

Fostering firms' ability to cascade sustainability through multi-tier supply chains: an investigation of power sources

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Abstract

Purpose – A firm's ability to cascade sustainability requirements further down to lower-tier suppliers might be affected by inter-firm power relations. This study aimed to identify the power sources of focal firms and first- and lower-tier suppliers and to investigate how they may affect their ability to cascade sustainability requirements along multi-tier supply chains.

Design/methodology/approach – A multiple case study of 24 companies was conducted to investigate the sources of power in multi-tier supply chains. In total, 42 informants from five focal companies, ten first-tier suppliers and nine lower-tier suppliers were interviewed.

Findings – Differences were found between the sources from which focal firms and first- and lower-tier suppliers drew power. Findings revealed that firms' power sources may increase or impair their ability to cascade sustainability requirements to lower supply chain tiers. Furthermore, multi-tier supply chain-level power sources constitute a significant determinant of firms' ability to disseminate sustainability requirements to lower-tier suppliers.

Practical implications – The results can help companies and purchasing managers understand how their own and suppliers' power may affect their ability to cascade sustainability agendas to lower-tier suppliers. In particular, the results can be useful for supplier selection and the development of supplier relationship management strategies for fostering sustainability in multi-tier supply chains.

Originality/value – This study places traditional power perspectives in the context of multi-tier sustainable supply chain management, broadening the view beyond dyadic relationships that have traditionally been the focus of the supply management literature.

Keywords Power, Sustainability, Multi-tier supply chain

Paper type Research paper

1. Introduction

If you have a deficiency of power over the supplier, you have no influence on how they are sourcing products – First-tier supplier

Companies today both want and need to build supply chains and networks that support sustainable business and transparency. Sustainability is built into firms' values and ways of doing business. At the same time, these firms need to show their stakeholders that they truly put their sustainability values into practice by going beyond economic performance and including environmental and social considerations in their supply chain operations. This requires firms to ensure that their suppliers follow the set sustainability criteria and push sustainability practices and requirements further to lower supply chain tiers. In particular,



firms with leading brands are increasingly being held accountable for poor sustainability practices exposed somewhere in their supply chains (Hartmann and Moeller, 2014). However, supply chains with lower-tier suppliers are complex multi-tier systems (Mena *et al.*, 2013; Wilhelm *et al.*, 2016a, b; Sauer and Seuring, 2019); thus, pushing sustainability requirements further down a multi-tier supply chain can be difficult if a company lacks power and influence over its suppliers. According to Nyaga *et al.* (2013), power is an antecedent to suppliers' willingness to make adaptations to buying firms, whereas Touboulie *et al.* (2014) noted that power was relevant in understanding sustainability compliance in supply chains and in identifying suitable relationship management strategies for building more sustainable supply chains.

The basics of power stem from firms' ability to influence the behaviours of others and the interdependencies between firms (Kembro *et al.*, 2017). Powerful buyer firms are more likely to promote sustainable supply chain practices successfully as they can enforce sustainability requirements on their suppliers (Ciliberti *et al.*, 2009). Low supply chain transparency may indicate that the firm has only limited awareness of its first-tier suppliers' sustainability actions and often limited coercive power through threats or punishments with which to push suppliers in their sustainability efforts (Cousins *et al.*, 2019). However, the concept of power is multidimensional. Many studies have demonstrated that power is socially embedded and that studying it from a dyadic perspective fails to consider firms as embedded actors in bigger supply chains or networks, where multiple interactions need to be considered (Stannack, 1996; Choi and Wu, 2009).

A multi-tier approach to supply chains enables the consideration of power dynamics beyond dyadic relationships. Huo *et al.* (2017) investigated supply chain power beyond the buyer–supplier dyad and considered configurations of different types of power in downstream and upstream relationships. Wilhelm *et al.* (2016a, b) studied the double agency role of first-tier suppliers in multi-tier supply chains and touched on power and dependence. Meqdadi *et al.* (2019) investigated how coercive and noncoercive power impact the diffusion of sustainability within supply networks. While these are important steps towards understanding power and its effects and dynamics in multi-tier supply chains, more research is needed to understand the role of power sources in achieving the desired sustainability outcomes in a multi-tier supply chain setting. Moreover, Mena and Schoenherr (2020) highlighted the importance of going beyond the dyad when investigating environmental aspects in supply chains, as well as the need to investigate the role of the supply chain position and its effect on practice adoption. Wilhelm *et al.* (2016a) concluded that future research should focus on the effects of power asymmetries in multi-tier supply chains and that the issue should be investigated in the empirical context of different industries. More empirical research on multi-tier supply chains has also been called for by Senyo and Osabutey (2021), who stated that rigorous studies that validate the results in multiple sectors and countries are needed.

The literature on multi-tier sustainable supply chain management (MT-SSCM) has been steadily growing, but only a few studies have investigated power in the context of MT-SSCM although it offers a context in which cascading sustainability from focal firms to their lower-tier suppliers can be studied. Studying power in a multi-tier setting is important for understanding how firms can foster the sustainability of their entire supply chains through the right use of power. Power, however, stems from different sources of power (Ramsay, 1995; Kähkönen and Virolainen, 2011; Meehan and Wright, 2012) and thus, power dynamics and power use cannot be fully understood if the determinants from which the power stems are not considered. Ultimately, a firm's power sources may determine what possibilities for power use they have. Furthermore, sources of power and power relations always depend on the relationship parties and on other actors belonging to the same supply chain or network (Kähkönen and Virolainen, 2011; Carnovale *et al.*, 2017). Thus, power is highly context

dependent and must be studied in research settings that facilitate analysis of multiple actors and the relations among them. Hence, the study answers the following research questions.

RQ1. What are the sources of power of focal firms, first-tier suppliers and lower-tier suppliers?

RQ2. How do the sources of power affect firms' ability to cascade sustainability requirements in multi-tier supply chains?

To address these questions, we adopt resource dependence theory (RDT) as a theoretical lens because RDT focuses on dependencies between companies, and due to its origin in the resource-based perspective, it highlights the significance of firm-specific resources and capabilities (Pfeffer and Salancik, 1978). Resources and capabilities, on the other hand, have been identified as critical sources of power for buyers and suppliers (Ramsay, 1995; Kähkönen and Virolainen, 2011). RDT offers theoretical premises to first investigate sources of power and second to determine their effects on the firm's ability to disseminate sustainability requirements in multi-tier supply chains. Only a few studies, such as Chand and Tarej (2021), have used RDT as a theoretical basis for studying MT-SSCM. To explore this issue, we conducted a case study using data collected from multi-tier supply chains of Finnish companies and their international supply chains. In all, the sample included 42 informants from five focal companies, 10 first-tier suppliers and 9 lower-tier suppliers.

This study makes the following key contributions. First, we investigate power in the context of MT-SSCM, which is an under-researched area, and answer the call of previous studies regarding the need for more empirical research on MT-SSCM within different industries. Our research goes beyond dyadic relationships that have traditionally been the research context of studies related to power sources. Second, we present empirical evidence on how power sources can affect firms' abilities to cascade sustainability in multi-tier supply chains. Third, by using the RDT lens and combining the studies of power and sustainability, we contribute by showing how power sources define the dynamics in a multi-tier context and how power and dependence affect the dissemination of sustainability and the building of sustainable multi-tier supply chains.

The remainder of the paper is organised as follows. In the first section, we introduce the theoretical background, including RDT and power and its sources in MT-SSCM. Next, the research design and method are outlined. Thereafter, the case study results are presented, and the findings are discussed. Finally, we conclude by providing theoretical and practical implications, as well as limitations and future research avenues.

2. Theoretical background

2.1 Resource dependency theory

We adopt the RDT as a theoretical perspective to investigate power sources and their implications for the firm's ability to disseminate sustainability requirements in multi-tier supply chains. RDT focuses on a set of power relationships based on the exchange of resources (Pfeffer and Alison, 1987), as it recognises that companies do not have all the necessary resources needed for value creation. Thus, companies need to seek resources outside their firm's boundaries and thereby they must interact with other companies who own and control these resources (Pfeffer and Salancik, 1978). The basic logic of RDT is that companies are dependent on the resources of other companies, and the dependence between them can be determined, for example, by the importance of the resource, the allocation and use of resources and alternative resources available (Pfeffer and Salancik, 1978). Building on RDT, Cox (2007) stated that a company's ability to influence another company's actions requires having control over specific resources on which the other company is dependent.

Medcof (2001) argued that power depends on the resource dependence relationships that a company has with other companies, and if, for example, the buyer is highly dependent on the supplier for a critical resource, the supplier will have power over the buyer. Thus, power and dependence are closely connected (Pfeffer and Leong, 1977).

Paulraj and Chen (2007) stated that RDT provides a solid theoretical background for studies of supply management, because supply management is grounded in the logic of sequential interdependences between companies, and RDT builds on the premise that companies are rarely self-sufficient with respect to critical resources. Even though some SSCM studies (e.g. Paulraj and Chen, 2007; Hollos *et al.*, 2012; Touboulic *et al.*, 2014) have used RDT as a theoretical background, scholars have indicated the need for more studies applying RDT (Carter and Rogers, 2008) and viewing SSCM from the perspective of power and dependence (Touboulic and Walker, 2015; Dabhilkar *et al.*, 2016; Marshall *et al.*, 2019; Sancha *et al.*, 2019).

2.2 Power in multi-tier sustainable supply chain management

Research concerning the phenomenon of power has a long history, and the concept has been defined in different ways by different authors. In the context of social processes, Blau (1964, p. 117) defined power as “the ability of an actor to impose its will on others”, and in the context of interfirm relationships, Mohr *et al.* (1996, p. 104) defined it as “the ability to influence”. In relation to distribution channels, Wilkinson (1996, p. 32) stated that power is “the ability of a firm to affect decision-making and/or behaviour”, and Stannack (1996, p. 51) defined power in SCM as “the capacity to optimise the behaviour of suppliers and subcontractors in accordance with desired performance objectives”. Kähkönen (2014, p. 18), in the context of buyer–supplier relationships and networks, defined power as “the ability to influence decision-making and actions of the other party”. In this study, we apply the definitions of previous purchasing and supply chain management studies by Stannack (1996) and Kähkönen (2014) and situate these in the context of multi-tier sustainable supply chains, thus defining power as the ability to influence the actions of other supply chain actors in a way that facilitates them to push the entire multi-tier supply chain towards desired sustainability performance outcomes. The premise of our study is that companies’ power dynamics affect buyer–supplier relationships, whether or not they intentionally use power.

Tachizawa and Wong (2014) defined power and dependence as contingency factors that affect the structures and management of multi-tier supply chains. They further posit that, in the multi-tier supply chain context, focal firms may use their power over first-tier suppliers to pressure them to monitor or collaborate with lower-tier suppliers and require environmental or social certifications from them. In their study on sustainability implementation efforts across supply chains, Brockhaus *et al.* (2013) found that these efforts were often initiated by more dominant firms and then forced onto weaker upstream members in supply chains. Dou *et al.* (2018) noted that when environmental practices were extended along a multi-tier supply chain, power asymmetries can be beneficial when a focal company has power over a first-tier supplier and a first-tier supplier has power over a lower-tier supplier. Gimenez and Sierra (2013) argued that power influences the adoption of sustainability practices, and Grimm *et al.* (2016) contended that a focal firm’s greater power leads to greater engagement in managing its sub-suppliers. If focal firms have power over the upstream supply chain, they can then identify their lower-tier suppliers and set sustainability requirements for their participation in the supply chain (Grimm *et al.*, 2016).

Mena and Schoenherr (2020) demonstrated that a single firm could influence other actors in their multi-tier supply chain to adopt green practices. Non-mediated power, which refers to indirect power embedded in the relationship, which is seen as positive and where the more powerful actor may not even be aware of its existence, has been found to positively affect first-tier suppliers’ responsible purchasing practices (Marshall *et al.*, 2019). However,

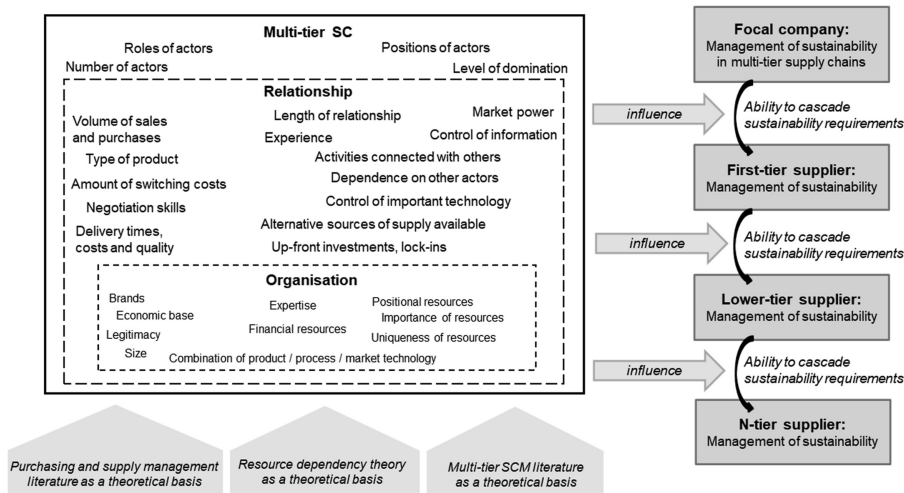
enforcing suppliers' compliance with sustainability standards can be hampered if a focal company lacks power over its suppliers (Grimm *et al.*, 2014). Wilhelm *et al.* (2016b) found that if the power asymmetries increase towards lower tiers, downstream actors will have difficulties implementing sustainability strategies and practices upstream. Less powerful buyers may be unable to influence suppliers' social and environmental behaviours in a positive way and implement sustainability and auditing programmes at the suppliers' sites (Ciliberti *et al.*, 2008). When a focal firm has less power, first-tier suppliers play a pivotal role because the focal firm depends on them to disseminate sustainability practices further down the supply chain (Grimm *et al.*, 2016). While some studies have focused on the use of power for supply chain sustainability, the determinants behind it are not fully understood. Thus, to better understand how power can be harnessed for good, investigating where firms' power stems from is crucial.

2.3 Sources of power

Previous studies have suggested that firms may be voluntarily or involuntarily constrained in their use of power and that even the existence of power asymmetries, regardless of actual use of power, can lead to disadvantages in collaboration among supply chain parties (Kähkönen, 2014; Crook *et al.*, 2017). It is therefore important to investigate the sources from which companies draw power, as these may affect the diffusion of sustainability initiatives in supply chains. In the context of MT-SSCM, Mena *et al.* (2013) suggested that competition for control and the importance of structural position determine power dynamics in multi-tier supply chains. Depending on their position in the supply chain, members may draw power from different kinds of sources: Buyers may act as bridges between the multi-tier supply chain and the marketplace, suppliers may act as bridges across multi-tier supply chains and sub-suppliers may have access to resources, namely expertise and raw materials. Larger focal firms may be in a better position to provide technological, financial and human resources when helping suppliers improve their environmental performance (Melnik *et al.*, 2003), and smaller firms may struggle with having limited purchasing power and thus less power to influence suppliers' sustainability (Zehendner *et al.*, 2021). Although firm size has been acknowledged as an important determinant of power, it is only one of the factors that affects the power of buyers and suppliers.

Kähkönen and Virolainen (2011) examined sources of power in the context of networks and suggested that power sources could be divided into three levels: organisation, relationship and network (Figure 1). The organisation-level sources, such as firm resources and size, are internal to a single firm, whereas the relationship level includes the dyadic relationship, and power sources are connected to dyads. Network-level power sources are investigated in this study in a multi-tier setting. Multi-tier sources are reinforced by firm- and relationship-specific sources and include, for instance, the actors' roles and positions in the wider network context and other network effects. In this study, we apply the framework to the context of multi-tier supply chains, viewing it through the lens of sustainability. Figure 1 presents a further developed framework where the power sources by Kähkönen and Virolainen (2011) are grouped based on the background literature and their influence on the firms' ability to cascade sustainability requirements towards lower tiers are described as resulting from power sources in three different levels.

According to Tachizawa and Wong (2014), managing sustainability in multi-tier supply chains is affected by contingency variables, such as power, dependence, material criticality, knowledge resources and the distance between the supply chain actors. Moreover, Mena *et al.* (2013, p. 68) indicated that power was "a function of the structural position in the multi-tier supply chain" which highlights the structural perspective of power. The structural perspective builds on structural theories, such as RDT, and sees power steaming from



The power sources in multi-tier supply chains

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Figure 1.
Theoretical framework for sources of power

Source(s): Modified from Kähkönen and Virolainen (2011)

organisational and network structures (Cendon and Jarvenpaa, 2001; Kähkönen, 2014). Chand and Tarei (2021) further stated that the implementation of MT-SSCM was contingent on resource dependencies between firms by following RDT. Moreover, previous studies (e.g. Pfeffer and Salancik, 1978; Ramsay, 1995, 1996; Cox, 1999; Cox, 2001a, b; Cox *et al.*, 2001; Medcof, 2001; Sanderson, 2004; Kähkönen and Virolainen, 2011; Meehan and Wright, 2012; Huo *et al.*, 2017) suggested that critical resources, dependence, knowledge and control of information as well the actor's position in a supply chain and the distance to other actors defines power between buyers and suppliers. Thus, it can be argued that power sources that are based on the principles of RDT affect the management of sustainability in multi-tier supply chains. Furthermore, as Tachizawa and Wong (2014) present, these particularly determine the approach that the focal firm may choose in managing the lower-tier suppliers' sustainability and ultimately affect the firm's ability to cascade sustainability requirements towards lower tiers.

3. Methodology

3.1 Research design

A multiple-case study of 24 companies was conducted to investigate the sources of power in multi-tier supply chains. Altogether, 42 informants from five focal companies, 10 first-tier suppliers, and nine lower-tier suppliers were interviewed. The data were collected from Finnish sustainability leaders (focal companies) and their first- and lower-tier suppliers, constituting five multi-tier supply chains. The research design consisted of multiple case studies with several embedded units of analysis (Eisenhardt, 1989; Yin, 1984), which allowed a variety of perspectives to be considered. In this study, we considered the perspectives of focal firms, first-tier suppliers and lower-tier suppliers by conducting firm, dyad and multi-tier supply chain-level analysis. Finally, we analysed the results based on the supply-chain tier, making the tier the main unit of analysis.

3.2 Data collection

The focal firms were selected from the official ranking of the 2018 Sustainable Brand Index, an independent annual study evaluating more than 1,000 brands in the Nordic countries and

the Netherlands in terms of sustainability, branding and communication ([Sustainable Brand Index, 2018](#)). The selected focal firms can be considered sustainability leaders in the Finnish market and are presumably more devoted to practicing sustainable supply management and applying state-of-the-art knowledge to this practice. The suppliers were chosen using the snowball sampling method. Focal firms were asked to name one to three strategically important suppliers or those with whom they have had issues to be interviewed for the study. The same logic was used with first- and lower-tier suppliers until we reached the saturation point. The saturation point was used to define the sufficiency of the interviews. By following the key characteristics of case studies and data saturation (e.g. [Eisenhardt, 1989](#); [Strauss and Corbin, 1998](#)), the saturation point was recognised as the point where adding new interviews would not bring new information relevant to the research question or would not change the codebook. [Table 1](#) provides detailed information on the case companies. [Figure 2](#) illustrates the five multi-tier supply chains that these companies form.

The study focused on focal firms in Finland, with suppliers located mainly in Finland but also in Germany, Belgium and Italy. A total of 42 informants participated in semi-structured interviews, which were held either face-to-face or via video calls and lasted 60 min on average. The interview protocol is shown in [Appendix 2](#). The interviews were recorded and transcribed. To support the results, secondary data were collected from publicly available documents (e.g. sustainability reports, codes of conduct) or from the companies (e.g. supplier guidelines). The secondary material was used to support the interview data related to firms' sustainability initiatives and requirements.

3.3 Data coding and analysis

The data were coded and analysed in NVivo qualitative data analysis software using qualitative content analysis ([Miles and Huberman, 1994](#)). Data analysis was performed in two phases. First, we conducted an inductive analysis that was guided by concepts recognised in previous research and the codes grounded in the data ([Eisenhardt, 1989](#)). The data were first organised and categorised into broader themes, which were mainly defined by the interview questions. To ensure data familiarisation, the transcribed interviews were read several times, and notes were taken. After a close examination of the data, initial coding nodes were created and discussed by the authors. At this stage, one of the suppliers was removed due to their monopoly position, because it would have affected the reliability of the results as the study focuses on power. The nodes emerging from the empirical data were compared with concepts established in related research ([Eisenhardt, 1989](#)).

After comparisons with related research, we found similarities with the results by [Kähkönen and Virolainen \(2011\)](#). Thereafter, we applied an abductive approach, which involves "modifying the logic of the general theory in order to reconcile it with contextual idiosyncrasies" ([Ketokivi and Choi, 2014](#), p. 236). As we identified similarities in the categories in both studies, we applied [Kähkönen and Virolainen \(2011\)](#) framework and modified it to better fit the context of MT-SSCM in order to elaborate existing theory. Compared to the priori categories, volume of sales and purchases was modified to purchasing volumes, as we did not focus on suppliers' sales but instead the purchasing volumes in the upstream direction. Additionally, investments and lock-ins was changed to sustainability investments and lock-ins to better describe the acquired results from interviews, and network effects was replaced by a more specific term actions of third parties, as these were emphasised in our multi-tier supply chain setting and emerged from our data. Finally, dyadic-level sources *delivery times*, *costs and quality* and *switching costs*, as well as organisational-level sources *economic base* and *technology* were not included as these were not among the central topics of this study. The final categories, descriptions, and supportive quotations for the results are presented in [Appendix 1](#).

Firm	Industry	Suppliers	Employees	Interviewees' areas of expertise and counts	Interview minutes per firm	Interview language
FF Textile Retail	Wholesale and retail trade	<100	101–1,000	Sustainability (1), P&SCM (2)	91	Finnish
FF passenger traffic	Transportation and storage	5,000	1,001–10,000	P&SCM (2)	101	Finnish
FF general retail	Wholesale and retail trade	>10,000	>10,000	P&SCM (2)	121	Finnish
FF accommodation	Accommodation and food service activities	101–500	>10,000	Sustainability (1), P&SCM (2)	74	Finnish
FF food service	Accommodation and food service activities	101–500	<100	General/ P&SCM (2)	97	Finnish
T1 textile products	Wholesale and retail trade	<100	101–1,000	P&SCM (1), Sales (1)	65	English
T1 agri-food wholesale	Wholesale and retail trade	501–1,000	101–1,000	Sustainability/ P&SCM (1), Sales (1)	93	Finnish
T1 meal solutions	Accommodation and food service activities	101–500	101–1,000	General/ P&SCM (1)	94	English
T1 bakery	Manufacturing	<100	101–1,000	P&SCM (2)	95	Finnish
T1 agri-food production	Manufacturing	101–500	1,001–10,000	P&SCM (2)	92	Finnish
T1 meat	Manufacturing	>10,000	1,001–10,000	Sustainability (1), P&SCM (1)	71	Finnish
T1 service provider	Administrative and support service activities	<100	1,001–10,000	General/ P&SCM (2)	38	Finnish
T1 beverage manufacturer	Manufacturing	<100	101–1,000	P&SCM (2), Sales (1)	124	Finnish
T1 construction	Construction	5,000	1,001–10,000	General/ P&SCM (1), Sales (1)	49	Finnish
T1 agri-food trade	Wholesale and retail trade	N/A	<100	General/ P&SCM (1)	43	English
LT yarn	Manufacturing	<100	<100	P&SCM (1)	74	English
LT confiture	Manufacturing	>10,000	>10,000	P&SCM (1)	57	Finnish
LT grain mill 1	Manufacturing	101–500	<100	P&SCM (1)	57	Finnish
LT bakery products	Wholesale and retail trade	101–500	<100	P&SCM (1)	84	Finnish
LT packaging	Manufacturing	<100	101–1,000	P&SCM (1), Sales (1)	120	Finnish
LT chemical products	Manufacturing	101–500	101–1,000	P&SCM (2)	64	Finnish
LT grain	Manufacturing	101–500	101–1,000	General/ P&SCM (1), P&SCM (1)	53	Finnish
LT Vegetables	Manufacturing	N/A	101–1,000	Sales/P&SCM (1), General (1)	56	English
LT grain mill 2	Manufacturing	>1,000	101–1,000	P&SCM (1)	90	Finnish

Table 1.
Participating case companies

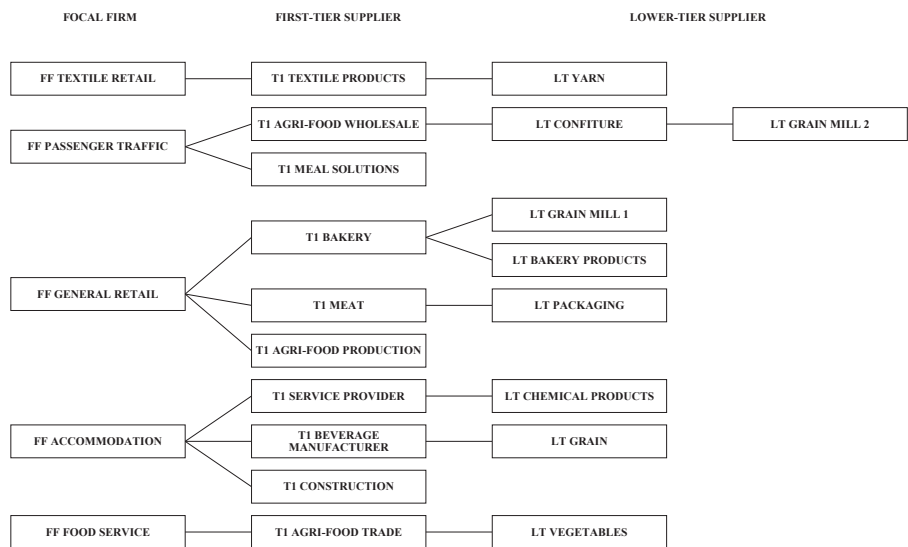


Figure 2.
Case supply chains

We conducted within-case and cross-case analyses. Like in other multi-tier supply chain studies (e.g. Brockhaus *et al.*, 2013; Mena *et al.*, 2014; Villena and Gioia, 2018), we focused on reporting the results of the cross-case analysis considering the scale and complexity of the research. The data analysis process was done in several phases due to the many layers of the research setting. First, we conducted a firm-level analysis to identify each firms' individual, organisational level power sources. After this, we examined the buyer-supplier dyads within the case supply chains to determine the relationship-level power sources. We proceeded with the multi-tier supply chain level analysis in which we considered the effects of other actors in the multi-tier supply chains. Finally, we compared the results per each supply chain tier to reveal the differences between them. During cross-case analysis, we focused on finding similar patterns between firms but when differences occurred, these were not discarded until we had clarified the uniqueness of the situation that contributed to the difference (e.g. Eisenhardt, 1989).

3.4 Validity and reliability

To assure the validity and reliability of the study, we followed the quality criteria proposed by Welch and Piekkari (2017), which are based on the works by Yin (1984) and Eisenhardt (1989). For construct validity (i.e. the consistency between the construct and its measurement), we used multiple sources of evidence, including approximately two informants per company and interviewees from different firms along the examined supply chains. We also used secondary data sources to validate the results. While reporting the findings from multiple cases, much effort was put into showing the linkages between data and conclusions (i.e. the chain of evidence) by using tables, which has been suggested as a good way to summarise rich empirical evidence within case studies (Eisenhardt and Graebner, 2007). Internal validity (i.e. ensuring that a relationship between cause and effect has been established) was strengthened by pattern matching between the priori categories in the literature and our empirical evidence. Starting with an inductive approach helped us to avoid being limited by categories found in previous studies. In terms of external validity (i.e. specifying the domain which the findings can be generalised), we used replication logic due to

inclusion of multiple cases. In total, 24 companies from several industries and supply chains were included in the study, and we used similar interview protocols with them all. We ensured the reliability of the study by using case study protocol database and ensuring transparency of the research process.

4. Findings

Next, we present the mapping of power sources on the three supply chain levels and show how firms' power sources, or lack thereof, can affect their ability to cascade sustainability requirements further down their multi-tier supply chains.

Considering power sources, power relations and their potential impacts on supply chain relationships is crucial in MT-SSCM. Our analysis showed that firms drew power from various sources at the organisation, dyadic relationship, and multi-tier supply chain levels. While the power sources *market power* and *alternatives and substitutes* were commonly recognised at each supply chain tier, we observed pattern differences in the power sources of different supply chain tiers. Focal firms drew power from several sources at each of the defined levels: multi-tier supply chain, dyadic relationship and organisational. The influence of focal firms was often tied to the following power sources: (1) *position*; (2) *supply chain role*; (3) *purchasing volumes*; (4) *market power*; (5) *information*; (6) *alternatives and substitutes*; (7) *resources, capabilities and competences*; and (8) *brands*. Results revealed that first-tier suppliers drew power mostly at the relationship and organisational levels. Some of their most prominent power sources included (1) *information*; (2) *expertise and special knowledge*; and (3) *resources, capabilities and competences*. Finally, lower-tier suppliers' power sources were concentrated mostly at the dyadic relationship level. Some of their main power sources were: (1) *type of product*; (2) *relationships*; and (3) *expertise and special knowledge*. Table 2 presents the power sources of the case firms on three supply chain levels, indicating differences and similarities across firms and supply chain tiers. Findings from each of these levels are discussed in detail in the following sub-sections.

4.1 Organisational level power sources

Organisational-level sources refer to power sources that stem from firm-specific characteristics. Together with dyadic relationship-level source *purchasing volumes*, the *size* of a firm was mentioned as one of the most crucial power sources in all tiers. The most noteworthy differences between tiers were found regarding the following organisational sources: (1) *expertise and special knowledge*; (2) *resources, capabilities and competences*; and (3) *brands*. While some companies described how the large size of their company helped them in pushing sustainability requirements to the next supply chain tier, notably, this study revealed that in many cases, firms—especially those in lower tiers—were unable to influence their suppliers regarding sustainability issues because of their small size. This is reflected in the following comments:

We do not have the power to say, "We want certified palm oil products, or else we will not buy from you". In this sense, we cannot control what they are doing. We are not that big after all. (LT Bakery Products)

I do not think that we as a small spinner have had that influence [on sustainability issues], no. I think the suppliers are driven by the combination of all their customers and especially by the brands that are pushing this. (LT Yarn)

Interestingly, while size was found to be a critical power source, we also found evidence of other power sources compensating for its lack. For example, in the case of LT Yarn, sources

Table 2.
Sources of power in the
case companies

Levels	Source of power	FF Retail	FF Textile passenger	FF general retail	FF accommodation service	FF food products	T1 textile	T1 agri-food	T1 agri-food production	T1 service meat solutions	T1 beverages food manufacturer	agri-trade construction	LT yarn	LT confiture	LT milk 1	LT bakery products	LT chemical packaging	LT grain	LT vegetables mill 2
Organisational level	Expertise and special knowledge	+								+	+			+			+		
	Resources, capabilities, and competences		+							+	+							+	
	Size	-																	
	Brands	+																	
	Purchasing volumes	+																	
Dyadic relationship level	Market power	+																	
	Type of product	+																	
	Importance of relationship	+																	
	Dependencies	+																	
	Information	+																	
Multi-tier supply chain level	Sustainability investments and lock-ins	+																	
	Relationships and alternatives	+																	
	substitutes	+																	
	Buyer/ supplier concentration	+																	
	Position in supply chain	+																	
Note(s):	Positive impact on the ability to influence suppliers	+																	
	Blank = Neutral impact or no evident impact on the ability to influence suppliers																		
	Negative impact on the ability to influence suppliers	-																	

such as *relationships* and *expertise and special knowledge* compensated for the power asymmetry in buyer–supplier relationships with regard to company size. They stated:

In our case, we are dealing with suppliers that are a lot bigger than ours, so compared to our suppliers, I would say that we have less power over them. We are very dependent on them. Does that mean that you cannot have a bilateral relationship that is balanced? Of course, you can, but if you really talk about the balance of suppliers, I think they have the weights. (. .) But what we tried to do is to focus on the products where we have the added value and much more balanced relationships.

Asymmetry in company size was also observed as affecting collaboration with regards to supply chain sustainability. For instance, T1 Confiture explained how working with a much larger supplier while being a less-known buyer brand set the tone for their collaboration:

We have to participate in it in a humble way (. .) when you talk about cocoa, hazelnuts or whatever, then when we are also like that [small/not well known] to the supplier, it is not worth banging your fist on the table that these things must [be a certain way]. Then, they just say, “I am going to buy elsewhere”. So, we must find the tune of collaboration in quite a humble way.

By contrast, one of the focal firms explained how working with a supplier that was similar in size created a power balance that benefited collaboration and helped them in their efforts to influence suppliers:

We seek to collaborate with suppliers that are of the right size and type, particularly for this topic of power balance. When we are right sized for each other, we can have influence and work on things together. (FF Accommodation)

Furthermore, organisational-level source *resources*, *capabilities and competences* occurred as a common power source among focal firms and first-tier suppliers, while *expertise and special knowledge* were found to be important for first- and lower-tier suppliers. For example, two lower-tier suppliers mentioned supplying a critical or niche product that required special expertise for their customers, strengthening their power position in buyer–supplier relationships. One first-tier supplier mentioned: “We have horizontal collaboration with international actors, and that way, we can bring our sustainability requirements to them and to a wider audience because we are in the forefront and stricter than others related to these issues” (T1 Agri-food Wholesale). Finally, power source *brands* appeared mainly in the case of focal firms. One of the first-tier suppliers described the benefits of their strong brand as follows:

If we brand ourselves to suppliers in such a way that we are a sustainable company, then when they want to make investments that are environmentally sustainable, they also save money. (T1 Bakery)

Unlike most of the focal firms and a few first-tier suppliers, our results showed that lower-tier suppliers did not benefit from their company’s brands in terms of power, which might be explained by their structural position further in the upstream supply chain.

4.2 Dyadic relationship level power sources

The dyadic relationship level withholds sources related to the relationship between buyer and direct supplier. Based on our analysis, dyadic relationship-level sources were evident at all levels, but these were particularly important in the case of lower-tier suppliers.

Our findings showed that *market power* and *alternatives and substitutes* were among the most balanced power sources between the supply chain tiers, while the main differences were found regarding: (1) *purchasing volumes*; (2) *information*; (3) *relationships*; and (4) *type of product*. For example, FF General Retail mentioned how their market power benefits them in terms of influencing suppliers towards sustainable actions: “In our own market, we are the biggest actor. If a supplier wants to be part of this market, we are an excellent partner for

them. Then, we have more power". Furthermore, one first-tier supplier described their advantageous position regarding alternative suppliers as follows: "On a Finnish scale (. . .), we clearly have influence. It will sting if we take away our volume from some suppliers, and it is not easily replaced (. . .); there are surely competitors" (T1 Bakery).

Especially for focal firms and some of the bigger supplier firms, *purchasing volumes* were an important source of power. However, this was mentioned as a source of power by only two lower-tier suppliers. LT Bakery Products stated:

Unfortunately, it is a rare situation where our share of the supplier's turnover would be so significant that we would have some say (. . .) Nevertheless, as you can see, we have quite open-mindedly embarked on this sustainable development and on these issues with the limited power that we have.

By contrast, the focal firm FF General Retail noted that they greatly benefited from their large purchasing volumes in terms of influencing suppliers on sustainability. However, they noted that if the supplier was geographically distant and purchasing volumes were relatively small, it was more challenging to influence suppliers to improve sustainability performance. Additionally, they discussed how the actions of third parties might affect their power stance:

All these large Finnish firms—we do have a very great position in these cases. On the other hand, when we go to a tuna supplier in Thailand and our purchases might be 2% of their whole year's production, it is quite difficult to start demanding anything. Of course, we do demand, but it is more challenging to get to that position if none of the other customers are demanding the same things.

The power source *information* was a particularly important power source for focal firms and first-tier suppliers. Based on our analysis, power asymmetries and relations among supply chain members affected firms' ability to reach their lower-tier suppliers and obtain information about them. Hence, firms' efforts to enhance transparency in multi-tier supply chains can be hindered due to suppliers' dominant positions. For instance, FF Textile Retail explained that if they were to purchase a small amount of supply from a big Chinese supplier, the supplier could dictate the conditions and information to be disclosed: "Then, if you want to know something more about that company, you cannot necessarily obtain this kind of information". To avoid this situation and to map out suppliers that are willing to be transparent, the focal firm requires information about the potential suppliers' supply chains already in the supplier selection phase. On the other hand, T1 Agri-food Production gave an example of how they have been able to acquire information from lower tiers due to their power position:

One of our big packaging suppliers thought for a while that they would not open information about their own sub-suppliers for me because I buy things from them and it's their responsibility. But I have now had a chance to talk to their sub-suppliers. Also, the fact that they have responded to these questionnaires—you can go further when you have leverage.

The abovementioned findings emphasise the importance of power for achieving supply chain transparency. According to our analysis, lower-tier suppliers were more often in situations where they could not access supply chain information or influence their suppliers regarding sustainability issues compared to other tiers.

Furthermore, *relationships* emerged as an essential power source for first- and lower-tier suppliers, especially for those with relatively weaker power positions compared to their own suppliers. Our analysis showed that this power source did not commonly occur among focal firms. The importance of relationships was reflected in a comment by LT Yarn that explained benefits from good buyer–supplier relationships in terms of better power positioning:

We see suppliers as partners, and we treat them accordingly. When we visit them, we are treated like family, and vice versa. I do not act as a purchasing director shopping around—and this is

appreciated. There is a different culture and value in our purchasing organisation, and it helps in certain situations.

The *type of product* was emphasised, particularly in the cases of lower-tier suppliers. Although LT Yarn described being generally dependent on their suppliers, they noted how their unique product offering strengthened their power position: “For niche products, I think we have a co-dependent relationship where there is a balance in power”. Moreover, LT Grain, who also benefitted from the buyer/supplier concentration in their market, mentioned: “If one [supplier] does not want to export their grain outside Finland, it is quite likely that it will end up with us”. The results suggest that companies that may otherwise have a weak power position can be in a beneficial position in case their product or service offering is unique and if their suppliers do not have many alternative buyers. However, companies offering common products may have to find other strategies to achieve a situation where they can influence their suppliers’ sustainability.

4.3 Multi-tier supply chain level power sources

The multi-tier supply chain level comprises sources that stem from firms’ position, role and other parties’ actions in the multi-tier supply chain. Compared to the dyadic relationship level, it considers the role and position of a firm in a supply chain from a broader perspective, as well as influence from other stakeholders that may affect a firm’s power stance and dynamics in a supply chain.

Based on our analysis, the most notable differences in power sources between the examined supply chain tiers were seen at the multi-tier supply chain level, where the power sources were heavily concentrated on the downstream supply chain. Focal firms and first-tier suppliers often drew power from their *position* in multi-tier supply chains, while lower-tier suppliers did not benefit from their position in the supply chain as much as firms in other tiers. For example, lower-tier supplier LT Yarn described their difficult supply chain position as follows, “If you talk about balance of power, you see a lot of balance between fibre suppliers and brands working together, and then, the rest of the supply chain gets kind of squeezed in there. So, you find your role”. This implies how power asymmetries between supply chain tiers may create a situation in which suppliers are caught between other actors in the supply chain, which can also affect the cascading effect of sustainability requirements. By contrast, one of the larger lower-tier companies, LT Grain, benefitted from its supply chain position. They noted, “We do have some advantage when it comes to them [suppliers] because we are located near them”. Thus, their structural position in the supply chain and geographical location was found to be important in terms of having power over the next tier of the supply chain, which mainly consists of farmers. More often, however, lower-tier suppliers were in a disadvantageous situation regarding their supply chain position.

Furthermore, some of the clearest differences were found regarding the power source *supply chain role*. While all focal firms had this power source, first- and lower-tier suppliers rarely gained an advantage from their role in the supply chain. Focal firms were aware of their role in pushing their sustainability agendas further down the supply chain: “For the most part, we are the gatekeeper who ensures, can ensure, and has the responsibility to assure the consumer that the product is sustainable” (FF General retail). Moreover, FF Passenger Traffic described their role in the supply chain by highlighting the aspect of publicity: “We are the most visible piece in this (...) in that sense, we play a very critical role, and that visibility also brings the need to be responsible”. Related to the cascading effect, T1 Agri-food Production mentioned, “If we can work our thoughts into the first tier, so that they will push that [sustainability] issue forward as a whole, then we are enabling making a difference in the activities [within the supply chain]”. By contrast, many first- and lower-tier suppliers stated

that they were strongly influenced by their customers' requirements and needs and did not see their role in the supply chain as significant compared to focal firms.

Interestingly, some first- and lower-tier suppliers found themselves in a situation in which they were unable to influence their suppliers due to their position and/or role in the supply chain, even though they considered themselves to have the power to influence their suppliers otherwise. This phenomenon was highlighted in a comment by T1 Agri-food Wholesale:

We are often only a messenger (. . .) We do have influence, but it is affected by what customers want to buy (. . .) It is also a driving force, so depending on what kind of claims and requests we receive from our customer companies, it will surely affect the message and demands that we then put forward in this supply chain as a wholesaler.

Thus, in some cases, a firm's role and position in the multi-tier supply chain weakened their ability to use power, even if they believed that they had an influence on their suppliers. This pattern was particularly evident among first- and lower-tier suppliers operating as wholesalers or intermediaries. In relation to this, the multi-tier supply chain source *actions of third parties* (e.g. customers, other companies, governments, NGOs) were often considered crucial for firms' ability to use power over their suppliers. Based on our analysis, companies gained an advantage from the actions of third parties only in a few cases in which industry-wide third-party collaboration occurred. The firms that lacked this power source often wished that other firms would start setting similar requirements: "If a larger supplier hears the same wish from ten customers, then maybe they will start doing something about it" (LT Chemical Products). Additionally, LT Grain Mill 2 mentioned how other stakeholders' demands affected whether their message went through to the next supplier in the supply chain. Demands from other firms thus contributed to their own ability to push requirements further. Overall, the case firms lacked this power source and did not seem to have much control over what other parties were demanding.

Actions of third parties were noted as valuable by companies with a relatively dominant power position as well. FF General Retail described: "If a supplier did not have BSCI, we could influence them to get the certificate. Of course, there are other customers too that are pushing the same thing, so how big is our role alone . . . but we could definitely influence this". Furthermore, the absence of third parties' actions emerged as a barrier to pushing sustainability requirements further along supply chains—also for firms with a relatively dominant power position. The role of different stakeholders and legislation was highlighted, as some of the companies found their own influence somewhat limited:

If we talk about lower-tier suppliers—they might constantly change; how can you stay on top of things and know who is there all the time (. . .) it is nice to think that we as companies can make a difference, but there should also be more of UN and—other countries' legislation, and so on, included in this because the influence of the company or the real potential to make a difference can be very small in the end. (T1 Agri-food Production)

We can of course challenge [suppliers], but the consumer sector is so big that pressure to change things has to come from that direction as well. We can influence this in case we are able to take the message to our customers. They can then start demanding something as consumers so that we can influence larger ones [suppliers] or make some new developments. (FF Accommodation)

Particularly in cases in which a supplier offered tailored solutions or was otherwise highly dependent on the customers' choices, the buying company played a crucial role in determining the basis for sustainability requirements. This is reflected in comments by one of the lower-tier suppliers:

We offer sustainable options and products. We try to push them, but once again, it is up to the customer whether they take them or not (. . .). We want to serve everyone and be the number one

supplier [in the industry] in this country, so we will not hesitate to deliver non-certified palm oil if the customer wants us to.

Interestingly, our findings showed that, in some cases, first- and lower-tier suppliers did not receive demands from focal firms, even though they saw them as desirable. This is reflected in a statement by first-tier supplier T1 Agri-food Wholesale:

Actually, I would like to receive demands so that there is more information about what kind of products would be more desirable [by focal firms] in terms of sustainability. I would rather have it come from their direction: “Now we want this and that, from this point of view and from that sustainability point of view”. We would then be able to offer solutions more accurately and specifically.

Correspondingly, requirements and encouragement, especially from buyers who are forerunners in sustainability, motivated suppliers to join sustainability initiatives, as in the case of LT Bakery Products: “It [pressure] comes from their direction—that they want this and that. We are happy to be part of it in this case. Others are not as aware regarding these issues”. To conclude, our results showed that if firms did not face demands and pressure from the customer side or other third parties in multi-tier supply chains, this might lead to a lack of motivation to push sustainability requirements further to lower-tier suppliers and vice versa. However, a challenge remains as to whether these suppliers can continue the cascading effect to the next supplier tiers when considering their power position, putting further emphasis on the importance of examining power sources and asymmetries in multi-tier supply chains.

5. Discussion

Cascading sustainability initiatives further to upstream supply chains requires consideration of firms’ power sources and positions related to other supply chain actors. Thus, our study focused on identifying the power sources of focal firms and first- and lower-tier suppliers and investigating how they may affect firms’ abilities to cascade sustainability requirements along multi-tier supply chains. First, we mapped the power sources on three supply chain levels: focal firms, first-tier suppliers and lower-tier suppliers. We found differences between the sources from which focal firms and first- and lower-tier suppliers drew power. Focal firms draw power from various sources at all levels: multi-tier supply chain, dyadic relationships and organisational. First-tier suppliers draw power mostly from dyadic relationships and organisational levels. Lower-tier suppliers draw power mainly from the relationship level sources.

In addition, we examined how firms’ power sources affected the dissemination of sustainability requirements along multi-tier supply chains and discovered that power sources do play a significant role. We showed how firms’ power sources at the multi-tier supply chain, dyadic relationship and organisational levels may increase or impair their ability to cascade sustainability requirements to lower supply chain tiers. More specifically, we demonstrated that multi-tier supply chain sources can act as both enablers and barriers to firms’ abilities to cascade sustainability initiatives along supply chains and use power, even though firms may perceive themselves as powerful at the organisational and/or dyadic relationship levels. This finding was consistent with Kähkönen and Virolainen (2011), who found that the network context was relevant in determining structural power for buyers and suppliers, and we further showed this to be relevant in the context of sustainability. In previous studies, Mena *et al.* (2013) highlighted the importance of structural position in determining power dynamics in multi-tier supply chains. Our findings also support previous observations (Stannack, 1996; Choi and Wu, 2009; Carnovale *et al.*, 2017) by highlighting the importance of considering firms as embedded actors. Therefore, when studying power sources and their influence on firms’ ability to cascade sustainability requirements along multi-tier supply chains, it is crucial to

consider the multiple interactions within them. Our study showed that power, and especially multi-tier supply chain sources, constitutes a significant determinant of firms' ability to disseminate sustainability requirements to the lower tiers of their supply chains. Power dynamics are thus tied to companies' position, role and other stakeholders' actions in multi-tier supply chains. Therefore, we propose the following:

Proposition 1. Multi-tier supply chain level power sources have a greater influence on the firm's ability to cascade the sustainability requirements than the dyadic relationship level and organisational level power sources.

Our findings also reveal that buyer firms can hold a powerful position in setting sustainability requirements, especially in cases where suppliers are dependent on their sourcing choices. These are in line with [Touboulis et al. \(2014\)](#), who suggested that a power imbalance in favour of large, proactive buyers allows them to define and push their sustainability agendas on dependent suppliers. Accordingly, we show that firms with a relatively weak power position can find themselves in a situation in which they cannot push their sustainability agendas due to power asymmetries and their role in their supply chains. This can hamper the cascading effect of sustainability requirements reaching lower tiers. A similar notion was made by [Wilhelm et al. \(2016b\)](#), who found that downstream firms have difficulties implementing sustainability strategies upstream if the power imbalance increases towards lower tiers. Combined with our findings showing that power asymmetries and relations between supply chain members affected firms' ability to reach their lower-tier suppliers and obtain information about them, it can be concluded that power relations play a critical role in enabling the management of multi-tier sustainable supply chains. If a company does not have transparency over its supply chains, sustainability management beyond the immediate supplier can be hampered, which further increases the responsibility of other actors in the supply chain to drive the sustainability agenda towards lower-tier suppliers. Thus, it can be stated that:

Proposition 2. Power relations based on different level sources of power are critical enablers of sustainability management in multi-tier supply chains and further determine the firms' approach towards it.

Finally, an important finding is that in many cases, firms—especially in lower tiers—were unable to influence their suppliers regarding sustainability issues. In particular, the absence of multi-tier supply chain sources and other power sources, such as *size*, *purchasing volumes*, *importance of relationship*, *type of product* and *brands*, were often mentioned with regards to the inability to influence. These findings underline the importance of examining power sources, asymmetries and the use of power not only in the first tier but also in the lower tiers of a supply chain. Even though we found evidence that lower-tier suppliers may typically have weaker power positions, we also found examples of companies who benefit from their expertise and special knowledge regarding sustainability issues, buyer–supplier relationships and their products or service types, increasing their potential to affect suppliers in terms of sustainability. Thus, these sources of power were found to compensate for the lack of company size and purchasing volumes, which have often been associated with a firm's strong power position in previous research (e.g. [Ramsay, 1995](#); [Stannack, 1996](#); [Bates and Slack, 1998](#)). We propose the following:

Proposition 3a. Firms with critical resources are better able to cumulate their power and to obtain power sources at all supply chain levels.

Proposition 3b. If lower-tier suppliers build their power on their critical expertise and knowledge on sustainability, they are more likely to make the focal firms and first-tier suppliers dependent on them.

5.1 Theoretical implications

We adopted RDT as a theoretical lens to examine how power in multi-tier supply chains is derived and how power sources affect the ability to cascade sustainability initiatives to lower-tier supply chain tiers. RDT suggests that firms are dependent on the resources of other firms and that power depends on the resource dependence relationships that exist between firms (Pfeffer and Salancik, 1978; Medcof, 2001). The dynamics and management of multi-tier sustainable supply chains are affected by the resource dependencies between firms (Chand and Tarei, 2021). Our results demonstrate that the basic logic of RDT also work in the multi-tier setting and that firms in different tiers are dependent on the resources and expertise of other firms and may be able to build dependencies based on critical resources and expertise. We applied RDT in a multi-tier context but also viewed it from the perspective of sustainability. Even though some existing studies have investigated sustainable supply chains from the perspective of RDT (e.g. Paulraj and Chen, 2007; Hollos *et al.*, 2012; Touboulic *et al.*, 2014), there have been calls for more research that combine power, SSCM and RDT (Touboulic and Walker, 2015; Dabhilkar *et al.*, 2016; Sancha *et al.*, 2019). We have answered this call by showing how power and dependence from the RDT perspective affect the dissemination of sustainability requirements along multi-tier supply chains. Our research also contributes by being one of the few studies that have applied RDT to MT-SSCM.

We also contribute to the literature stream discussing power in buyer–supplier relationships. We explored how traditional sources of power work in the context of sustainability and how those determine power and dependencies when the aim is to improve sustainability performance. We demonstrated how power sources define the dynamics in a multi-tier context and how power and dependence affect the ability to cascade sustainability and to build sustainable multi-tier supply chains. Thus, we expanded the analysis by studying what firms can do with their power even though they do not necessarily recognise that they have power and how their sustainability goals are supported by their power sources and relations. By using extensive empirical datasets, we were able to elaborate the results within various industries with a large dataset as has been recommended by previous MT-SSCM research.

5.2 Managerial implications

Our findings have several implications especially for purchasing and supply chain managers. The results can help companies understand from what kind of sources their own and suppliers' power may stem and how different sources of power may affect their efforts to push their sustainability agendas to lower supply chain tiers. We showed evidence of how crucial it is to take a multi-tier view and acknowledge the actors beyond the direct buyer–supplier relationship. If other actors and indirect relationships are not considered, the managers might be unable to use the right kind of relationship strategies for fostering sustainability in supply chains. By assessing partners' sources of power in the context of a multi-tier supply chain or multi-layered network, managers could consider power sources and their effects to understand how these can affect the ability to disseminate and cascade the sustainability requirements towards the other upstream or downstream supply chain actors. While MT-SSCM in companies is still rare, mainly due to its complexity and difficulty, this study underlines the importance of evaluating sustainability and power relations beyond dyadic relationships. The results can also be helpful in supplier selection because power should already be considered in supplier selection and in the overall development of supplier relationship management strategies for fostering sustainability.

6. Conclusions

This study contributes to a deeper understanding of the way in which power sources affect firms' abilities to disseminate sustainability requirements along multi-tier supply chains. We

contribute to the growing literature on MT-SSCM by identifying the sources of power and examining their connection to the ability to cascade sustainability requirements to lower supply chain tiers. Going beyond the dyadic relationships that have traditionally been the focus of the supply management literature, this study adopted a multi-tier perspective by considering multiple supply chain levels.

6.1 Limitations and future research directions

Despite its contributions, certain limitations must be acknowledged. The study's scope is limited to the European context, and the results must be interpreted within this specific context. While our multiple case study with 24 companies offers a better basis for generalising compared to a single case study, it is important to note that, like most case study research, generalising is limited due to the small sample size. Additionally, it should be noted that the companies included in the study do not necessarily reflect the best-performing companies in sustainability, even though the focal firms can be considered sustainability leaders in the Finnish market.

Future studies could take a closer look at active, mediated and non-mediated power use in multi-tier supply chains and examine how different forms of use of power affect the dissemination and practices of sustainability. Additionally, it would be worthwhile to investigate strategies that can enable companies to drive their sustainability agendas in multi-tier supply chains and to examine in detail how transparency for sustainability may be affected by power asymmetries in multi-tier supply chains. Previous studies have recognised the riskiness of lower-tier suppliers (e.g. [Meinlschmidt et al., 2018](#); [Villena and Gioia, 2018](#); [Wang-Mlynek and Foerstl, 2020](#)), and thus, future research could address how lower-tier suppliers, especially in complex supply chains, could further push their sustainability agendas along supply chains. Although our analysis focused on multi-tier supply chains, the network effects were clear. We suggest conducting more extensive studies of how network relationships affect the dissemination of sustainability in complex supply networks, which would require a different methodological approach. While acknowledging the difficulties in data collection, we hope that our study encourages other researchers to include multiple supply chain tiers in their studies to extend the view to lower tiers that have been previously overlooked. We can only understand how to manage sustainability in multi-tier supply chains if the perceptions of lower-tier suppliers are also included. Lower-tier suppliers might need support in developing their sustainability practices and actions where collaboration between different supply chain tiers could help.

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Appendix 1

Levels	Source of power	Description	Supportive quotations
Organisational level	Expertise and special knowledge	Firm's expertise and special knowledge in the area of sustainability	"By bringing up our expertise (...) when we have an open dialogue, they [suppliers] listen to us, even if we were a small invisible buyer" (FF Food Service) "When they have to present some investment to the management team, then they ask us if we think this is good and then we say yes or no. If a supplier sees us as a sustainable operator, we also spar with things like this" (T1 Bakery) "There is a reason why they want to buy from us. We have safety, sustainability and cleanliness issues in order" (LT Grain Mill 1) "For the most part, we are the gatekeeper who ensures, can ensure and has the responsibility to ensure to the consumer that the product is sustainable" (FF General Retail) "The company is a frontrunner in sustainability, so we have opportunities to influence suppliers" (T1 Agri-food Wholesale)
	Resources, capabilities and competences	Firm's available resources and capabilities for sustainability management	"On behalf of our size, we may have that leverage in the direction of suppliers and the supply chain to change things – compared to small operators" (FF Passenger Traffic) "In our own market, we are the biggest actor. If the supplier wants to be part of this market, we are an excellent partner for them. Then we have more power" (FF General Retail)
	Size	Firm's perceived size compared to other supply chain actors	"We are a small operator. We do not necessarily have the leverage to require that we only buy if you are audited according to BSQI" (FF Textile Retail)
	Brands	Firm's brand value or image	"We have brand value on this market as well" (FF Passenger Traffic) "We are a well-known company and have a good reputation, especially as a buyer" (FF Food Service) "We are not very well known elsewhere than in Scandinavia. It is a big challenge that we are not well known as a brand" (T1 Confiture)

(continued)

The power sources in multi-tier supply chains

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Table A1.
Supportive quotations and descriptions for sources of power

Table A1.

Levels	Source of power	Description	Supportive quotations
Dyadic relationship level	Purchasing volumes	Firm's purchasing volumes	"Towards most of the suppliers we have some sort of power. After all, we have such large purchasing volumes" (FF Passenger Traffic) "Whether you buy with ten million or with two thousand euros, Power relations are divided largely based on that" (T1 Agri-food Production) "If you do not have any insignificant volume and you're just 0.5% or 0.2% turnover customer, they will not change their supply chain because of our wish. It is very much in correlation with the question of power" (T1 Meat Solutions) "If we look at the domestic market, our role is quite significant. We are a pretty big and sought-after partner who, to put it in an ugly way, can even dictate these conditions" (FF Passenger Traffic) "Our market share is quite large" (FF General Retail) "Many companies are interested in our production and would want to make our products" (FF Textile Retail)
	Market power	Firm's perceived market power	"Whenever our customer is, the product that they are provided with is one of the most critical. If that product does not exist, they cannot put their own product anywhere" (LT Packaging) "We may have suppliers for whom we are one of the main partners, or one of the main partners. Then we can make joint development in both products and packaging, so we can really influence that issue" (FF Accommodation)
	Type of product	Firm's product offering	"I would say that we have less power compared to them. We are very dependent on them" (LT Yarn) "The fact that we require the whole supply chain information in general will hopefully guide them to make good decisions in the subcontracting chain" (FF Textile Retail) "Some [suppliers] are very responsible, but others not that much. Or, you cannot know because you are not involved in their operations. They do it independently" (LT Grain Mill 2) "On the product side, if we can promise that we are committed to using a certain product in case a change is made, it will be much easier for suppliers to make those changes compared to is joining the thinking process but not being able to create any demand" (FF Accommodation)
	Importance of relationship	Firm's perception of the importance of dyadic relationships to suppliers	"We seek to benefit from our suppliers via innovations" (T1 Agri-food Production) "Although they [a supplier] are a bit bigger (...) You get to work together in balance when even though the size of the company is not comparable. But it again has to do with the way you manage your relationships and the way you communicate. If you see your supplier as a partner (...) that can bring a lot of value to smaller companies" (LT Yarn) "The added value what we have when we have had long—we have pretty long-term relationships. Trust has been built over the years. And also, the trust towards us, that we do as we say" (LT Confiture)
	Dependencies Information	Firm's perception of the dependency in dyadic relationships Firm's access to sustainability-related supply chain information	"If we do not take into account few exceptions, we always have an alternative for raw materials. We are not completely married" (FF Food Service) "If things do not work out, the threshold to switch [suppliers] is not very high" (T1 Service Provider) "On a Finnish scale (...) we clearly have influence. It will sting if we take away our volume from some supplier. It is not easily replaced (...) so they have the risk that we'll move—there are competitors for sure" (T1 Bakery)
	Sustainability investments and lock-ins	Sustainability-related investments and lock-ins with suppliers	"This domestic market is a bit too centralised, and it brings power position even if you do not aim towards it" (T1 Agri-food Wholesale)
	Relationships	Firm's relationship management strategies	
	Alternatives and substitutes	The availability of alternative supply options	
	Buyer/supplier concentration	The concentration of competitors and suppliers in the market	
			(continued)

Table A1.

Levels	Source of power	Description	Supportive quotations
Multi-tier supply chain level	Position	Firm's structural position in the supply chain or network	"For the most part, we are the gatekeeper who ensures, can ensure, and has the responsibility to ensure to the consumer that the product is sustainable" (FF General Retail) "We are the trailblazer. Also because of our size, we have the leverage on suppliers and supply chain to change things—compared to small actors" (FF Accommodation) "We have a lot of very big suppliers; for example, in the dairy industry where we are just a very small customer of them. There, of course— it's always related to volume, sizes and prices (...) the big retailers negotiate the prices with the bigger producers and all the rest follow that. There we have quite low impact" (T1 Meal Solutions) "This is not an option for [the company]. We are a service provider; whatever the customer needs, we are happy to provide" (T1 Meal Solutions) "When [focal firm] asks us for more sustainable products for their selection of tomatoes, we recommend [lower-tier supplier] as the best supplier, for example. However, we do not have a specific direct role in granting sustainability" (T1 Agri-food Trade) "Other actors have also started to ask more questions, so it is not so foreign, or we do not need to justify why transparency is important. It is already clear that this is a common practice" (FF Textile Retail) "It is not enough that we do things alone. Regarding many purchasing categories, there are others [companies] as well" (FF Passenger Traffic) "I think the suppliers are driven by the combination of all their customers and especially by the brands that are pushing this" (LT Yam) "A lot of things are affecting this [cascading effect], like what are the customers demanding in general" (LT Grain Mill 2)
	Network role	Firm's role in the supply chain or network	
	Actions of third parties	The actions of external stakeholders, such as customers, other companies, governments, and NGOs	

Managing sustainability in multi-tier supply chains

Firm's supply organisation

- (1) Please describe your firm's supply organisation.
- (2) What kind of role does sourcing play in your company?
- (3) How are sourcing strategies and policies defined?
- (4) The role of sustainability in business has increased during the last decade. How increased sustainability and sustainability requirements have changed your sourcing, sourcing strategies or policies and procedures?
- (5) What kind of supplier base does your company have? How many suppliers and product categories do you have on estimate?

Power and dependency

- (1) How do you see the power relations and dependencies when compared to your suppliers? Do you have more power or do your suppliers have more power and influence on your firm?
- (2) To what kind of suppliers, in which situations or in which product categories do you have more power and influence?
- (3) In what kind of situations does your supplier have more power?
- (4) *For suppliers:* How do you see your own power position in relation to your customers (e.g. [buyer company])?

Use of power

- (1) Are you able to influence the sourcing decisions of your own suppliers?
- (2) Are you able to influence suppliers regarding sustainability issues? So that suppliers would consider sustainability more in their sourcing decisions.
- (3) What kinds of means do you use for pressuring or influencing them regarding sustainability issues?
- (4) How do you know that your supplier has considered sustainability issues you have tried to have an influence on in their sourcing decisions?
- (5) *For suppliers:* Are your customers creating pressure or expressing wishes towards your company regarding sustainability issues (e.g. [buyer company])?

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