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Power in sustainable supply chain management: A systematic literature review

Andrea Tuni [a,*], Flavia Cicerelli [a], Marianna Giorgetti [b]

[a] Politecnico di Torino, Department of Management and Production Engineering, Corso Duca degli Abruzzi 24, 10129, Torino, Italy
[b] Politecnico di Torino, Master of Science in Engineering and Management, Corso Duca degli Abruzzi 24, 10129, Torino, Italy

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ABSTRACT

Sustainable supply chain management (SSCM) is becoming a strategic necessity for multiple companies. Successful implementation of SSCM is dependent upon inter-firm relationships and inter-organisational coordination instruments. This work aims to explore the role of power in diffusing sustainability along supply chains.

A systematic literature review covering 63 publications in peer-reviewed academic journals was conducted. The literature is reviewed according to several perspectives, including methodologies, units of analysis and theories adopted. The core of the literature explores power in the context of SSCM, contextualising findings against the power matrix and the bases of power, which are adopted as theoretical lenses.

Findings reveal that: (i) power is predominantly viewed as a dyadic concept, with fewer studies exploring power dynamics in multi-tier sustainable supply chains; (ii) buyer dominance is considered an enabler to SSCM and supplier dominance is considered a barrier to SSCM, as a result of focal company-driven SSCM programs and prevailing commercial logics being applied to the sustainability domain; (iii) power symmetries, particularly independence between supply chain organisations, and related implications for SSCM are under-researched themes; (iv) mediated bases of power, particularly coercive power, are effective to diffuse sustainability under context-specific conditions, but limit long-term sustainability management development; (v) non-mediated bases of power favouring a more relational approach are widely considered as an enabler to the diffusion of SSCM.

This work contributes to the sustainable supply chain management literature by providing the first contextualised understanding of the role of power in SSCM, elaborating on the power-related circumstances that enable or impair the diffusion of sustainability in supply chains. The theoretical anchoring of the review allows to elaborate on what power positions and through which mediated and non-mediated bases of power, supply chain sustainability diffusion occurs.

1. Introduction

Companies are increasingly required to manage their business sustainably (Kähkönen et al., 2023). Regulatory bodies, customers and non-governmental organisations are demanding an enhanced consideration of sustainability aspects within companies' operations to account for the impact of economic activities on the environment and society (Kim et al., 2022; Tuni and Rentizelas, 2019). However, sustainability goals cannot be achieved by single organisations alone (Touboulic et al., 2014), as companies rely extensively on supply chains for the development, production and delivery of products to customers (Meqdadi et al., 2017). Supply chains are key determinants of environmental and social impacts (Touboulic et al., 2014). Scope 3 emissions account up to 99 % of total emissions by companies in certain sectors (Wieland and Creutzig, 2025), while global and fragmented supply chains with limited traceability enhance the risks of social misconducts in upstream sub-suppliers with large cultural, institutional and socio-economic distance (Chand and Tarei, 2021; Hoejmose et al., 2013; Meinlschmidt et al., 2018).

Sustainable supply chain management (SSCM) emerged to address these issues (Seuring and Müller, 2008). Focal companies typically drive the efforts for achieving SSCM thanks to their prominent position within the network, aiming to reduce reputational exposure risk they are exposed to (Meinlschmidt et al., 2018; Sancha et al., 2019) due to the

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* Corresponding author.
E-mail addresses: andrea.tuni@polito.it (A. Tuni), flavia.cicerelli@polito.it (F. Cicerelli), marianna.giorgetti@studenti.polito.it (M. Giorgetti).

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'chain liability' effect, which holds them responsible for unsustainable suppliers and sub-suppliers behaviours (Hartmann and Moeller, 2014). Nevertheless, the implementation of SSCM is not straight-forward for focal companies, as suppliers and sub-suppliers often perceive limited advantages from costly compliance with sustainability standards (Grimm et al., 2014; Jamalnia et al., 2023; Villena, 2019). The implementation of SSCM is thus significantly influenced by business relationships (Talay et al., 2020).

Power is an intrinsic feature of social organisations and an instrument for managing inter-organisational relationships (Kähkönen, 2014). The concept of power can be defined in multiple ways, such as the ability to manage the perceptions of other parties (French and Raven, 1959) or the ability of an actor to influence other actors in exchange transactions (Blau, 1964). Within a supply chain context, power instead is defined as "the net dependence of the one on the other" when referring to buyer-supplier dyads (Dabhilkar et al., 2016) or as "the ability to influence decision-making and actions of the other party" when referring to broader supply networks (Kähkönen, 2014; Kähkönen and Virolainen, 2011).

Power plays a significant role in supply chain management shaping inter-firm relationships along supply chains (Benton and Maloni, 2005). Power influences occur at the supplier-buyer interface within dyadic relationships or can extend across multiple organisations in multi-tier supply chains (Benton and Maloni, 2005; Cox, 1999; Håkansson, 1982; Ireland and Webb, 2007; Marttinen and Kähkönen, 2022). Power sources are abundant and multi-fold: they can originate from organisation-specific features, from buyer-supplier relationships or from organisations' position, role and actions in the multi-tier supply chain (Kähkönen and Virolainen, 2011; Marttinen and Kähkönen, 2022).

The use of power, being embedded in inter-firm relationships, naturally transitioned to SSCM, as organisations exercise their power to ensure that companies in the supply chains meet environmental and social standards and engage with sustainability practices (Schutte et al., 2022). Focal companies adopted a variety of coercive and collaborative approaches to extend their sustainability strategies initially to suppliers and subsequently to sub-suppliers (Mena and Schoenherr, 2020; Tachizawa and Wong, 2014). Power was recognised as a key contingency variable in multi-tier SSCM, having a prominent role in shaping SSCM governance mechanisms (Tachizawa and Wong, 2014) and in affecting the ability to forward sustainability to lower supply chain tiers (Marttinen and Kähkönen, 2022).

However, "the application of power and suppliers' responses may significantly be different in sustainable supply chains" compared to traditional supply chain management contexts (Talay et al., 2020), due to distinctive features of sustainability management. Sustainability introduces logics going beyond the commercial domain (McLoughlin and Meehan, 2021; Touboulic et al., 2014) and business power dynamics may not hold within SSCM, as commercially weaker parties may be the main drivers of sustainability performance (Talay et al., 2020; Touboulic et al., 2014), decoupling economic dimension of sustainability from environmental and social ones. Nevertheless, the benefits of sustainability management are often shared in an unbalanced way along the supply chain, preserving the dominant economic logic orientation (McLoughlin and Meehan, 2021; Sarkis et al., 2019). Finally, the very nature of sustainability conceptually questions the appropriateness for dominant players to exploit their power over dependent players within supply networks (Meqdadi et al., 2017; Pagell et al., 2010). These characteristics require an updated institutional logic in SSCM compared to traditional SCM (McLoughlin and Meehan, 2021), calling for an increased understanding of how "different forms of use of power affect the dissemination and practices of sustainability" in SSCM (Marttinen and Kähkönen, 2022). Prior research has provided conflicting views on this role, citing power as an enabler (Marttinen and Kähkönen, 2022; Tian et al., 2024) or a barrier (Marttinen and Kähkönen, 2022; Vandchali et al., 2020) to sustainability diffusion in different contexts, calling for a comprehensive overview of the role of power in SSCM and leading to our research question.

RQ: What is the role of power in diffusing sustainability along supply chains?

To answer this research question, we systematically review 63 papers on power in SSCM, adopting the power matrix (Cox, 2001) and the bases of power (French and Raven, 1959) as the theoretical lenses to guide the analysis. The work contributes to the SSCM literature by providing the first contextualised understanding of the role of power in SSCM, elaborating on the power-related circumstances that enable or impair the diffusion of sustainability in supply chains. The remaining part of this paper is structured as follows. Section 2 reviews existing literature reviews in SSCM and defines the theoretical background for this work. Section 3 presents the methodology used to conduct the systematic literature review. Results are presented in Section 4, and discussed in Section 5, where future research directions are also outlined. Finally, Section 6 concludes this paper.

2. Background

2.1. Previous literature reviews on sustainable supply chain management

Sustainable supply chain management is defined as "the management of material, information and capital 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 which are derived from customer and stakeholder requirements" (Seuring and Müller, 2008, pp. 1545). This definition of SSCM was provided in one of the earliest literature reviews on the topic, which located relevant publications starting from 1994 and shaped research directions in the earlier phases of development of SSCM. As the research topic progressively became more mature, multiple literature reviews were published, with various focus areas including definitions (Ahi and Searcy, 2013), governance mechanisms (Gimenez and Tachizawa, 2012; Tachizawa and Wong, 2014), capabilities (Mahajan et al., 2023; Siems et al., 2021), performance measurement systems (Beske-Janssen et al., 2015; Tajbakhsh and Hassini, 2015; Tuni et al., 2018), SSCM practices (Beske et al., 2014; Golicic and Smith, 2013), theoretical perspectives in SSCM (Miemczyk et al., 2012; Touboulic and Walker, 2015). Additional literature reviews focused on specific sectors which are particularly scrutinised due to unsustainable practices along the supply chain, such as energy (Hmouda et al., 2024), minerals (Sauer and Seuring, 2017) and fashion (Karaosman et al., 2017; Köksal et al., 2017).

Structured and systematic literature reviews have been increasingly been employed to increase the robustness of review studies, ensuring replicability and transparency of studies (Touboulic and Walker, 2015; Tranfield et al., 2003). Interested readers may refer to Carter and Washispack (2018), who provide an extensive overview of the state-of-the-art in SSCM, by reviewing existing literature reviews in the field. Carter and Washispack (2018) also suggest that generic literature reviews which overview the content and map themes in SSCM are reaching a point of saturation, indicating as future opportunities for systematic literature reviews in the field: (i) the investigation of the relationships among SSCM constructs and (ii) the integration and juxtaposition and development of theory surrounding SSCM. Aiming to contribute to the SSCM literature, this work juxtaposes theories related to power from two fields (procurement and supply management, social psychology), using them as theoretical lenses to review the SSCM literature. Section 2.2 introduces the power matrix (Cox, 2001a) and the five bases of power (French and Raven, 1959), which are adopted as the theoretical lenses to guide the research.

2.2. Theoretical background

2.2.1. The power matrix

Power dynamics in buyer-supplier relationships play a crucial role in

shaping procurement and supply management strategies. The power matrix (Fig. 1), conceptualized by Cox (2001a), provides a comprehensive framework to understand the exchange relationships between buyers and suppliers based on the relative scarcity and utility of resources. The matrix categorizes buyer-supplier relationships into four distinct power positions: buyer dominance, supplier dominance, interdependence, and independence. Each of these positions reflects the varying degrees of leverage available to buyers and suppliers, ultimately influencing decision-making, performance outcomes, and the feasibility of long-term collaboration (Chkanikova, 2016; Cox, 2001a; Touboulic et al., 2014).

Buyer dominance occurs when the buyer possesses significant leverage over suppliers due to factors such as market power, alternative sourcing options, and supplier dependence on the buyer's business (Cox, 2001a; Grimm et al., 2018). Key attributes of buyer dominance include a high buyer share of the supplier's total market, low buyer switching costs, and limited supplier alternatives. Suppliers operating under buyer dominance face high switching costs, standardized offerings, and minimal information asymmetry advantages over buyers (Cox, 2001a). In such cases, buyers can dictate terms without significant pushback from suppliers (Hoejmose et al., 2013). Conversely, supplier dominance arises when suppliers control scarce and valuable resources, placing them in a position of strength (Cox, 2001a; Talay et al., 2020). Suppliers in this position can leverage their unique offerings and limit availability to select buyers. The latter, on the other hand, face significant challenges due to high dependency, customized offerings, and substantial information asymmetry in favour of suppliers (Chkanikova, 2016; Cox, 2001a; Hoejmose et al., 2013). Interdependent relationships are characterized by a balanced distribution of power, where both parties rely on each other to achieve mutual goals (Cox, 2001a). These relationships often involve collaborative efforts, joint investments, and shared risks to enhance supply chain resilience and innovation (Touboulic et al., 2014). Lastly, independent relationships occur when neither the buyer nor the supplier has significant leverage over the other, resulting in market-driven transactions with limited influence exerted by either party (Cox, 2001a; Touboulic et al., 2014).

Cox (2001b) and Chkanikova (2016) emphasize that effective procurement strategies must be grounded in an objective assessment of these power positions, enabling organisations to make informed decisions regarding supplier selection, contract negotiation, and long-term relationship management. Another critical insight derived from the power perspective is the recognition that power dynamics are not static (Gruchmann, 2022); they evolve over time due to changes in market conditions, technological advancements, and shifts in bargaining power (Cox, 2001b). Cox's framework thus provides a pragmatic lens for understanding power asymmetries and dynamics in SSCM. In the context of diffusing sustainability practices upstream, the power matrix can be leveraged as a tool to help identify whether power acts as an enabler or a barrier for sustainability diffusion based on the four power positions.

2.2.2. *Bases of power*

Power may further be viewed as a social influence phenomenon

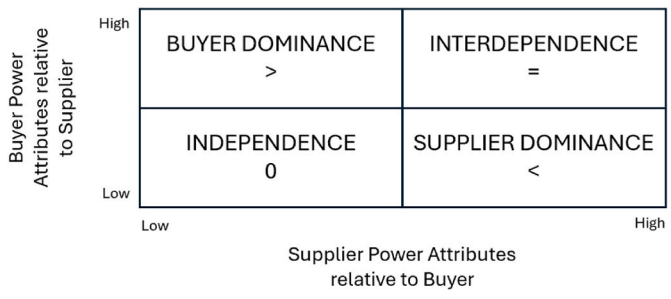

Fig. 1. *Power Matrix* (Cox, 2001a).

(French and Raven, 1959), which is intrinsic to organisations (Kähkönen, 2014). Under this lens, power can be defined as the ability to manage the perceptions of other parties (French and Raven, 1959). Within this social context, French and Raven (1959) theorised five mutually non-exclusive bases of power, which have been applied to the operations management context: coercive, reward, legitimate, referent and expert power. The bases of power can be further classified into mediated and non-mediated power sources within supply chain management (Benton and Maloni, 2005). Mediated sources include strategies that the source directly administers to the target to obtain an expected effect and are usually associated to competitive and negative uses of power (Benton and Maloni, 2005; Nyaga et al., 2013). Non-mediated sources instead are not purposefully administered from the source and are more relational and positive, naturally occurring within supply chains (Benton and Maloni, 2005). Coercive and reward power are labelled as mediated power sources, whereas referent and expert power are labelled as non-mediated power sources (Marshall et al., 2019; Nyaga et al., 2013). Legitimate power is considered as a mediated power source in its *legal legitimate* form, whereas it is a non-mediated power source in its *traditional legitimate* form (Benton and Maloni, 2005; Nyaga et al., 2013).

Coercive power occurs when the "source threatens to deliver aversive outcomes or fails to deliver positive outcomes to the target" (Huo et al., 2017), if the target does not conform to a specific set of behaviours determined by the source (Meqdadi et al., 2019). The target may either perceive or have a direct evidence of the punishment (Etgar, 1978), which are mediated by the source (French and Raven, 1959; Meqdadi et al., 2019). The source thus accesses to specific resources which support the credibility of its threats (Huo et al., 2017).

Other forms of power are collectively grouped as non-coercive as they exploit a more subtle way to exploit a position of power (Huo et al., 2017; Meqdadi et al., 2019). Reward power is based on the target perception that the source has "the ability to mediate rewards" for it (French and Raven, 1959). This occurs when the source has or is believed to have access to highly valued resources by the target (Etgar, 1978). Mirroring the expected outcomes happening in coercive power types, sources can either promise positive outcomes or to remove negative outcomes for the target (Huo et al., 2017). These rewards are mediated directly from the source company to the target company (Meqdadi et al., 2019).

Legitimate power occurs when the target has a perception that a source has a legitimate right to prescribe certain behaviours. (French and Raven, 1959). The source is invested of leadership role, which confers to it an authority to make decisions and expect compliance with such decisions (Etgar, 1978; Meqdadi et al., 2019). The source's authority can be determined by its organisational or positional role within a supply network (Huo et al., 2017). This traditional form of legitimate power is typically non-mediated by the source (Benton and Maloni, 2005), however legitimate power can be also a mediated source of power in its legal legitimate form, which occurs when the source purposefully influences and/or exerts control over the target based on contractual and legal agreements (Mokhtar et al., 2019; Nyaga et al., 2013).

Referent power is based on the identification of the target with the source (French and Raven, 1959) and the desire of the target to emulate the source (Etgar, 1978). The target thus values the association with the source, due to its willingness to act similarly (Håkansson, 1982; Meqdadi et al., 2017), and to reap image and reputation benefits in the market (Meqdadi et al., 2019). The source is highly acknowledged by the target, which perceives that the source has a genuine right to influence it (Huo et al., 2017). The target voluntarily accepts such influence based on its internal values (Huo et al., 2017).

Finally, expert power is based on the perception of the target that the source possesses some special knowledge or expertise (French and Raven, 1959), which the target typically does not possess (Huo et al., 2017). The perfected knowledge by the source is typically acknowledged

against the target's knowledge, however it can also be referred to absolute standards (Huo et al., 2017). The source is esteemed as a credible company based on previous information that the target possesses (Håkansson, 1982; Meqdadi et al., 2019).

This work adopts the five bases of power as the theoretical lens to explore how power is enacted to diffuse sustainability in supply chains. This is achieved through a systematic literature review (Section 3), which contextualises the bases of power within SSCM.

3. Methodology

Fink (1998) defines a literature review as "a systematic, explicit, and reproducible design for identifying, evaluating, and interpreting the existing body of recorded documents". Literature reviews facilitate the summarization and condensation of existing knowledge in a specific field and enable theory development (Sauer and Seuring, 2023). Moreover, literature reviews assist the identification of research gaps in the extant literature that can guide future research (Koberg and Longoni, 2018). The aim of this literature review is to systematically evaluate the existing literature on the role of power in SSCM, contextually exploring how power drives or hinders the diffusion of sustainability in supply chains. This is accomplished by conducting a systematic literature review based on the structured process identified by Sauer and Seuring (2023), depicted in Fig. 2.

First, the research question was formulated, following the identification of the research gap in existing literature reviews in SSCM (Section 2.1). A contextualised literature review type was selected (Durach et al., 2021), which is a suitable approach for mostly case study-based literature (see Section 4.1) and requires a sound theoretical backbone. Therefore, a theoretical anchor for the review process was selected (Section 2.2.1 and Section 2.2.2), to provide the key terminology for the work and to enable a consistent reference for the analysis.

Second, the required features of the primary studies were determined, leading to the definition of a set of inclusion and exclusion criteria, listed in Table 1. Primary studies' eligibility is determined based on the methodology adopted, the conceptualisation of power in the study as well as by a specific focus on SSCM. Primary studies should demonstrate a clear supply chain orientation and target at least one between the environmental and the social dimension of sustainability. Moreover, primary studies were limited to articles appearing on peer-reviewed journals and published in English.

Third, a sample of potentially relevant literature was retrieved, by defining suitable literature sources and databases, defining search terms and crafting a search string. Scopus and Web of Science (Social Sciences Citation Index and Emerging Sources Citation Index) were selected to source articles due to their quality assurance mechanisms (Sauer and Seuring, 2023). Scopus is the largest peer-reviewed journal database in the management and engineering fields (Hmouda et al., 2024; Mahajan et al., 2023; Tuni et al., 2018), whereas Web of Science has a more distinct focus on social sciences (Hahn et al., 2025), thus making the combination of these databases a favoured choice in systematic literature reviews (Sauer and Seuring, 2023). Search terms were defined according to the three key areas of investigation, namely power, sustainability and supply chains. Dependency and power were used as two alternative keywords in the strings, as dependency depicts "being in a weak position" in dyadic relationships, thus being semantically related to power (Rezaei Vandchali et al., 2021). The following keyword strings were used:

1. (power OR dependenc*) AND ("sustainable supply chain" OR "green supply chain" OR "environmental supply chain" OR "responsible supply chain" OR "ethical supply chain" OR "social supply chain")
2. (power OR dependenc*) AND (sustainab* OR green OR environment* OR responsible OR ethical OR social) AND ("multi-tier supply chain")
3. (power OR dependenc*) AND (sustainab* OR green OR environment* OR responsible OR ethical OR social) AND (buyer) AND (supplier)

Fourth, duplicate removal, title screening and abstract screening were applied to the 1509 papers resulting from the keyword search. To increase research reliability, two reviewers performed title and abstract screening independently and compared the results. Any disagreement on paper inclusion was followed by discussion until final consensus was reached, leading to a sample of 58 articles. A first-degree forward and backward referencing search was applied to the shortlisted papers to identify potential additional papers relevant for the review (van Capelleveen et al., 2023). These papers were similarly filtered according to inclusion and exclusion criteria displayed in Table 1. This activity led to the identification of further five papers, which are listed in Table A.1. Finally, a quality criterion was applied to ensure a high-quality of review findings (Sauer and Seuring, 2023): this was enforced by only including articles published in the top-two quartiles[1] of the SCImago Journal Rank (SJR), which enables an analysis and comparison of journals belonging to different scientific domains (Hahn et al., 2025). The complete process of papers search and selection to reach the final sample is depicted in Fig. 3.

Fifth, the papers sample underwent content analysis and the literature was synthetised. Papers were reviewed according to the following dimensions: (1) methodology; (2) unit of analysis; (3) theory; (4) power positions in dyadic buyer-supplier relationships and in multi-tier SCs; (5) bases of power. Two researchers independently analysed and coded the reviewed literature to increase the reliability of the process (Dieste et al., 2022). Dimensions (4) and (5) represent the core of this literature review and involved an iterative approach involving both inductive and deductive reasoning to link empirical findings emerging from the reviewed body of literature to the theoretical anchors illustrated in Sections 2.2.1 and 2.2.2 (Durach et al., 2021). Inductive reasoning was primarily adopted to evaluate the enabling or impairing mechanism of power to supply chain sustainability diffusion, whereas deductive reasoning was adopted to match emerging codes to the categories identified through the selected theoretical lenses.

Finally, results from the systematic literature review process are documented in this work. Section 4 provides a brief bibliometric analysis of the reviewed literature and summarises the key findings of the content analysis, answering to the research question, while Section 5 discusses the contribution of the work and future research directions.

4. Results

4.1. Descriptive analysis

The timeline of publications of the 63 papers is displayed in Fig. 4. The earliest publication dates back to 2000, corresponding to an early investigation of environmental supply chain dynamics by Hall (2000). The chart indicates a progressive increase in the published material throughout the years, with a steady number of papers published yearly from 2018, with the only exception of 2023, indicating the novel and developing status of the research field. The peak publications number was reached in 2021 with 10 papers part of the sample.

The 63 publications are spread over 32 journals (Table 2). International Journal of Operations and Production Management has the most publications (12 papers), followed by the Journal of Cleaner Production (7) and the International Journal of Production Economics (4). The majority of papers were published in SCM, operations management and business journal, with a balanced representation of broader management journals, SCM-specific journals and niche journals dedicated to

[1] Journals ranked in multiple quartiles in different scientific domains were allocated to the highest quartile.

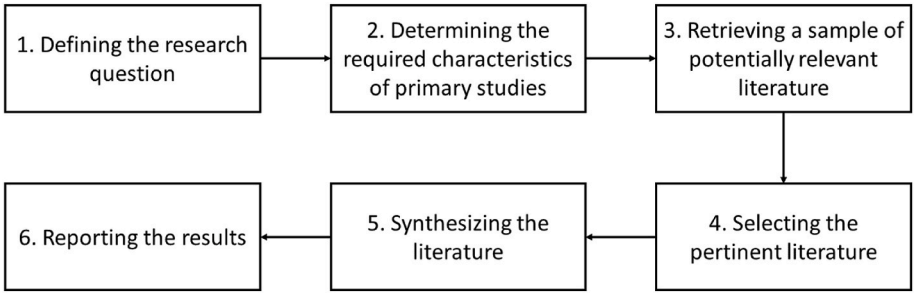

Fig. 2. Systematic literature review process (adapted from Sauer and Seuring, 2023).

Table 1
Inclusion and exclusion criteria.

Criteria	Inclusion	Exclusion
Methodology dimension		• Quantitative mathematical modelling, i.e., game-theory models and mathematical programming models
Power dimension	• Power intended as a social and relational ability of actors to impose their will on others • Power is central to the aim of the work • Power is identified as a main construct in the findings of the work	• Power intended as a source or mean of supplying energy • Power intended as driving and dependence power between elements of interest in interpretive structural modelling or MICMAC analysis
Supply chain dimension	Two or more players of the supply chain must be considered	Wider level of analysis such as industrial sectors and regional analysis
Sustainability dimension	Focus on environmental and/or social dimension of sustainability	Focus solely on the economic dimension of sustainability

sustainability management themes, e.g., Journal of Business Ethics (3), Business, Strategy and the Environment (3). Few journals with a distinct sustainability interdisciplinary focus at the core of their scope are represented in the sample (Journal of Cleaner Production, Cleaner Environmental Systems, International Journal of Environmental Science and Technology, Journal of Industrial Ecology, Sustainable Production and Consumption, Sustainability) and they jointly account for 19 % of the papers included in the sample. This finding clashes with previous observation on the broader SSCM literature reviews (Carter and Washispack, 2018), which found a significant portion of studies on SSCM published on journals not belonging to the SCM or operations management discipline. Being power intrinsically a relational dynamic, it appears that studies at the intersection of power and SSCM have been predominantly captured by scholars from the SCM and operations management communities.

A good variety of methodologies were adopted in the reviewed literature: qualitative approaches are more frequent in the reviewed papers, being employed in 39 studies (Table 3). Within qualitative approaches, single and multiple case studies largely dominate the sample (27 papers), highlighting the emphasis on in-depth, contextual analysis of power dynamics within the context of sustainable supply chains. The relative novelty of SSCM naturally called for descriptive and exploratory studies to seek new insights and clarify the understanding of phenomena. Other qualitative methods, such as Conceptual papers (5 papers), Systematic Literature Review (2) and Ethnographic Research (2) indicate a diverse yet limited application of alternative approaches.

Conversely, quantitative approaches are employed in 21 papers with surveys (10) and regression analysis (8) being the dominant methods, reflecting a focus on empirical testing and statistical generalizability. The presence of more specialized techniques, such as Agent-Based Models (2), suggests an emerging interest in advanced methodologies to capture different facets of the phenomena under scrutiny. Finally, mixed-method approaches are the least represented, with only 3 papers utilizing hybrid techniques, such as Delphi or DEMATEL studies.

Focusing on the adopted units of analysis, the majority of studies focus on dyadic relationships with 26 papers analysing the focal firm-supplier dyad and 6 papers addressing the supplier-supplier dyad. This emphasis reflects the centrality of direct buyer-supplier interactions in shaping power dynamics and thus impacting sustainability diffusion along the chain. Fewer studies examined multi-tier supply chains (12), i.e., vertically complex supply chains moving beyond first-tier supplier to include sub-suppliers (Gruchmann, 2022; Jamalnia et al., 2023; Mena

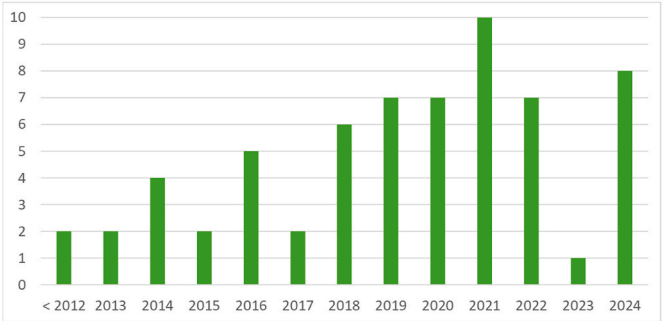

Fig. 4. Temporal distribution of papers.

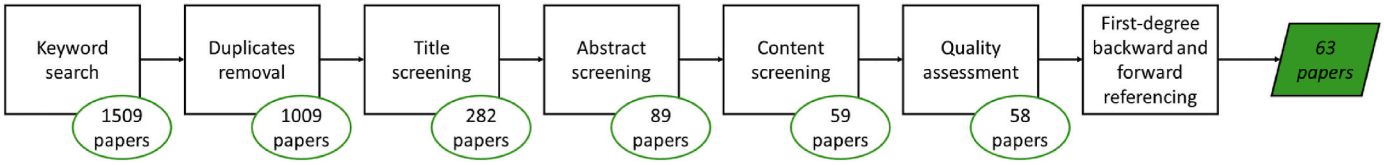

Fig. 3. Literature selection process outcome.

Table 2
Distribution of papers by journal.

Journal	Number of articles	Sources
International Journal of Operations and Production Management	12	(Ahmed and Shafiq, 2022; Y. Cao et al., 2024; Z. Cao et al., 2024; Dabhilkar et al., 2016; Glover, 2020; Hajmohammad and Shevchenko, 2020; Hohn and Durach, 2021; Marttinen and Kähkönen, 2022; McLoughlin and Meehan, 2021; Meinlschmidt et al., 2018; Peng et al., 2022; Wontner et al., 2020)
Journal of Cleaner Production	7	(Dania et al., 2018; Franco, 2017; Grimm et al., 2016, 2018; Hall, 2000; Helin and Babri, 2015; Patchell, 2018)
International Journal of Production Economics	4	(Grimm et al., 2014; Jia et al., 2019; Tian et al., 2024; Wilhelm et al., 2016b)
Business Strategy and the Environment	3	(Brennan and Tennant, 2018; Chkanikova, 2016; Yang et al., 2024)
International Journal of Logistics Management	3	(Delbufalo and Bastl, 2018; Gruchmann, 2022; Silva et al., 2020)
Journal of Business Ethics	3	(Amaeshi et al., 2008; Marshall et al., 2019; Meqdadi et al., 2019)
Journal of Purchasing and Supply Management	3	(Chand and Tarei, 2021; Eggert and Hartmann, 2021; Zhang et al., 2021)
International Journal of Physical Distribution and Logistics Management	2	(Chen and Chen, 2019; Fontana et al., 2023)
Journal of Business Research	2	(Else et al., 2022; Talay et al., 2020)
Supply Chain Management: An International Journal	2	(Hoejmose et al., 2013; Tachizawa and Wong, 2014)
Others (journals with single entries in the sample)	22	(Ahmadi-Gh et al., 2024; Archer and Elliott, 2021; Bag et al., 2024; Bayne et al., 2019; Brockhaus et al., 2013; Carmagnac et al., 2022; Gelderman et al., 2021, 2024; Gold et al., 2020; Kim et al., 2022; Liu et al., 2019; Liu and Heugens, 2024; Lo, 2015; Meqdadi et al., 2017; Rezaei Vandchali et al., 2020, 2021; Sheu, 2014; Touboulic et al., 2014; Wilhelm et al., 2016a; Wilhelm and Villena, 2021; Yang et al., 2021; Young et al., 2019)
Total	63	

et al., 2013), and supply networks (6), featuring increased complexity due to vertical and horizontal relationships (Gruchmann, 2022; Mena et al., 2013), suggesting that the broader systemic interactions involving multiple actors remain underexplored.

Notably, qualitative methods, particularly case study research, predominantly focus on focal firm-supplier dyads (14), reinforcing the need to understand power asymmetries in direct sourcing relationships. In contrast, conceptual studies appear to favour multi-tier supply chains (4), indicating a tendency to theorize about power diffusion at a broader level rather than through empirical investigation. Surveys and regression analyses, as part of quantitative approaches, primarily investigate focal firm-supplier dyads (4 and 5 papers, respectively), suggesting an inclination towards testing relational dynamics within established buyer-supplier structures.

Turning to the theoretical perspectives considered in the reviewed studies, Fig. 5 highlights, differently from previous generic literature reviews on SSCM, that the majority of papers (70 %) adopted a theoretical lens to guide the work development, whereas only 30 % of papers did not employ any theory in their work. Individual studies can adopt more than one theoretical lens, reflecting the complexity and multidimensionality of power dynamics within sustainable supply chain contexts, although this approach was not extensively identified in the literature.

Resource Dependence Theory (18 papers) is unsurprisingly the theory adopted with the highest frequency in our sample (Fig. 5). This finding underscores the critical role of resource interdependencies in shaping the interplay between power dynamics and SSCM strategies. Stakeholder Theory (6) emerges as the second most commonly applied theoretical lens, reflecting the increasing emphasis on balancing and addressing the interests and pressures of diverse stakeholders in SSCM. Bases of Power Theory (5) and Institutional Theory (4) also feature prominently in the sample, while other theories, including perspectives from neighbouring fields, are used sparingly, opening opportunities for further theoretical diversification to enrich the understanding of sustainability-related complexities.

4.2. Power positions in sustainable supply chain management

The power positions in SSCM are summarised in Table 4. As reviewed papers may mention multiple constructs within the same work, totals for each first-level construct (e.g., power asymmetry) may be lower than the sum of their associated second-level constructs (e.g., buyer dominance and supplier dominance). Table 4 shows that power asymmetries were predominantly investigated in the literature, being represented in 87 % of the papers, while power symmetries quadrants were addressed in 24 % of the sample. Among power positions, buyer dominance was indisputably the dominant quadrant, confirming that power sources are concentrated in large downstream players (Marttinen and Kähkönen, 2022). 77 % of the papers refer to this quadrant, which includes two sub-categories, namely “buyer dominance” and “supplier dependence”, according to the perspective adopted in the original study. Similarly, “supplier dominance” and “buyer dependence” are merged in the supplier dominance power position according to the framework by Cox (2001a). Sections 4.2.1 and 4.2.2 elaborate on power positions in dyadic buyer-supplier relationships and in multi-tier supply chain context respectively.

4.2.1. Power positions in dyadic relationships

4.2.1.1. Buyer dominance. Buyer dominance is widely acknowledged either as a pre-requisite to implement SSCM (Gelderman et al., 2024; Talay et al., 2020) or as an enabling factor to achieve SSCM (Helin and Babri, 2015) in dyadic buyer-supplier relationships. Buyers leverage their power from organisational power sources, such as size, brand, resources, capabilities and competences (Lo, 2015; Marttinen and Kähkönen, 2022; McLoughlin and Meehan, 2021), as well as dyadic power sources, such as purchasing volumes, market power, information and the availability of alternatives and substitutes (Chkanikova, 2016; Grimm et al., 2014; Marttinen and Kähkönen, 2022; McLoughlin and Meehan, 2021; Tian et al., 2024; Wilhelm et al., 2016b). Size, purchasing volumes, dependencies, expertise and special knowledge were similarly identified in dyadic supplier-supplier relationships featuring the dominance of the downstream player (Marttinen and Kähkönen, 2022; Meqdadi et al., 2017). Finally, the potential capability of buyers to vertically integrate their supply chain can also contribute to their power (Hall, 2000).

Several studies argue that buyer power is required to drive suppliers to adopt sustainable practices (Gelderman et al., 2024; Liu et al., 2019; Meqdadi et al., 2017) and achieve suppliers’ compliance (Helin and Babri, 2015), as suppliers are more inclined to prioritise buyers’ sustainability demands under asymmetric power relationships, i.e. strong buyer dominance (Grimm et al., 2014; Tian et al., 2024; Touboulic et al., 2014; Wilhelm and Villena, 2021). Conversely, the lack of buyer power was associated to the failure of SSCM initiatives (Meqdadi et al., 2019; Touboulic et al., 2014). Buyer power can be enacted through persuasion or coercion (Meqdadi et al., 2017), however powerful buyers are more likely to implement sustainable supply chain practices through coercive

Table 3
Classification of methodological approaches.

				Unit of analysis[a]					
Approach	Number of papers (N = 63)	Method	Number of papers (N = 63)	Buyer	Supplier	Dyad (focal firm-supplier)	Dyad (supplier-supplier)	Multi-tier Supply Chain	Supply Network
Qualitative	39	Case study research	27	5	2	14	5	3	3
		Conceptual study	5			1		4	
		Ethnographic research	2		1			1	
		Systematic Literature Review	2	1					1
		Critical Discourse Analysis	2						2
		Field Study	1					1	
Quantitative	21	Survey	10	4	4	4			
		Regression Analysis	8	3	1	5			
		Agent-Based Model	2	1			1		
		Multivariate analysis	1			1			
Mixed	3	DEMATEL	2					2	
		Delphi study	1					1	
Total				14	7	26	6	12	6

[a] The total number of papers assigned to different units of analysis exceeds the total number of reviewed papers because some studies incorporate multiple units of analysis within their research design.

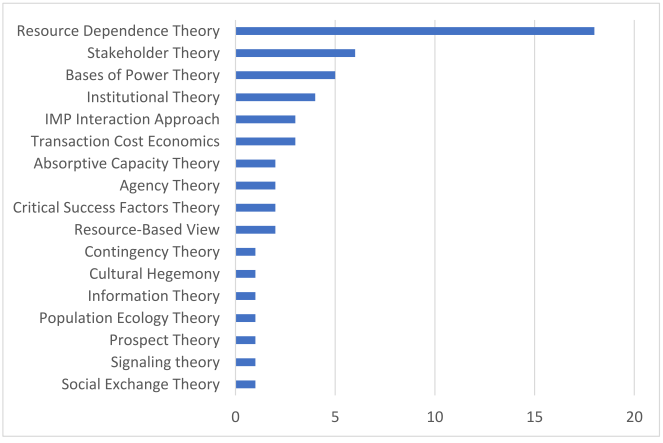

Fig. 5. Theoretical lenses.

Table 4
Power positions in sustainable supply chain management.

Power position	Enabler	Barrier
	Number of papers (N = 63)	Number of papers (N = 63)
Power asymmetry	**39**	**37**
Buyer dominance	38	18
Supplier dominance	6	23
Power symmetry	**14**	**9**
Independence	1	7
Interdependence	14	4
Symmetry *(undisclosed)*	3	3

mechanisms (Touboulic et al., 2014), by forcing suppliers to adhere to sustainability standards (Rezaei Vandchali et al., 2021).

Under buyer dominance conditions, hierarchically dominant buyers are able to shape SSCM strategy and agenda, with a top-down implementation of sustainability initiatives (McLoughlin and Meehan, 2021; Touboulic et al., 2014). Buyer dominance was found to positively impact suppliers' green innovation (Yang et al., 2024), collaboration (Franco, 2017; Hoejmose et al., 2013), sustainable performance (Tian et al., 2024), sustainability expertise (Marttinen and Kähkönen, 2022) and compliance to SSCM (Dabhilkar et al., 2016; Delbufalo and Bastl, 2018; Hajmohammad and Shevchenko, 2020; Touboulic et al., 2014).

Yet, buyer dominance in SSCM is not immune from side-effects, which can compromise both buyer-supplier relationships and the diffusion of sustainability. Buyers often use their power driven solely by risk reduction and exploit their power to pass the sustainability risks to suppliers (Talay et al., 2020). This is often coupled with outsourcing additional responsibilities to suppliers, forcing them to comply with buyers' sustainable policies and strategic development, without an adequate economic recognition of these efforts (Talay et al., 2020). Sustainability initiatives require upfront investments and are not cost neutral (Wontner et al., 2020). Therefore, the excessive use of power to implement SSCM was scrutinised as it passes the sustainability costs to weaker suppliers, while powerful buyers reap the largest share of benefits (Touboulic et al., 2014; Wontner et al., 2020). This opportunistic use of power by buyers is perceived as driven by financial interests rather than by sustainability goals (Amaeshi et al., 2008; Fontana et al., 2023). The use of buyer power is particularly critical under transactional and short-term contracts, which further increase supplier dependence on powerful buyers (Wontner et al., 2020). As a result, the quality of buyer-supplier relationship is likely to deteriorate if suppliers' perspective is not adequately considered by buyers, potentially leading to relationship failure in extreme instances (Touboulic et al., 2014). Finally, the hierarchical approach adopted by buyers strictly follows economic logic, preventing the development of alternative logics more aligned with the goals of sustainability (McLoughlin and Meehan, 2021).

Relationship tensions due to excessive use of buyer power can hamper the achievement of long-term sustainability goals, due to increasing resistance by suppliers (Touboulic et al., 2014; Wilhelm and Villena, 2021). Buyer power was identified as indirectly disincentivising suppliers' implementation of social sustainability (Fontana et al., 2023) and insufficient to acquire environmental information beyond minimum compliance due to the perceived short-term orientation and lack of strategic outlook (Touboulic et al., 2014). This was highlighted particularly in the absence of mounting pressure on environmental management from external stakeholders (Hall, 2000). Relational mechanisms, opposed to power, were identified as more effective in improving suppliers' sustainability performance (Ahmed and Shafiq, 2022), thus contributing to the puzzled view over the effectiveness of buyer power dominance in SSCM.

4.2.1.2. Supplier dominance. A wide consensus exists on supplier dominance and buyer dependence acting as barrier to the diffusion of

SSCM. This is consistent with the predominantly focal company-centric discussion on SSCM (McLoughlin and Meehan, 2021), which views focal companies as leaders in driving SSCM forward (Tian et al., 2024). The same logic replicates also within supplier-supplier dyads (Marttinen and Kähkönen, 2022; Meqdadi et al., 2017; Wilhelm et al., 2016b).

At the dyadic level, supplier dominance is negatively associated with the adoption and implementation of SSCM (Touboulic et al., 2014) and power asymmetry skewed towards suppliers is associated with sustainability non-compliance of suppliers (Delbufalo and Bastl, 2018). When supplier relative power is high, downstream firms lack leverages to pressure suppliers to operate and to source sustainably (Dabhilkar et al., 2016; Hoejmose et al., 2013; Marttinen and Kähkönen, 2022). Also coercive pressures to terminate the relationship are ineffective (Hoejmose et al., 2013). Under supplier dominance, downstream companies face reticence by suppliers (Franco, 2017; Hoejmose et al., 2013) and are unable to influence suppliers over product sustainability performance (Chkanikova, 2016), due to low purchasing volumes compared to supplier total sales (Franco, 2017; Helin and Babri, 2015; Hoejmose et al., 2013; Lo, 2015), size asymmetry (Franco, 2017; Marttinen and Kähkönen, 2022; Wilhelm et al., 2016b), lack of alternative suppliers (Cao et al., 2024; Chkanikova, 2016), supplier concentration (Cao et al., 2024; Chkanikova, 2016). This pattern is confirmed also within supplier-subcontractors dyads, making sustainability diffusion mechanisms ineffective in such instances (Gold et al., 2020). This is exacerbated when sustainability requirements do not stem from suppliers, but suppliers act as messenger for focal companies (Marttinen and Kähkönen, 2022; Wilhelm et al., 2016a). Furthermore, collaboration between suppliers may generate collective power of suppliers, which makes them increasingly able to resist to demands by focal companies to change their practices, something that is not observable on an individual basis (Touboulic et al., 2014). Supplier dominance negative impact on SSCM diffusion is embedded in relationships with low level of engagement of sustainability and a high focus on commercial aspects (Touboulic et al., 2014), as evidenced by the power sources falling within a pure economic logic.

Supplier dominance was instead identified as an enabling factor for sustainability diffusion in few papers, featuring a logic going beyond the economic dimension. When sustainability is valued by downstream players, accessing sustainability performance in the upstream supply chain may be challenging due to a restricted number of potential suppliers (Chkanikova, 2016; Silva et al., 2020). Similarly, buyers depending on their suppliers for their sustainability objectives, are more likely to be increasingly engaged in SSCM and to invest on the relationship with dedicated resources (Peng et al., 2022). The dependence of buyers on suppliers for sustainability can lay the foundations for an increasingly collaborative relation, progressively moving from the supplier dominance quadrant to the interdependence quadrant (Chkanikova, 2016; Peng et al., 2022).

4.2.1.3. Power symmetry: interdependence and independence. Power symmetry configurations present distinct features on how sustainability strategies are developed within supply chain relationships. Non-coercive bases of power are fundamental to engage suppliers in sustainability initiatives under power symmetries (Talay et al., 2020), due to the limited impact of coercive power in these settings (Meqdadi et al., 2019).

Interdependence is the predominant form of power symmetry in dyadic settings in our sample. Jointly dependent relationships were identified as the best conditions for socially responsible supply chain management (Hoejmose et al., 2013) and moving towards mutual dependence is seen as a goal for companies aiming for sustainability (Silva et al., 2020). Interdependence fosters collaborative governance and mutual sustainability investments (Bag et al., 2024; Chkanikova, 2016) where both buyers and suppliers actively engage in SSCM under long-term contractual agreements (Chkanikova, 2016). Interdependent dyads are more likely to co-develop sustainability strategies rather than enforce them unilaterally (Talay et al., 2020; Touboulic et al., 2014), ensuring that sustainability practices align with both parties' strategic objectives.

However, interdependence can create barriers to the diffusion of sustainability practices, as firms often struggle to enforce their sustainability objectives when reliant on external actors. Touboulic et al. (2014) and Wontner et al. (2020) highlight how firms facing increasing dependence on suppliers may experience reduced control over sustainability outcomes, as environmental management responsibilities shift outside their direct governance. Additionally, as firms become more dependent on their suppliers, they may become reluctant to establish long-term agreements that could otherwise foster deeper sustainability collaboration (Touboulic et al., 2014). Wilhelm et al. (2016b) illustrate how suppliers can reject firm-specific sustainability requirements when they conflict with broader market expectations in interdependent power positions, while Liu et al. (2019) explain that interdependence, as evidenced by weaker buyer influence, results in greater supplier autonomy, reducing supplier engagement in sustainability programs and limiting their willingness to integrate sustainability knowledge into operations.

Independence is observed in few cases and it mostly acts as a barrier to the diffusion of sustainability practices (Meqdadi et al., 2019), which can further be exacerbated by geographical distance (Marttinen and Kähkönen, 2022). Suppliers that are not dependent on a specific buyer are less influenced by buyers' pressure at any dyad along the supply chain (Meqdadi et al., 2017) and can opt out of sustainability initiatives like codes of conduct or site visits, limiting the buyer's ability to enforce sustainability standards (Meqdadi et al., 2019). Loosely connected independent relationships can hinder the smooth diffusion of sustainability practices (Meqdadi et al., 2019). The lack of strong ties also correlates with limited trust and integration (Silva et al., 2020), where medium mutual dependence can reduce the effectiveness of sustainability efforts, particularly when suppliers are treated as commodity providers rather than strategic partners. These findings consistently show that without strong relational governance, sustainability efforts tend to remain transactional and compliance-driven, rather than fostering deeper environmental and social commitments.

4.2.2. Power positions in multi-tier supply chain relationships

The extension of power positions to multi-tier supply chain contexts was more limited in the existing body of literature, as evidenced from Table 3. Power sources are primarily concentrated in the downstream supply chain players (Marttinen and Kähkönen, 2022), however, buyer dominance over suppliers does not automatically translate into **focal company dominance** in multi-tier SCs as focal company power depends on the network in which a company is embedded, which is independent from dyadic dependencies (Rezaei Vandchali et al., 2021). Increasing power asymmetries along multi-tier SCs facilitate the transition from buyer dominance to focal company dominance, whereas decreasing power asymmetries prevent buyer dominance to extend to the multi-tier supply chain context (Marttinen and Kähkönen, 2022; Wilhelm et al., 2016a).

In the former case, focal companies draw power from multiple sources (Marttinen and Kähkönen, 2022): size, brand and channel power, as evidenced by their position and role within the supply chain, are particularly critical to engage lower-tier suppliers (Grimm et al., 2016; Marttinen and Kähkönen, 2022; Young et al., 2019). Power in long and fragmented multi-tier supply chains may also be leveraged collectively by multiple focal companies in coopetition (Young et al., 2019). Focal company power in multi-tier contexts is typically greater in oligopolistic sectors were brands are well-known and exposed to reputational risk due to public opinion demanding improved environmental performance (Patchell, 2018). Focal company power enables companies to diffuse sustainability policies and standards (Rezaei Vandchali et al., 2020), to influence practices at lower-tier suppliers (Brennan and Tennant, 2018; Meinlschmidt et al., 2018; Rezaei Vandchali et al., 2020), to

obtain lower-tiers compliance (Grimm et al., 2016), to correct sustainability violations (Wilhelm and Villena, 2021) and to create environmental value (Brennan and Tennant, 2018). While some degree of power over suppliers and indirectly over sub-suppliers is considered essential (Grimm et al., 2016; Marttinen and Kähkönen, 2022), the underlying conditions to successfully diffuse sustainability in multi-tier supply chains under focal company dominance are case-dependent. The dyadic focal company-tier 1 supplier power asymmetry was recognised as a key enabler to diffuse sustainability in supply chains, as focal companies may lack direct leverage over lower-tier suppliers, which can be indirectly mediated by tier-1 suppliers (Grimm et al., 2016, 2018). Purchasing volume and market power of focal companies over tier-1 suppliers along with sub-suppliers' perceived dependence on their customers are the main drivers to apply responsible sourcing throughout multi-tier SCs (Grimm et al., 2014, 2016; Young et al., 2019). However, this enabling role of the dyadic power in a multi-tier SC is only functional under increasing power asymmetries along the multi-tier SC (Grimm et al., 2014; Wilhelm et al., 2016b), a dynamic occurring in the automotive or in the textile supply chain (Helin and Babri, 2015; Marttinen and Kähkönen, 2022), but not ubiquitous in other industries.

On the other hand, the reviewed body of literature provides multiple counter-examples on the effectiveness of focal companies' power in supply chain sustainability diffusion, which happen when "buying companies' power does not extend far enough and through the entire multi-tier supplier base and, hence, the effect of power becomes negligent" (Eggert and Hartmann, 2021). Lower-tier suppliers may be sizeable, even larger than the focal company, and/or generate a limited share of turnover through focal company's supply stream (Meqdadi et al., 2019), therefore dyadic power dynamics may not be replicated in a multi-tier context potentially undermining sustainability diffusion. Unresolvable power asymmetries along multi-tier supply chains are the primary cause determining a failure of sustainability diffusion along the SCs (Marttinen and Kähkönen, 2022; Patchell, 2018), limiting the adoption of sustainable practices in multi-tier SCs (Kim et al., 2022a). Such power asymmetries may even narrow the efforts of large multinational companies to their direct suppliers (Patchell, 2018), as tier-1 suppliers are unable to influence their suppliers with respect to sustainability despite holding a powerful position in other business dynamics (Marttinen and Kähkönen, 2022). This inability stems from their messenger role, as requirements are cascaded from focal companies (Marttinen and Kähkönen, 2022). Moreover, extreme cases of critical sustainability violations in multi-tier supply chains remain untouched by power dynamics (Wilhelm and Villena, 2021).

Furthermore, the excessive reliance by powerful focal companies on market dynamics, such as certifications, was scrutinised for its impact on the environmental quality and livelihoods of lower-tier suppliers (Archer and Elliott, 2021), These market dynamics prevent lower-tier suppliers from benefitting from environmental and social benefits (Brockhaus et al., 2013; McLoughlin and Meehan, 2021) and limit the potential of sustainability initiatives due to misaligned incentives (Brockhaus et al., 2013). Collaboration-based relationships were suggested by Eggert and Hartmann (2021) as an alternative more fruitful environmental purchasing and supplier management in the multi-tier context.

Moving from the dyadic to the multi-tier level, **supplier dominance** is still largely seen as a barrier to the diffusion of sustainability in supply chains (Tachizawa and Wong, 2014; Vandchali et al., 2020). Even large multinational companies may lack the power to pull all the strings in complex supply chains with powerful lower-tier suppliers (Patchell, 2018). Power deficiencies over suppliers in multi-tier SCs affect sustainability as they limit supply chain transparency and the control on the sourcing of materials and products (Marttinen and Kähkönen, 2022) as well as sustainable procurement practices (Wilhelm and Villena, 2021). Moreover, they expose companies to suppliers switching to other customers with lower sustainability demands (Grimm et al., 2016).

Power sources of suppliers mirror the dyadic case, including size (Brennan and Tennant, 2018; Gold et al., 2020; Marttinen and Kähkönen, 2022), purchasing volume (Brennan and Tennant, 2018; Lo, 2015; Young et al., 2019), lack of alternative suppliers (Meinlschmidt et al., 2018), high supplier concentration (Meinlschmidt et al., 2018), but are here replicated at the interface between tier-1 and tier-2 suppliers or between lower-tier suppliers. Under such unfavourable power asymmetries, communication remains the only weapon to convince lower-tier suppliers to engage in sustainability initiatives (Meqdadi et al., 2019).

Focal companies are often dependent on the secondary agency role of tier-1 suppliers to achieve their sustainability goals (Grimm et al., 2016; Wilhelm et al., 2016b), having limited direct power over lower-tier suppliers (Grimm et al., 2016). Low channel power by focal companies further aggravates this case, as "suppliers target their own suppliers only if they wish to" (Grimm et al., 2016). Size power asymmetries at tier-1/tier-2 interface and in the upstream supply chain typically prevent suppliers to cascade sustainability requirements further upstream (Marttinen and Kähkönen, 2022; Wilhelm et al., 2016a, 2016b), as suppliers lack coercive mechanism to force their own suppliers (Marttinen and Kähkönen, 2022). Suppliers may decouple from their assigned delegated authority (Wilhelm et al., 2016b) and focal companies, recognising the structural power deficiencies, may resort to non-power based diffusion mechanisms (Gold et al., 2020) or to inter-industry alliances and work with third parties as alternatives (Tachizawa and Wong, 2014; Young et al., 2019).

Similar to the dyadic case, few papers mention supplier dominance as an enabler to the diffusion of SSCM. This emerges only when lower-tier suppliers are critical for focal companies sustainability profile, offering additional incentives to focal companies to engage in SSCM (Tachizawa and Wong, 2014), or when lower-tier suppliers "build their power on their critical expertise and knowledge on sustainability" (Marttinen and Kähkönen, 2022), creating the conditions for an increased integration and dependence between SC partners (Bag et al., 2024; Marttinen and Kähkönen, 2022), which can transition to the interdependence quadrant.

Power symmetries positions in multi-tier supply chains are even less common than in the dyadic settings due to the complexity of relationships across different supply chain levels. **Interdependence** in multi-tier supply chain was observed more frequently, indicating that collaborative governance extends beyond dyadic relationships to involve multiple tiers, while independence situations are less common.

At the multi-tier supply chain level, interdependence can both enable and hinder the diffusion of sustainability practices. On the enabling side, joint dependency has been shown to positively influence socially responsible supply chain management by fostering collaboration and shared accountability (Tachizawa and Wong, 2014). Similarly, Marttinen and Kähkönen (2022) highlight how expertise, knowledge, and balanced power dynamics can compensate for asymmetries, allowing buyers and suppliers to engage in sustainability efforts more effectively. Firms that work with suppliers of a similar size can create mutually beneficial relationships that enhance collaboration and facilitate influence on sustainability initiatives (Marttinen and Kähkönen, 2022). However, interdependence can also hinder sustainability diffusion, leading to negotiated compromises rather than strict adherence to sustainability standards. Wilhelm et al. (2016a) illustrate how lower power asymmetry allows suppliers to openly negotiate which requirements they will meet, potentially weakening sustainability ambitions. Thus, while interdependence fosters cooperation and knowledge-sharing, it can also limit the effectiveness of sustainability enforcement, particularly in complex multi-tier supply chains.

Similarly, **independence** power position creates significant barriers to the diffusion of sustainability practices. When buyers lack leverage beyond their immediate suppliers, sustainability requirements become difficult to enforce across multiple tiers (Patchell, 2018). Wilhelm et al. (2016b) illustrate how first-tier suppliers, independent from the buyer, can reject firm-specific cascading sustainability demands if they do not

align with broader market expectations, limiting a buyer's ability to cascade sustainability initiatives downstream. Similarly, Meqdadi et al. (2019) highlight how suppliers positioned at deeper tiers, can remain largely unaffected by buyer influence due to their diversified customer base, further weakening sustainability enforcement beyond the first tier. Marttinen and Kähkönen (2022) emphasizes how this challenge escalates in global supply chains under different legislative regimes, where buyers sourcing from suppliers with low dependency struggle to exert meaningful pressure unless sustainability demands are reinforced by other customers. These dynamics highlight how, at the multi-tier supplier level, independence and fragmented power structures hinder the effective diffusion of sustainability practices across supply networks.

4.3. Bases of power in sustainable supply chain management

Power is widely acknowledged as an important element in managing sustainability across supply chains, as evidenced in Section 4.2. Power does shape relational dynamics in SSCM, however the possession of power is insufficient to define power distribution in supply chains, as the willingness to exploit power is equally important. Nevertheless, the exploration of how power is enacted within sustainable supply chains received less attention in the reviewed body of literature. Adopting the bases of power as the theoretical lens (Section 2.2.2), we investigated how mediated (Section 4.3.1) and non-mediated (Section 4.3.2) bases of power facilitate or hinder the diffusion of sustainability, elaborating on dyadic and multi-tier SC dynamics. Table 5 summarises bases of power in the SSCM literature: as reviewed papers may mention multiple constructs within the same work, totals for each first-level construct (e.g., mediated power) may be lower than the sum of their associated second-level constructs (e.g., coercive, reward and legal legitimate power).

4.3.1. Mediated power

4.3.1.1. Coercive power. Coercive power is the most represented base of power in our sample (Table 5), being particularly found in low-commitment or adversarial relationships (Meqdadi et al., 2017). Moreover, studies not exploring and/or distinguishing bases of power within their work often imply coercive power as the underlying base of power, referring to dyadic sources of power such as alternative suppliers/customers availability (Tian et al., 2024), purchasing volume (Ahmed and Shafiq, 2022; Tian et al., 2024) or the share of suppliers' turnover generated by buyers (Ahmed and Shafiq, 2022; Cao et al., 2024; Hoejmose et al., 2013; Wilhelm and Villena, 2021; Zhang et al., 2021) and the potential power of powerful buyers to deliver adverse outcomes for the suppliers in the form of reduced orders. Coercive behaviours observed in SSCM include aggressive behaviours towards suppliers (Lo, 2015), detailed and systematic examination of suppliers' environmental and social practices (Touboulic et al., 2014), threats to terminate the business relationship if suppliers do not comply with sustainability requirements (Meqdadi et al., 2019; Silva et al., 2020), mandatory compliance with codes of conducts, regulations and standards (Brockhaus et al., 2013; Meqdadi et al., 2019; Talay et al., 2020), forcing tier-1 suppliers to adopt specific sustainable programmes (Hall, 2000; Meqdadi et al., 2017) or to monitor their own suppliers (Marshall et al., 2019). This mandated one-way relationship management strategy was occasionally labelled as 'dictatorial' (Rezaei Vandchali et al., 2020, 2021), due to the top-down implementation and enforcement of sustainability projects with limited involvement of weaker parties in the definition of sustainability goals (Touboulic et al., 2014) leading to a controversial perception of the use of coercive power to diffuse SSCM.

On one hand, coercive power helps to achieve SSCM, emphasizing monitoring of supply chain sustainability (Chen and Chen, 2019). Coercive power is often driven by larger downstream players, which are under pressure to manage their operations sustainably. These players are thus expected to embed sustainability into their SCM and can extend sustainability initiatives through coercive power to passive suppliers that would otherwise unlikely be involved and/or willing to participate in initiatives to address social and environmental issues (Meqdadi et al., 2017; Villena and Gioia, 2018). These suppliers often operate under poor sustainability legitimacy due to past sustainability violations, which makes the coercive pressures by powerful buyers acceptable (Wilhelm and Villena, 2021). In such instances, coercive power acts as an enabler of sustainability diffusion to companies that would not embed sustainability in operations without the real or perceived threat of losing significant business opportunities (Wilhelm and Villena, 2021). Coercive power particularly facilitates the diffusion of sustainability to immediate suppliers (Meqdadi et al., 2019), significantly improving the compliance of partners (Yang et al., 2021) and increasing sustainability performance (Gruchmann, 2022). The exertion of coercive behaviours, i.e. by threatening to withdraw business, was identified as more effective to achieve SSCM objectives, than other forms of mediated power (Chen and Chen, 2019). Moreover, other forms of coercive behaviours which require compliance with specific requirements, may be further beneficial to the power source, which can increase the target dependence through lock-in mechanisms (Delbufalo and Bastl, 2018).

On the other hand, coercive power has been heavily scrutinised, from a business and an ethical perspective. The use of coercive power is not functional to diffuse sustainability under unfavourable power asymmetries conditions (Meinlschmidt et al., 2018) and shows limited effectiveness in reaching sub-suppliers (Meqdadi et al., 2019), particularly in multi-tier contexts "with diminishing power asymmetries" (Wilhelm et al., 2016a). The inability of tier-1 suppliers to disseminate sustainability requirements of focal companies upstream, may stem from structural power dynamics affecting tier-1 suppliers (Marshall et al., 2019; Wilhelm et al., 2016a) or may be the outcome of deteriorating relationships due to the sole resort to coercive power by focal companies (Touboulic et al., 2014), which hampers collaboration and adds tensions to buyer-supplier relationships, signalling distrust (Delbufalo and Bastl, 2018; Glover, 2020; Meqdadi et al., 2019; Yang et al., 2021). Tensions emerge particularly when relationships feature an economic logic and sustainability initiatives are perceived as squeezing margins (McLoughlin and Meehan, 2021). Unforeseen behaviours may emerge in the form of individual or collective resistance by suppliers (Chen and Chen, 2019; Touboulic et al., 2014) or tier-1 suppliers disengagement to perform their secondary agency role (Meqdadi et al., 2019), which hinders focal companies sustainability goals (Chen and Chen, 2019). Tensions may lead to extreme consequences, increasing the risk of relationship failure (Touboulic et al., 2014), as suppliers may not perceive the adjustments efforts worth and may terminate the relationship (McLoughlin and Meehan, 2021; Rezaei Vandchali et al., 2020). Finally, coercive power in SSCM was scrutinised for its focus on compliance with minimum requirements, which affects suppliers' commitment, collaboration and limit inter-organisational environmental practices (Bayne et al., 2019; Tachizawa and Wong, 2014; Touboulic et al., 2014), as well as for its short-term orientation (Chen and Chen, 2019). The compliance orientation priorities the interest of focal companies over true sustainability goals (Carmagnac et al., 2022).

Table 5
Bases of power in sustainable supply chain management.

Bases of Power	Enabler	Barrier
	Number of papers (N = 63)	Number of papers (N = 63)
Mediated	**33**	**18**
Coercive	23	17
Reward	17	3
Legal legitimate	4	0
Non-mediated	**21**	**6**
Expert	12	2
Referent	11	2
Traditional legitimate	9	3

Ethically, the choice of focal companies to resort to coercive power was also criticised, being considered morally questionable, as it does not allow with the intended sustainability goals (Marshall et al., 2019). A bullying behaviour from larger corporations over small suppliers can determine the closure of small businesses unable to comply with requests of powerful buyers (Bag et al., 2024) and is likely to create a culture of fear with a negative impact on workers' well-being (Glover, 2020).

4.3.1.2. Legal legitimate power. Legal legitimate power, sparingly reported in our sample, is closely related to coercive power, often formalizing the power into contractual agreements (Wilhelm et al., 2016b), which include compulsory clauses related to ethical and environmental policies and practices (Talay et al., 2020; Touboulic et al., 2014). These contracts may be enforced in a one-way direction by the power source (Wilhelm et al., 2016a) or be the outcome of negotiation between the parties (Talay et al., 2020), which signals a more symmetric power dynamic. Overall, legal legitimate power is unanimously considered an enabler to sustainability compliance (Talay et al., 2020), even in multi-tier supply chains where no company is "powerful enough to orchestrate" the whole supply chain and legal legitimate power enables control of lower-tier suppliers (Wilhelm et al., 2016b). However, there is no direct evidence that legal legitimate power enables the diffusion of SSCM to lower-tier suppliers beyond compliance.

4.3.1.3. Reward power. Reward power implies the mediation of rewards from the source to the target: these can include more favourable contract terms (Bayne et al., 2019), increased purchasing volumes (Chand and Tarei, 2021; Meqdadi et al., 2019), guaranteed longer contracts (Chkanikova, 2016), premium prices (Meqdadi et al., 2019) or increased value of transactions (Silva et al., 2020). Reward systems, whether formalised or not, stimulate suppliers that are willing to improve their relationship with powerful focal companies and to secure increased business opportunities (Meqdadi et al., 2019). There is a general agreement on the contribution of reward power to SSCM diffusion. Only Bayne et al. (2019) highlights the limited impact of reward power on inter-organisational environmental practices and Wilhelm et al. (2016a) identifies a case where resorting to purchasing volumes as a reward mechanism to enforce sustainability requirements, may lead to supplier's decoupling particularly when tier-2 suppliers are larger than tier-1. Other cases build a consensus on the efficacy of reward power to enhance SSCM, either used in isolation (Meqdadi et al., 2019), in combination with coercive power (Chen and Chen, 2019; Delbufalo and Bastl, 2018; Rezaei Vandchali et al., 2020) or in combination with expert power (Meqdadi et al., 2019). Rewards were identified to counterbalance the negative effects of coercive power on the quality of relationships (Rezaei Vandchali et al., 2020), although they have to be promptly actioned from the source to the target to preserve credibility (Delbufalo and Bastl, 2018). Reward power was associated to an improved traceability information disclosure (Gelderman et al., 2021) and an enhanced suppliers' sustainability performance, increasing compliance and reducing violations (Chen and Chen, 2019), thanks to an indirect pressure on suppliers, which motivates them to embrace sustainability and go beyond basic sustainability initiatives (Meqdadi et al., 2019). The use of reward power also enables to achieve multi-tier SSCM as it facilitates sustainability diffusion beyond buyer-supplier dyad, especially when rewards are mediated to tier-1 suppliers that successfully diffuse sustainability requirements to lower-tiers (Meqdadi et al., 2019).

4.3.2. Non-mediated power

4.3.2.1. Expert power. Expert power, the most frequent base of non-mediated power in our sample, is associated to the possession of sustainability knowledge or expertise by the source. This is translated in a SSCM context in providing targets with competency on environmental issues (Talay et al., 2020) through dedicated training sessions on sustainability practices (Jia et al., 2019; Meqdadi et al., 2019; Talay et al., 2020), hand-on support from sustainability teams (Jia et al., 2019), sessions and meetings with external facilitators to develop sustainability skills (Touboulic et al., 2014). Table 5 confirms that expert power enhances sustainability implementation in the supply chain, in line with Meqdadi et al. (2019). Focal companies' expert power stimulates the development of sustainability systems and the implementation of best practices at suppliers (Meqdadi et al., 2019), motivating suppliers to develop sustainability capabilities to differentiate their offering through green products (Meqdadi et al., 2017). Moreover, expert power facilitates the spreading of sustainability in multi-tier supply chains due to indirect pressures and an increased supplier engagement (Meqdadi et al., 2019), enhancing the ability of tier-1 suppliers to influence sub-suppliers in terms of sustainability and to initiate sustainability activities with lower-tier suppliers (Marttinen and Kähkönen, 2022; Meqdadi et al., 2019). Expert power appears to provide relational benefits too, as suppliers value focal companies' sustainability knowledge to build capabilities (Meqdadi et al., 2019; Wilhelm and Villena, 2021). However, these mechanisms emerge only under sustainability capabilities asymmetry, i.e., when the focal company is the source of expert power which encourages collaboration with lower-tier suppliers (Tachizawa and Wong, 2014). Alternatively, where sustainability capabilities are equally distributed along the supply chain, expert power is not sufficient to diffuse sustainability, as suppliers may rely on independent sustainability systems which are not necessarily aligned with focal companies' and/or supply chain's goals (Meqdadi et al., 2017, 2019). Finally, suppliers may also hold the expertise and special knowledge about sustainability (Marttinen and Kähkönen, 2022; Touboulic et al., 2014). In these instances, focal companies require access to this knowledge to manage sustainability (Touboulic et al., 2014), which make focal companies dependent on their suppliers counterbalancing power asymmetries due to size (Marttinen and Kähkönen, 2022).

4.3.2.2. Referent power. Referent power is based on the identification of the target with the source. The source is either recognised (Amaeshi et al., 2008; Brennan and Tennant, 2018), perceived (Meqdadi et al., 2017) or branded (Marttinen and Kähkönen, 2022) as a sustainable leader. This triggers sustainability-oriented investments and the adoption of sustainability practices at the targets due to imitation (Marttinen and Kähkönen, 2022; Tian et al., 2024). Targets, typically suppliers, perceive that meeting the sustainability requirements of sustainable focal companies could contribute to develop a sustainable image in the market and reap reputational benefits, although they may not always share a similar sustainability commitment (Brennan and Tennant, 2018; Meqdadi et al., 2019). A strong sustainability culture at the focal company is thus a requirement to be able to indirectly influence suppliers and enhance supply chain sustainability performance (Amaeshi et al., 2008; Brennan and Tennant, 2018; Tian et al., 2024). Whether referent power is sufficient to diffuse sustainability in the supply chain remains controversial. On one hand, the inspiration by sustainability leaders in the industry, combined with an information flow related to sustainability initiatives, may motivate and stimulate intellectually targets to autonomously develop sustainable solutions (Jia et al., 2019; Meqdadi et al., 2017). This influence may extend beyond dyadic relationships to sub-suppliers with no direct relationship with focal companies, facilitating the diffusion of sustainability in multi-tier supply chains (Jia et al., 2019; Meqdadi et al., 2019). On the other hand, referent power on its own may play a secondary role or be insufficient in exerting influence on targets, particularly beyond the dyadic level (Meqdadi et al., 2019). Suppliers may not be engaged (Silva et al., 2020), as they do not perceive to yield reputational and commercial benefits by associating with sustainability leaders (Meqdadi et al., 2019).

Table 6
Research agenda.

Research Avenue	Research Objectives	Potential Methods	Units of Analysis
Power in multi-tier SSCM	• To explore structural power and bases of power in multi-tier SSCM	• Case study research • Survey	• Lower-tier suppliers • Base-of-pyramid suppliers • Multi-tier SCs
	• To empirically evaluate the relationship between supply chain horizontal and vertical complexity and power dynamics	• Network analysis	• Multi-tier SCs • Supply networks
	• To disaggregate power positions/power sources/bases of power according to the difference multi-tier SSCM governance mechanisms adopted	• Case study research	• Buyer/focal company • Multi-tier SCs
Sustainability diffusion under unfavourable power positions	• To understand how to diffuse sustainability in supply chains featuring transactional relationships and independent power positions	• Case study research	• Dyad (focal company-supplier) • Dyad (supplier-supplier) • Multi-tier SCs • Supply network
	• To understand how to diffuse sustainability in supply chains characterised by suppliers' dominance at dyadic or multi-tier level, including reverse sustainability diffusion from suppliers to customers	• Case study research	• Dyad (focal company-supplier) • Dyad (supplier-supplier) • Multi-tier SCs • Supply network
	• To explain how companies may reposition in the power matrix to achieve effective SSCM or how companies may reposition in the power matrix exploiting sustainability as a leverage	• Conceptual • Case study research	• Buyer/focal company • Suppliers • Dyad (focal company-supplier) • Dyad (supplier-supplier)
Failure of non-coercive bases of power	• To explore and/or to explain under which circumstances non-coercive bases of power are ineffective in diffusing sustainability in supply chains	• Case study research	• Dyad (focal company-supplier) • Dyad (supplier-supplier) • Multi-tier SCs
Understanding of the heterogeneous view over the leading power dynamics	• To understand which are the underlying circumstances that lead to a successful or unsuccessful diffusion of sustainability for the buyer dominance power position	• Quantitative approaches • Case study research	• Buyer/focal company • Supplier • Dyad (focal company-supplier) • Dyad (supplier-supplier) • Multi-tier SCs
	• To understand which are the underlying circumstances that lead to a successful or unsuccessful diffusion of sustainability through coercive power	• Quantitative approaches • Case study research	• Buyer/focal company • Supplier • Dyad (focal company-supplier) • Dyad (supplier-supplier) • Multi-tier SCs
Relationship between power dimensions	• To capture the interrelationships between bases of power	• Quantitative approaches • Delphi Study • DEMATEL	• Dyad (focal company-supplier) • Dyad (supplier-supplier) • Multi-tier SCs • Supply network
	• To capture the relationships between bases of power and power positions	• Quantitative approaches • Delphi Study • DEMATEL	• Dyad (focal company-supplier) • Dyad (supplier-supplier) • Multi-tier SCs

(*continued on next page*)

Table 6 (*continued*)

Research Avenue	Research Objectives	Potential Methods	Units of Analysis
			• Supply network
Re-conceptualisation of power in SSCM	• To extend the concept of power in SSCM beyond its dominant economic logic	• Conceptual	• Buyer/focal company • Supplier • Dyad (focal company-supplier) • Dyad (supplier-supplier) • Multi-tier SCs • Supply network

4.3.2.3. Traditional legitimate power. Traditional legitimate power shares multiple dynamics with referent power. A natural right is conferred to powerful companies to prescribe behaviours and influence supply chain sustainability (Liu et al., 2019; McLoughlin and Meehan, 2021; Meqdadi et al., 2019), while organisations lacking legitimacy may be perceived as opportunistic and detrimental to the development of SSCM (Tian et al., 2024). Legitimacy is predominantly associated with large focal companies located downstream in the supply chain (McLoughlin and Meehan, 2021; Meqdadi et al., 2019), which "influence supply chain orientation towards their conception of sustainability" (McLoughlin and Meehan, 2021). Similar to referent power, the literature body provides mixed evidence in relation to the diffusion of sustainability in supply chains. Legitimacy was identified as a powerful mechanism to stimulate targets to become sustainable (Ahmed and Shafiq, 2022), suggesting that "achieving legitimacy is essential for companies aiming to influence their supply chains" (Tian et al., 2024). High legitimacy of focal companies was associated to improved sustainability performance by suppliers, suggesting that influential organisations should be early-movers in developing sustainability programs (Ahmed and Shafiq, 2022; Tian et al., 2024). Legitimate power is particularly effective when coupled with market power and legal legitimate power (Ahmed and Shafiq, 2022; McLoughlin and Meehan, 2021). Meqdadi et al. (2019) observed that legitimate power is functional to diffuse sustainability to multi-tier supply chains in certain cases, however it does play a secondary role compared to other bases of power and has no impact on suppliers' engagement. The ineffectiveness of legitimate power was also highlighted in relation to inter-organisational environmental practices (Bayne et al., 2019) and to suppliers' well-being due to the reiteration of control dynamics by the leading firm (Glover, 2020). With this respect, sources of legitimate power are required to continuously engage directly in sustainability management to preserve their legitimacy and exert influence on other parts of the supply chain, thus merging referent and traditional legitimate power dynamics (Ahmed and Shafiq, 2022).

5. Discussion

5.1. Future research directions

The reviewed literature recognised the importance of power in diffusing sustainability along supply chains, with a predominant enabling role attributed to power in sustainability diffusion. Yet, this review highlights a puzzled picture, which is consistent with the multiple non-comparable situations of a predominantly case study-based literature (Durach et al., 2021).This section discusses the main findings of the systematic literature review process, reflecting on the unknown and proposing future research directions, which are summarised in Table 6.

The first identified research avenue is the expansion of the currently limited body of literature on power in multi-tier sustainable supply chains and sustainable supply networks. Power in SSCM research is currently largely confined to buyer-supplier dyads, as confirmed by Table 3. More studies are required to tackle multiple tiers, as already observed by Talay et al. (2020), to gain a more comprehensive understanding of power dynamics in sustainability diffusion, capturing network effects and cross-tier influences. This avenue can potentially build on the findings by Marttinen and Kähkönen (2022), who found that "power relations play a critical role in enabling the management of multi-tier sustainable supply chains" and "network relationships affect the dissemination of sustainability in complex supply networks". The multi-tier context requires further exploration as it is relevant for determining structural power for buyers and suppliers within sustainability management (Marttinen and Kähkönen, 2022). Expanding to multi-tier supply chains means capturing the perspectives of actors largely neglected in the current literature, such as lower-tier suppliers and base-of-the-pyramid suppliers. As Meqdadi et al. (2019) observed, it is necessary to expand data collection to multiple supply chain actors, as discrepancies in the perceptions on use and impact of power are likely to emerge. Such discrepancies in the perception of power between source and target were identified between focal companies and tier-1 suppliers (Meqdadi et al., 2017, 2019), however they may even be magnified progressing upstream in the supply chain, potentially being affected by information asymmetries. Researchers could conduct in-depth case studies that involve multiple tiers to evaluate the mismatch between power perceptions at different tiers of the supply chain in relation to SSCM implementation. Moreover, multi-tier supply chains are often globally dispersed. Future research could elaborate on the impact of cultural, geographical and institutional distance in shaping power dynamics to drive SSCM implementation, as bases of power may be influenced by the local cultural setting (Marshall et al., 2019; Yang et al., 2021).

Another open issue within this research avenue is how power and multi-tier governance mechanisms interplay in multi-tier SSCM. Silva et al. (2020) and Yang et al. (2021) provided some initial insights at the dyadic level, showing respectively that strong supply chain relationships and direct governance mechanisms facilitate the diffusion of sustainability and that both contractual control and relational norms are weaker when a supplier has high mediated power over its customers. Future research could potentially exploit multi-tier SSCM governance mechanisms identified by Tachizawa and Wong (2014) – direct, indirect, 3rd party – as a theoretical background and assess the relationships between power positions/sources of power/bases of power and the governance mechanisms within multi-tier supply chains. Such research could thus unpack the power dimension according to the difference governance mechanisms adopted. Finally, the reviewed sample provided limited evidence of jointly exploring sustainability diffusion, power and supply chain characteristics, such as horizontal and vertical complexity, although "supply chain characteristics, such as complexity, play a crucial role in determining how companies extend their sustainability strategies upstream" (Tian et al., 2024). Only the conceptual work by Gruchmann (2022) explicitly addresses the impact of network configurations on SSCM diffusion under a power perspective, yet empirical work is missing. Complexity is generally viewed as detrimental to SSCM (Patchell, 2018), however a future research direction

could involve studying how network complexity influence power dynamics to diffuse sustainability.

The second research avenue is to understand how sustainability could be diffused under unfavourable power positions, which were identified in this work as the supplier dominance and independence quadrants of the power matrix. The supplier dominance power position could also be investigated under reverse sustainability diffusion conditions, i.e. from suppliers to customers (Johnsen et al., 2022), which are infrequently reported in the literature. The independence power position is the most under-researched in the current SSCM literature (Table 4), as the existing body of research prioritised the investigation of cases featuring power asymmetries. Future research is expected to increase the coverage of supply chain contexts with symmetrical power positions between buyers and suppliers, exploring the mechanisms enabling sustainability diffusion under such power positions. Scholars acknowledged the establishment of stable supply chain relationship as an enabler to for SSCM (Touboulic et al., 2014), however transactional relationships, characterised by the independence of actors, will continue to exist to respond to operational needs. Companies may face significant challenges to ensure supply chain sustainability in these contexts. Legal legitimate power could offer an anchor in these cases, yet this assumption must be empirically validated. Finally, power positions are often considered static, rather than dynamic, with few notable exceptions, i.e. Bag et al. (2024), Chkanikova (2016), Marttinen and Kähkönen (2022), Peng et al. (2022), Touboulic et al. (2014). Future research could explore how companies could reposition in the power matrix to achieve effective SSCM, e.g., focal companies, or how companies could specifically leverage sustainability to reposition, i.e., suppliers could exploit the dependence of larger buyers on their environmental and social performance to re-balance asymmetric power relationships. This research objective could be coupled with an investigation of the evolution of supply chain relationship management strategies (Rezaei Vandchali et al., 2020), potentially exploiting longitudinal case study methodologies, which are currently underrepresented in the reviewed body of literature.

The third research avenue is to explore cases where non-coercive power fails in diffusing sustainability in supply chains. These are significantly under-represented in the reviewed body of literature (Table 5), which portrays a rather optimistic view on the effectiveness of non-coercive bases of power in driving SSCM forward. The failure of non-coercive mechanisms could potentially expose the supply chain to critical environmental or social misconduct, alike in the coercive case. Counter-examples, possibly accompanied by relevant explanations, could provide a more balanced view over non-coercive bases of power and increase our understanding of their underlying mechanisms in SSCM.

The fourth research avenue is to further explore in-depth the heterogeneous view over the most represented power position (buyer dominance) and base of power (coercive power) in our sample, expanding the findings of this literature review on the circumstances leading to a successful or unsuccessful sustainability diffusion along supply chains. Several contextual factors can affect the effectiveness of power, including industry, supply chain extent, time-horizon and institutional logics, as evidenced in this study. Moreover, the intensity of power can also have an impact, implying an inverted U-shape relationship between the use of power and the sustainability of the supply chain (Gruchmann, 2022), signalling that there is a tipping point in the exploitation of dominant positions and in the use of coercive power that is advisable not to cross (Gruchmann, 2022; Wilhelm and Villena, 2021), as the excessive use of power can create tensions or even resistance by power targets, which is detrimental to the diffusion of sustainability (Touboulic et al., 2014).

The fifth research avenue is to explore the relationships between power dimensions. Few studies elaborated on the combinations between bases of power, conceptually (Delbufalo and Bastl, 2018; Rezaei Vandchali et al., 2020) or in case-study research (Meqdadi et al., 2019), while no study linked power positions and bases of power in a systematic way. Future research could thus explore these relationships to identify whether organisations holding certain power positions are exercising power through specific bases of power. Quantitative methods could serve this purpose, potentially through surveys, which would necessarily target multiple tiers along SCs to capture different and potentially conflicting views emerging at different tiers. Moreover, multi-method approaches, i.e., integrating social network analysis, or mixed methods, such as Delphi and DEMATEL, could also be functional to this research avenue by integrating qualitative and quantitative insights to obtain a more holistic understanding of the role of power in SSCM and concurrently enrich the methodological diversification of the field.

Finally, the sixth research avenue is to re-conceptualise power in SSCM research. The reviewed literature largely reiterates a narrow stakeholder view, labelled by Pagell and Shevchenko (2014) as the "primacy of profit", which overshadows alternative approaches to obtain wider, shared, social and environmental benefits and achieve transformative change (Fontana et al., 2023; McLoughlin and Meehan, 2021). As such, environmental and social sustainability agenda remain secondary to commercial goals, exposing sustainably critical but commercially weak supply chain actors to commercial power dynamics (Touboulic et al., 2014). This view, conceptually related to the weak sustainability perspective (Gutés, 1996), remains dominant according to our findings. The reviewed body of research still preserves a predominantly commercially-oriented lens to study supply chain relationship and an economic framing of power, even within SSCM. Therefore, it has not evolved to a triple-bottom-line-inspired multi-dimensional lens to fully embrace social and environmental dependencies, albeit few exceptions exist (Talay et al., 2020; Touboulic et al., 2014). Future research could extend the concept of power in SSCM beyond its dominant economic logic, i.e., by articulating how power impacts social and environmental value sharing in supply chain relationships (Touboulic et al., 2014). Conceptual studies are well-suited for this last research avenue.

5.2. Theoretical and practical implications

This work contributes to the sustainable supply chain management literature by providing the first contextualised understanding of the role of power in SSCM, elaborating on the power-related circumstances that enable or impair the diffusion of sustainability in supply chains. The theoretical anchoring of the review allows to elaborate on what power positions and through which mediated and non-mediated bases of power, supply chain sustainability diffusion occurs. Fig. 6 visually summarises the theoretical contribution of the work, which unpacks the role of power in SSCM.

First, this study identifies that power positions (buyer dominance, supplier dominance, independence and interdependence) have different dynamics at the dyadic level, particularly at the focal company-1st tier supplier interface, and at the multi-tier SC level, highlighting potential conflicts in cascading power positions from dyads to multi-tier SCs. Such conflicts may be specific to the sustainability domain and not replicate other business dynamics, evidencing decoupling between economic sustainability and other pillars of sustainability. This work thus harmonises and generalises findings emerged in previous case-study based research, i.e. Marttinen and Kähkönen (2022) and Wilhelm et al. (2016a), on the key role of power asymmetries along multi-tier SCs to ensure sustainability diffusion beyond tier-1 suppliers, highlighting the importance of adequately capturing the impact of supply chain structure on relational dynamics (Rezaei Vandchali et al., 2021).

Second, this work describes how power positions are functional to achieve different objectives pertaining to SSCM at the dyadic, multi-tier SC and supply network level and what are the implications on SC relationships of the exercise of power, which is influenced by the bases of power enacted. This work evidences that instrumental orientations, evidenced by buyer/focal company dominance coupled with coercive

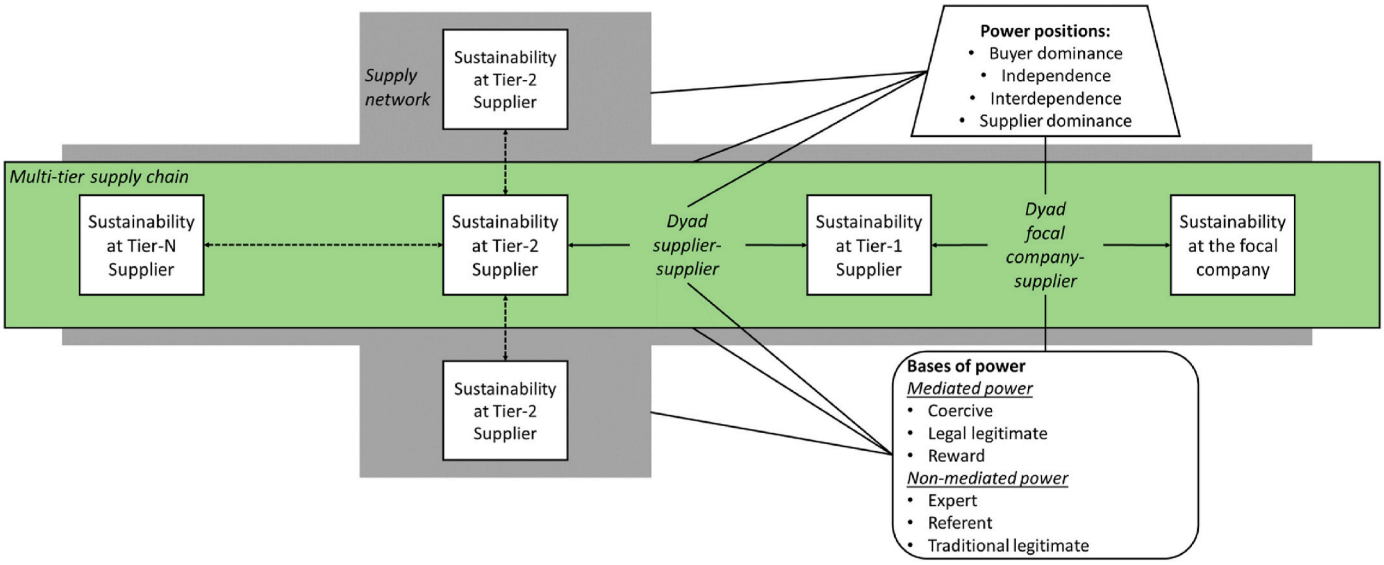

Fig. 6. Power mechanisms for sustainability diffusion in supply networks.

power (Chen and Chen, 2019; Gelderman et al., 2024), are effective in achieving sustainability objectives in multi-tier SSCM, particularly securing compliance (Delbufalo and Bastl, 2018; Hajmohammad and Shevchenko, 2020; Meqdadi et al., 2019; Talay et al., 2020) and securing passive suppliers engagement (Meqdadi et al., 2017; Villena and Gioia, 2018), but are offset by a deterioration of relationships along SCs (Touboulic et al., 2014). Relational orientations instead, relying increasingly on joint dependency and non-mediated based of power (Gemente et al., 2024; Tachizawa and Wong, 2014), are functional to preserve SC relationships and achieve long-term sustainability but require contextual conditions in terms of supply chain structure and of sustainability expertise to be enacted in multi-tier SCs (Marttinen and Kähkönen, 2022; Meqdadi et al., 2019).

Third, this work systematically reviews the bases of power for SSCM, identifying under which conditions different forms of mediated power (coercive, legal legitimate, reward) and non-mediated power (expert, referent, traditional legitimate) act as an enabler or a barrier to sustainability diffusion, summarising the predominantly case-study based prior literature in a systemic and structured way.

The work also provides several implications for practitioners on the importance of power in SSCM. Sustainability and SC managers at focal companies can benefit from the findings of this research to align governance mechanisms and relationship management strategies to achieve effective SSCM, recognising the contradictions emerging between the largely enabling role of power at dyadic level to diffuse sustainability and the more puzzled picture at the multi-tier SC level. Going beyond short-term orientation and economic logic could provide stronger foundations for effective multi-tier SSCM, i.e., to target major environmental SC challenges such as Scope 3 emissions, which requires relational approaches towards suppliers. Sustainability and SC managers at suppliers can instead build on the findings of this work to adopt adequate responses to focal companies and rebalance existing unfavourable power asymmetries. This may include different strategies, including the recognition of the importance of their messenger role to achieve multi-tier SC sustainability (Marttinen and Kähkönen, 2022), which can be further boosted by due diligence regulations in certain geographic domains, or the counterbalancing of economic power through sustainability expertise. This can be particularly important for lower-tier suppliers accounting for a significant share of the overall SC environmental sustainability impact or for smaller companies which can build a strong sustainability-oriented profile to reap benefits when negotiating with larger buyers thanks to their expertise and knowledge on sustainability (Marttinen and Kähkönen, 2022).

6. Conclusions

This work aimed to explore the role of power in diffusing sustainability along supply chains through a systematic literature review covering 63 publications, drawing from the fields of buyer-supplier relationships, SSCM and multi-tier supply chain management. Papers were analysed according to several perspectives, including the methods, units of analysis and theories adopted in the studies. The review adopts the power matrix (Cox, 2001a) and the bases of power (French and Raven, 1959) as the theoretical lenses to guide the analysis. The power matrix is functional to describe power positions in SSCM, while bases of power further elaborate on how this power is enacted within sustainable supply chains.

Findings reveal that: (i) power is predominantly viewed as a dyadic concept, with fewer studies exploring power dynamics in multi-tier sustainable supply chains; (ii) buyer dominance is considered an enabler to SSCM and supplier dominance is considered a barrier to SSCM, as a result of focal company-driven SSCM programs and prevailing commercial logics being applied to the sustainability domain; (iii) power symmetries, particularly independence between supply chain organisations, and related implications for SSCM are under-researched themes; (iv) mediated bases of power, particularly coercive power, are effective to diffuse sustainability under context-specific conditions, but limit long-term sustainability management development; (v) non-mediated bases of power favouring a more relational approach are widely considered as an enabler to the diffusion of SSCM. Moreover, the review identifies extensive directions for future research based on the analysis (Table 6).

As every piece of research, this study is not immune from limitations. First, the size and content of the sample is affected by the database selection: other databases may have led to consider additional documents. Second, a number of decisions along the literature review process required a degree of subjectivity by reviewers, potentially affecting the final results. An underpinning theoretical framing does strengthen the theoretical foundation of the work, however the choice of a theoretical framing remains a “random and subjectively biased” decision (Sauer and Seuring, 2023). Third, no statistical analysis was applied to relate results emerging from power positions and bases of power. A contingency analysis could extend the insights of this study through a combined evaluation of power positions and bases of power. Finally, every type of classification, despite providing a structured understanding of the body of research, may not adequately convey the complexity and the specific in-depth features of every paper. This is particularly evident for the

conceptualisation of a social construct like power. Nevertheless, this work remains paramount to advance the understanding of sustainable supply chains in the digital era, by first addressing in a systemic and structured way the role of power in SSCM.

CRediT authorship contribution statement

Andrea Tuni: Writing – review & editing, Writing – original draft, Visualization, Validation, Supervision, Project administration, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Flavia Cicerelli:** Writing – original draft, Visualization, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Marianna Giorgetti:** Investigation, Formal analysis, Data curation.

Declaration of competing interest

The authors declare the following financial interests/personal relationships which may be considered as potential competing interests: Flavia Cicerelli reports financial support was provided by Italian Ministry of University and Research (MUR). If there are other authors, they declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Appendices.

A.1 Backward and Forward Reference

Table A.1
First-degree backward and forward reference summary

Keyword String	Paper	Backward reference	Forward reference
1	Gruchmann (2022)	Grimm et al. (2014)	
1,2	Marttinen and Kähkönen (2022)	(Brockhaus et al., 2013; Meqdadi et al., 2019)	
1,2	Wilhelm et al. (2016a)		(Jia et al., 2019; Wilhelm et al., 2016b)

Data availability

Data will be made available on request.

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Andrea Tuni is an Associate Professor at Politecnico di Torino (Italy), Department of Management and Production Engineering. His research focuses on sustainable and circular supply chain management adopting a mix of qualitative and quantitative methods, looking primarily at multi-tier sustainable supply chain management, green supply chains, circularity assessment, reverse logistics, performance measurement, food and textile supply chains. He has participated in multiple international projects in Africa, Europe and South America. He has published 10 articles in peer-reviewed international journals and was awarded the EURO Prize for the Common Good for his work on supporting Brazilian smallholder farmers.

Flavia Cicerelli obtained her PhD in Management and Production Engineering at Politecnico di Torino (Italy), specializing on corporate sustainability strategy and sustainable supply chain management. Her research investigates strategic inter-firm relationships within complex, interconnected networks to achieve environmental sustainability goals, employing both qualitative and quantitative methodologies. She has published one article in a peer-reviewed international journal and presented her findings at different international academic conferences.

Marianna Giorgetti completed a MSc in Engineering and Management at Politecnico di Torino, specializing in the Management of Sustainability and Technology track. For her Master's thesis, she explored the role of power in cascading sustainability practices across multi-tier supply chains, contributing to a deeper understanding of power dynamics in multi-tier sustainable supply chains.