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Circular economy practices in international business: What do we know and where are we heading?

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Abstract

The circular economy (CE) has gained the focus of scholars and policymakers as it is related to achieving sustainable development. Multinational corporations (MNCs) are adopting and implementing CE models, especially given their resources, global presence, and ability to share best practices across borders. However, a knowledge gap exists on how CE is practiced within the international business (IB) context. This study seeks to harmonize the existing literature on CE practices in IB using a bibliometric and systematic literature (content) review approach. Our findings of citation and network analyses using the co-authorship, citation, co-citation, bibliometric coupling, and co-occurrence techniques provide the current situation as well as identify three trending research themes in the CE-IB literature. The study also offers several potential avenues for future research.

KEYWORDS

bibliometric analysis, circular economy, closed loop, international business, multinational companies, systematic content analysis

1 | INTRODUCTION

The concept of a circular economy (CE)—which has become a recognized practice across various economies, business environments, and settings—cannot be traced back to a single date or author, but rather to various schools of thought (Pesce et al., 2020; Wautelet, 2018). Other research alludes to the lack of a clear originator of the concept. However, some early contributors include John Lyle; his student, William McDonough; the German chemist, Michael Braungart; and the architect and economist, Walter Stahel (Ellen MacArthur Foundation, 2013; Winans et al., 2017). Though CE has been discussed during the past four decades, it is relatively recently that multinational corporations (MNCs) and policymakers have become active in transforming from a linear model of the economy to CE approaches. This switch can be attributed to the several environmental and social benefits that come with a CE (Wautelet, 2018).

The growth in academic and policy attention toward the CE concept can also be attributed to the 2012 Ellen MacArthur Foundation report highlighting the importance of transitioning to CE (Barford & Ahmad, 2022; Ellen MacArthur Foundation, 2013) as well as emphasis by the United Nations and other global initiatives aimed at attaining the sustainable development goals (SDGs) (Awan et al., 2022). Prior research indicates that some SDG achievements have been deterred by the linear economic view of "take-make-dispose," which narrowly emphasizes ecological and social concerns (Pizzi et al., 2021). The CE approach has a "waste not" focus by slowing, closing, and narrowing production cycles to maintain goods and materials at the highest level of usefulness and value (Rovanto & Finne, 2022). Thus, CE is a

Abbreviations: CE, circular economy; CBMs, circular economy business models; CSR, corporate social responsibility; I4.0, Industry 4.0; IB, international business; MNCs, Multinational corporations; OECD, Organisation for Economic Co-operation and Development; SDGs, sustainable development goals; TGCS, Total Global Citations Score; TLCS, Total Local Citation Score.

systemic transformation that seeks to lessen the effects of the linear economy, build long-term resilience, create economic opportunity, and gain social and environmental advantages. Therefore, CE could be a vital driver of the SDGs.

The practical application of CE by domestic and international enterprises has gained momentum due to the increase in business opportunities created by the concept (Rizos et al., 2016; Sarja et al., 2021). The principal distinction between domestic and international enterprises is their scope of operations and presence; national firms operate in a single country, whereas MNCs operate in multiple countries. Thus, MNCs have a significant role in shaping the global economy (Kim & Milner, 2019; Varshney, 1983). However, despite the differences that exist between domestic and international enterprises, the implementation of CE practices may not differ. Nevertheless, the implementation strategies and challenges may vary since MNCs are likely to face different environments (Sarja et al., 2021; Stumpf et al., 2021). While some countries may have policies that support the implementation of CE practices, others might not. Moreover, their support structures and policies may be very different. Nevertheless, MNCs often have the footprint, resources, or power necessary to spur change and advance the adoption of CE systems. On the other hand, purely indigenous enterprises may not have the resources or technology to implement CE practices in comparison with MNCs (Rizos et al., 2016).

Research on CE has emerged from different study areas that include agriculture (Velasco-Muñoz et al., 2022), environmental science (Sauvé et al., 2016), engineering (Avraamidou et al., 2020), and international business (IB; Chabowski et al., 2023) among others. Despite the amount of research on CE in the IB context, the extant body of knowledge remains fragmented. Thus, a more holistic appreciation and increased awareness of how CE is practiced within the IB is still needed for refining and enabling continuous improvement of the domain. To that regard, this study focuses on harmonizing the limited and fragmented literature about CE practices in IB. This study addresses three research questions:

i. How have the CE practices evolved within IB literature?
ii. What is the intellectual structure that has emerged?
iii. What are the potential avenues for future research?

The objectives of this study are, therefore, to map the significant literature facets, discuss emerging themes, and identify potential avenues for future research on CE practices in the IB context. With this aim, we conducted a bibliometric analysis coupled with a systematic literature review (content analysis) examining 42 scientific articles retrieved from the Web of Science and Scopus. Integrating the bibliometric analysis with content analysis has been popularized as the best practice (Paul et al., 2021) due to its advantage of providing (with both rigor and intellectual interpretations) further perspectives and theoretical conceptualizations beyond what could be achieved by bibliographic research alone (Theodoraki et al., 2022).

This study contributes to three components: (1) To reveal vital attributes such as influential authors, institutions, countries, and the networks of the extant literature of the phenomena under study. Identification of intellectual structure (literature facets) facilitates potential research and project collaborations among scholars and practitioners. (2) To extend the ongoing debate and contribute to the current body of knowledge by identifying trending research themes on CE practices within IB research. Doing so, the study apprises the state of the CE practice within global business operations. (3) To contribute to CE-IB research by suggesting potential avenues for future research. This study is the first to blend the existing knowledge about the phenomena under review. Previous attempts have been mainly conceptual and broadly focused on how IB contributes to the SDGs' agenda (e.g., Rygh et al., 2022).

The following section provides an overview of the CE and IB concepts as well as their interlinkages. We explain the methodology applied in Section 3. The results are presented in Section 4, and a discussion is in Section 5. Finally, we provide the conclusion and implications in Section 6.

2 | AN OVERVIEW OF CIRCULAR ECONOMY AND INTERNATIONAL BUSINESS CONCEPTS

2.1 | Origins of circular economy

The concept of CE has roots within historical, economic, and ecological fields. For example, the German organic chemist, August Wilhelm von Hofmann (1818–1892), described "an ideal chemical factory, there is no waste, strictly speaking, only products. The more efficiently a real factory utilizes its waste, the closer it approaches this ideal, the bigger is the profit." Prophesied almost 200 years ago, this serves as a business strategy of modern CE (Lancaster, 2002). Greyson (2007) attributes the origin of CE to Boulding (1966), citing the statement "Man must find his place in a cyclical ecological system which is capable of continuous reproduction of material form even though it cannot escape having inputs of energy." Liu et al. (2009) claim that CE was initiated in China. However, some German and Swedish companies had already begun using closed-loop manufacturing (Yuan et al., 2006). Most of the literature points to CE originating in Germany and Japan. By the late 1960s, scholars began worrying about wastefulness and some described the potential gains by simply increasing the durability of products (Boulding, 1966). Among the first to allude to a closed-loop economy were Stahel and Reday-Mulvey (1981). During the 1980s, descriptions of an economic-environmental system based on closed-loop principles began using the CE term (Pearce & Turner, 1989). The concept of a cyclical and closed-loop system is a basis of CE, but a problem with identifying the origin of the CE term is that researchers may ascribe different meanings and connotations to CE (Murray et al., 2017).

Since about 2010, CE has been viewed as a means of putting sustainability into action by enterprises (Mead et al., 2022). Moreover, CE is relevant even within other fields because of its practical potential for systemic (primarily environmental) sustainability (Mammadov &

Vali, 2020). As Pesce et al. (2020) argued, CE breaks traditional linear economy by creating closed-loop systems. CE practices involve four major activities (reduce, reuse, recycle, and recover) implemented through a comprehensive systemic approach (Pesce et al., 2020): (i) reuse includes repair and refurbishing; (ii) reduce (e.g., design for extended life and using what one currently owns) seeks to break the cycle of production and consumption (Chinen & Matsumoto, 2021); (iii) recycling completes the process by turning wasted materials into new resources; and (iv) recovery, such as turning scrap materials into energy, is a final remedy when recycling is no longer an option. Thus, resources would ideally circulate in the CE system without being "new" (Moosmayer et al., 2020).

There is a growing acknowledgment that CE enhances resource efficiency and security, thus having pivotal roles in determining economic competitiveness and resilience, impacting nations and enterprises. This realization demands a fundamental re-evaluation of how resources are perceived and utilized within the economy, necessitating a shift in perspective regarding their roles and functions (Preston, 2012).

2.2 | Circular economy, international business, and sustainability

A transition toward a more resource-efficient CE has broad interlinkages with IB. This is through cross-border supply chains, end-of-life value chains, and services trade (OECD, 2023). According to the Organisation for Economic Co-operation and Development (OECD), IB can provide opportunities to achieve economies of scale as well as to use materials sustainably and to drive resource efficiency (OECD, 2023). However, IB should not result in environmental degradation because of decisions by MNCs to shift operations to the least demanding locations. For example, it has only been since 2018 that the OECD has initiated efforts to achieve support of IB and CE policies and initiatives across member nations (OECD, 2023).

Fostering a unified comprehension of the CE and its core components not only lays the groundwork for wider acceptance but also holds significance in the realm of IB. This shared understanding serves as a common language across diverse markets, facilitating smoother global collaborations, enhancing cross-border partnerships, and averting potential confusion or misunderstandings. For firms to effectively execute their CE-focused strategies worldwide, they must navigate and adapt to varying institutional environments within different markets. For example, Upadhyay et al. (2021) explored the concept of a CE to enhance efficiencies and refine industrial ecology. Their investigation involves identifying both the opportunities and barriers associated with transitioning toward CE. They found that environmental consciousness, pressure from stakeholders, and governmental regulations have collectively motivated UK retailers to adopt the CE approaches within their operations.

In the context of IB, aligning the principles of CE requires MNCs to harmonize strategies, navigate various institutional environments, and effectively integrate sustainable practices across their global operations. According to Chabowski et al. (2023), successful CE-centered MNCs need to deal with informal and formal disparities among nations. Informal barriers include cultural norms, behaviors, values, and societal expectations. Formal obstacles involve legal frameworks, policies, and procedures that are specific to each market. The integration of CE concepts into IB strategies draws from assessments of resource-based approaches, dynamic capabilities, or models of innovation (Chabowski et al., 2023). Production and consumption often take place in different countries with inputs from multiple companies around the world. In a CE, reorganized supply chains provide information and material flow in both directions to facilitate reuse and remanufacturing. Jraisat et al. (2023) investigated collaboration dynamics in agro-industrial fields exploring how triadic supply chains optimize information sharing and sustainability, thus aligning CE principles of resource efficiency and reduced waste.

Amid limited resources, implementing policies that promote resource recycling and reusability creates pathways for economic growth and expansion. The alignment of MNC decisions with SDGs to their operations results in economic growth, job creation, and technological progress (Celone et al., 2022). However, research suggests that there is still a low rate of adoption and implementation of SGDs by both domestic firms and MNCs (Van Tulder et al., 2021). By their nature, many MNCs prioritize economic outcomes such as profits over societal or environmental impact, which are the focus of the SDGs. While there is much dependence on MNCs to attain the SDGs, firms need to work with governments, institutions, and many other constituencies (Celone et al., 2022). Findings by Sahoo et al. (2023) underscore the role of CE practices, indicating that their implementation serves as a mediator for the influence of big data analytics capability and responsible research and innovation on environmental performance. These results carry implications for manufacturers seeking CE strategies for enhancing environmental performance (Sahoo et al., 2023). For example, Agrawal et al. (2022) discussed how adopting digitalization and CE practices can enhance a firm's sustainability, and their research findings indicated that leveraging digitalization could significantly assist in the development of sustainable and circular products.

Mismanagement of IB activities has sometimes resulted in negative impacts on the environment, social systems, and economic development in several countries (Rygh et al., 2022), jeopardizing sustainable development initiatives (Rygh, 2020). Some MNC operations have resulted in negative and significant impacts on environmental, social, and economic systems (Kolk et al., 2017). An example is the 2013 Rana Plaza disaster in Bangladesh, where a garment factory building collapsed, killing over 1100 workers. This crowded facility produced clothing for many international brands, highlighting the need for more responsible supply chain management (Rahman, 2022). Another example is the oil spill caused by BP's Deepwater Horizon drilling rig in 2010, which released an estimated 4.9 million barrels of oil into the Gulf of Mexico. The spill caused significant environmental damage, affecting marine life, ecosystems, and local communities. BP faced significant criticism and fines for its failure to prevent and adequately respond to the disaster (United States

Environmental Protection Agency, 2022). The deforestation of the Amazon is due to international demand for commodities such as beef, soy, and palm oil. Many MNCs have been implicated in land grabbing in the Amazon and forest destruction highlighting the need for more responsible sourcing practices (Schiffman, 2022). Jaeger and Upadhyay (2020) identified key obstacles of MNCs hindering the implementation of CE, which include concerns about the quality of recycled materials, complexities within supply chains, coordination challenges among companies, product design and production issues, difficulties in product disassembly, and the significant initial investment costs.

There have been unsubstantiated social efforts, ethical claims, and outright greenwashing by some companies resulting in increasing consumer cynicism and mistrust (Jahdi & Acikdilli, 2009). For example, following Mighty Earth's online jaguar campaign, supermarket chains such as Tesco and Carrefour had incensed customers demanding they stop selling chicken and other meat products that were causing deforestation in Brazil and Argentina (Mighty Earth, 2023). On the other hand, Norwegian salmon companies, which export about half of the world's farmed salmon, were proactive by eliminating suppliers connected to deforestation from their soy supply chain since it was a major food source for farmed salmon in Norway (Straume et al., 2023).

Industry 4.0 (I4.0) is an evolving area of research that brings knowledge from multiple academic fields to achieve innovations and solutions for manufacturing. The convergence of I4.0 with the principles of the CE represents a transformative approach toward achieving sustainable resource utilization and operational efficiency. While I4.0 emphasizes the integration of advanced technologies for automation, data exchange, and smart manufacturing, the CE framework complements this by focusing on regenerative systems, minimizing waste, and maximizing the value of resources throughout their lifecycle. Research conducted by Upadhyay et al. (2023) provides managers and policymakers about I4.0 implementation and its scope to influence the CE paradigm.

Implementing I4.0 requires integrating sustainability principles and the visions of a CE to define its MNC goals and objectives. Moreover, involving prospective users of CE solutions from the outset is vital for successful implementation, extending beyond manufacturing areas. For example, Upadhyay et al. (2021) assessed the current and potential role of blockchain technology in advancing CE while emphasizing sustainability and social responsibility within the I4.0 framework. By merging the capabilities of I4.0 with the core tenets of CE, firms can transition toward more sustainable and efficient production processes. This holistic approach involves not only leveraging technology for resource optimization but also restructuring IB to prioritize CE, thus enhancing innovation, reducing waste, and fostering sustainability.

3 | METHODOLOGY

This study adopted the bibliometric and systematic literature (content) review approach (Donthu et al., 2021). We established a sample of 42 relevant published journal articles from the ISI Web of Science (WoS) and Scopus databases as of October 2023. WoS and Scopus are recognized as credible international academic databases. The study results are subject to changes as new publications increase over time. Following Iddy and Alon (2019), we performed several rounds of panel discussions concerning the results to avoid possible biased and subjective conclusions, particularly in coding and defining emerging themes and potential avenues for future research.

According to Donthu et al. (2021), we followed two major analytical procedures: sample selection and meta-literature review. Kansheba and Wald (2020) argued that the essential task in a literature review is extracting relevant articles to guide thorough analyses and discussions of the phenomena under study. The sample selection started with article searches within the topic (title, abstract, and keywords) using the following terms: ("*international business*" or "*international management*" or "*international compan**" or "*international firm*" or "*international enterprise*" or "*international corporation*" or "*multinational compan**" or "*multinational firm**" or "*multinational enterprise*" or "*multinational corporation*" or "*global compan**" or "*global firm*" or "*global corporation*") and ("*circular econom**" or "*closed loop*" or "*end of life*" or "*circular**"). The initial search without any chronological filter resulted in a total of 263 (140 from WoS and 123 from Scopus) articles. We further refined our search by limiting the selection to peer-reviewed articles written in English, a process that led to the elimination of 74 (14 from WoS and 60 from Scopus) articles. We then harmonized the two lists by removing the overlapping 17 articles from the Scopus (articles that also appeared in WoS). At this point, the research dataset consisted of 172 (126 from WoS and 46 from Scopus) articles. We further limited our search by focusing on articles that CE and IB are the main themes, eliminating 130 articles that marginally discussed the two phenomena. Finally, our sample consisted of 42 articles (34 from WoS and 8 from Scopus).

Following Apriliyanti and Alon (2017), we performed a meta-literature review consisting of bibliometric citation and content analyses based on 34 articles from WoS. Significant literature elements such as journals, authors, countries, institutions, and publication trends were ranked. Bibliometric citation analysis was performed using two software applications: HistCite, which provides multiple bibliometric descriptive outputs, and VOSviewer, which provides bibliometric cartographic (network mapping) outputs. We performed the following bibliometric cartographic analyses: citation, co-authorship, co-citation, bibliometric coupling, and co-occurrence networks (Bahoo et al., 2021). Bibliometric descriptive and cartographic analyses are central to identifying influential literature aspects such as countries, institutions, journals, authors, publication trends, articles, co-authorships, and research streams.

Finally, we performed systematic content analysis for thematic categorization based on the entire sample of 42 articles. To avoid possible bias, we individually reviewed the contents of these articles and provided the thematic codes of the clusters (Kansheba & Wald, 2020). No significant deviation in the thematic coding of the emerged clusters was evident among the authors. We also compared articles clustering with the bibliometric coupling of influential articles. The

analysis clusters the articles based on the assumption that highly co-cited articles are more likely to share similar research subjects (Bahoo et al., 2021). No significant difference was observed between our thematic categorization (three clusters) and that of the bibliometric coupling of influential articles (four clusters in different four colors; see Figure 2). However, after organizing the overlapping articles, we finally arrived to major three clusters of CE practices within IB, namely, (1) circular economy business models (CBMs) adoption and implementation, (2) CE as a tool for corporate social responsibility (CSR) and sustainability, and (3) levers of CE transition.

4 | RESULTS

4.1 | Bibliometric descriptive analysis

As suggested by Bahoo et al. (2021), the following outputs were used: (1) the Total Local Citation Score (LCS), which captures how many times an article has been cited by other articles in the study's chosen sample; (2) the Total Global Citations Score (GCS), which captures how many times an article has been cited in other works found within WoS database, with the last two outputs relate to LCS and TGCS, which are (LCS/t) and (GCS/t), respectively; thus, (3) reflecting several citations to the relative number of years that an article has been published.

The findings demonstrate and validate the rising incidence of CE and IB research since 2001, with a significant increase beginning in 2018 (Figure 1). The period between 2011 and 2012 can be considered the starting phase of the CE-IB research following the Ellen MacArthur Foundation report in 2012. Moreover, the results reveal that over 92% of the articles were published between 2018 and 2023.

Tables 1 and 2 show the transdisciplinary and international characteristics of the CE and IB research associated with regional studies from several institutions and countries. Results in Tables 1 and 2 rank influential institutions and countries based on their relative average impact (AI) in terms of LCS (IAI^1) and GCS (IAI^2). ESCP Europe Berlin (Germany), Institute of Competitiveness (India), and Grenoble Ecole Management (France) appear to be the first three leading institutions under both rankings. On the other hand, Germany, India, the United Arab Emirates, France, the USA, the UK, the Netherlands, and Sweden are the eight leading countries. In addition, most studies focused on developed countries, with developing countries receiving less attention despite their market and business potentials (Kansheba & Wald, 2020) along with their sustainable development challenges (Rygh et al., 2022).

Table 3 provides the most publication outlets based on influential journals ranked as per LCS/t and GCS/t. Results show that the five most influential journals that support the development of this emerging field of study as per GCS/t include *Thunderbird International Business Review*, *Journal of Cleaner Production*, *Sustainability*, *Management Decision*, and *Technological Forecasting and Social Change*. However, our journal ranking under the LCS/t category was limited because most of the articles examined have been recently published and thus have yet to receive many citations within the sampled period.

Table 4 lists the influential scholars in this field with their respective affiliations and countries. Active research and dissemination are needed in forging new and strengthening existing collaborations to advance knowledge in the CE-IB intersection. The findings indicate that (among others) the leading scholars (as per LCS/t) are Mark Esposito of Arizona State University (USA), Sylvie Geisendorf of ESCP Business School (Germany), and Sandeep Goyal of Thapar

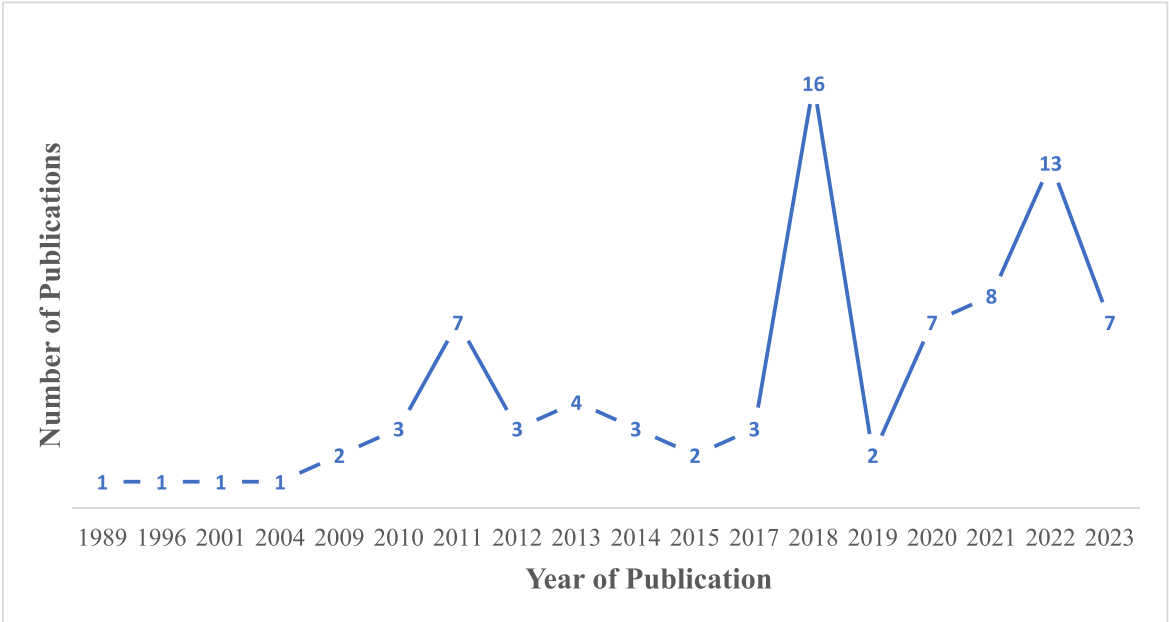

FIGURE 1 Publication trend.

TABLE 1 Influential institutions and their affiliated countries.

Institution	Country	TP	LCS	IAI[1]	Institution	Country	TP	GCS	IAI[2]
ESCP Europe Berlin	Germany	1	2	2	ESCP Europe Berlin	Germany	1	126	126
Inst Competitiveness	India	1	2	2	Inst Competitiveness	India	1	121	121
Grenoble Ecole Management	France	3	3	1	Univ Leeds	UK	1	82	82
Harvard Univ	USA	3	3	1	Univ Bradford	UK	2	108	54
Amer Univ Sharjah	UAE	1	1	1	Grenoble Ecole Management	France	3	148	49
ESCP Europe Business Sch	France	2	1	0.50	Harvard Univ	USA	3	148	49
Univ Cambridge	UK	4	1	0.25	Delft Univ Technol	Netherlands	1	45	45
					Lund Univ	Sweden	1	45	45
					RMIT Univ	Australia	1	45	45
					Aarhus Univ	Denmark	1	40	40
					Hull Univ	UK	1	40	40

Note: The table provides the list of influential institutions ranked as per their Institutional Average Impact (IAI). The IAI[1] = Local (within the sample) citation scores (LCS)/Total Publications (TP). IAI[2] = Global (within WoS) citation scores (GCS)/TP.

TABLE 2 Influential countries.

Country	TP	LCS	CAI[1]	Country	TP	GCS	CAI[2]
Germany	1	2	2	Germany	1	126	126
India	2	2	1	India	2	144	72
UAE	1	1	1	Netherlands	1	45	45
France	4	3	0.75	Sweden	1	45	45
USA	6	3	0.50	France	4	171	43
UK	9	1	0.11	Denmark	1	40	40
				Mexico	1	40	40
				Australia	2	75	38
				USA	6	194	32
				UAE	1	25	25
				Italy	4	93	23
				Bangladesh	1	23	23
				UK	9	193	21
				China	4	83	21

Note: The table provides the list of influential countries ranked as per their Country Average Impact (CAI). The CAI[1] = Local (within the sample) citation scores (LCS)/Total Publications (TP). CAI[2] = Global (within WoS) citation scores (GCS)/TP.

Institute of Engineering and Technology (India). Other influential scholars are ranked per LCS/t and GCS/t in Table 4.

4.2 | Bibliometric cartographic (network mapping) analysis

Bibliometric (citation) and cartographic (network mapping) analyses were performed by the use of the VOS viewer program to understand the structure of the CE-IB research field as well as to identify trends for future research project collaborations (Bahoo et al., 2021). The analyses included co-authorship, citation, co-citation, bibliometric coupling, and keyword co-occurrence. Based on citation relationships and the strength of the links between articles, the VOS viewer maps the network and identifies clusters by different formats and colors (Donthu et al., 2021). Table 5 provides for the leading scholars based on the co-authorship links between researchers.

To further appreciate the intellectual core of the CE-IB field, an analysis of the citation (Table 6a), co-citation (Table 6b), and bibliometric coupling (Table 6c) were conducted on the most influential articles. Based on the co-citation link (Table 6b), 14 significant references with a minimum of three citations of the cited works were identified. Moreover, the CE-IB areas have been linked to fundamental studies conducted in other disciplines to enhance its theorization.

Using citation (Table 6a) and bibliometric coupling (Table 6c) methods based on the strength of links between one or two articles that cite another (Donthu et al., 2021), 34 significant documents with

TABLE 3 Influential journals.

Journal	TP	LCS	LCS/t	GCS	GCS/t
Thunderbird Inter. Business Review	10	6	1	392	66.8
Journal Of Cleaner Production	3	0	0	115	46.3
Sustainability	8	0	0	96	28.9
Management Decision	1	0	0	82	27.3
Tech. Forecasting and Social Change	1	0	0	23	11.5
Africa Journal of Management	1	0	0	9	4.5
Journal Of Enterprise Information Mgt	1	0	0	26	4.3
Resources Conservation and Recycling	1	0	0	16	4.0
Business Strategy and The Environment	1	0	0	3	3.0
Critical Perspectives on Inter. Business	1	0	0	5	2.5
Inter. J. Of Industrial. Eng. Computations	1	0	0	2	2.0
Pure And Applied Chemistry	1	0	0	9	0.4
Asia-Pacific J. Of Operational Research	1	0	0	3	0.2

Note: The table provides the list of influential and most cited journals ranked as per Global (within the WoS) citation score (GCS) per year (GCS/t).

TABLE 4 Influential authors and their affiliated institutions and countries.

Author	Affiliation	Country	TP	LCS	LCS/t
Esposito M	Arizona State Univ.	USA	4	3	0.50
Geisendorf S	ESCP Bus. School	Germany	1	2	0.33
Goyal S	Thapar University	India	1	2	0.33
Kapoor A	Apollo Hospital	India	1	2	0.33
Pietrulla F	Univ. of St Gallen	Switzerland	1	2	0.33
Soufani K	Univ. of Cambridge	UK	3	1	0.17
Aboulamer A	Concordia Univ.	Canada	2	1	0.17
Tse T	ESCP Bus. Schl	UK	2	1	0.17
Author	**Affiliation**	**Country**	**TP**	**GCS**	**GCS/t**
Ali K	Universite de Monastir	Tunisia	1	82	27.33
Chiwenga KD	Univ. of Liverpool	UK	1	82	27.33
Mishra JL	Univ. of Leeds	UK	1	82	27.33
Esposito M	Arizona State Univ.	USA	4	149	24.92
Geisendorf S	ESCP Bus. School	Germany	1	126	21.00
Pietrulla F	Univ. of St Gallen	Switzerland	1	126	21.00
Goyal S	Thapar University	India	1	121	20.17
Kapoor A	Apollo Hospital	India	1	121	20.17
Awan U	Duquesne University	USA	1	40	20.00
Golgeci I	Aarhus University	Denmark	1	40	20.00
Makhmadshoev D	University of Strathclyde	UK	1	40	20.00
Mishra N	Hull Univ Business Sch	UK	1	40	20.00

Note: The table lists influential authors ranked as per (LCS/t) and as per (GCS/t).

at least 10 citations per document were identified. Figure 2 shows the bibliometric coupling links network visualization.

The co-occurrence analysis assists in distinguishing the similarities between keywords and concepts. Thus, we selected those with at least two occurrences to identify the most frequent keywords. The results confirm and validate our keyword selection, as the CE-IB terms appear to be the most repeated keywords with the highest total link strength (Figure 3).

4.3 | Trending research themes and future research agenda

Using Donthu et al. (2021), we performed a systematic literature (content) analysis of the entire sample of 42 articles, grouping them into three clusters. The content analysis helps to explore the current situation as well as organize the main trending themes on CE practices within IB research. We first independently assessed and coded the

articles into different themes; later, we harmonized our theoretical coding of the themes into (1) CBM adoption and implementation, (2) CE as a tool for CSR and sustainability, and (3) levers of CE transition. We identified potential avenues for furthering the dialogue (future research agenda) on CE and IB research. The summary of the content analysis, trending themes, and related future agenda are in Table 7.

TABLE 5 Main co-authorship links in the CE and IB research.

Author	Citations	Total link strength
Geissdoerfer, M.	11	53
Bocken, N. M. P.	10	49
Esposito, M.	9	37
Geng, Y.	7	36
Ghisellini, P.	6	48
Kirchherr, J.	6	34
Sharif, A. M.	6	0
Sinkovics, N.	6	54
Stahel, W. R.	6	53
Bai, C. G.	5	5
Buckley, P. J.	5	50
Gereffi, G.	5	26
Govindan, K.	5	21
Jabbour,C. J. C.	5	27
MacArthur, E.	5	12
Mathews, J. A.	5	29
Zeng, S. X.	5	13

Note: The table lists only influential authors with more than one publication and at least five citations.

5 | DISCUSSION

5.1 | Trending themes of CE practices within IB research

5.1.1 | Circular economy business model adoption and implementation

Corporations adopt and adapt effective and efficient business models depending on their scope, mission, vision, and how they want their operations to satisfy their customers (Goyal et al., 2018; Lähdeaho & Hilmola, 2020; Oyinlola et al., 2022). MNCs require new business models as they shift from a linear economy toward a CE (Geisendorf & Pietrulla, 2018; Zandee et al., 2022). These are described as a catalyst for a "sustainability transition of the current industrial economic system" (Hofmann, 2019, p. 316). The CE and sustainable business models help MNCs create and capture value (Baldassarre et al., 2020; Oyinlola et al., 2022; Romero-Hernández & Romero, 2018). Moreover, MNCs do not adopt and use CE and sustainable business models solely for profit; instead, they do so to preserve the environment (Aboulamer, 2018; Ajwani-Ramchandani,

TABLE 6 Identification of the most influential articles in the CE and IB research based on citations, co-citations, and bibliometric coupling.

(a) Citation (C) analysis			(b) Co-citation (CC) analysis			(c) Bibliometric coupling (BC) analysis		
Articles	Cit	TLS	Articles	Cit	TLS	Articles	Cit	TLS
Geisendorf and Pietrulla (2018)	126	1	Bocken et al. (2016)	5	20	Geisendorf and Pietrulla (2018)	126	24
Goyal et al. (2018)	121	2	Geissdoerfer et al. (2018)	5	19	Goyal et al. (2018)	121	3
Mishra et al. (2019)	82	1	Ghisellini et al. (2016)	5	19	Mishra et al. (2019)	82	15
Baldassarre et al. (2020)	45	0	Andersen et al. (2007)	4	12	Baldassarre et al. (2020)	45	11
Romero-Hernández and Romero (2018)	40	3	Kirchherr et al. (2017)	4	12	Romero-Hernandez & Romero (2018)	40	6
Awan et al. (2022)	40	1	Stewart & Niero (2018)	4	14	Awan et al. (2022)	40	10
Pesce et al. (2020)	36	2	Carter & Ellram (1998)	3	5	Pesce et al. (2020)	36	40
Phelan et al. (2022)	30	0	Esposito et al (2017)	3	5	Phelan et al. (2022)	30	23
Pesce et al. (2018)	27	1	Geissdoerfer et al. (2018)	3	4	Pesce et al. (2018)	27	3
Irani & Sharif (2018)	26	0	Jakhar et al. (2019)	3	12	Irani & Sharif (2018)	26	5
Aboulamer (2018)	25	1	Lieder & Rashid (2016)	3	15	Aboulamer (2018)	25	3
Rattalino (2018)	25	0	Pearce & Turner (1989)	3	7	Rattalino (2018)	25	17
Wang & Kuah (2018)	23	0	Preston (2012)	3	12	Wang & Kuah (2018)	23	11
Dwivedi et al. (2022)	23	0	Stahel (2016)	3	12	Dwivedi et al. (2022)	23	15
Esposito et al. (2018b)	17	0				Esposito et al. (2018b)	17	0
Liu et al. (2021)	16	0				Liu et al. (2021)	16	1
Esposito et al. (2018a)	10	0				Esposito et al. (2018a)	10	0
17 influential articles with a minimum of 10 citations			14 influential references with a minimum of 3 citations			17 influential articles with a minimum of 10 citations		

Abbreviations: Cit, total citations; TLS, total link strength.

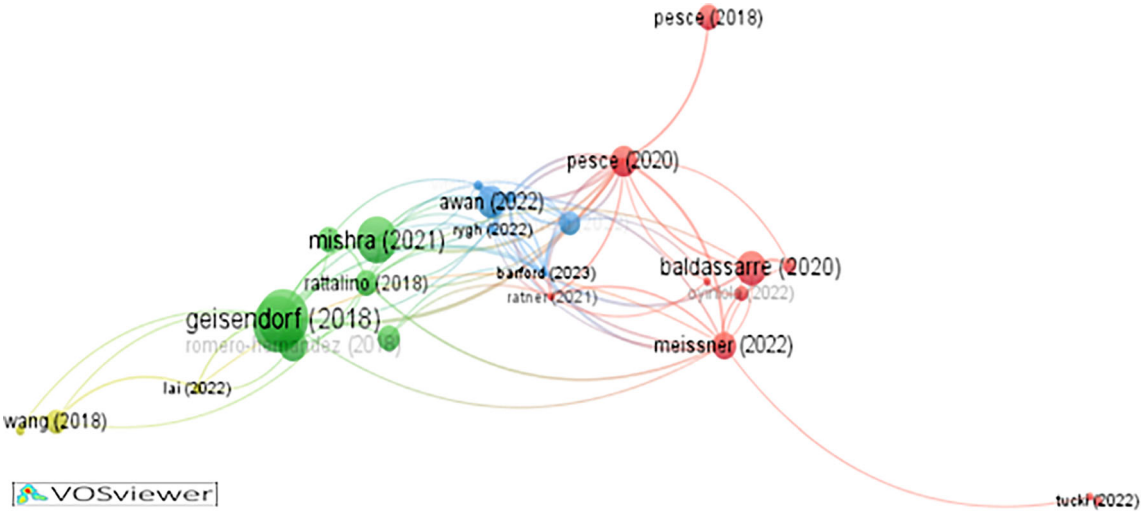

FIGURE 2 Bibliometric coupling of influential articles.

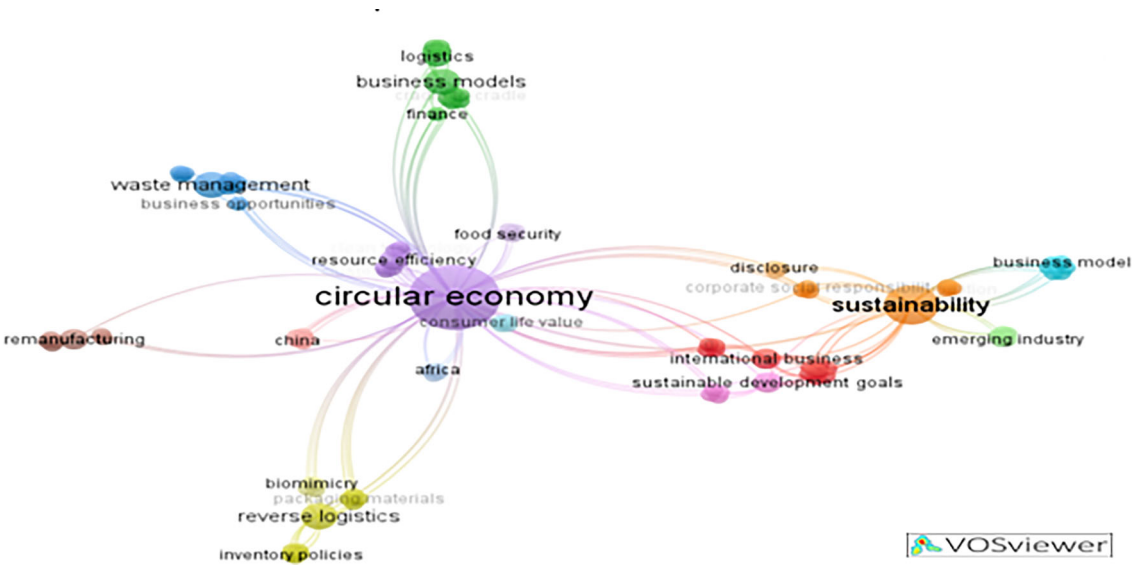

FIGURE 3 Co-occurrence of author-specified keywords. [Correction added on 23 October 2024, after first online publication: Figures 2 and 3 have been updated in this version.]

Figueira, de Oliveira, Jha, Ramchandani, & Schuricht, 2021; Goyal et al., 2018; Hofmann, 2019).

Corporations implementing CE approaches can often make their products with a longer life span and thus better serve customers (Aboulamer, 2018; Geisendorf & Pietrulla, 2018; Romero-Hernández & Romero, 2018). Given that under the linear traditional economic model, the actual value of products is under-utilized, leading to environmental issues such as pollution (Ajwani-Ramchandani, Figueira, de Oliveira, Jha, Ramchandani, & Schuricht, 2021). Thus, businesses following sustainability and CE models provide premium customer service. This leads to the formation of relationships between the parties, which leads to customer retention, repeat business, and increased market value for the corporation (Aboulamer, 2018; Goyal et al., 2018; Hofmann, 2019).

Like the CE business model, which focuses on the reduce, reuse, renew, and recycle paradigm (Geisendorf & Pietrulla, 2018; Goyal et al., 2018; Rattalino, 2018; Romero-Hernández & Romero, 2018), Ajwani-Ramchandani, Figueira, de Oliveira, and Jha (2021) propose a modified linear approach that emphasizes eco-design, eco-production, and eco-disposal. Firms can use this model as an intermediate step between the linear economy and CE models. For example, eco-design begins with product design to ensure that the product is eco-friendly. For example, companies using plastic packaging can implement sustainable options to reduce plastic pollution, which has become a significant problem (Ajwani-Ramchandani, Figueira, de Oliveira, & Jha, 2021; Phelan et al., 2022).

Because of regulations and legislation changes, environmental sustainability has also become important for logistics, implying

TABLE 7 Trending research clusters and future agenda of CE practices within IB context.

Article	Study aim	Method	Theory	Sector focus	Country focus	Future research agenda/questions
Cluster 1: CE business models adoption and implementation						
Aboulamer (2018). Doi: 10.1002/tie.21922	Explores the customer relationship in the advent of CBMs	Conceptual	n.a	n.a	Global	What are MNCs' strategic and tactical approaches to the CE pathway? How do consumers respond to MNCs' circular products? What are the tangible (e.g., performance) and intangible (e.g., brand recognition, reputation, and collaboration) effects of circular economy business models (CBMs)?What institutional drivers shape MNCs' CE strategies and implementations?What organizational and structural conditions influence the MNCs' implementation of CE principles? How do CE practices differ among MNCs operating in developed and developing economies?
Baldassarre et al. (2020). Doi: 10.1016/j.jclepro.2020.120295	How may business experimentation and strategic design support bridging the design-implementation gap of sustainable BMs?	Quantitative	Effectuation theory	Start-ups and multinationals	Netherlands	
Hofmann (2019). Doi: 10.1016/j.jclepro.2019.03.115	A review of recent literature on CBMS	Review	n.a	n.a	Global	
Goyal et al. (2018). Doi: 10.1002/tie.21883	Explores the CE-BMS in India	Conceptual	n.a	Waste production and management	India	
Oyinlola et al. (2022). Doi: 10.1080/23322373.2021.1999750	Investigate the transformative role of digital innovations for transitioning to circular plastic value chains across Africa	Qualitative	n.a	Waste management	Multi-country focus	
Lähdeaho and Hilmola (2020). Doi: 10.3390/SU12083393	What types of new BMs are enabled by the changing environment?	Mixed method	n.a	Logistics and manufacturing	Dual country focus	
Ajwani-Ramchandani, Figueira, de Oliveira, Jha, Ramchandani, and Schuricht (2021). Doi: 10.1016/j.jclepro.2020.125139	What are the fundamental and societal changes required to address packaging waste?	Qualitative	Stakeholder theory	Waste management	India	
Ajwani-Ramchandani, Figueira, de Oliveira, and Jha (2021). Doi: 10.1016/j.resconrec.2021.105468	How can firms and governments trace the journey of their products across their respective life cycle?	Qualitative	n.a	Waste management	India	
Romero-Hernández and Romero (2018). Doi: 10.1002/tie.21968	Providing a framework for companies' CE implementation	Conceptual	n.a	Waste Management	Global	
Geisendorf and Pietrulla (2018). DOI: 10.1002/tie.21924	The article provides a review of the CE and closely associated concepts to formulate a common conceptual ground and understanding.	Conceptual	Systems theory	n.a	Global	
Boorsma et al. (2022). Doi: 10.3390/su14159288	Developing a comprehensive circularity indicator method specifically aimed at designers	Design Science Research approach.	n.a	MNCs	Global	
Chinen and Matsumoto (2021). Doi: 10.3390/su13073968	Investigates Indonesian consumers' perceived images of remanufactured auto parts remanufactured in China	Quantitative	Theory of planned behavior	Automotive Industry	Indonesia	
Zandee et al. (2022). Doi: I 10.1108/ECAM-03-2022-0288	What are the strategic and tactical approaches of organizations on the CE pathway?	Qualitative	n.a	Construction	Netherlands	

(Continues)

TABLE 7 (Continued)

Article	Study aim	Method	Theory	Sector focus	Country focus	Future research agenda/questions
Sim et al. (2004) A generic network design for a closed-loop supply chain using genetic algorithm	The study proposes an LP-based genetic algorithm which can be used in reverse supply chain	Conceptual	n.a	Supply chain/ Logistics	Global	
Phelan et al. (2022). Doi:10.1016/j.jclepro.2021.129827	What are the MNCs' sustainable packaging strategies?	Review	n.a	Food and beverage sector	Global	
Cluster 2: CE as a tool for CSR and sustainability						
Dwivedi et al. (2022). Doi: 10.1016/j.techfore.2021.121335	Analysis of significant challenges regarding the interaction of I4.0 and CE for sustainable footwear production	Mixed method	Grey system theory	Manufacturing-Footwear	Bangladesh	Does the emergence of CE improve CSR performance?How do MNCs incorporate the CE concept in their CSR practices?How do CE strategies influence CSR achievement?What role do external factors such as policymakers play in the implementation of CE practices in the sustainability agenda of firms?
Esken et al. (2018). Doi: 10.1108/MRR-02-2018-0054	Identifying the managerial implications for multinational corporations (MNCs) with regard to CE	Mixed method	Institutional theory	Multi-sectoral focus (IT, media, electronics)	Multi-country focus	
Mead et al. (2022). Doi: 10.1016/j.jclepro.2022.130980	Investigating the role of sustainability-oriented innovation narratives on the adoption of nature-inspired innovation	Qualitative	Landrum's model	Multi-sectoral	Multi-country focus	
Sanches et al. (2022). Doi: 10.3390/su14105808	What are the main strategies of a sustainable circular economy?	Review	n.a	Multi-sectoral	Brazil	
Yu et al. (2022). Doi: 10.3390/jrfm15080364	How did Amazon achieve the balance between the profit generation and the CSR activities?	Conceptual	n.a	Consumer goods	Global	
Rattalino (2018). Doi: 10.1002/tie.21917	Explores the ways in which corporations can pursue economic, social, and environmental objectives while simultaneously embracing circularity	Case study	n.a	Clothing	Patagonia (USA)	
Roberts et al. (2023). Doi.org/10.1002/csr.2402	The study set out to investigate the companies' reporting practices on both CE system implemented, and the corrective actions taken to repair biodiversity.	Qualitative	Institutional and Stakeholder theory	Aerospace and defense, motor vehicle and parts, and transportation	Multiple countries	
Song et al. (2020). DOI:10.3390/su12052045	What is the impact of the government's policy of recycling and remanufacturing subsidy on the wholesale and retail prices of new products, recovery rate, the CSR investment level, and channel performance?	Conceptual	n.a	Recycling	Global	
Elo and Kareila (2014). Doi: 10.1504/IJMTM.2014.066706	Assessing the intellectual property rights implications regarding strategic management of remanufacturing from a global perspective	Qualitative	n.a	Automotive Industry	Global	

TABLE 7 (Continued)

Article	Study aim	Method	Theory	Sector focus	Country focus	Future research agenda/questions
Heshmati & Rashidghalam (2021). Doi: 10.1016/j.jclepro.2021.127475	Assessing the current state of CE development in Sweden	Quantitative	n.a	Municipalities (waste management)	Sweden	
Mammadov and Vali (2020). Doi: 10.1016/j.spc.2020.07.004	Exploring opportunities for initiating and supporting the application of life cycle-based approaches in Azerbaijan	Conceptual	n.a	n.a	Azerbaijan	
Manalo and Manalo (2022). Doi: 10.33182/tmj.v10i1.2097	Investigating the socio-cultural phenomenon that contributed to the overconsumption of plastic sachet-packed products and the controversial massive plastic sachet waste problem in the Philippines	Mixed method	Nudge theory	Sachets (plastics)	Philippines	
Wang and Kuah (2018). Doi: 10.1002/tie.21925	Investigates whether consumers' green knowledge of remanufactured products actually promotes more buy-in of remanufactured products.	Quantitative	n.a	Manufacturing	Multiple countries	
Vitolla et al. (2023). Doi. 10.3390/su15032200	What is the level of circular economy information disseminated within the sustainability reports? What are the main firm characteristics capable of affecting the level of CED?	Quantitative	Stakeholder theory	Multi-sectoral	Multiple countries	
Pesce et al. (2020). Doi: 10.3390/su12030832	Assessing similarities among existing sets of CE principles	Qualitative	n.a	SMEs and Multinationals	China	
Cluster 3: Levers of CE transition						
Mishra et al. (2019). Doi: 10.1108/MD-10-2018-1,111	How does collaboration facilitate the transition of a developing country's economy through the creation of value from circular BMs?	Qualitative	Natural Resource-based View	Manufacturing industry	North Africa	How do MNCs approach the CE?How does increasing circularity impact the labor market and workers?More research is still needed to validate the applicability of the levers across sectors and contexts.
Barford and Ahmad (2022). Doi: 10.1002/bse.3182	How do incumbent multinationals approach the circular economy transition?	Qualitative	n.a	Plastics industry	Multi-country focus	
Jaeger and Upadhyay (2020). Doi: 10.1108/JEIM-02-2019-0047	What are the barriers to CE adoption?	Qualitative	n.a	Manufacturing industry	Norway	
Mead et al. (2020). Doi: 10.1002/bse.2564	What factors influence the application of NII in corporate innovation contexts	Qualitative	Design theory	Nature-oriented innovation MNCs	Multi-country focus	
Moreno et al. (2019). Doi: 10.1080/19397038.2018.1508316	Examining the potential for and possible criticisms of redistributed manufacturing' and digital intelligence' to act as enablers of a CE	Mixed method	n.a	Consumer goods sector	UK	

(Continues)

TABLE 7 (Continued)

Article	Study aim	Method	Theory	Sector focus	Country focus	Future research agenda/questions
Irani and Sharif (2018). Doi: 10.1108/JEIM-03-2017-0045	Exploring the use, applicability, and relevance of strategic planning as a process and tool for food security and food waste in the food supply chain	Conceptual	n.a	Food supply	Global	
Escobar et al. (2023). Doi: 10.5267/j.ijiec.2022.12.004	The study proposes a methodology for supply chain design considering strategic and tactical decisions, such as opening production lines and distribution in a closed-cycle supply chain.	Quantitative	n.a	Personal care items	Colombia	
Ratner et al. (2021). Doi: 10.3390/su131911080	The paper compares the barriers and drivers of CE development in the EU countries, a group of countries with a well-developed institutional support system, and in Russia, a country that does not have such a system.	Qualitative	n.a	n.a	Multiple countries	
Tucki et al. (2022). Doi: 10.3390/su14073924	The study presents selected problems surrounding the production of plastic packaging for food storage and distribution that might cause disruptions in the implementation of sustainable production.	Conceptual	n.a	Plastic packaging	Poland	
Pesce et al. (2018). Doi: 10.3390/su10093196	The study investigates the available international and national statistics on the adoption of ISO 14001 in China	Qualitative	n.a	SMEs and MNCs	China	
Esposito et al. (2018b). Doi: 10.1002/tie.21904	The study explores the applicability and feasibility of integrating national postal networks into reverse logistics to help a circular economyfunction optimally	Conceptual	n.a	Recycling	Global	
Turkcu and Tura (2023). Doi: 10.1016/j.spc.2023.07.007	The study explores the different tensions of sustainable packaging production using the field of biobased packaging as an example of an innovative emerging industry.	Qualitative	Paradox theory	Biobased plastic packaging	European Union	

constantly changing business models. New decision-making methods have evolved, such as "innovative subcontracting based, platform-based and blockchain-based" (Lähdeaho & Hilmola, 2020, p. 13). These models are environmentally sustainable, and firms implementing them will tend to have a competitive advantage over those using the linear economy model (Lähdeaho & Hilmola, 2020). Furthermore, blockchain-based technology enables the traceability of products and their life cycle and can also be used to ensure that products are disposed of or used in an environmentally friendly manner (Ajwani-Ramchandani, Figueira, de Oliveira, & Jha, 2021; Ajwani-Ramchandani, Figueira, de Oliveira, Jha, Ramchandani, & Schuricht, 2021). In addition, there is a shift from product sale to a service whereby firms may sell the use of a product to a customer but retain ownership of it. This approach may have the firm providing lifetime service and repair of the product. This move toward a service focus is also seen as a shift to the CE (Aboulamer, 2018; Rattalino, 2018). These changes highlight the importance of moving from the traditional linear to a CE model and boosting environmental sustainability.

5.1.2 | CE as a tool for CSR and sustainability

CSR is a vital part of corporate development. MNCs are expected to take environmental and community responsibility for their activities. While government measures are often aimed at enforcing and making it mandatory for MNCs to take responsibility, the firms themselves owe this as an ethical duty to the communities in which they operate (Song et al., 2020; Yu et al., 2022). With the advent of CE, different organizations have therefore tried to implement CE as a way of performing their CSR and sustainability obligations as they operate in different environments or regional settings. As research indicates some of these CE strategies used as a tool for CSR and sustainability by MNCs include stewardship—whereby top management takes responsibility by controlling the direct and indirect effects of their business activities on the environment (Pesce et al., 2020). Collaboration has also emerged as a CE strategy that MNCs use to ensure that their CSR obligations are applied (Pesce et al., 2020; Rattalino, 2018; Yu et al., 2022). Collaboration is a CE tool for CSR and sustainability because it can spur improvements within firms and enable the exchange of resources and knowledge regarded as necessary for CSR. In addition, through collaborations, organizations with integrated CE strategies can inspire companies that have yet to transition to CE to do so as this could be a vital tool to ensure CRS (Yu et al., 2022).

Large MNCs are also expected to be transparent in their dealings and any operations that may impact the environment or region in which they operate (Esken et al., 2018; Pesce et al., 2020; Roberts et al., 2023; Vitolla et al., 2023). Being transparent can benefit companies by attracting investors, increasing stakeholder trust, and motivating other firms to implement transparency measures, particularly regarding environmental sustainability. In addition, external and internal transparency can enable enterprises that have yet to transition to CE to successfully plan or implement CE strategies (Esken et al., 2018; Rattalino, 2018). In this regard, evidence reveals that investors and other fund providers are more interested in investing in or contributing funds to MNCs that they believe have a good mix of operations, earnings, and CSR (Roberts et al., 2023; Song et al., 2020; Yu et al., 2022).

Innovation, especially sustainability-oriented and nature-inspired, is also a critical CE strategy that MNCs can use as a tool to ensure their CSR and sustainability duty (Mead et al., 2022; Pesce et al., 2020). Best practices, such as sustainability-oriented and nature-inspired advances, allow MNCs to manage their resources, products, and services in a more environmentally friendly manner, thus reducing the adverse effects of their operations and consequently their CSR obligations (Mead et al., 2022; Rattalino, 2018; Yu et al., 2022). Mead et al. (2022) also recommend that MNCs with a future orientation integrate nature-inspired innovation practices into their operations to attract customers who perceive these firms as sustainability leaders. Moreover, the most effective way to attract customers is for MNCs to practice CSR and sustainable development (Rattalino, 2018; Yu et al., 2022).

Dwivedi et al. (2022) posit that adopting and using I4.0 and CE can aid organizations in attaining sustainable and cleaner production in their manufacturing processes, thus ensuring that CSR obligations are upheld. For example, some MNCs have pledged to use carbon-free fuels to transport goods by a particular year, lowering their carbon footprint (Yu et al., 2022). This can be likened to minimizing externalities, considered a critical CE strategy that MNCs can use to ensure CSR concerning their activities or operations. Other research posits that strategies such as environmental management and compliance, social responsibility, and well-established and defined business models are CE strategies MNCs can use as a tool for CSR (Sanches et al., 2022; Yu et al., 2022). These authors further assert that sustainable use of products and materials could also be a CE and sustainable strategy for firms aiming to stay environmentally friendly. This implies that products and materials should be manufactured in such a way that they have multiple life cycles or that their life cycle can be extended. By doing this, companies will minimize production costs, achieve gains for stakeholders, and better serve their customers. Moreover, remanufacturing or manufacturing products and materials with extended life cycles (or multiple life cycles) will also reduce waste in the environment (De los Rios & Charnley, 2017; Elo & Kareila, 2014; Manalo & Manalo, 2022; Sanches et al., 2022; Wang & Kuah, 2018).

5.1.3 | Levers of CE transition

CE enablers are conditions and factors that enable the implementation of CE levers in organizations such as indigenous firms and MNCs. For example, research has indicated that employees or a resilient team committed to achieving long-term CE targets could be an essential enabler of transitions within MNCs (Barford & Ahmad, 2022). However, inadequate training on CE-related issues provided to employees could also be an obstacle for MNCs as employees will not have the required expertise to carry out CE measures. In line with this, research

has also pointed out that MNCs that lack expertise, particularly concerning environmental management practices, could find it difficult to implement CE measures. Therefore, the lack of such important expertise could be a barrier to CE (Ratner et al., 2021; Tucki et al., 2022).

Regulations have also been identified as a critical enabler of CE in corporations (Barford & Ahmad, 2022; Pesce et al., 2018; Ratner et al., 2021). Directives guiding business operations at the national, regional, or international levels can make environmental sustainability obligatory, empowering all affected enterprises to adopt circularity. Penalties can be levied on corporations that fail to embed CE strategies in their operations. While regulations can be an enabler of circularity, they can also be a barrier for MNCs, such as when the reuse of waste for other purposes is prohibited by policy or when the regulations are not well developed (Barford & Ahmad, 2022; Turkcu & Tura, 2023).

Commercial collaborations, relationships, and partnerships are also critical enablers of CE in MNCs (Escobar et al., 2023; Mead et al., 2020; Mishra et al., 2019). They result in the sharing of creative inputs, knowledge, resources, and technological transfers, which leads organizations to adopt and implement CE models in their operations (Mead et al., 2020). Conversely, Jaeger and Upadhyay (2020) found that collaborations or coordination between companies could hinder CE. The outcomes depend on individual companies and how they use scarce resources or what they think about environmental sustainability. Recycling and renewing are also considered an enabler of circularity in MNCs (Barford & Ahmad, 2022; Moreno et al., 2019). Furthermore, technological developments and advancements—such as artificial intelligence (AI)—could enhance CE.

While technology can be an enabler of CE in MNCs, it can also be a barrier for those lacking technology. For example, implementing recycling necessitates intensive processes and extensive testing to determine its efficiency and if the results meet specifications (Jaeger & Upadhyay, 2020). Additionally, recycling often requires the disassembly of products, and this involves time, money, and effort, thus a barrier to transition to CE for firms with limited capital or labor force (Jaeger & Upadhyay, 2020). According to Moreno et al. (2019), redistributed manufacturing or moving production close to end-users facilitates CE. This reduces long-distance transportation, reducing environmental impact. MNCs can spearhead the shift to redistributed manufacturing using advanced technologies and reap gains from its increased efficiencies.

Evidence suggests that customers can be both drivers and barriers to adopting CE. For example, businesses must meet the growing demand for environmentally friendly products and services. On the other hand, there is a shift to a sharing economy in many sectors. Consumers are also increasingly willing to purchase previously owned products. The growth in second-hand product use enhances sustainability. Those MNCs embracing sustainable business practices are more likely to succeed in integrating CE (Mead et al., 2020). On the other hand, MNCs focused on competitive advantage act as a barrier to firms with sustainable business practices (Escobar et al., 2023; Mead et al., 2020). Finally, reverse logistics has also emerged as a major barrier to CE for MNCs. Research opines that reverse logistics involves many to one distribution point, implying challenges involved in the process such as transit loss, workforce inefficiencies, transportation and storage costs, and increased emissions (Esposito et al., 2018b).

5.2 | Future agenda on CE practices within IB research

The CE concepts are being adopted by domestic enterprises and MNCs (Barford & Ahmad, 2022). However, many nations have yet to realize and promote CE initiatives, which explains why (some) enterprises have not embraced the concept in their business operations. Corporate adoption and implementation of CE practices are more difficult without encouragement from national and international authorities. While the government or national and international authorities may be able to compel the implementation of CE within their jurisdiction, MNCs have a pool of resources, including sophisticated technology, and thus may be the drivers of CE practices in areas where CE has yet to be adopted or implemented by the government (Ratner et al., 2021). Our findings revealed 2011 and 2012 as the starting phase of CE-IB research following the Ellen MacArthur Foundation report in 2012, with a majority of articles on the topic published between 2018 and 2023. In addition, majority of research on CE-IB has been conducted mostly in the global north, especially Germany, France, the USA, the UK, the Netherlands, and Sweden. Thus, most studies focused on developed countries, with developing countries receiving less attention despite their market and business potentials. This paucity of research on the topic in emerging economies therefore highlights the need for more research on CE-IB in this context.

Our bibliometric analysis of the CE practices in IB identified three clusters of research conducted at the intersection of the concepts. The first emerging cluster in the analysis focused on CBM adoption and implementation in IB. This cluster highlights the shift by MNC from the linear economic model to the CE model. This is done not just for profitability but to preserve the environments in which they operate (Aboulamer, 2018; Hofmann, 2019) and better serve their customers, while also creating value for their shareholders (Oyinlola et al., 2022; Romero-Hernández & Romero, 2018). Thus, moving from the traditional linear to a CE model can significantly boost environmental sustainability. We also emphasize that transitioning to sustainable and CBM methods requires considerable planning and strategizing from the leadership to ensure the future success of MNCs. However, many questions remain unanswered.

Future research can address the following questions: (i) What are MNCs' strategic and tactical approaches to the CE pathway? (ii) How do consumers respond to MNCs' circular products? For instance, have customers changed their tastes and fashion toward circular products? Or have they embraced circular products, and is the trend similar across different contexts, or is it different? (iii) What are the tangible (e.g., performance) and intangible (e.g., brand recognition, reputation, and collaboration) effects of CBM implementation by MNCs? For example, whether CBMs are more profitable than the

traditional linear models. (iv) What organizational and structural conditions influence the MNCs' implementation of CE principles? For example, a company with decentralized decision-making may need help coordinating cross-functional efforts toward achieving CE goals. Similarly, an organization with a rigid hierarchy may need to help empower employees to take the initiative and innovate toward CE efforts. (v) What institutional drivers shape MNCs' CE strategies and implementations This will help identify the internal and external factors that influence decisions, such as regulations, stakeholder expectations, and competitive advantage. For example, are MNCs voluntarily adopting the CBMs or just complying with government regulations? (vi) How do CE practices differ among MNCs operating in developed and developing economies? This will enrich our understanding of specific challenges and opportunities faced by MNCs in different contexts. This is important for shaping policy and business decisions and providing effective and sustainable solutions for transitioning to CE. Thus, cross-context research can compare the application of CE principles and practices by MNCs.

The second emerging cluster in our analysis highlighted CE as a vital tool for CRS by MNCs. As analysis of the articles indicates, all businesses including those with an international focus are expected to take ethical responsibility as far as their activities and operations are concerned (Yu et al., 2022). As such, implementing different CE strategies could be a vital mechanism to ensure CSR (Yu et al., 2022). Therefore, different CE strategies and practices by MNCs across different settings may meet their CSR obligations. For example, MNCs in developing countries may use different CE strategies and practices than those in developed nations. Nevertheless, CE strategies can be a driver of CSR by MNCs. Future research on this cluster could delve into the following questions: (i) Does the emergence of CE improve CSR performance? The CE concept is still new, and as research has indicated, it could be a catalyst for CSR. However, it remains unclear whether CE actually improves the performance of CSR; therefore, future research could explore this particular aspect. (ii) How do MNCs incorporate the CE concept in their CSR practices? For instance, are there any specific steps or a defined procedure that firms use in incorporating CE in their CSR practices? (iii) What roles do external factors such as policymakers play in the implementation of CE practices in the sustainability agenda of firms? For example, do policymakers have any rules with regard to the incorporation of the CE concept in CRS practices in their respective jurisdictions? (iv) How do CE strategies influence CSR achievement?

The third emerging cluster in our analysis focused on levers of CE transition in IB. In this theme, we identified the different enablers, drivers, and barriers that could prevent MNCs from transitioning to CE. Nevertheless, what may be an enabler for CE in one corporation may be a barrier in another firm because of different factors and situations. For example, industries with environmentally sustainable leaders will embrace and implement CE practices compared with sectors lacking such an orientation. Additionally, government regulations may require companies in a particular region to incorporate CE. In this regard, the European Commission's Circular Economy Action Plans for 2015 and 2020, as well as the Basel Convention, are examples in that they prohibit the export and disposal of hazardous waste and are thus regarded as major drivers of CE and CSR in IB (Qu et al., 2019). While effort has been toward levers of CE transition in IB, future research could focus on answering additional questions: (i) How do MNCs approach CE? If research identifies many but specific ways or manners in which MNCs in the developed world approach CE, this could guide MNCs who have yet to embed circularity in their operations. (ii) How does increasing circularity impact the labor market and workers? For instance, does increasing circularity create more jobs or leave previously employed citizens unemployed? (iii) Other aspects include the applicability of the levers across different sectors and contexts. For instance, are the policies across different settings encouraging or discouraging circularity?

6 | CONCLUSION AND IMPLICATIONS

The CE has gained importance among scholars, policymakers, and researchers due to its potential to achieve SDGs. The pressure on MNCs to adopt and implement CE models has also grown significantly, given their vast resources, global reach, and ability to share best practices across borders. However, there remains a need for more information on CE practice within IB. Our paper has identified the influential authors, journals, countries, and affiliated institutions as far as research on CE practices in IB is concerned. Further, future research avenues have been proposed with the hope of encouraging more research on the topic.

Our paper has some theoretical and practical implications. First, the study provides an early synthesis of the literature contributing to and extending the debate on CE practices in the IB context. The study also provides academics new to CE research in IB with guidance on which authors are the most eminent in the field and which journals to consult when conducting research on the topic. Also, as part of our efforts to contribute to this emerging area of research, we have proposed future research avenues that we believe will advance the research at the intersection of CE and IB. From a managerial standpoint, this study can benefit MNCs considering the adoption and implementation of CE practices in their operations. In this regard, by being aware of the various barriers to CE adoption, MNCs can prepare to overcome any obstacles that may arise as they plan to adopt and implement CE practices. Furthermore, this paper has identified various CE models from which practitioners can choose to implement as part of the transition to CE.

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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