transition to a more sustainable supply chain through a variety of lenses related to the business model of the leader firm. Firstly, by defining the gaps in the literature (section 2). Secondly, by combining insights from four established theoretical lenses of the supply management literature to add-up to a more integrated and dynamic approach to sustainable supply chains (section 3). The theoretical lenses will be complemented with three transition lenses: the compliance, the internal alignment and relational or external alignment perspective. Sustainable supply chain management practices develop under the influence of these three forces. They result in different (top-down) business models with different approaches to supply chain management with different (bottom-up) opportunities for suppliers along the supply chain. In section 4, the paper specifies a checklist of four archetypical business models that define different management 'logics' as well as different stages of SSCM. We provide a short test of this model by considering how seven frontrunner Dutch companies active in Philippines from various industries have been changing their SSCM strategies over the 2007-2013 period (section five). This enables first conclusions on the factors that enhance the transition to higher degrees of SSCM and areas for further research (section six).

1. TAKING STOCK OF THE LITERATURE

We performed a systematic search using the Scopus database on concepts that relate to sustainably managing supply chains. An initial review of the abstracts resulted in over 120 relevant articles that were analysed to distinguish definitions, strengths and weaknesses of the literature, relevant theories and practical implications and managerial suggestions. A snowball method was used to identify additionally important articles on the basis of citations, to ensure that all relevant and most recent articles were included (Table 1).

Level of analysis	Keywords	Results (# of accumulative hits)					
		2005	2007	2009	2011	2013	2015 (Aug)
Value chain: The chain or the upstream chain actors (farmers, suppliers in developing countries, etc.)	sustainable value chain management	0	0	0	0	0	2
	responsible value chain management	0	0	1	1	1	1
	ethical value chain management	0	0	0	0	0	0
	value chain responsibility	0	0	0	0	0	0
	sustainable value chain	2	2	3	5	15	25
	responsible value chain	0	0	1	2	3	3
	ethical value chain	0	0	0	1	1	1
	sustainable production network(s)	1	2	2	2	2	2
	responsible production network(s)	0	0	0	0	0	0

Level of analysis	Keywords	Results (# of accumulative hits)					
		2005	2007	2009	2011	2013	2015 (Aug)
	ethical production network(s)	0	0	0	0	0	0
Supply chain: The chain, from the perspective of the lead company	sustainable supply chain management	4	8	32	43	131	255
	responsible supply chain management	0	1	2	3	8	11
	ethical supply chain management	0	0	2	2	2	2
	sustainable chain management	3	3	3	3	3	4
	responsible chain management	1	2	2	2	2	2
	ethical chain management	0	0	0	0	0	0
	chain responsibility	3	8	14	14	20	27
	supply chain responsibility	1	5	7	7	13	19
The lead company	purchasing social responsibility	2	4	8	9	11	14
Purchasing/ procurement: The purchasing/ procurement function within a company or organisation	sustainable purchasing	0	0	2	3	11	19
	responsible purchasing	5	9	12	15	22	27
	ethical purchasing	2	4	5	8	9	14
	sustainable procurement	7	12	29	30	68	112
	responsible procurement	3	3	4	4	8	11
	ethical procurement	0	1	1	2	4	5
	sustainable sourcing	0	2	6	9	22	30
	responsible sourcing	5	9	13	25	28	32
	ethical sourcing	15	19	26	34	42	53
Non disclosure	sustainable offshoring	0	0	0	0	0	0
	responsible offshoring	0	0	0	0	0	0
	ethical offshoring	0	0	0	0	0	0

Table 1 - Accumulated Key Word Search 1990 - 2015

It has already been concluded earlier: extant literature is not very coherent. Different authors use different terminologies for more or less the same phenomenon: green supply chain (Bowen et al. 2001; Mollenkopf et al. 2010), life-cycle assessment (Seuring 2004), reverse logistics (Stock 1998), supply chain sustainability (Dyllick and Hockerts 2002), triple-bottom line (Elkington 1998), ethical sourcing (Preus 2009; Roberts 2003). (e.g. Andersen and Skjoett-Larsen 2009; Pagell et al. 2010; Seuring 2011; Miemczyk et al. 2012). Authors also put forward alternative terms for incorporating sustainability into management activities such as (supply) chain responsibility (Cramer 2008; Spence and Bourlakis 2009; van Tulder et al. 2009), socially responsible purchasing (Worthington 2009; Leire and Mont 2010), socially responsible buying (Maignan et al. 2002; Park and Stoel 2005), purchasing social responsibility (Carter 2005; Maloni and Brown 2006; Björklund 2010) and sustainable procurement (Walker and Brammer 2009; Meehan and Bryde 2011). By far the most popular concept used by authors and managers alike, however, proves that of "sustainable supply chain management" (SSCM). Conceptually, this implies

that since 2010 the attention is moving from one primarily on the (responsible) procurement function of companies to the whole supply chain. The benchmark for success should therefore logically become not only the performance of the individual (leader) firm, but that of all actors in the supply chain in all areas of sustainability. Most literature, however, focusses primarily on ecological issues, much less on social issues and even less on the economic and business model dimension of sustainability.

So the question becomes increasingly relevant at what level of analysis, the supply chain is taken into account. This corroborates the definition of the Supply Chain Council (2002) in which a supply chain encompasses every effort involved in producing and delivering a final product from the supplier's supplier to the customer's customer (in Chen and Paulraj, 2004). Supply chain management should be defined as the planning and control of materials and information flows as well as the logistics activities not only internally within a company but also externally between companies (Chen and Paulraj 2004:119-120). Sustainable supply chain management (SSCM) refers to incorporating sustainability aspects in this type of supply chain management. Ahi and Searcy (2013) found nevertheless twelve different definitions of sustainable supply chain management, all of which includes an economic, environmental and social focus. Several scholars use the standard sustainability definition based on Elkington's triple bottom line (people, planet and profit) and apply it to general supply chain management, resulting in a sec 'add-on' approach where SSCM is supply chain management, made sustainable (Pagell and Wu 2009; Ciliberti et al. 2008; Font et al. 2008; Svensson 2007). Other definitions take a more holistic approach, looking beyond the management of supply from the lead company to the entire supply chain, the flow of goods and services and the role of supply chain and stakeholder relations. (Ahi and Searcy 2013; Seuring and Müller 2008; Courville 2003; Bowen et al. 2001) Lastly, some authors use a more goal-oriented definition stressing the results of implementing SSCM and highlighting the long-term focus of sustainability in general and sustainable supply chain management specifically (Ahi and Searcy 2013; Carter and Rogers 2008; Pagell et al. 2010; Vurro et al. 2009). In this paper we stick to the most quoted definition of SSCM as "the management of material and information flows as well as cooperation among companies along the supply chain while taking goals from all three dimensions of sustainable development, i.e. economic, environmental and social, into account" (Seuring and Müller 2008:1700).

Between 2008 and 2014, nine systematic literature reviews on sustainable supply chain management were published that provide detailed insight into the state of the literature and its strengths and weaknesses (Seuring and Müller 2008; Carter and Easton 2011; Brammer et al. 2011; Hassini et al. 2012; Miemczyk, et al. 2012; Winter and Knemeyer 2013; Ahi and Searcy 2013; Brandenburg et al. 2014; Beske et al. 2014). Most studies conclude that the topic of SSCM is gaining ground in supply management studies, but that the aim of most articles is general theory development (Carter and Rogers 2008; Pagell and Wu 2009), "best practice" identification, and the models and metrics related to that (Seuring 2013; Gupta et al. 2013; Searcy 2014; Kaur 2014). Weaknesses of extant studies are: (1) the (lead) purchasing firm is the sole unit of analysis, (2) there is no clear notion of what sustainability is within the whole supply chain, whereas (3) most authors take the 'why' of sustainable supply chain management as a given. Methodological weaknesses are (4) the (single) case based character of the majority of the studies and the lack of large sample,

longitudinal studies. As a consequence (5) studies do not provide much insight into transitions processes of sustainable supply chain management.

2. A DYNAMIC ECLECTIC APPROACH TO SUSTAINABLE SUPPLY CHAIN MANAGEMENT

We sought to deal with these gaps in the literature through a two-step approach: first by specifying the most relevant theoretical foundations to understand why companies would like to develop more sustainable management practices – as identified in the literature - and secondly by specifying the relevant stages through which these foundations would materialize. The eclectic nature of our approach implies that we build upon the strength of the extant literature, but try to compensate for its weaknesses and gaps. Four leading theoretical foundations of the supply chain management literature are selected for this exercise: the resource based view of the firm, stakeholder theory, global value chain governance and transaction cost economics. Most of these approaches are relatively static and unrelated to sustainability issues. But taken together, they can be used for a more dynamic perspective to explain why companies would want to develop more sustainable behaviour in their supply chains over time. The three selected dynamic lenses are: compliance, internal alignment and external alignment.

2.1 Recombining four theoretical approaches
Resource-based view. In the resource-based view of the firm (RBV) firms obtain sustainable competitive advantage by selecting those resources that can improve efficiency and effectiveness (Barney 1991). The supply chain can function as such a resource because the limited transparency and the transaction and switching costs involved may make it hard for competitors to copy. The RBV is considered to be a resource-side strategy that looks in particular upstream along the supply chain and inside the firm to build explanations of value capture by firms (Priem and Swink 2012). Adding sustainability to that context makes it even more difficult to imitate and thus more valuable, positively impacting supplier performance and reducing operating costs (Carter 2005; Carter and Rogers 2008; Gold et al. 2010; Pagell et al. 2010; Heikkurinen and Forsman-Hugg 2011; Golicic and Smith 2013).

Stakeholder theory. Definitions of sustainable supply chain management almost always include stakeholder involvement. Stakeholder theory introduces the idea that businesses are responsible for various stakeholders and firms respond to claims of the stakeholders as an attempt to legitimize its existence (Freeman 1984 in Park-Poaps and Rees 2010:308). Important in this regard is the stakeholders' power and legitimacy to claim for example sustainability standards and create a sense of urgency. Consequently, stakeholders cannot only stimulate firms to integrate sustainability in their supply chains (Russo and Perrini 2010; Wolf 2011), but their attitude towards firms can also provide a license to operate through which they can receive room of manoeuvre to implement and experiment with more active transition trajectories (Searcy 2014).

Global value chain governance. The definition of sustainable supply chain management points to the inter-organizational relations between supply chain actors and globalization has triggered new views on the boundaries and responsibilities of

the firm (Boström et al. 2014). Governance of the supply chain is an important dimension of the efficient and effective management of the supply chain. For example, Kraljic's purchasing model brings forward four categories of purchases to determine the level of control a company should have over its suppliers (Kraljic 1993 in Pagell et al. 2010; Krause et al. 2009). Each of these categories necessitates a distinct purchasing strategy (Pagell et al. 2010:59). In addition, Gereffi et al. (2005) introduce five types of value chain governance, linked to five different chain interactions and power relations (such as market-based, modular and the like) which impact upon the nature and content of linkages and coordination between actors in the supply chain. They find three factors that determine the type of value chain governance used: 1) the complexity of transactions, 2) the ability to codify transactions and 3) the capabilities in the supply base. Lately, literature has evolved to understand the characteristics and implications of globalized supply chains and their governance. A distinction can be made between governance in chains, of chains and through chains (Bush et al. 2014). Supply chain governance is inherently multi-institutional (Boström et al. 2014).

Transaction cost economics (TCE) examines economic organization through the lens of contracts. The make-or-buy decision is the paradigm transaction. Any issue that arises as, or can be reformulated as a contracting problem, can be examined in TCE terms of supply chain management (Williamson 2008). Transaction cost strongly influence the implementation of sustainability in a supply chains. This relates for instance to the introduction of sustainability standards, which incur costs to both sides of the value chain, but also create opportunities to move into higher levels of sustainability through lock-in effects. To lower transaction costs, firms that use sustainable supply chain management practices can shift from an arm's length to a more relational exchange with their suppliers. This increases trust and lowers the need to monitor (Williamson 1993; Gereffi et al. 2005; Carter and Rogers 2008; Pagell et al. 2010; Rota et al. 2013; Perry and Towers 2013).

Obviously, TCE and supply chain governance are closely related since they focus on the coordination of the supply chain and the search for effectiveness in managing the supply chain (McIvor 2013). TCE addresses the risk and cost reduction of sustainable supply chain management (Wever et al. 2012), while supply chain governance can be used to manage risks, but also seize opportunities. The stakeholder and governance approach, furthermore, adds dynamics to the model by focussing on the changing relationship with external parties inside and outside the value chain. They also add the potential to move beyond SSCM as primarily risk and reputation management, which still prevails in most SSCM practices.

2.2 Creating a dynamic perspective

In a dynamic perspective each of these four theoretical foundations will probably be influential to varying degrees. What are the triggers for change that put the managerial emphasis with a particular combination of the above four perspectives? Authors that studied relevant practices on how to implement SSCM suggest that this question can best be organized by focusing on the specific unit of analysis adopted: (1) as a compliance challenge for buying/lead firm in which the lead firm acts as main unit of analysis; (2) as internal alignment challenge in which the company's processes and procedures become the main units of analysis, or (3) as an external alignment challenge in which the buyer-supplier relationship is adopted as level of analysis.

Extant research (Table 1) is particularly focused on dimensions 1 and 3, but in a static and relatively prescriptive manner. For this paper, we are particularly interested in the managerial suggestions stemming from each of these perspectives.

Compliance: in the compliance perspective of SSCM, studies have focused primarily on the activities of supply chain managers in the relation with suppliers targeting supplier codes of conduct, supply or supplier criteria and supplier requirements. Based on internal decisions with regards to sustainability or inspired by the codes developed by international organisations (Spence and Bourlakis 2009) firms require suppliers to live up to the same standards (Björklund 2010). This depends on the diversity and complexity of the product chain, the power of the company in the chain and the level of ambition of the strategy (Cramer 2008). Compliance strategies are grounded in risk management and the fear of reputation losses in case of lacking sustainability (Seuring and Müller 2008). Environmental and social criteria are taken up to complement economically based supplier evaluations, in which supply chain managers translate internal codes of conduct into purchasing criteria (Leire and Mont 2010) and/or include sustainability as an additional key performance criterion in Kraljic's purchasing portfolio (Krause et al. 2009).

The compliance perspective is most closely related to general supply chain management strategies adopted by lead firms. It departs from the buyer's firm perspective and assumes that a company can set the rules of the game by imposing its internal sustainability approach on its suppliers. Transaction cost economics forms a dominant theoretical basis of this perspective, while practitioners are also advised to stay close to what they know (core capabilities), help them to manage risks and allow companies to stay in control. International sustainability frameworks such as ISO 26000 and the Global Reporting Initiative (GRI) add to this compliance perspective by assuming that the lead firm can control sustainability issues and mitigate sustainability risks – in interaction with a selected group of stakeholders - , even if they are happening elsewhere in the supply chain. Compliance strategies include other supply chain actors as well, which define the extent to which not only risks are managed, but also opportunities are created and seized. Several authors have pointed to the limited effect of code of conduct to generate real change (Barrientos and Smith 2007; Egels-Zandén and Lindholm 2014). A recent study, focusing on one specific certification scheme for instance showed that codes and its necessary audits are unable to identify all aspects of non-compliance, which is "explained by either an illusion of improvement, with actors focusing on corrected non-compliances rather than the new non-compliances that emerge in parallel, and/or pre-first-audit improvements and/or that codes mitigate overall compliance decline" (Egels-Zandén and Lindholm, 2014:22).

Internal alignment. The internal alignment perspective connects the final user with the primary supplier (Foerstl et al. 2014). Literature on internal alignment (or CSR in general) strategies provides both organisational suggestions as well as managerial prerequisites to enhance sustainable supply chain management within the organisation. Van Tulder et al. (2013) followed twenty frontrunner companies and describe how organisations can realise a sustainable business model in general. They argue that a large number of functional departments need to be aligned along a common understanding and common goals. The purchasing department is thereby one of the key departments that plays an important role in creating a sustainable

enterprise. In order to employ sustainable supply chain management, sustainability has to be embedded in the entire organisation and needs specific endorsement from lead procurers and top management in order to be effective (Andersen and Skjoett-Larsen 2009; Wittstruck and Teuteberg 2011). Implementing sustainable supply chain management starts with developing internal policies and setting purchasing criteria. Next, a company moves to applying assurance policies, managing supply relations and building internal responsible purchasing capacity (Leire and Mont 2010). Interestingly, it has been found that HRM policies can have an important function in aligning the purchasing department with other department by stimulating sustainability activities between employees (Cantor et al. 2012) Supply chain managers, furthermore, need specific managerial capabilities to realise effective sustainable supply chain management. From a study of 47 business-to-business companies, Mariadoss et al. (2011) posit that, in addition to practical capabilities, supply chain managers need to understand sustainability in order to manage a supply chain in a sustainable manner. Carter and Rogers (2008) conclude thereby that most supply chain managers still see sustainability mainly as primarily environmental management with limited reference to the economic and social dimensions of sustainability. The internal perspective provides the basis for sustainable supply chain management transition processes from an inside-in perspective. It shows the vital position of the purchasing department in the general sustainability strategy of a company, but the literature has hardly been able to link internal change processes to external stakeholder relations and/or possible governance structures.

Relational perspective: external alignment. When studies adopt a more interactive approach (inside-out; outside-in) they tend to look at the supply chain in terms of dynamic buyer-supplier relationships in which both parties becoming mutually dependent. For instance the supplier codes of conduct can be used to ensure that suppliers live up to the set standard, which represents a control perspective. But the audit results are fed back into the supply chain relations, leading to improved performance of the supplier as well as the buyer firm. This creates a buyer-supplier relationship that consists of a multiple loop process driven by reiterating actions such as internal and external audits, stakeholder dialogues and supplier ratings (Teuscher et al. 2006). Brammer et al. (2011) propose a similar process where supplier development becomes an integral part of the sustainable supply chain management process. Wittstruck and Teuteberg (2011) conclude that all companies within a network benefit from companies that exchange relevant SSCM information and technology with their supply chain partners. Green or sustainable supplier development focuses on knowledge transfer and communication, investment and resource transfer and management and organization practices in order to develop supplier capabilities (Trapp and Sarkis 2016). Others encourage firms in supply chains to work together on their strategic corporate responsibility, in which they consequently can create a much larger and more valuable market than they ever could by working individually. These 'inter-firm resources and capabilities' emerging from supply chain wide collaboration are prone to become sources of sustained inter-firm competitive advantage. Since they are socially complex, causally ambiguous and historically grown, they are difficult to imitate by competitors (Heikkurinen and Forsman-Hugg 2011; Gold et al. 2010:230). Perry and Towers (2013) highlight the concept of trust between supply chain actors. It enables buyers and suppliers to share confidential information, invest in understanding each other's business and customise their products and processes. Better cooperation, coordination and collaboration

between supply chain partners can contribute to the effectiveness and the sustainability of the supply chain. Vermeulen and Seuring (2009) thereby point to emerging supply chain governance practices. The joint product sector approach and the cross sector approaches suggest firms within a supply chain to cooperate to improve the sustainability of their supply chain. Pagel and Wu (2009) looked at ten exemplar companies to develop a sustainable supply chain model. They conclude that for supply chains to become more sustainable it needs to be clear who is part of the chain, the chain needs to be efficient and effective and most importantly, supply chain partners need to maintain a conversation with each other. They stress that environmental and social outcomes cannot be afterthoughts of areas of occasional focus; they need to be interwoven into how an organisation makes money (ibid).

The relational literature on supply chains has also focused much more on the actual behaviour of the upstream actors, such as farmers and small-holders. A particularly interesting measure of sustainability for supply chains introduced in the literature is whether inclusion in global (commodity) chains leads to 'upgrading' possibilities for firms and farmers at the bottom of the chain. Schmitz and Knorringa (2000: 181) define economic upgrading as "means enhancing the relative competitive position of a firm". Sustainable upgrading would add social and environmental dimensions to this definition. The business model that relates to economic and sustainable upgrading contains five types of 'upgrading' (Humphrey and Schmitz 2002; Barrientos et al. 2008; Van Tulder, 2010; Humphrey, 2014):

- *Process upgrading*: transforming inputs into outputs more efficiently by reorganising the production system or introducing superior technology
- *Product upgrading*: moving into more sophisticated product lines (which can be defined in terms of increased unit values)
- *Functional upgrading*: acquiring new functions (or abandoning existing functions) to increase the overall skill content of activities
- *Inter-sectoral upgrading*: firms of clusters move into new productive activities (diversification)
- *Social and ecological upgrading:* enhancing the capabilities and entitlements of workers as social actors, and enhances the quality of their employment and their environment.

The first three dimensions relate to the existing supply chain (and vertical governance relationships), the last two dimensions relate to a much broader (horizontal) and networking perspective of supply chains. Suppliers can achieve a more sustainable competitive position in a supply chain in case they do not become too locked-in into one value chain and one lead company through means of diversification and social upgrading. The various combinations of upgrading measures alter the supply chain and provide different conditions under which sustainability of the whole supply chain can be enhanced. This perspective takes an inclusive approach and is based on the governance of the chain, stakeholder theory and the resource-based view of the firm. The degree of sustainability in supply chains from the perspective of upstream actors then can be related to the degree of 'inclusiveness' of them. Their position in supply chains does not only become one of suppliers, but also of buyers. In economic geography the sustainability of the supply chain is then measured as the transition from a linear supply chain (globally integrated) to a circular supply chain (locally embedded). The benchmark of sustainability in this relational perspective relates to

how local suppliers can find a balance between horizontal and vertical governance measures, between competitiveness and inclusiveness.

In combining the relevant insights from sustainable supply chain management literature regarding theoretical foundations and transition dynamics (Table 2), we can conclude that the dominant perspective of resource based and transaction cost economics has resulted in a strong emphasis on compliance-based arguments in the SSCM literature. In case stakeholders are involved these are primarily included as activists and governance mechanisms are largely aimed at managing risk and reputation effects. The literature is strongly biased towards SSCM as a defensive/reactive approach towards external societal pressure. Both internal- and external alignment literature is much less pronounced and developed. In case of internal alignment strategies the resource based view, however, provides interesting reference points, whereas for external alignment questions most literature relates to stakeholder theory. In most cases, however, this literature is relatively case based, prescriptive and static.

Theoretical foundations	Transition dynamics		
	Compliance	Internal alignment	Relational – external alignment
Resource Based view	+++	++++	++
Transaction costs	++++	+	+
Stakeholder	++	-	++++
Value chain governance	++	-	++

Table 2 - Combining theoretical foundations and transition dynamics

3. THE TRANSITION TO A SUSTAINABLE SUPPLY CHAIN

The three perspectives and four theoretical foundations of sustainable supply chain management can be portrayed as different stages companies go through in their development of (more) sustainable supply chain management. The transition to a sustainable supply chain requires the identification of a large number of barriers – and the way they can be overcome. The literature on SSCM offers only limited suggestions on how to manage the transition to a *more* sustainable supply chain, other than the more general literature on corporate responsibility which is much clearer about different stages and related business models. In general four types of business models can be distinguished, ranging from a limited approach, where sustainability activities contribute to economic success, to an extended approach, where sustainability is fully integrated in companies' strategies and aimed at systemic change. Authors have framed the stages differently, but the general idea of the different kinds of CSR business models overlap and boil down to three stages (van Tulder et al. 2013).

In the first transition from an inactive to a reactive business model company strategies start to focus on risk avoidance. Companies implement sustainability in their company to abide to (voluntary) national and international rules and regulations, such as (sector) codes of conducts and ISO norms. This way companies feel protected from external critique. When moving to an active business model companies internalizes external expectations on sustainability and CSR into the companies' activities. Companies recognize they have to respond to social and environmental concerns and provide an answer through their corporate strategy. Sustainability becomes part of the long-term strategy internally and partly externally. In the third transition to a pro-active business model, companies start integrating sustainability in their whole supply chain, while looking at creating positive impacts for the value chain as well as the related communities. Pro-active companies have to work together with different partners in this stage to establish the intended impact and create the institutional preconditions for actually facilitating the transition.

To move from one stage to another, companies need to overcome certain barriers, which can be done by both positive and negative incentives. Literature suggests specific types of impulses to move through the four stages identified above. To move from the first to the second stage companies need an external trigger, often related to a specific sustainability issue gaining attention, such as child labour in production locations or oil spills. When confronted with a specific sustainability problem companies resort to compliance behaviour, finding answers to alleged claims through complying with international norms. Martinuzzi and Krumay (2013) describe the second stage as 'avoid doing bad'. When sustainability related problems arise with companies that were only interested in the economic value of their sustainability activities, they move in response to the stage where they avoid doing bad. Van Tulder et al. (2013) identified this as a shift from an inactive to a reactive attitude. A compliance based reaction to an external trigger creates the realisation that companies can do more on CSR. This sparks internal evaluation of the activities and prepares them to move from the second to the third stage. The impulse that realises this shift is internal alignment. Martinuzzi and Krumay (2013) define the third stage as strategic CSR, or 'rethink your business'. Only when companies are intrinsically motivated to implement sustainability will they move beyond the compliance phase. This means that internal departments need to be aligned around a shared sustainability strategy. Van Tulder et al. (2013) identified this as a shift from a reactive to an active attitude. The last stage is reached through external alignment. Since the final phase requires companies to move beyond the own company and start creating positive impacts for society as a whole, it is necessary to align the company goals with society's goals. Hence, external alignment is necessary. The decision as to which issues to tackle depend on a materiality assessment, where the company's business model and future goals are aligned with the expectations and contributions of external stakeholders. This contains a shift from an active to a proactive attitude. (ibid)

The sustainable supply chain management literature acknowledges the role of external pressure, amongst which government, clients and other stakeholder, in order to ignite sustainable supply chain management practices. (Gold et al.2010; Foerstl et al. 2014) The compliance perspective results from a liability oriented attitude and is extrinsically motivated. As such this perspective is in line with the second stage or reactive approach. This perspective introduces qualitative features from external developments, generally for the sake of company reputation. Taking a closer look at

the literatures' description of best practices and managerial suggestions related to the compliance perspective there are a few characteristics that seem to encompass this perspective. SSCM within the compliance perspective is based on international standards and external stakeholder requirements. The focal company translates this input into a management system or a code of conduct, which suppliers have to comply with. Checks and balances of the code of conduct and management systems are realised through supervision, monitoring and reporting. Evaluation of the results is either acceptance of the supplier through continuation of the contract or rejection of suppliers that do not comply with the standards. (Björklund 2010; Egels-Zandén and Lindholm 2014; Searcy 2014)

Tipping points that can help purchasing departments to move beyond the compliance perspective is to focus on shared (chain) responsibility instead of chain liability (van Tulder et al. 2009). Another possibility is to change from a negative control oriented code of conduct to a positive change-oriented one (van Tulder et al. 2013).The internal perspective of sustainable supply chain management as introduced above can relate to the third stage or active phase, where a company is intrinsically motivated to implement sustainability. Some companies are only guided by diverting liability while others are searching for internal alignment. Van Tulder et al. (2013) identified a large number of tipping points that spark development of the purchasing department to more sustainability and help internal alignment. For example, if the purchasing department instead of being an isolated profit oriented department is closely connected with other departments and when a company moves from product oriented to process oriented purchasing. These tipping points create internal alignment to further develop sustainability within a company, but also within a chain. Taking a closer look at the literatures' description of best practices and managerial suggestions related to the internal alignment perspective there are a few characteristics that encompass this perspective. Sustainable supply chain management within the internal alignment perspective reflects the internal structure of the company and is linked to the overall (CSR) strategy. This (CSR) strategy is translated into specific supply chain management activities, leading to a further integration of CSR within the company. Integration and alignment is realised through assigning sustainability related tasks within the purchasing department and providing training and education for purchasers. Several authors point to the decisive factor of top management in realising this internal alignment (cf. Björklund 2010; Wittstruck and Teuteberg 2011; Luthra et al. 2015). Pagell and Shevchenko (2014) argue that internal alignment may make a focus on sustainable supply chain management obsolete, because all supply chain management will be aligned with the triple bottom line.

Lastly, the relational perspective focuses on shared responsibility within a wider sustainability context. As an antecedent for this perspective literature suggest a supply chain analysis focused on the wider supply chain scope of the focal company. This perspective is related to the fourth stage or pro-active approach, which stems from internal, strongly relational and moral considerations. This is about 'doing good'. To move towards this stage companies need to focus on external alignment. Changes related to this impulse in supply chain management can be sparked by moving from confrontation with stakeholder NGOs to cooperation on chain management themes, to change a simple sustainable purchasing policy to an organisational learning model with improved suppliers and lower costs and to change to integral optimisation of the entire supply chain (van Tulder et al., 2013). A closer look at the literatures'

description of best practices and managerial suggestions, proposes that sustainable supply chain management within the relational perspective is based on an analysis of the sustainability context within which a company operates, that spans beyond the border of the standard supply chain. Suggestions within this perspective do not address suppliers, but use 'partner' to describe the relationship between companies. Progress on sustainability is measured through dialogue and sharing information, know-how and product specificities. The relationships are long-term oriented and companies seek solutions together in case certain sustainability goals are not met. Lastly, within the relational perspective authors look beyond the classic approach to supply chain management and address new developments such as closed loop supply chain. The various tipping points also boil down to a different approach to the relationship with smaller suppliers in general and smallholders in specific (in case of commodity chains).

The main characteristics of the three perspectives are summarized in Table 3. When leader companies move from passive approaches towards increasingly more active business models they first have to adopt different generic supply chain management strategies in terms of supplier selection and general governance type. With these strategies come different locations of the responsibilities for sustainability with suppliers (inactive) to joint responsibilities and co-creation (proactive). When turning to more specific SSCM strategies, we distinguish between [a] general policy, [b] monitoring and follow-up and [c] supplier training and capability development. The indicators that are used for measuring these SSCM strategies have been developed by one of the authors for the VBDO[2] in its annual research on responsible supply chain management of a number of leading Dutch companies in the 2007-2013 period. The general policy dimension includes the importance the company attaches to a proper management of its supply chain and the extent to which it includes direct and indirect suppliers. In the latter case companies can be considered to take a more active approach to SSCM, specifically if this can be combined with a risk analysis that combines the countries that the supply chain involved and the sustainability issues that the company considers material. The policy dimension is indicative of some of the top-down dimensions, transaction costs and dynamic capabilities questions a lead company is confronted with when moving from one SSCM business model to another. The monitoring and follow up dimension considers in particular the governance and stakeholder dimension of SSCM strategies. It looks not only at the methods used by the company to monitor whether suppliers are compliant with the lead company's code of conduct, but also what happens in case of non-compliance and to the extent whether there is external – impartial - supervision on the SSCM strategy. Responses to non-compliance provide insight in the approach of the company towards SSCM. Some companies directly discard suppliers that do not comply, others allow suppliers to do make necessary changes and a third category companies cooperate with suppliers to better align the lead company's needs with the suppliers' reality. This is a part of the third dimension, Training and capacity building. This dimension looks at the kind of structured, adequately resourced, education concerning material sustainability issues, the company on a continuous basis provides to suppliers. In these activities we can judge what kind of upgrading activities the lead

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[2] Dutch Association of Investors for Sustainable Development (Vereniging van Beleggers voor Duurzame Ontwikkeling)

companies are actually trying to help suppliers with. The indicators for these three empirical dimensions are arguably relatively rough, but they provide a first indication of the kind of integrated SSCM policies implemented by lead companies. In case we can document these policies over time, we can also analyse transition trajectories.

Attitude→	Inactive	Reactive	Active	Pro-active
Tipping point	**[1] compliance→**	**[2] Internal alignment→**		**[3] External alignment**
Supplier selection	Strong competition between suppliers stimulated: multiple-sourcing	Strong selection of suppliers: multiple→ single sourcing (limit inefficiencies)	On the basis of their approach towards e.g. labor issues; single sourcing	On their ability to engage in sustainability issues (co-creation); single sourcing
Dominant Governance type	Markets (buyer driven)	Markets, captive or modular; supplier code of conduct	Modular/captive/ hierarchy	Relational, modular
Responsibility for sustainability	With suppliers	Suppliers should comply with codes of lead company	Buyers are in the lead (sphere of influence);	Joint responsibility; co-creation
[A] SSCM Policy	No policy	Policy based on international norms or company specific CoC	Policy based on international norms complemented by company mission and vision to go beyond	Policy focused on societal problems
[B] Monitoring and follow-up	Supplier self-assessment. No follow-up	Audits. Non-compliance results in termination of contract	Independent auditing/ third party verification. Constructive follow up	Joint capacity building
[C] Supplier training & (upgrading) capability development	Limited (process upgrading)	capabilities for suppliers on main process/ compliance with CoC (process/functional upgrading)	capabilities for buyers/sales (product/social upgrading)	capabilities for suppliers on general capabilities (allowing for horizontal upgrading: social and intersectoral)
	Chain liability		**Chain responsibility**	

Table 3 - Sustainable Supply Chain Business Models

4. APPLYING THE STAGES MODEL TO SSCM PRACTICES

As a first application of the stages model, we documented the SSCM practices of seven large frontrunner Dutch companies active in the Philippines (Table 4 and box). The companies share a presence in a wide range of industries (from construction and oil to telecommunication and food processing). Most of the companies are also considered to be 'leaders' in their industry regarding sustainability. What that implies however, in terms of sustainable supply chains – along the lines of the above analysis scheme – is open for debate. Relative leaders might still not be active or consistent in their approach, even when their intent is to become fully sustainable (cf. Van Tulder et al, 2014). All companies are part of as well as organize extensive supply chains. The documentation is based on annual VBDO rankings of 'responsible purchasing'. VBDO is a Dutch organisation aimed at responsible investment for which the first author of this paper compiled these ranking over a longer period of time. The rankings are available for a wider range of companies, that however are less or not present in the Philippines (VBDO, various years).

We reconfigured the scores for the years 20007 (the first year one of the authors was involved with the benchmark) until 2013 (the last year of a comparable benchmark) to the three SSCM dimensions of the stages model. The higher each company scores on each of these dimensions, the further the company has moved towards a proactive approach towards SSCM. The main sources of information for this research were annual (sustainability) reports. Thus, the level of transparency influences the positioning of companies along the change process. Transparency is however also an indication of the corporate stakeholder approach and reveals external characteristics and ambitions. Published sources provide a good first starting point for a comparative research, provided we concentrate on those indicators that reveal implemented rather than intended strategies.

Excerpt: Dutch lead company's activities in the Philippines

	Royal Ahold is an international retailing group based in the Netherlands and serving customers in particular in the United States and Europe. It occupies a position at the end of the value chain as a business-to-consumer company and has a low degree of vertical integration, but a high degree of horizontal diversification. The company sources its products from all over the world, including from the Philippines. The company is actively engage in CSR. In its 2011 CSR report Ahold provides specific information on sourcing (sustainable) seafood from the Philippines. The Philippines are part of Ahold's upstream (sourcing) strategy.
	Air France KLM became the largest European airline group in 2004, consisting of two airlines, and three businesses. The three core businesses are Passenger Business, Cargo and Engineering & Maintenance. It is horizontally specialised and has a relatively low degree of vertical integration. In the Philippines the company focuses on air travel, freight and ground handling services. The Philippines are part of AirFrance-KLM's upstream and a downstream (market oriented) strategy. The company is super sector leader in Dow Jones Sustainability Index (DJSI).
	Royal DSM is a global science-based company active in health, nutrition and materials. One of the ambitions of the company has always been fully vertical integration of its supply chain. It is actively searching for sustainability and is recognised as such, being the DJSI materials sector leader for many years. In the Philippines DSM has a subsidiary that focuses on the production of vitamins, carotenoids and other ingredients to the feed, food, pharmaceutical and personal care industries. For DSM, the Philippines primarily represent a downstream challenge.
	Royal Philips N.V. is an electronics company, focused on health and well-being. Within the Philippines the company focuses mainly on consumer, health and industrial electronics. The company is moving from a consumer-oriented approach to systems oriented approach in which sustainability is key. The company is super sector leader in the DJSI ranking for many years. It has a mixed value chain strategy (horizontal focus and vertical deintegration). For Philips, the Philippines are both integrated in the downstream and upstream strategy of the firm.

	The company motto in the Philippines is "improving Filipinos lives through meaningful innovations".
	Royal Dutch Shell plc, commonly known as Shell, is an Anglo-Dutch multinational oil and gas company headquartered in the Netherlands and incorporated in the United Kingdom. It is the second largest company in the world in turnover and one of the most international companies. As regards its sustainability stategy, the company is controversial - it was traditionally amongst the top 10% of the DJSI ranking, but was dropped of the ranking since 2010 because of its human rights record in Nigeria. Shell is present in the Philippines since 1914 fir only in refinery and sales, but since the 1970s also active in upstream activities as part of the country's effort to reduce its dependence on imported oil. In the Philippines Shell focuses on petroleum products, fuels and lubricants.
	TNT (Express) transports customers' goods and documents around the world, with a focus on time-definite and day-definite delivery. It integrates the whole value chain upstream and downstream as a logistics company. It has a record in sustainability, primarily in partnership with the World Food Programme. This partnership was however terminated in 2015. In the Philippines the company focuses on logistics and mail distribution. In 2016 the company was acquired by FedEx which will have consequences for its activities in the Philippines were the two companies competed (other than in the home European market).
	Unilever is a global leader in the production of food and personal care products. Unilever sources from the Philippines and sells a variety of its products in the country. Unilever is strongly dedicated to sustainability, being the leader on the DJSI in the food sector for 14 years in a row since 2000. On its own account, the company notes that it is "amongst the top 20 Tax Payers in the country, employing 1,800 people directly as well providing jobs for 10,000 people indirectly through its distributors and suppliers. Unilever is known to be one of the few companies in the industry that has succeeded in keeping the majority of its manufacturing based in the Philippines."

In general we can see a move towards more (re)active SSCM practices with these seven companies. The most reactive companies are those that are in politically sensitive and export oriented industries such as oil (Shell) in which the supply chain is largely extractive and exploitative. The most active companies are those that are embedded in the local economies, aimed at local as well as international markets in which suppliers – including smallholders – are not only suppliers, but also (potential) customers.

In 2007 Ahold did not spend much attention to sustainable supply chain management. The most important aspect of their value chain analysis was what the customer wanted and they were only interested in a small number of certified (Fair Trade or

MSC) products. In 2010, Ahold set global targets such as considering working conditions in, and the impact of private label products across the supply chain. In 2013, the company made progress in understanding where and how the private label products are produced, moving from a reactive to a more active position. Key themes with significant impact were selected: tea, coffee, cocoa, palm oil, soy and seafood. Ahold's approach to monitoring and follow-up was through BSCI audits, which is in line with a reactive approach. Limited information was provided on response to non-compliance or training for suppliers. Also, with Ahold's strategy the attention remains on private label products rather than on all products.

Air France KLM in its general SSCM policy moved backward from a relative advanced position in the same period, because its approach did not change much, whereas other companies caught up or applied more active strategies. Transition processes therefore can be understood as relative, reactive and not always linear and progressive.

TNT, and later TNT Express, is a transportation company that could be facilitator of sustainable supply chain management. In 2007 TNT acknowledged the importance of sustainability in its Business Code and requires its suppliers and subcontractors to uphold the same norms and values as stated in this Code. In 2013, TNT Express continued to develop its sustainability policy through the identification of the most material topics. TNT identified also material issues related to the supply chain management such as sustainable fleet, sustainable supply chain, training and awareness creation, certified management systems. The company does not reveal publicly any information on how they want to contribute to supplier capability development. This is evidence of a low priority given to these dimensions and thus a sustained inactive approach.

		Inactive	Reactive	Active	Proactive
[A] **Policy** - Supply chain analysis - Risk analysis - Inclusion of indirect suppliers	Ahold		2007→ →	2013	
	Air France KLM		2013 ← ←	2007	
	DSM		2007 →	→ →	2013
	Philips			2007 → 2013	
	Shell		2007← →2013		
	TNT (Express)		2007 →	2013	
	Unilever				2007 → 2013
B] **Monitoring & follow up** - Monitoring method - Competence of the supervising persons/institutions - Compliance - Response to non-compliance	Ahold	2007 → →	2013		
	Air France KLM	2007 → →	2013		
	DSM		2007 → →	2013	
	Philips		2007 → →	2013	
	Shell		2007 → 2013		
	TNT (Express)	2007 → →	2013		
	Unilever		2007 → →	2013	
[C] **Training for suppliers / Capacity building (upgrading)**	Ahold	2007 → 2013			
	Air France KLM	2007 → 2013			
	DSM	2007 → 2013			
	Philips		2007 →	→ →	2013
	Shell	2007 → 2013			
	TNT (Express)	2007 → 2013			
	Unilever		2007 → →	2013	

Table 4 - Changing Sustainable Supply Chain Management Practices of Dutch Lead Companies (2007-2013)

Greater changes in the SSCM strategies of companies can be witnessed with those companies that produce systems and/or are more embedded in the local economies. In 2007, DSM revealed very limited activity in its sustainability approach in general and its SSCM strategy in specific. The company was in a start-up phase of a transition towards more sustainability. DSM adopted a new strategy and more encompassing strategy in 2010 (VBDO, 2013) in which sustainability became an integral part. The company's dialogue(s) with its stakeholders helped to identify the needs and topics that are material such as hidden hunger, biobased economy and sustainable value chains. DSM started to state the need to cooperate closely with suppliers in order to make its value chain more sustainable. This has not materialized in specific their approach to training and upgrading and capacity building activities with their suppliers, though. But it can be expected that the company will have to scale up its

supplier strategy, certainly if it wants to include direct suppliers in its open source and open innovation strategy. How this then can be operationalized will become part of stakeholder interactions, some of which can be done locally in the Philippines for instance. Whether this is the case already requires further research.

In 2007 Unilever was the only company within the benchmark research sample that explicitly addressed global sustainability issues in relation to its supply chain management. This approach was at first translated in a company specific code. In 2013 this policy developed into a more active approach regarding monitoring, follow-up and capacity building. Unilever made several tools available to its suppliers in order to educate them on best choices regarding sustainability, one of them being the Cool Farm Tool[3], an online greenhouse gas calculator. But the complexity and extensive nature of the supply chain of Unilever, including many smallholder companies makes it relatively hard to implement this as an all-encompassing approach towards product and social upgrading with its suppliers. To our knowledge Unilever also has not yet developed models for helping suppliers to engage in horizontal upgrading and diversification in order to make their suppliers less dependent upon them as lead company. The danger of suppliers getting 'locked-in' into the supply network of Unilever – even with substantial gains in vertical upgrading, but without the potential for further horizontal and social upgrading – thus still looms large.

In 2007 SSCM within Philips was focused on internal alignment and centralisation of purchasing. This resulted in a more active approach in the following years, also including various forms of supplier capability development. Philips adopted a 'supplier sustainability involvement program', an overarching program to help improve the sustainability performance of the company's suppliers. In the 2007 to 2013 period, Philips started to move from a consumer electronics company (light bulbs, radios, tvs.) to a more systems oriented company (lighting and health systems). In an earlier period, Philips had already experienced that it is better to have loyal, but not too dependent, suppliers. The company could profit from diversified suppliers that could provide innovative products and take up some of the company's risks in supplying innovative products. This approach implies that the company searches for more diversified and scaled-up suppliers as it has been done in other parts of the world. It explains for its leading (proactive) approach towards capacity building with local suppliers.

5. CONCLUSIONS AND FURTHER RESEARCH

SSCM is gaining attention, both in management discussions and academic research. The research area is rather fragmented and static. This paper aimed at contributing to a more dynamic approach by constructing four archetypical SSCM business models. We defined three stages and their dynamics, not only inside-out through the lens of the purchasing department, but also through the lens of the envisaged business models of suppliers upstream – beyond the direct reach of the lead firm. From the perspective of suppliers this approach allows to identify what type of SSCM business models of

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[3] https://www.coolfarmtool.org/Home

lead firms can be considered positive in the longer run. This requires that they take all dimensions of sustainability into account: not only ecological or social dimensions but also their own business model and their competitive position – in this paper interpreted as what the leaded company is explicitly referring to in its SSCM strategy. A first test of these characteristics with seven Dutch leader firms showed that what we classified as pro-active SSCM practices are difficult to implement, even when the first list of indicators is still rather general and primarily based on published statements. There are clear indications, however, of a systemic and business model logic to a greater inclusion of suppliers in supply chains. Companies that deliver more integrated systems and/or are embedded in the local economies have clearly more interest in upgrading local suppliers not only to become more efficient (process and functional upgrading), but also to become more competitive and inclusive (social and intersectoral upgrading). According to macro-economic research on inclusive development (WEF, 2015), the combination of the latter dimensions is also the condition under which economies can create longer-term sustainable development. Process and functional upgrading initially create the illusion of progress, but show considerable barriers for further development. We have seen that only a limited number of Dutch lead companies is able to approach a SSCM practice that can be defined as active or pro-active. But the initial analysis also showed the antecedents of this change. It also enables suppliers and local regulators to distinguish those companies that are seriously trying to make the transition to SSCM practices.

Further and more advanced research on SSCM can be aimed at broadening the company sample, deepening the indicator basis and comparing (over time) sectors that are more and less locally embedded, more and less systemic oriented, more and less politically controversial (like oil or rare resources). We illustrated that an integrative approach in which a top-down and a bottom-up approach is included can deliver interesting results. This approach, of course, can be much further developed and tested. An obvious extension of this approach is by starting with a bottom-up approach and then linking that to the business model of the leader company. Either way, an integrated approach seems to fill much of the gaps in the SSCM literature that still exist. Finally, the empirical basis of this study need to be further broadened by not only looking at reported strategies, but at actually implemented strategies. Defining the difference between intend and realisation, between action and words, will help us in further understanding the factors that will enhance the transition to higher degrees of sustainability in the business models of all participants in supply chains.

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