




## RESEARCH ARTICLE

# A resource-based view of green innovation as a strategic firm resource: Present status and future directions

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## Abstract

Green innovation could become a valuable firm resource for establishing competitive advantage while simultaneously contributing towards sustainable development; in other words, green innovation has the potential to address the dilemma between consuming available resources and preserving them for the future. However, there is a dearth of studies systematically examining the present structure and future scope of research on green innovation as a firm resource. Seeking to explain the sustainable development dilemma of green innovations through the theoretical perspective of the resource-based view of the firm, we address this gap with a comprehensive bibliometric analysis of 951 relevant articles. The key contributors to the extant literature are recognised with bibliographic coupling, citation analysis and co-authorship analysis. A co-citation analysis identifies four major thematic areas of research: green supply chain management, green product design, corporate environmental responsibilities and social sustainability. Further, a dynamic co-citation analysis tracks the progression of these thematic areas. Content analysis of the thematic areas provides insights into the status of the research domain. This study also contributes to the extant literature by identifying prestigious articles on green innovation as a firm resource, analysing the co-occurrence of keywords and suggesting future research agendas.

## KEYWORDS

bibliometric analysis, environmental policy, green innovation, network analysis, prestige analysis, resource-based view, stakeholder engagement, sustainable development

## 1 | INTRODUCTION

Increased public awareness that current economic progress compromises the availability of resources for future generations has compelled businesses and firms to think beyond profit maximisation (Brulhart et al., 2019; Chen et al., 2012). Large multinational firms, such as Coca-Cola, DuPont, Kellogg's and many others, have responded to this public demand by recruiting chief sustainability

officers who are responsible for designing suitable sustainable development strategies (Fu et al., 2020). Such strategies are often evaluated via an accounting framework that focuses on the triple bottom line—the economic, environmental and social performance of the firm (Goh et al., 2020; Tate & Bals, 2018). According to Galbreath (2019), a firm's sustainable development is guided by the strategic endowment of resources, including specialised routines, dynamic capabilities and organisational assets. Influenced, in particular, by the United Nation's

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sustainable development goals (SDGs), many multinational enterprises are proactively implementing suitable strategies that encourage green innovations to achieve sustainable development (Ogbeibu et al., 2021; Van der Waal et al., 2021). Green innovations aim to design products that consume less energy and require fewer raw materials to manufacture (Dangelico & Pujari, 2010), reduce adverse environmental effects when used (Dangelico, 2016) and can be easily recycled post usage (Dangelico et al., 2017). The postulation of green innovation as a strategic firm resource may address many social and environmental issues related to sustainable firm practices (Du et al., 2018; Duque-Grisales et al., 2020).

Green innovation as a firm resource may bestow sustainable competitive advantages from reduced manufacturing cost (Han et al., 2019), customers' positive attitude towards the brand (Olsen et al., 2014) and increased compliance with regulatory requirements (Hall, Matos, Sheehan, et al., 2012). However, successfully leveraging green innovation as a strategic resource may require buyer-driven knowledge transfer mechanisms and knowledge acquisition capabilities within the firm (Awan, Arnold, et al., 2021; Awan, Nauman, et al., 2021), investment in research and development (Duque-Grisales et al., 2020), support from top management to establish technological capabilities (Awan, Sroufe, et al., 2021; Forcadell et al., 2021), cross-functional integration within the firm, development of a network of strategic partners (Dangelico, 2016) and implementation of green marketing programmes (Han et al., 2019). Firms, on the one hand, recognise sustainability initiatives for developing strategic resources from committed relationships with stakeholders and a positive reputation for the firm (Bangsa & Schlegelmilch, 2019; Brulhart et al., 2019; Gunarathne et al., 2021). For instance, firms prioritising sustainability initiatives often receive an optimistic assessment from financial analysts, which, in turn, helps attract long-term investments (Durand et al., 2019; Jia et al., 2020). On the other hand, firms often abstain from investing in sustainability initiatives to save resources required to survive contemporary market competition (Kim, Wan, et al., 2019), especially in the absence of risks from government interventions (Tian et al., 2019) and stakeholder pressures (Christmann, 2004). Consequently, firms face a trade-off between reaping benefits from resource consumption in the present and preserving resources to enable long-term future benefits (Ambec & Lanoie, 2008; Barnett & Salomon, 2012; Kim, Bansal, et al., 2019).

In the extant literature, the resource-based view (RBV) offers a suitable theoretical perspective to address this trade-off (Galbreath, 2019; Guesalaga et al., 2018; Stefanelli et al., 2021). The RBV conceptualises a firm as a pool of resources and capabilities that provides a sustained advantage over competitors and delivers superior performance to the firm (Barney et al., 2001; Guesalaga et al., 2018). The firm may sustain its competitive advantage when these resources and capabilities are valuable, rare, not perfectly imitable and non-substitutable (Barney, 1991). In later iterations, the RBV replaced the requirement of non-substitutability with organisation, which referred to the firm's ability to exploit resources or capabilities that are valuable, rare and not perfectly imitable (Barney, 1995). The resources a firm requires to achieve sustainable competitive

advantage depend on the firm's relationship with the natural environment (Hart, 1995) and social well-being (Tate & Bals, 2018).

Recent studies highlight that a proactive environmental strategy may mediate the relationship between a firm's environmental capabilities and its competitive advantage (Chan, 2021; Mishra & Yadav, 2021). Higher-order resources, such as accurate business forecasts and strategic planning, may deliver sustained competitive advantage to a firm through its operating resources, such as specialised production plants, brand names, loyal customers and patents (Wibbens, 2019). Barney (2018) also contends that a firm's profit appropriation may encompass the perspectives of social communities and the natural environment beyond those of more direct stakeholders, such as shareholders, suppliers, employees and customers. Therefore, the RBV may aptly explain the ways in which green innovation as a firm resource potentially addresses the trade-off between resource consumption and resource preservation.

Research on green innovations as firm resources has assumed increasing importance in the contemporary literature and in the corporate world (Du et al., 2018; Duque-Grisales et al., 2020; Galbreath, 2019). However, the extant literature has, thus far, failed to provide a comprehensive understanding of RBV-guided research on green innovation as a firm resource. The current study fills this research gap by responding to three research questions: (a) Who are the key authors shaping the body of literature pertaining to RBV-guided research on green innovation as a firm resource? (b) What are the important thematic areas within the body of literature? (c) How may the body of literature advance in future? Addressing these research gaps has the potential to highlight the importance of green innovation as a strategic firm resource from a sustainable development perspective. Hence, a comprehensive bibliometric analysis of the extant literature would help us to examine the present structure and future scope of RBV-guided research on green innovation as a firm resource.

The major contributions of this study to the literature on green innovation and sustainable development are threefold: First, the study identifies the key contributors shaping the literature on RBV-guided green innovation as a firm resource by performing a rigorous bibliometric analysis of a host of relevant journal articles (Fahimnia et al., 2015). We conducted bibliographic coupling, citation analysis, prestige analysis and co-authorship analysis, which are well-recognised techniques for their ability to identify the key contributors towards a research topic (Xu et al., 2018). Second, the study identifies important thematic areas from the prior research on RBV-guided green innovation as a firm resource by clustering articles using a co-citation analysis (Cavaggioli & Ughetto, 2019). Subsequently, we trace the evolution of the thematic areas by applying a dynamic co-citation analysis (Xu et al., 2018). Third, a content analysis of prestigious articles within each thematic area highlights important elements of debate from previous studies and proposes relevant future research agendas. We submit these agendas for advancing the discourse on green innovation as a firm resource and, thereby, contributing to the literature. As the earliest bibliometric analysis of the literature on RBV-guided green innovation as a firm

resource, this study organises the fragmented literature and, hence, should help researchers navigate the field. Thus, in addition to providing important insights to managers, the study's findings may spur further research in the domain.

This paper is organised into eight sections. The second section presents the methodology we followed to select relevant studies for analysis. The next three sections present findings from the bibliometric, thematic and content analyses. The sixth section discusses the findings and recommends future research agendas. The seventh section highlights the theoretical and practical implications before the paper's conclusion in the eighth section.

## 2 | METHODOLOGY

Bibliometric research assesses the social and structural connections among various research constituents by deploying quantitative techniques on bibliometric data to determine the philosophical underpinnings of a research domain (Broadus, 1987; Khanra, Dhir, Kaur, et al., 2021). In the business and management discipline, bibliometric research has risen in importance as a method to present organised contributions, provide a comprehensive perspective, uncover knowledge gaps and generate new research ideas (Donthu et al., 2021). Compared to alternative methods for summarising existing literature, a bibliometric study is better suited to address the research gaps in the literature on RBV-guided green innovation as a firm resource. For instance, the systematic literature review is one alternative method to gather, organise and evaluate the existing literature based on the manual evaluation of a limited number of publications (Snyder, 2019). Thus, systematic literature reviews are ideally equipped to qualitatively summarise fewer publications on niche research topics (Donthu et al., 2021; Snyder, 2019). Meta-analysis is another method to explore the direction and intensity of associations among variables by aggregating prior empirical findings (Aguinis et al., 2011). The heterogeneity of previous research, as well as the possibility of a publication bias, however, might jeopardise the veracity of a meta-analysis's findings (Aguinis et al., 2011; Donthu et al., 2021).

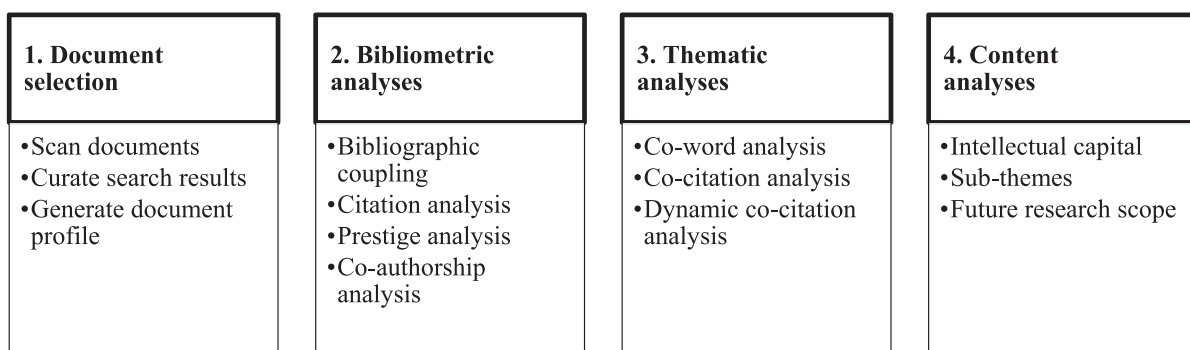
This study followed a structured protocol for bibliometric study (see Figure 1), which Khanra et al. (2020) developed from prior literature. The literature selection in the protocol proceeded through three sequential stages: scanning, curating and analysing a sample profile (Khanra et al., 2020). From a methodological standpoint, this protocol includes important quantitative techniques to analyse bibliometric data, such as bibliographic coupling, citation analysis, prestige analysis, co-authorship analysis, co-word analysis, co-citation analysis and dynamic co-citation analysis (Khanra et al., 2020). Finally, we employed content analysis of thematic areas identified from co-citation analysis to report the key intellectual capital of each thematic area, sub-themes within each thematic area and actionable future research agendas (Khanra et al., 2020).

### 2.1 | Scanning phase

*Scopus* is a comprehensive database that covers a wide range of academic documents on topics of intellectual interest (Caviggioli & Ughetto, 2019; Khanra, Dhir, Parida, et al., 2021). Thus, we began locating publications pertaining to this study by searching the titles, keywords and abstracts of the *Scopus* database for pre-determined terms: 'resource-based view' and 'green innovation'. However, a preliminary exploration of *Scopus* revealed 'green product innovation', 'sustainability' and 'sustainable development' as related terms that are frequently used along with 'green innovation'. Accordingly, we modified the search string as follows—'resource-based view AND green innovation OR green product innovation OR sustainability OR sustainable development'—and found 1662 articles published in English through 31 July 2021. The sources of the articles were indexed journals in business management and related subject areas.

### 2.2 | Curating phase

The authors carefully read the abstracts of all articles that appeared in the scanning phase and removed 711 articles that did not directly focus on green innovations as firm resources. Thus, a total of



**FIGURE 1** Protocol for a bibliometric study (this protocol was prepared by Khanra et al., 2020)

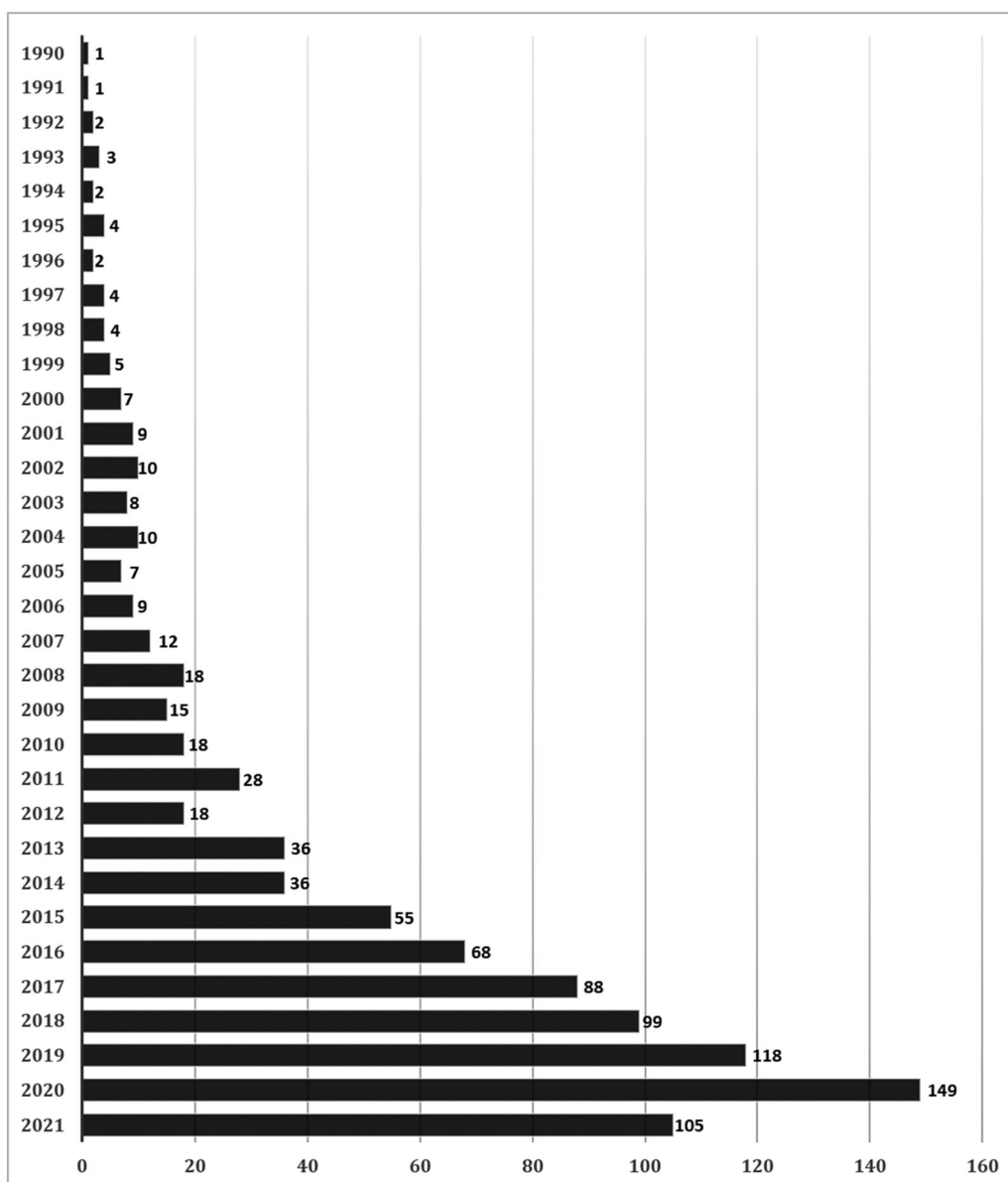
951 articles comprised the sample for this study. We exported the sample information in .ris and .csv formats for further analysis.

### 2.3 | Analysing phase

A total of 2468 authors from 1734 organisations in 99 countries published the 951 articles identified from 393 journals. The earliest articles were presented in 1990, which suggests that the concept of green innovation as a strategic firm resource emerged in management and related domains over the past three decades. However, more than 71% of the articles (682 articles) were published since 2015 (see Figure 2), establishing current research interest in the concept. Table 1 and Table 2 reveal the top 10 authors and journals, respectively, based on the number of publications.

**TABLE 1** Top 10 authors based on number of publications

Author	Number of articles
Zhang, Y.	8
Liu, Y.	6
Jabbour, C.J.C.	6
Bag, S.	5
Amran, A.	5
Liu, C.	5
Tseng, M.	5
Ulgiati, S.	5
Wang, X.	5
Zhang, L.	5



**FIGURE 2** Articles published per year

**TABLE 2** Top 10 journals based on number of publications and bibliographic coupling

Journal name	Number of articles	Total link strength <sup>a</sup>
<i>Journal of Cleaner Production</i>	104	1100.38
<i>Sustainability</i> (Switzerland)	101	1016.95
<i>Business Strategy and the Environment</i>	27	573.35
<i>Journal of Business Ethics</i>	15	287.20
<i>Journal of Business Research</i>	14	240.23
<i>Strategic Management Journal</i>	13	354.48
<i>Technology Forecasting and Social Changes</i>	12	279.39
<i>Sustainable Development</i>	11	131.80
<i>International Journal of Production Research</i>	10	311.78
<i>Production Planning and Control</i>	9	196.91

<sup>a</sup>Total link strength was calculated from the bibliographic coupling of sources.

### 3 | BIBLIOMETRIC ANALYSES

#### 3.1 | Bibliographic coupling

Bibliographic coupling connects two articles when both articles cite the same source (Caviggioli & Ughetto, 2019). The logic of this technique is that a pair of articles shares common intellectual capital when the articles have a larger number of common references (Xu et al., 2018). While backward citation tracing can provide a useful overview of a topic, it is criticised for its inability to aggregate older articles (Khanra, Dhir, Kaur, et al., 2021). As a result, scholars frequently employ citation analysis—an approach based on forwarding citation tracing—to supplement the findings from bibliographic coupling (Khanra, Dhir, Parida, et al., 2021). The present study acknowledges the influential authors who made important intellectual contributions to the sample used for the study (see Table 3). We conducted bibliographic coupling with the help of VOSviewer software to rank the key contributing authors with respect to the total link strength, which represents the total number of bibliographic links with respective elements of analysis (Van Eck & Waltman, 2014). This study followed the fractional counting of links to reduce the impact of a number of co-authors for an article (Khanra et al., 2020). Table 3 lists the influential authors who made important intellectual contributions to the sample used for this study. Bag and Gupta are the most influential authors in the literature on green innovation as a firm resource followed by Liu, Jabbour and Childe.

#### 3.2 | Citation analysis

Citation analysis seeks to assess the academic acceptability of research by counting the frequency with which studies have been

cited in different publications (Khanra et al., 2020). Citation analysis findings frequently supplement bibliographic coupling findings (Fahimnia et al., 2015). Table 4 lists the top 10 authors who contributed popular articles to this study's sample. Seuring tops the list of the most popular authors ordered by total link strength from citation analysis using VOSviewer; Chen, Li and Barney follow. However, citation analysis assesses only the popularity of an article among others in a sample and not its importance in a research domain (Khanra, Dhir, Kaur, et al., 2021).

#### 3.3 | Prestige analysis

The number of times highly acclaimed articles cite a particular article determines the cited article's prestige (Khanra, Dhir, Parida, et al., 2021). Thus, prestige analysis identifies articles that play a significant role in the development of a body of literature. An extended version of the original PageRank algorithm developed by Brin and Page (1998) can be used to investigate the prestige of articles (Xu et al., 2018). Through iterations, this technique locates articles that are co-cited with highly co-cited publications (Fahimnia et al., 2015). Recognising its capacity to implement a robust scoring system, we utilised Gephi for prestige analysis (Khanra, Dhir, Parida, et al., 2021). Table 5

**TABLE 3** Top 10 authors from bibliographic coupling

Author	Total link strength
Bag, S.	463.44
Gupta, S.	460.50
Liu, Y.	383.87
Jabbour, C.J.C.	346.34
Childe, S.	325.89
Dubey, R.	325.89
Roubaud, D.	325.89
Scarpellini, S.	307.65
Portillo-Tarragona, P.	307.65
Aranda-Usón, A.	305.68

**TABLE 4** Top 10 authors from citation analysis

Author	Total link strength
Seuring, S.	62
Chen, X.	60
Li, D.	60
Barney, J.	51
Aboelmaged, M.	47
Gold, S.	46
Wu, P.	46
Jabbour, C.J.C.	39
Liu, Y.	37
Aranda-Usón, A.	36

lists the top 10 prestigious articles from a total of 951 articles in our sample.

### 3.4 | Co-authorship analysis

Based on the degree of collaborative publications, co-authorship analysis reveals collaboration trends among authors engaged in a field of research (Cavaggioli & Ughetto, 2019). Authors who are part of a collaborative network are more likely to mention related articles. Hence, such networks are important within a research field (Khanra et al., 2020), and the results of co-authorship analysis are complementary to those of other bibliometric methodologies (Khanra, Dhir, Kaur, et al., 2021). This method, however, is unable to detect the efforts of single authors (Khanra, Dhir, Parida, et al., 2021). To emphasise the most important collaborations, we selected articles with at least 10 citations in *Scopus* for this study. VOSviewer is a powerful tool for analysing large datasets (Fahimnia et al., 2015), with a variety of advanced choices for visualising the results of co-authorship analyses (Van Eck & Waltman, 2014). As Figure 3 shows, 113 of the 2468 authors who contributed articles appear in the co-authorship network, which comprised four groups of 32, 30, 30 and 21 authors. Zhang, Liu and Wang, who are linked with eleven, ten and eight authors, respectively, are the most prominent authors in the first group. Liu (10 links) leads the second group, followed by Foerstl and Ulgiati (5 links each), among others. Authors in the third group include Zhang (10 links), Liu (8 links) and Lin (7 links). Tseng (7 links), Lim (7 links) and Li (6 links) are prominent among the authors in the fourth group.

## 4 | THEMATIC ANALYSES

### 4.1 | Co-word analysis

Assessing the co-occurrence of keywords from authors and the index can provide meaningful perspectives on a research topic (Van Eck & Waltman, 2014). Because VOSviewer is an effective tool for examining keyword co-occurrences from bibliometric data (Fahimnia

et al., 2015; Van Eck & Waltman, 2014), we employed it to conduct a co-word analysis. The authors of the articles in this study's sample contributed 3114 keywords (94 of which co-occurred more than five times), while publishers indexed the articles using 2864 keywords (252 keywords co-occurred more than five times). Tables 6 and 7 present the top 10 author and index keywords, respectively, from the co-word analyses. Figures 4 and 5 show network topologies of author and index keywords, respectively.

The network diagrams of keywords demonstrate the relationship of the literature on green innovation as a firm resource with three management domains. The first domain is business strategy, which is associated with author keywords such as 'strategic approach', 'competitive advantage' and 'industrial performance' and index keywords such as 'innovation', 'competitiveness' and 'firm performance'. The second domain of environmental management includes author keywords such as 'conservation of natural resource', 'environmental protection' and 'biodiversity' and index keywords such as 'water management', 'land use' and 'ecotourism'. Author keywords resonating with the third domain of green energy are 'climate change', 'carbon dioxide' and 'fossil fuel' while index keywords are 'renewable energy resources', 'renewable energies' and 'renewable resource'.

### 4.2 | Co-citation analysis

A more advanced technique, co-citation analysis detects thematic commonalities across papers in a certain research field (Khanra, Dhir, Parida, et al., 2021). When two articles are cited by another two articles, the later pair of articles is considered co-cited (Xu et al., 2018). Co-cited articles form an important literature network within the research field (Fahimnia et al., 2015). The Louvain algorithm in the Gephi modularity tool aptly detects important clusters from the literature network through iterations (Khanra, Dhir, Kaur, et al., 2021). Of the 951 articles in our sample, 371 articles (nodes) are co-cited in 1586 combinations (edges). Four major clusters capture 51.75% of nodes (192 articles) and represent 73.71% of the network (1169 edges) of co-cited articles. Tables 8–11 report prestigious articles from the four clusters, respectively. Thematic areas derived from these clusters represent the respective cluster's primary intellectual interests (Khanra, Dhir, Parida, et al., 2021). The emerging themes from the four major clusters are green supply chain management, green product design, corporate environmental responsibilities and social sustainability.

### 4.3 | Dynamic co-citation analysis

A dynamic co-citation analysis facilitates deeper comprehension of the expansion of thematic areas discovered by co-citation analysis (Fahimnia et al., 2015; Xu et al., 2018). Gephi possesses the distinctive functionality required to perform dynamic analysis on the findings from co-citation analysis (Xu et al., 2018). Figure 6 depicts the history

**TABLE 5** Top 10 articles from prestige analysis

Article	PageRank score
Gold et al. (2010)	0.016481
Golicic and Smith (2013)	0.012645
Bansal (2005)	0.010611
Lee and Min (2015)	0.007684
Cainelli et al. (2015)	0.007667
Glavas and Mish (2015)	0.007576
Li et al. (2017)	0.007537
Liu et al. (2017)	0.007473
Barrutia and Echebarria (2015)	0.006426
Demirel and Kesidou (2019)	0.006409

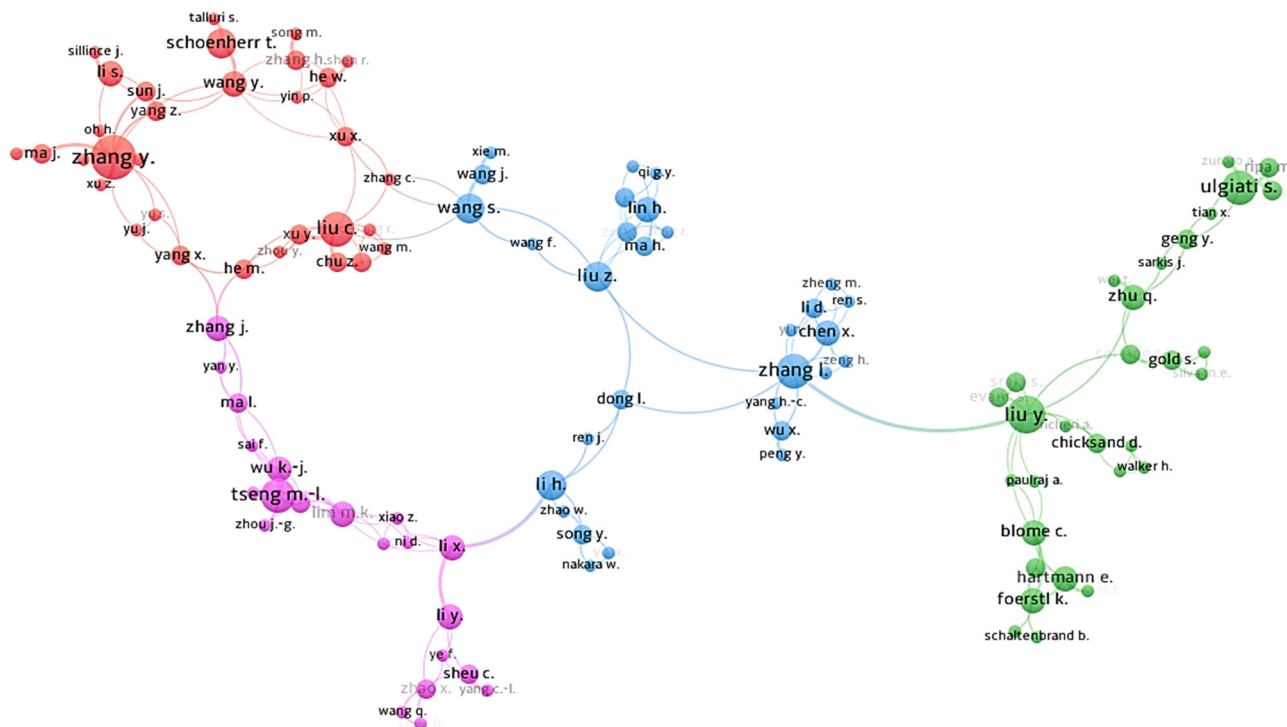


FIGURE 3 Network of authors from co-authorship analysis [Colour figure can be viewed at wileyonlinelibrary.com]

TABLE 6 Top 10 keywords from co-word analysis of author keywords

Author keyword	Co-occurrences
Sustainability	170
Resource-based view	121
Sustainable development	87
Competitive advantage	28
Environmental performance	26
Innovation	23
Corporate social responsibility	22
Green innovation	21
Dynamic capability	20
Environment	17

TABLE 7 Top 10 keywords from co-word analysis of index keywords

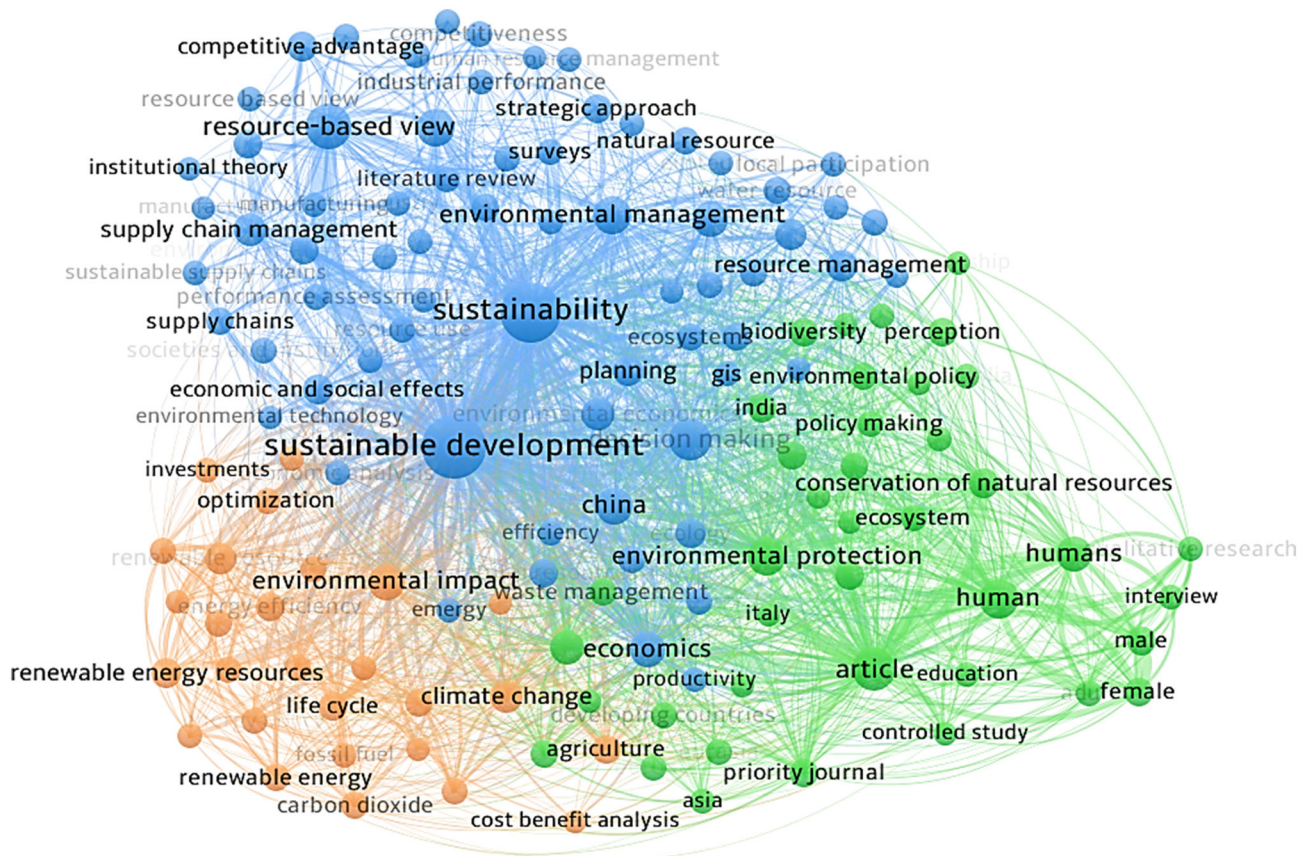
Index keyword	Co-occurrences
Sustainable development	286
Sustainability	156
Resource-based view	68
Decision-making	59
Innovation	56
Environmental management	52
Stakeholder	45
Environmental economics	38
Environmental impact	37
Supply chain management	36

of four primary clusters, each of which has taken a distinct course, according to Gephi. Table 12 shows the number of articles added to each cluster in a year. Both Cluster 1 and Cluster 2 emerged in 1993 and are continuing to grow to date. However, more than two-thirds of articles in Cluster 1 (51 out of 74) were added between 2011 and 2017. Cluster 2 exhibited noticeable growth between 2011 and 2019, with 65.7% of the cluster (46 out of 70 articles) published during the period. Cluster 3, the youngest among the four key clusters, emerged in 2001 and represents the fastest growing cluster over the past 5 years (2017–2021). Cluster 4, the smallest of the four important clusters, maintained its growth from its inception in 1998 to the

present. All four clusters show signs of growth in recent years, and hence, none of them is saturated at present.

## 5 | CONTENT ANALYSIS

From the content analysis of the articles listed in Tables 8–11, we identified four thematic areas, each connecting the articles within a cluster. These thematic areas are green innovations for supply chain management, green product design, corporate environmental responsibilities and social sustainability. In addition, the content analysis of



**FIGURE 4** Co-occurrences of author keywords [Colour figure can be viewed at [wileyonlinelibrary.com](https://onlinelibrary.wiley.com)]

prestigious articles in each thematic area revealed sub-themes, which we also discuss below.

## 5.1 | Thematic area 1: Green supply chain management

Green supply chain management pays due attention to environmental concerns in decisions related to firms' logistic operations to achieve sustainable development (Gold et al., 2010; Golicic & Smith, 2013). Hart (1995) introduced a natural resource-based view of the firm, which directed businesses to deploy three interlinking strategies—pollution prevention, product stewardship and sustainable development—to achieve competitive advantage. Fowler and Hope (2007) advocate for the parallel implementation of these strategies to better achieve the SDGs. To this end, the adoption of green operations strategies would require specific supply chain capabilities embedded in a sustainable supply chain (Liu et al., 2017). Green supply chain management may further encourage green manufacturing, green design and green purchasing (Liu et al., 2017).

Prior studies have explored the importance of establishing green supply chain management as a resource in different industries. Studies of the ostensibly 'polluting industries', such as apparel (Fowler & Hope, 2007), automobiles (Liu et al., 2017) and electronics (Huang &

Yang, 2014), have further highlighted this importance. Shi et al. (2012) uncovered the causal impact of institutional drivers, performance measures and intra-organisational and inter-organisational practices on green supply chain management. Here, we discuss the relationship of green supply chain management with three aspects often studied in the context of sustainable development: the circular economy, competitive advantage and collaborative advantage.

### 5.1.1 | Circular economy

A circular economy is an economic system in which a cyclical model for material flow reduces negative environmental impacts and stimulates new business opportunities (Huang & Yang, 2014; Miemczyk et al., 2016). Unlike the traditional linear throughput flow model, a circular economy emphasises reusing, remanufacturing, refurbishing, upgrading and repairing as well as utilising renewable and waste-derived energy throughout the value chain (Huang & Yang, 2014; Miemczyk et al., 2016). To this end, companies may develop strategic resources to advance technology, knowledge and relationships by designing closed-loop supply chains to circulate raw materials, components and used products (Miemczyk et al., 2016). Reverse logistics innovation is one such strategic decision gaining traction among businesses (Huang & Yang, 2014; Miemczyk et al., 2016).





**TABLE 10** Ten most prestigious articles in Cluster 3 (Corporate environmental responsibilities)

Articles	PageRank score
Chan (2005)	0.005456
Andersén et al. (2020)	0.005281
Chakrabarty and Wang (2012)	0.005156
McDougall et al. (2019)	0.004291
Borland et al. (2016)	0.003544
Schoenherr (2012)	0.003292
Shin et al. (2018)	0.003278
Fanasch (2019)	0.003264
Alam et al. (2019)	0.003244
Jabbour et al. (2020)	0.003211

**TABLE 11** Ten most prestigious articles in Cluster 4 (Social sustainability)

Articles	PageRank score
Bansal (2005)	0.010611
Barrutia and Echebarria (2015)	0.006426
Matten and Moon (2008)	0.004126
Klassen and Vereecke (2012)	0.003906
Torugsa et al. (2013)	0.003723
Aguilera et al. (2007)	0.003244
Mena et al. (2014)	0.002749
Bui et al. (2020)	0.002749
Lee et al. (2021)	0.001853
Montabon et al. (2016)	0.001299

### 5.1.2 | Competitive advantage

The literature suggests that firms are increasingly struggling to identify sources from which to gain competitive advantage, especially in hypercompetitive environments (Markley & Davis, 2007). In such cases, the establishment of a green supply chain may contribute to the development of a competitive advantage (Gold et al., 2010; Markley & Davis, 2007). For instance, green supply chain management saves firms costs by reducing their consumption of natural resources, water and energy (Gold et al., 2010). Overall, green supply chain management may enhance firm performance in terms of market, operational and accounting factors (Golicic & Smith, 2013).

### 5.1.3 | Collaborative advantage

Inter-firm knowledge exchanges for selecting and monitoring suppliers may result in greener process management and supply chain

management (Gavrinski et al., 2011). Historically, such strategic knowledge exchanges often emerge from inter-firm collaborations aimed at addressing social and environmental issues; hence, competitors find these exchanges imperfectly imitable (Gold et al., 2010). Liu et al. (2017) suggest that environmental proactivity may enable inter-firm collaborations for green purchasing and supplier appraisal. Such collaborations may, in turn, facilitate the sustainable development of the value chain and the creation of new markets for collaborating firms (Glavas & Mish, 2015).

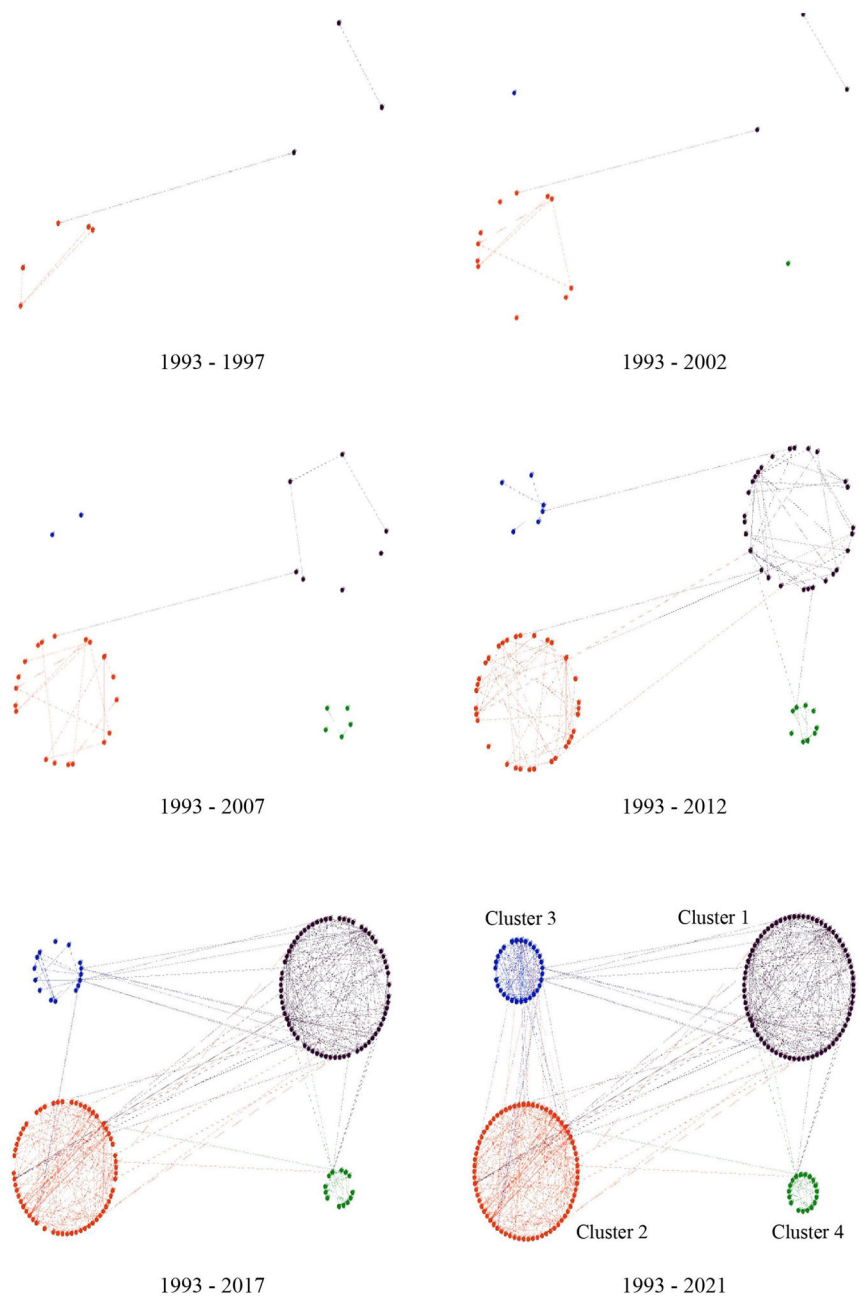
## 5.2 | Thematic area 2: Green product design

Green products are designed to consume less energy and fewer resources at the production phase, reduce adverse effects to the environment during product usage and minimise waste generation throughout a product's life cycle (Cheng et al., 2014; Li et al., 2017; Lin et al., 2014). Capabilities to launch green product lines may represent important resources for firms striving to gain sustainable competitive advantages (Amores-Salvadó et al., 2014; Duque-Grisales et al., 2020). A number of studies present research evidence on green product design from various countries, such as China (Li et al., 2017; Lin et al., 2014), Japan (Lee & Min, 2015), Latin American nations (Duque-Grisales et al., 2020); New Zealand (Zhang & Walton, 2017), Spain (Amores-Salvadó et al., 2014; Cainelli et al., 2015), Taiwan (Cheng et al., 2014) and the United Kingdom (Demirel & Kesidou, 2019). Here, we summarise our analysis of the research on green products across three areas – eco-innovations, business performance and knowledge competence.

### 5.2.1 | Eco-innovations

Firms often promote eco-innovations to adhere to government regulations and consumer pressures (Lin et al., 2014), and these innovations often manifest in product designs, manufacturing processes and organisational cultures (Cheng et al., 2014). Though firms expect eco-innovations to deliver significant profitability and legitimacy (Li et al., 2017), the environmental orientation of a firm may not directly result in superior firm profitability (Zhang & Walton, 2017). Cainelli et al. (2015) suggest that internal resources deployed in research and development and employee training are critical to spurring eco-innovation. However, a study by Lee and Min (2015) found a negative relationship between investment in research and the development of eco-innovations and carbon emissions. In fact, eco-friendly innovations at the organisational level have a stronger effect on firm profitability than do such innovations at the product and process levels (Cheng et al., 2014). Overall, eco-innovations tend to be more successful when companies develop organisational capabilities for voluntary self-regulation towards sustainable development (Demirel & Kesidou, 2019). To this end, the environmental orientation of a firm may enhance the positive effect of eco-innovation on firm profitability (Zhang & Walton, 2017).

**FIGURE 6** Evolution of clusters from dynamic co-citation analysis [Colour figure can be viewed at [wileyonlinelibrary.com](http://wileyonlinelibrary.com)]



### 5.2.2 | Business performance

Firms that commit more organisational resources may achieve better business performance from green product design (Zhang & Walton, 2017). However, the relationship between green product design and business performance is generally complex and uncertain (Lee & Min, 2015; Li et al., 2017). For instance, investment in environmental management systems for adopting green innovation may not yield immediate business performance benefits (Duque-Grisales et al., 2020), but may fuel future business growth from increased research and development for green products (Lee & Min, 2015). In addition, a firm's marketing capabilities may determine the business performance of green products offered by the firm (Amores-Salvadó et al., 2014).

### 5.2.3 | Knowledge competence

Firms often struggle to balance their sustainability objectives with profitability goals due to uncertain returns from investments in green product design (Cainelli et al., 2015; Zhang & Walton, 2017). Claudy et al. (2016) argue that firms may achieve this balance through a strategic-level sustainability orientation and market knowledge competence. On the one hand, investment in research and development of green products may help firms acquire resources and capabilities to prepare for impending technological shifts towards sustainability (Demirel & Kesidou, 2019). On the other hand, firms may develop the market competence required to address consumer demand for green products (Demirel & Kesidou, 2019). In this regard, Cainelli et al. (2015) suggest that acquiring equipment to leverage knowledge competence

**TABLE 12** Number of articles added to major clusters

Year	Cluster 1	Cluster 2	Cluster 3	Cluster 4
1993	1	2	0	0
1994	1	1	0	0
1995	1	1	0	0
1996	0	1	0	0
1997	0	0	0	0
1998	0	1	0	1
1999	0	0	0	0
2000	0	4	0	0
2001	0	1	1	0
2002	0	0	0	0
2003	1	2	0	1
2004	0	1	0	1
2005	0	3	1	1
2006	0	0	0	0
2007	3	2	0	1
2008	2	1	0	1
2009	3	3	0	0
2010	3	1	1	1
2011	7	4	1	1
2012	6	5	2	1
2013	7	5	1	1
2014	11	4	1	1
2015	5	8	2	1
2016	8	5	3	1
2017	7	4	2	0
2018	3	5	3	1
2019	0	4	7	1
2020	4	2	4	2
2021	1	0	1	1
<b>Total</b>	<b>74</b>	<b>70</b>	<b>30</b>	<b>18</b>
Colour code	Brown	Orange	Blue	Green

for green products may prove more effective than patenting knowledge. Consequently, firms may present their green image with a focus on green product stewardship strategies to better prepare for the market's future sustainability orientation (Amores-Salvadó et al., 2014).

### 5.3 | Thematic area 3: Corporate environmental responsibilities

Corporate environmental responsibilities may include adhering to best practices and international standards, preventing pollution, recycling materials and reducing waste generation (Schoenherr, 2012). Such responsibilities may lead firms to develop capabilities pertaining to the quality, delivery, flexibility and cost of sustainable operations (Schoenherr, 2012). However, Escobar and Vredenburg (2011) argue

that the dominant business models neither fully incorporate nor totally abandon environmental responsibilities. Studies on firms' environmental responsibilities are conducted in various countries, such as Brazil (Jabbour et al., 2020), China (Chan, 2005), Germany (Fanasch, 2019) and Sweden (Andersén et al., 2020). The prior research discussed about the reduction of firms' carbon footprints and the benefits and challenges of fulfilling corporate environmental responsibilities in the context of firms' environmental responsibilities (Borland et al., 2016), as summarised below.

#### 5.3.1 | Reduction of carbon footprint

Increasing global warming, climate change and pressures from various stakeholders, such as investors, employees and network partners, have forced firms to reduce their carbon footprints (Jabbour et al., 2020). However, firms that proactively invest in research and development to reduce energy consumption and carbon emissions often achieve superior performance (Alam et al., 2019). For instance, a global study of large multinational companies revealed that the top users of renewable energy consistently exhibited superior financial performance compared to their competitors (Shin et al., 2018). However, normative or coercive isomorphism for reducing carbon footprints does not exist uniformly among multinational companies across the world due to leniency in interpreting sustainability efforts in many of the host countries where these companies' subsidiaries operate (Escobar & Vredenburg, 2011).

#### 5.3.2 | Benefits of fulfilling environmental responsibilities

Firms fulfilling their environmental responsibilities may develop a sustainable competitive advantage by developing resources for pollution prevention, product stewardship and clean technologies (McDougall et al., 2019). The resulting firm reputation and certifications for environmentally friendly firm practices may translate into superior financial performance (Fanasch, 2019). However, environmentally friendly firm practices may vary with macroeconomic uncertainties, operating mode, firm size and organisational routines (Chan, 2005). For instance, multinational companies with intensive internationalisation as well as research and development programmes are more likely to develop and maintain better sustainability practices (Chakrabarty & Wang, 2012).

#### 5.3.3 | Challenges of fulfilling environmental responsibilities

Firms are generally cautious about making investments in environmental sustainability initiatives because such investments may erode their competitiveness by escalating operational costs (Andersén et al., 2020). Such investments are particularly challenging for smaller

firms that face resource constraints and strong competition (Andersén et al., 2020). In addition, multinational companies with low intensity for internationalisation as well as research and development may devote inadequate resources to developing and maintaining sustainability practices (Chakrabarty & Wang, 2012). Nevertheless, the environmental orientation of top management may play a key role in whether a firm honours its environmental responsibilities (Andersén et al., 2020).

## 5.4 | Thematic area 4: Social sustainability

Corporate social responsibility (CSR) refers to a firm's commitment to meeting stakeholders' interests in a socially sustainable way (Aguilera et al., 2007; Torugsa et al., 2013). Firms engage in CSR activities, which can be part of their SDGs, to improve people's standard of living (Montabon et al., 2016). Such corporate initiatives may assume a greater role in developing countries, where government initiatives often fail to deliver the desired results (Matten & Moon, 2008). Besides discussing firms' social responsibilities, this thematic area highlights the need for reducing food waste and managing municipal waste.

### 5.4.1 | Social responsibilities of firms

Firms may benefit society by choosing to volunteer in CSR activities that integrate social issues and business values (Matten & Moon, 2008). In contrast, actors and interest groups at different levels, such as individual employees and national and transnational consumer groups and organisations, often force firms to participate in CSR (Aguilera et al., 2007). Bansal (2005) reported that media pressures often impel corporations to initiate CSR activities. The motives of such actors and interest groups in driving positive societal changes may be analysed from instrumental, relational and moral perspectives, which are concerned with self-interest, relationships among group members and ethical standards, respectively (Aguilera et al., 2007).

Firms with strong CSR performance develop strategic resources and gain competitive advantages by leveraging these resources (Klassen & Vereecke, 2012). These strategic resources help such firms to legitimise their performance claims, differentiate their products and reduce risks to their brand image (Klassen & Vereecke, 2012). For small and medium manufacturing enterprises, proactive CSR may influence financial performance through their capabilities, such as a shared vision, stakeholder management and strategic proactivity (Torugsa et al., 2013). In comparison, a customer orientation for sustainability is of utmost importance in the case of small and medium service enterprises (Lee et al., 2021).

### 5.4.2 | Reduction of food waste

Social sustainability may be achieved by adopting management practices that minimise food waste in multi-tier food supply networks

(Mena et al., 2014). Addressing the issue of food waste is critical in developing sustainable food supply chains (Wu & Huang, 2018). Transparent demand forecasts, improved quality and process control mechanisms as well as improved package designs that extend food products' shelf-lives may significantly reduce food waste while simultaneously improving firm performance (Mena et al., 2014).

### 5.4.3 | Municipal waste management

Efficient municipal waste management is a critical component of social sustainability at a macro level. Facilitating social mobilisation and retaining environmental integrity are two key determinants of the efficacy of a municipality's waste management systems (Bui et al., 2020). To this end, municipalities must develop capabilities to utilise economic resources efficiently and leverage available technological support (Bui et al., 2020). Building relationships with higher-level government authorities and networking with other municipalities may be important considerations in implementing a high-performing municipal waste management system (Barrutia & Echebarria, 2015).

## 6 | DISCUSSION AND FUTURE RESEARCH AGENDAS

The present study has identified the key contributors shaping the literature on green innovation as a firm resource. Tables 1, 3 and 4 present notable authors. In addition, our examination of co-authorship (see Figure 3) revealed the collaborative networks that are important to the extant literature. The patterns of collaboration imply that studies on this topic are dispersed across four key groups and a large network of authors.

By clustering articles with co-citation analysis, this study highlighted the major thematic areas in the literature on green innovation as a firm resource: green supply chain management, green product design, corporate environmental responsibilities and social sustainability. Tables 8–11 show the prestigious articles in each of the four thematic areas. Subsequently, we employed a dynamic co-citation analysis to track the growth of these thematic areas. We contend that in-depth examinations of the content of these thematic areas would offer valuable additions to the literature on sustainable development, from a broader perspective. In the following subsections, we recommend directions for future research in each of the thematic areas identified.

### 6.1 | Green innovations for supply chain management

Multi-tier supply chain management firms, such as Ikea, are increasing their efforts to achieve sustainability in their supply chains (Gong et al., 2018). In terms of purchasing, production, inventory, distribution and logistics, the performance of partners impacts the entire

supply chain (Wu et al., 2020). Thus, one of the most important issues for firms seeking to establish green supply chains is analysing and choosing suitable supply chain partners (Gong et al., 2018; Wu et al., 2020). Furthermore, green innovations for supply chain management may aid sustainable business models in a circular economy (Ferasso et al., 2020) and among small and medium enterprises (Filsler et al., 2021). Therefore, future researchers should work to develop robust models for the selection of supply chain partners in both linear and circular value chains.

## 6.2 | Green innovations for sustainable product design

At present, profitability from green products is a serious concern for firms. Researchers, therefore, might aid the sustainable development of green products by suggesting ways to develop firm resources for reconceiving products and markets. Further, effective government policies are required to promote companies' green product design and manufacturing (Hall, Matos, & Silvestre, 2012). Researchers have argued that the economic slowdown caused by the COVID-19 pandemic may help policymakers implement proactive solutions towards sustainable development (Bruce et al., 2021). To this end, future research could offer useful inputs for policymakers to promote innovations in green product design.

## 6.3 | Green innovations for sustainable firm resources

The application of the RBV may help identify suitable firm resources for incorporating green innovations in firm practices, processes and activities (Dangelico, 2016). For instance, the RBV may help redefine productivity by incorporating environmental sustainability into a firm's practices (Jacobs et al., 2010), which the firm can then communicate to its customers through green marketing campaigns (Han et al., 2019). Further, eco-branding transforms a firm's brand image by adopting sustainable practices (Olsen et al., 2014). Green information technology is the practice of incorporating environmental sustainability in computing (Chan, 2021). Green human resource management practices may also enable firms to develop sustainable organisational resources (Roscoe et al., 2019; Yong et al., 2020). Thus, future research should study the impact of green marketing, eco-branding, green information technology and human resource management as firm resources.

## 6.4 | Green innovations for corporate social responsibility

Rangan et al. (2015) identified three theatres for practising CSR, which focused on philanthropy, improving operational effectiveness and creating shared value with a business's stakeholders. Operational effectiveness may become a vital firm resource for suitably transforming business models to achieve desired economic gains while

practising CSR. Benites-Lazaro et al. (2018) advocate for innovative applications of statistical models to identify parameters for an industry's efforts towards sustainability by establishing CSR standards, codes of conduct and practices. Future researchers should explore such parameters for specific industries and develop forecasting models to predict economic benefits from CSR activities while addressing social issues.

## 6.5 | Green innovations for sustainable living

To enable sustainable living conditions for their citizens, governments across the world must develop resources to build green, healthy and sustainable infrastructure, especially in urban areas. Prior research recommends the innovative use of technology in planning the locations of new cities (Li et al., 2019), implementing various sustainable development initiatives in urban development (Lan et al., 2021) and developing adequate waste management infrastructure (Ayeleru et al., 2021). Focused research could suggest ways to develop firm resources to provide sustainable solutions to governments undertaking urban development projects. Further, researchers may work to conceptualising future green innovations for sustainable living in smart cities.

## 7 | STUDY IMPLICATIONS

According to Bansal (2005), resource-based factors influence corporate sustainable development initiatives, and firms have embraced the RBV-guided sustainable development perspective. Therefore, business executives have been increasingly conscious of the need to widen their organisations' aims beyond typical financial expectations to include social and environmental goals as well (de Lange et al., 2012; Hoffman, 1999). From this perspective, the present study offers important implications for both theory and practice.

### 7.1 | Theoretical implications

Research focusing on green innovation as a firm resource is scattered across numerous journals, and few studies have examined the current structure and future scope of research in the domain. To this end, this study offers the following theoretical contributions.

First, utilising techniques such as bibliographic coupling, citation analysis and co-authorship analysis, the study conducts a bibliometric analysis of research papers published in peer-reviewed journals. The findings from bibliographic coupling and citation analysis highlight a publication's influence and popularity in the extant literature. Further, to provide a more comprehensive understanding of the important articles in the domain, the study conducts a prestige analysis, which reveals the number of times an article is cited by highly regarded publications.

Second, the study's analysis of co-authorship networks identifies distinct groups of authors while depicting the collaborative links among authors in each group. Importantly, these author groups play a key role in the evolution of knowledge in the field.

Third, the study uses co-word analysis to broadly classify keywords from the articles into three management domains: business strategy, environmental management and green energy. This classification enhances understanding of the domains in which research on green innovation as a firm resource has concentrated over the years and, accordingly, suggests agendas for future research.

Fourth, the co-citation analysis reveals four major clusters with thematic areas: green supply chain management, green product design, corporate environmental responsibilities and social sustainability. The dynamic co-citation analysis that followed shows the number of papers added to each cluster annually, indicating the historical trends of papers published on green innovation as a firm resource. Finally, a content analysis of the prestigious articles in the four thematic clusters provides a profound understanding of the thematic areas and directions for future research.

## 7.2 | Practical implications

Sustainability has become mainstream in strategic management, with companies frequently emphasising environmental sustainability (Buysse & Verbeke, 2002; Darnall et al., 2010) and CSR (Campbell, 2007; Hull & Rothenberg, 2008). From this perspective, this study entails the following implications for practitioners.

First, the study finds that business strategy, environmental management and green energy are the three management domains in which research on green innovation as a firm resource is predominantly concentrated. The identification of these domains and their widely used keywords provide an indication of the direction of green innovation as a firm resource.

Second, the identification of the four thematic areas—green supply chain management, green product design, corporate environmental responsibilities and social sustainability—may guide decision-making by policymakers and practitioners alike. In addition, the thematic areas indicate trends in existing research and capture the evolution of sustainable development practices over time. All four clusters are actively growing, albeit at varying paces. The findings from our dynamic co-citation analysis demonstrate a gradual shift from research interest in green supply chain management to corporate environmental responsibilities. Interestingly, research on green product design grew rapidly during both of these themes' high-growth period, indicating that green product design may complement both green supply chain management and corporate environmental responsibilities.

Third, the four thematic areas identified here resonate well with the findings of Rangan et al. (2015), who noted 'philanthropy', 'improving operational effectiveness' and 'transforming the business model to create shared value' as the three theatres of businesses' CSR practices. For instance, the thematic areas of green supply chain management and green product design could contribute to improving

operational effectiveness. Corporate environmental responsibilities tend towards transforming the business model to create shared value, while philanthropy could be equated to social sustainability without a business motive. Thus, the present study provides valuable insights into the critical aspects of business organisations' sustainable development practices from the standpoint of leveraging green innovation as a firm resource.

## 8 | CONCLUSION

This study aimed to address three research questions, which sought to acknowledge the key contributors shaping RBV-guided research on green innovation as a firm resource, identify major thematic areas in the existing literature and recommend future research agendas relating to these thematic areas. We addressed these research questions with a comprehensive review of the literature, which applied a set of techniques that constitutes a protocol for bibliometric studies. Nevertheless, this study's findings are subject to three inherent limitations. First, the analysed sample consists of articles from journals listed in the *Scopus* database and published in English. Future studies may expand the document search to journals from different databases and include books, book chapters and conference proceedings, while also exploring documents published in other languages. Second, the search string employed for database exploration captures a broader scope of existing research on green innovations. Thus, the present study has major implications for researchers seeking to advance the literature on green innovation as a valuable firm resource and for corporate policymakers working to promote sustainable development practices through green innovation. However, future research may aim to structure the literature on green product innovation and green process innovation with a narrower focus. Third, the study discussed four major thematic areas: green supply chain management, green product design, corporate environmental responsibilities and social sustainability. We also observed three minor thematic areas comprising 13, 11 and 8 articles relating to green purchase behaviour, sustainable technology transfer and government initiatives for sustainability, respectively. These minor thematic areas may gain prominence in the future and require comprehensive reviews of the related literature.

## CONFLICT OF INTEREST

The authors do not have any competing interests to declare.

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## REFERENCES

- Aguilera, R. V., Rupp, D. E., Williams, C. A., & Ganapathi, J. (2007). Putting the 'S' back in corporate social responsibility: A multilevel theory of social change in organisations. *Academy of Management Review*, 32(3), 836–863. <https://doi.org/10.5465/amr.2007.25275678>

- Aguinis, H., Pierce, C. A., Bosco, F. A., Dalton, D. R., & Dalton, C. M. (2011). Debunking myths and urban legends about meta-analysis. *Organizational Research Methods*, 14(2), 306–331. <https://doi.org/10.1177/1094428110375720>
- Alam, M. S., Atif, M., Chien-Chi, C., & Soytaş, U. (2019). Does corporate R&D investment affect firm environmental performance? Evidence from G-6 countries. *Energy Economics*, 78, 401–411. <https://doi.org/10.1016/j.eneco.2018.11.031>
- Ambec, S., & Lanoie, P. (2008). Does it pay to be green? A systematic overview. *Academy of Management Perspectives*, 22(4), 45–62. <https://www.jstor.org/stable/27747478>
- Amores-Salvador, J., Martín-de Castro, G., & Navas-López, J. E. (2014). Green corporate image: Moderating the connection between environmental product innovation and firm performance. *Journal of Cleaner Production*, 83, 356–365. <https://doi.org/10.1016/j.jclepro.2014.07.059>
- Andersén, J., Jansson, C., & Ljungkvist, T. (2020). Can environmentally oriented CEOs and environmentally friendly suppliers boost the growth of small firms? *Business Strategy and the Environment*, 29(2), 325–334. <https://doi.org/10.1002/bse.2366>
- Awan, U., Arnold, M. G., & Gölgeci, I. (2021). Enhancing green product and process innovation: Towards an integrative framework of knowledge acquisition and environmental investment. *Business Strategy and the Environment*, 30(2), 1283–1295. <https://doi.org/10.1002/bse.2684>
- Awan, U., Nauman, S., & Sroufe, R. (2021). Exploring the effect of buyer engagement on green product innovation: Empirical evidence from manufacturers. *Business Strategy and the Environment*, 30(1), 463–477. <https://doi.org/10.1002/bse.2631>
- Awan, U., Sroufe, R., & Shahbaz, M. (2021). Industry 4.0 and the circular economy: A literature review and recommendations for future research. *Business Strategy and the Environment*, 30(4), 2038–2060. <https://doi.org/10.1002/bse.2731>
- Ayeleru, O. O., Fajimi, L. I., Oboiren, B. O., & Olubambi, P. A. (2021). Forecasting municipal solid waste quantity using artificial neural network and supported vector machine techniques: A case study of Johannesburg, South Africa. *Journal of Cleaner Production*, 289, 125671. <https://doi.org/10.1016/j.jclepro.2020.125671>
- Bangsa, A. B., & Schlegelmilch, B. B. (2019). Linking sustainable product attributes and consumer decision-making: Insights from a systematic review. *Journal of Cleaner Production*, 245, 118902. <https://doi.org/10.1016/j.jclepro.2019.118902>
- Bansal, P. (2005). Evolving sustainably: A longitudinal study of corporate sustainable development. *Strategic Management Journal*, 26(3), 197–218. <https://doi.org/10.1002/smj.441>
- Barnett, M. L., & Salomon, R. M. (2012). Does it pay to be really good? Addressing the shape of the relationship between social and financial performance. *Strategic Management Journal*, 33(11), 1304–1320. <https://doi.org/10.1002/smj.1980>
- Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, 17(1), 99–120. <https://doi.org/10.1177/014920639101700108>
- Barney, J., Wright, M., & Ketchen Jr, D. J. (2001). The resource-based view of the firm: Ten years after 1991. *Journal of management*, 27(6), 625–641. <https://doi.org/10.1177/014920630102700601>
- Barney, J. B. (1995). Looking inside for competitive advantage. *Academy of Management Perspectives*, 9(4), 49–61. <https://doi.org/10.5465/ame.1995.9512032192>
- Barney, J. B. (2018). Why resource-based theory's model of profit appropriation must incorporate a stakeholder perspective. *Strategic Management Journal*, 39(13), 3305–3325. <https://doi.org/10.1002/smj.2949>
- Barrutia, J. M., & Echebarria, C. (2015). Resource-based view of sustainability engagement. *Global Environmental Change*, 34, 70–82. <https://doi.org/10.1016/j.gloenvcha.2015.06.009>
- Benites-Lazaro, L. L., Giatti, L., & Giarolla, A. (2018). Sustainability and governance of sugarcane ethanol companies in Brazil: Topic modeling analysis of CSR reporting. *Journal of Cleaner Production*, 197, 583–591. <https://doi.org/10.1016/j.jclepro.2018.06.212>
- Borland, H., Ambrosini, V., Lindgreen, A., & Vanhamme, J. (2016). Building theory at the intersection of ecological sustainability and strategic management. *Journal of Business Ethics*, 135(2), 293–307. <https://doi.org/10.1007/s10551-014-2471-6>
- Brin, S., & Page, L. (1998). The anatomy of a large-scale hypertextual web search engine. *Computer Networks and ISDN Systems*, 30(1–7), 107–117. [https://doi.org/10.1016/S0169-7552\(98\)00110-X](https://doi.org/10.1016/S0169-7552(98)00110-X)
- Broadus, R. N. (1987). Toward a definition of 'bibliometrics'. *Scientometrics*, 12(5–6), 373–379. <https://doi.org/10.1007/BF02016680>
- Bruce, A., Adam, K. E., Buller, H., Chan, K. W., & Tait, J. (2021). Creating an innovation ecosystem for rapid diagnostic tests for livestock to support sustainable antibiotic use. *Technology Analysis & Strategic Management*, in press, 1–14. <https://doi.org/10.1080/09537325.2021.1950678>
- Brulhart, F., Gherra, S., & Quelin, B. V. (2019). Do stakeholder orientation and environmental proactivity impact firm profitability? *Journal of Business Ethics*, 158(1), 25–46. <https://doi.org/10.1007/s10551-017-3732-y>
- Bui, T. D., Tsai, F. M., Tseng, M. L., Wu, K. J., & Chiu, A. S. (2020). Effective municipal solid waste management capability under uncertainty in Vietnam: Utilising economic efficiency and technology to foster social mobilisation and environmental integrity. *Journal of Cleaner Production*, 259, 120981. <https://doi.org/10.1016/j.jclepro.2020.120981>
- Buyse, K., & Verbeke, A. (2002). Proactive environmental strategies: A stakeholder management perspective. *Strategic Management Journal*, 24(5), 453–470. <https://doi.org/10.1002/smj.299>
- Cainelli, G., De Marchi, V., & Grandinetti, R. (2015). Does the development of environmental innovation require different resources? Evidence from Spanish manufacturing firms. *Journal of Cleaner Production*, 94, 211–220. <https://doi.org/10.1016/j.jclepro.2015.02.008>
- Campbell, J. L. (2007). Why would corporations behave in socially responsible ways? An institutional theory of corporate social responsibility. *Academy of Management Review*, 32(3), 946–967. <https://doi.org/10.5465/amr.2007.25275684>
- Cavaggioli, F., & Ughetto, E. (2019). A bibliometric analysis of the research dealing with the impact of additive manufacturing on industry, business and society. *International Journal of Production Economics*, 208, 254–268. <https://doi.org/10.1016/j.ijpe.2018.11.022>
- Chakrabarty, S., & Wang, L. (2012). The long-term sustenance of sustainability practices in MNCs: A dynamic capabilities perspective of the role of R&D and internationalisation. *Journal of Business Ethics*, 110(2), 205–217. <https://doi.org/10.1007/s10551-012-1422-3>
- Chan, R. Y. (2005). Does the natural-resource-based view of the firm apply in an emerging economy? A survey of foreign invested enterprises in China. *Journal of Management Studies*, 42(3), 625–672. <https://doi.org/10.1111/j.1467-6486.2005.00511.x>
- Chan, R. Y. (2021). Do chief information officers matter for sustainable development? Impact of their regulatory focus on green information technology strategies and corporate performance. *Business Strategy and the Environment*, 30(5), 2523–2534. <https://doi.org/10.1002/bse.2761>
- Chen, C., Zhu, J., Yu, J. Y., & Noori, H. (2012). A new methodology for evaluating sustainable product design performance with two-stage network data envelopment analysis. *European Journal of Operational Research*, 221(2), 348–359. <https://doi.org/10.1016/j.ejor.2012.03.043>
- Cheng, C. C., Yang, C. L., & Sheu, C. (2014). The link between eco-innovation and business performance: A Taiwanese industry context. *Journal of Cleaner Production*, 64, 81–90. <https://doi.org/10.1016/j.jclepro.2013.09.050>



- Christmann, P. (2004). Multinational companies and the natural environment: Determinants of global environmental policy. *Academy of Management Journal*, 47(5), 747–760. <https://doi.org/10.5465/20159616>
- Claudy, M. C., Peterson, M., & Pagell, M. (2016). The roles of sustainability orientation and market knowledge competence in new product development success. *Journal of Product Innovation Management*, 33, 72–85. <https://doi.org/10.1111/jpim.12343>
- Dangelico, R. M. (2016). Green product innovation: Where we are and where we are going. *Business Strategy and the Environment*, 25(8), 560–576. <https://doi.org/10.1002/bse.1886>
- Dangelico, R. M., & Pujari, D. (2010). Mainstreaming green product innovation: Why and how companies integrate environmental sustainability. *Journal of Business Ethics*, 95(3), 471–486. <https://doi.org/10.1007/s10551-010-0434-0>
- Dangelico, R. M., Pujari, D., & Pontrandolfo, P. (2017). Green product innovation in manufacturing firms: A sustainability-oriented dynamic capability perspective. *Business Strategy and the Environment*, 26(4), 490–506. <https://doi.org/10.1002/bse.1932>
- Darnall, N., Henriques, I., & Sadorsky, P. (2010). Adopting proactive environmental strategy: The influence of stakeholders and firm size. *Journal of Management Studies*, 47(6), 1072–1094. <https://doi.org/10.1111/j.1467-6486.2009.00873.x>
- de Lange, D. E., Busch, T., & Delgado-Ceballos, J. (2012). Sustaining sustainability in organisations. *Journal of Business Ethics*, 110(2), 151–156. <https://doi.org/10.1007/s10551-012-1425-0>
- Demirel, P., & Kesidou, E. (2019). Sustainability-oriented capabilities for eco-innovation: Meeting the regulatory, technology, and market demands. *Business Strategy and the Environment*, 28(5), 847–857. <https://doi.org/10.1002/bse.2286>
- Donthu, N., Kumar, S., Mukherjee, D., Pandey, N., & Lim, W. M. (2021). How to conduct a bibliometric analysis: An overview and guidelines. *Journal of Business Research*, 133, 285–296. <https://doi.org/10.1016/j.jbusres.2021.04.070>
- Du, L., Zhang, Z., & Feng, T. (2018). Linking green customer and supplier integration with green innovation performance: The role of internal integration. *Business Strategy and the Environment*, 27(8), 1583–1595. <https://doi.org/10.1002/bse.2223>
- Duque-Grisales, E., Aguilera-Caracuel, J., Guerrero-Villegas, J., & García-Sánchez, E. (2020). Does green innovation affect the financial performance of Multilatinas? The moderating role of ISO 14001 and R&D investment. *Business Strategy and the Environment*, 29(8), 3286–3302. <https://doi.org/10.1002/bse.2572>
- Durand, R., Paugam, L., & Stolowy, H. (2019). Do investors actually value sustainability indices? Replication, development, and new evidence on CSR visibility. *Strategic Management Journal*, 40(9), 1471–1490. <https://doi.org/10.1002/smj.3035>
- Escobar, L. F., & Vredenburg, H. (2011). Multinational oil companies and the adoption of sustainable development: A resource-based and institutional theory interpretation of adoption heterogeneity. *Journal of Business Ethics*, 98(1), 39–65. <https://doi.org/10.1007/s10551-010-0534-x>
- Fahimnia, B., Sarkis, J., & Davarzani, H. (2015). Green supply chain management: A review and bibliometric analysis. *International Journal of Production Economics*, 162, 101–114. <https://doi.org/10.1016/j.ijpe.2015.01.003>
- Fanasch, P. (2019). Survival of the fittest: The impact of eco-certification and reputation on firm performance. *Business Strategy and the Environment*, 28(4), 611–628. <https://doi.org/10.1002/bse.2268>
- Ferasso, M., Beliaeva, T., Kraus, S., Clauss, T., & Ribeiro-Soriano, D. (2020). Circular economy business models: The state of research and avenues ahead. *Business Strategy and the Environment*, 29(8), 3006–3024. <https://doi.org/10.1002/bse.2554>
- Filser, M., Kraus, S., Breier, M., Nenova, I., & Puumalainen, K. (2021). Business model innovation: Identifying foundations and trajectories. *Business Strategy and the Environment*, 30(2), 891–907. <https://doi.org/10.1002/bse.2660>
- Forcadell, F. J., Úbeda, F., & Aracil, E. (2021). Effects of environmental corporate social responsibility on innovativeness of Spanish industrial SMEs. *Technological Forecasting and Social Change*, 162, 120355. <https://doi.org/10.1016/j.techfore.2020.120355>
- Fowler, S. J., & Hope, C. (2007). Incorporating sustainable business practices into company strategy. *Business Strategy and the Environment*, 16(1), 26–38. <https://doi.org/10.1002/bse.462>
- Fu, R., Tang, Y., & Chen, G. (2020). Chief sustainability officers and corporate social (Ir) responsibility. *Strategic Management Journal*, 41(4), 656–680. <https://doi.org/10.1002/smj.3113>
- Galbreath, J. (2019). Drivers of green innovations: The impact of export intensity, women leaders, and absorptive capacity. *Journal of Business Ethics*, 158(1), 47–61. <https://doi.org/10.1007/s10551-017-3715-z>
- Gavronski, I., Klassen, R. D., Vachon, S., & do Nascimento, L. F. M. (2011). A resource-based view of green supply management. *Transportation Research Part E: Logistics and Transportation Review*, 47(6), 872–885. <https://doi.org/10.1016/j.tre.2011.05.018>
- Glavas, A., & Mish, J. (2015). Resources and capabilities of triple bottom line firms: Going over old or breaking new ground? *Journal of Business Ethics*, 127(3), 623–642. <https://doi.org/10.1007/s10551-014-2067-1>
- Goh, C. S., Chong, H. Y., Jack, L., & Faris, A. F. M. (2020). Revisiting triple bottom line within the context of sustainable construction: A systematic review. *Journal of Cleaner Production*, 252, 119884. <https://doi.org/10.1016/j.jclepro.2019.119884>
- Gold, S., Seuring, S., & Beske, P. (2010). Sustainable supply chain management and inter-organisational resources: A literature review. *Corporate Social Responsibility and Environmental Management*, 17(4), 230–245. <https://doi.org/10.1002/csr.207>
- Golicic, S. L., & Smith, C. D. (2013). A meta-analysis of environmentally sustainable supply chain management practices and firm performance. *Journal of Supply Chain Management*, 49(2), 78–95. <https://doi.org/10.1111/jscm.12006>
- Gong, Y., Jia, F., Brown, S., & Koh, L. (2018). Supply chain learning of sustainability in multi-tier supply chains. *International Journal of Operations & Production Management*, 38(4), 1061–1090. <https://doi.org/10.1108/IJOPM-05-2017-0306>
- Guesalaga, R., Gabriellson, M., Rogers, B., Ryals, L., & Cuevas, J. M. (2018). Which resources and capabilities underpin strategic key account management? *Industrial Marketing Management*, 75, 160–172. <https://doi.org/10.1016/j.indmarman.2018.05.006>
- Gunarathe, A. N., Lee, K. H., & Hitigala Kaluarachchilage, P. K. (2021). Institutional pressures, environmental management strategy, and organisational performance: The role of environmental management accounting. *Business Strategy and the Environment*, 30(2), 825–839. <https://doi.org/10.1002/bse.2656>
- Hall, J., Matos, S., Sheehan, L., & Silvestre, B. (2012). Entrepreneurship and innovation at the base of the pyramid: A recipe for inclusive growth or social exclusion? *Journal of Management Studies*, 49(4), 785–812. <https://doi.org/10.1111/j.1467-6486.2012.01044.x>
- Hall, J., Matos, S., & Silvestre, B. (2012). Understanding why firms should invest in sustainable supply chains: A complexity approach. *International Journal of Production Research*, 50(5), 1332–1348. <https://doi.org/10.1080/00207543.2011.571930>
- Han, M., Lin, H., Wang, J., Wang, Y., & Jiang, W. (2019). Turning corporate environmental ethics into firm performance: The role of green marketing programs. *Business Strategy and the Environment*, 28(6), 929–938. <https://doi.org/10.1002/bse.2290>
- Hart, S. L. (1995). A natural-resource-based view of the firm. *Academy of Management Review*, 20(4), 986–1014. <https://doi.org/10.5465/amr.1995.9512280033>

- Hoffman, A. J. (1999). Institutional evolution and change: Environmentalism and the US chemical industry. *Academy of Management Journal*, 42(4), 351–371. <https://doi.org/10.5465/257008>
- Huang, Y. C., & Yang, M. L. (2014). Reverse logistics innovation, institutional pressures and performance. *Management Research Review*, 37(70), 615–641. <https://doi.org/10.1108/MRR-03-2013-0069>
- Hull, C. E., & Rothenberg, S. (2008). Firm performance: The interactions of corporate social performance with innovation and industry differentiation. *Strategic Management Journal*, 29(7), 781–789. <https://doi.org/10.1002/smj.675>
- Jabbour, A. B. L. S., Vazquez-Brust, D., Jabbour, C. J. C., & Ribeiro, D. A. (2020). The interplay between stakeholders, resources and capabilities in climate change strategy: Converting barriers into cooperation. *Business Strategy and the Environment*, 29(3), 1362–1386. <https://doi.org/10.1002/bse.2438>
- Jacobs, B. W., Singhal, V. R., & Subramanian, R. (2010). An empirical investigation of environmental performance and the market value of the firm. *Journal of Operations Management*, 28(5), 430–441. <https://doi.org/10.1016/j.jom.2010.01.001>
- Jia, F., Zhang, T., & Chen, L. (2020). Sustainable supply chain finance: Towards a research agenda. *Journal of Cleaner Production*, 243, 118680. <https://doi.org/10.1016/j.jclepro.2019.118680>
- Khanra, S., Dhir, A., & Mäntymäki, M. (2020). Big data analytics and enterprises: A bibliometric synthesis of the literature. *Enterprise Information Systems*, 14(6), 737–768. <https://doi.org/10.1080/17517575.2020.1734241>
- Khanra, S., Dhir, A., Kaur, P., & Mäntymäki, M. (2021). Bibliometric analysis and literature review of ecotourism: Toward sustainable development. *Tourism Management Perspectives*, 37, 100777. <https://doi.org/10.1016/j.tmp.2020.100777>
- Khanra, S., Dhir, A., Parida, V., & Kohtamäki, M. (2021). Servitization research: A review and bibliometric analysis of past achievements and future promises. *Journal of Business Research*, 131, 151–166. <https://doi.org/10.1016/j.jbusres.2021.03.056>
- Kim, A., Bansal, P., & Haugh, H. (2019). No time like the present: How a present time perspective can foster sustainable development. *Academy of Management Journal*, 62(2), 607–634. <https://doi.org/10.5465/amj.2015.1295>
- Kim, I., Wan, H., Wang, B., & Yang, T. (2019). Institutional investors and corporate environmental, social, and governance policies: Evidence from toxics release data. *Management Science*, 65(10), 4451–4949. <https://doi.org/10.1287/mnsc.2018.3055>
- Klassen, R. D., & Vereecke, A. (2012). Social issues in supply chains: Capabilities link responsibility, risk (opportunity), and performance. *International Journal of Production Economics*, 140(1), 103–115. <https://doi.org/10.1016/j.ijpe.2012.01.021>
- Lan, H., Zheng, P., & Li, Z. (2021). Constructing urban sprawl measurement system of the Yangtze River economic belt zone for healthier lives and social changes in sustainable cities. *Technological Forecasting and Social Change*, 165, 120569. <https://doi.org/10.1016/j.techfore.2021.120569>
- Lee, C. M. J., Che-Ha, N., & Alwi, S. F. S. (2021). Service customer orientation and social sustainability: The case of small medium enterprises. *Journal of Business Research*, 122, 751–760. <https://doi.org/10.1016/j.jbusres.2019.12.048>
- Lee, K.-H., & Min, B. (2015). Green R&D for eco-innovation and its impact on carbon emissions and firm performance. *Journal of Cleaner Production*, 108, 534–542. <https://doi.org/10.1016/j.jclepro.2015.05.114>
- Li, D., Zheng, M., Cao, C., Chen, X., Ren, S., & Huang, M. (2017). The impact of legitimacy pressure and corporate profitability on green innovation: Evidence from China top 100. *Journal of Cleaner Production*, 141, 41–49. <https://doi.org/10.1016/j.jclepro.2016.08.123>
- Li, F., Xie, Z., Clarke, K. C., Li, M., Chen, H., Liang, J., & Chen, Z. (2019). An agent-based procedure with an embedded agent learning model for residential land growth simulation: The case study of Nanjing, China. *Cities*, 88, 155–165. <https://doi.org/10.1016/j.cities.2018.10.008>
- Lin, H., Zeng, S. X., Ma, H. Y., Qi, G. Y., & Tam, V. W. (2014). Can political capital drive corporate green innovation? Lessons from China. *Journal of Cleaner Production*, 64, 63–72. <https://doi.org/10.1016/j.jclepro.2013.07.046>
- Liu, Y., Zhu, Q., & Seuring, S. (2017). Linking capabilities to green operations strategies: The moderating role of corporate environmental proactivity. *International Journal of Production Economics*, 187, 182–195. <https://doi.org/10.1016/j.ijpe.2017.03.007>
- Markley, M. J., & Davis, L. (2007). Exploring future competitive advantage through sustainable supply chains. *International Journal of Physical Distribution & Logistics Management*, 37(9), 763–774. <https://doi.org/10.1108/09600030710840859>
- Matten, D., & Moon, J. (2008). 'Implicit' and 'explicit' CSR: A conceptual framework for a comparative understanding of corporate social responsibility. *Academy of Management Review*, 33(2), 404–424. <https://doi.org/10.5465/amr.2008.31193458>
- McDougall, N., Wagner, B., & MacBryde, J. (2019). An empirical explanation of the natural-resource-based view of the firm. *Production Planning & Control*, 30(16), 1366–1382. <https://doi.org/10.1080/09537287.2019.1620361>
- Mena, C., Terry, L. A., Williams, A., & Ellram, L. (2014). Causes of waste across multi-tier supply networks: Cases in the UK food sector. *International Journal of Production Economics*, 152, 144–158. <https://doi.org/10.1016/j.ijpe.2014.03.012>
- Mienczyk, J., Howard, M., & Johnsen, T. E. (2016). Dynamic development and execution of closed-loop supply chains: A natural resource-based view. *Supply Chain Management: An International Journal*, 21(4), 453–469. <https://doi.org/10.1108/SCM-12-2014-0405>
- Mishra, P., & Yadav, M. (2021). Environmental capabilities, proactive environmental strategy and competitive advantage: A natural-resource-based view of firms operating in India. *Journal of Cleaner Production*, 291, 125249. <https://doi.org/10.1016/j.jclepro.2020.125249>
- Montabon, F., Pagell, M., & Wu, Z. (2016). Making sustainability sustainable. *Journal of Supply Chain Management*, 52(2), 11–27. <https://doi.org/10.1111/jscm.12103>
- Ogbeibu, S., Jabbour, C. J. C., Gaskin, J., Senadjki, A., & Hughes, M. (2021). Leveraging STARA competencies and green creativity to boost green organisational innovative evidence: A praxis for sustainable development (Vol. 30) (pp. 2421–2440). In-press. <https://doi.org/10.1002/bse.2754>
- Olsen, M. C., Slotegraaf, R. J., & Chandukala, S. R. (2014). Green claims and message frames: How green new products change brand attitude. *Journal of Marketing*, 78(5), 119–137. <https://doi.org/10.1509/jm.13.0387>
- Rangan, K., Chase, L., & Karim, S. (2015). The truth about CSR. *Harvard Business Review*, 93(1/2), 40–49. <https://hbr.org/2015/01/the-truth-about-csr>
- Roscoe, S., Subramanian, N., Jabbour, C. J., & Chong, T. (2019). Green human resource management and the enablers of green organisational culture: Enhancing a firm's environmental performance for sustainable development. *Business Strategy and the Environment*, 28(5), 737–749. <https://doi.org/10.1002/bse.2277>
- Schoenherr, T. (2012). The role of environmental management in sustainable business development: A multi-country investigation. *International Journal of Production Economics*, 140(1), 116–128. <https://doi.org/10.1016/j.ijpe.2011.04.009>
- Shi, V. G., Koh, S. L., Baldwin, J., & Cucchiella, F. (2012). Natural resource based green supply chain management. *Supply Chain Management: An International Journal*, 17(1), 54–67. <https://doi.org/10.1108/13598541211212203>
- Shin, H., Ellinger, A. E., Nolan, H. H., DeCoster, T. D., & Lane, F. (2018). An assessment of the association between renewable energy utilisation

- and firm financial performance. *Journal of Business Ethics*, 151(4), 1121–1138. <https://doi.org/10.1007/s10551-016-3249-9>
- Snyder, H. (2019). Literature review as a research methodology: An overview and guidelines. *Journal of Business Research*, 104, 333–339. <https://doi.org/10.1016/j.jbusres.2019.07.039>
- Stefanelli, N. O., Jabbour, C. J. C., Amui, L. B. L., De Oliveira, J. H. C., Latan, H., Paillé, P., & Hingley, M. (2021). *Unleashing proactive low-carbon strategies through behavioral factors in biodiversity-intensive sustainable supply chains: Mixed methodology* (Vol. 30, pp. 2535–2555). <https://doi.org/10.1002/bse.2762>
- Tate, W. L., & Bals, L. (2018). Achieving shared triple bottom line (TBL) value creation: Toward a social resource-based view (SRBV) of the firm. *Journal of Business Ethics*, 152(3), 803–826. <https://doi.org/10.1007/s10551-016-3344-y>
- Tian, F., Sošić, G., & Debo, L. (2019). Manufacturers' competition and cooperation in sustainability: Stable recycling alliances. *Management Science*, 65(10), 4733–4753. <https://doi.org/10.1287/mnsc.2018.3178>
- Torugsa, N. A., O'Donohue, W., & Hecker, R. (2013). Proactive CSR: An empirical analysis of the role of its economic, social and environmental dimensions on the association between capabilities and performance. *Journal of Business Ethics*, 115(2), 383–402. <https://doi.org/10.1007/s10551-012-1405-4>
- Van der Waal, J. W., Thijssens, T., & Maas, K. (2021). The innovative contribution of multinational enterprises to the sustainable development goals. *Journal of Cleaner Production*, 285, 125319. <https://doi.org/10.1016/j.jclepro.2020.125319>
- Van Eck, N. J., & Waltman, L. (2014). Visualising bibliometric networks. In Y. Ding, R. Rousseau, & D. Wolfram (Eds.), *Measuring scholarly impact* (pp. 285–320). Springer. [https://link.springer.com/chapter/10.1007/978-3-319-10377-8\\_13](https://link.springer.com/chapter/10.1007/978-3-319-10377-8_13)
- Wibbens, P. D. (2019). Performance persistence in the presence of higher-order resources. *Strategic Management Journal*, 40(2), 181–202. <https://doi.org/10.1002/smj.2979>
- Wu, C., Lin, C., Barnes, D., & Zhang, Y. (2020). Partner selection in sustainable supply chains: A fuzzy ensemble learning model. *Journal of Cleaner Production*, 275, 123165. <https://doi.org/10.1016/j.jclepro.2020.123165>
- Wu, P. J., & Huang, P. C. (2018). Business analytics for systematically investigating sustainable food supply chains. *Journal of Cleaner Production*, 203, 968–976. <https://doi.org/10.1016/j.jclepro.2018.08.178>
- Xu, X., Chen, X., Jia, F., Brown, S., Gong, Y., & Xu, Y. (2018). Supply chain finance: A systematic literature review and bibliometric analysis. *International Journal of Production Economics*, 204, 160–173. <https://doi.org/10.1016/j.ijpe.2018.08.003>
- Yong, J. Y., Yusliza, M. Y., Ramayah, T., Jabbour, C. J. C., Sehnem, S., & Mani, V. (2020). Pathways towards sustainability in manufacturing organisations: Empirical evidence on the role of green human resource management. *Business Strategy and the Environment*, 29(1), 212–228. <https://doi.org/10.1002/bse.2359>
- Zhang, J. A., & Walton, S. (2017). Eco-innovation and business performance: The moderating effects of environmental orientation and resource commitment in green-oriented SMEs. *R&D Management*, 47(5), E26–E39. <https://doi.org/10.1111/radm.12241>

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