International Journal of Environmental Sciences
ISSN: 2229-7359
Vol. 11 No. 4S, 2025
https://www.theaspd.com/ijes.php

Integrating Circular Economy and the Sustainable Development Goals: A Holistic Review

Dr. K. Valentina [1], Dr. Kumar Manaswi[2], Priyanka Aggarwal *(Corresponding Author)*[3], Dr. Bharat Singh[4]
[1]Assistant Professor, School of Public Policy and Governance
Ambedkar University
Email: valentinajnu135@gmail.com
[2]PhD, Delhi School of Management
Delhi Technological University
Email: manaswiblog.kumar@gmail.com
[3]PhD Scholar, Delhi School of Management
Delhi Technological University
Email: aggarwal.priyanka021@gmail.com
[4]Professor, Satyawati College (Eve.)
University of Delhi
Email: bharatsinghdu@gmail.com

Abstract
Purpose: This study examines the role of circular economy (CE) in the attainment of the Sustainable Development Goals (SDGs), providing insights into their synergistic relationship and potential for global sustainability transformation.
Design/methodology/approach: The study uses PRISMA, bibliometric and network analysis for reviewing 166 papers (2016-2025).
Findings: The network analysis produced the following clusters: Cluster 1 - Red : Impact of CE on Climate Change and Renewable Energy (SDGs 7 and 13); Cluster 2 - Green: Impact of CE on SDGs (Overall SDGs); Cluster 3 - Blue: Role of Innovation in CE (SDGs 8, 9, 12); Cluster 4 - Yellow: Impact of CE on Supply Chain Management (SDG 9); and Cluster - 5 Purple: Role of Governance in achieving SDGs and CE (SDGs 11 and 12). In this study, the authors concluded through a mapping exercise that CE plays a very important role in achievement of SDGs, especially, SDGs 6, 7, 8, 12 and 15.
Originality: This research uniquely identifies and analyses the "Barriers, Mitigation Strategies, and Emerging Opportunities" linked with the successful implementation of CE for SDGs. By synthesizing current knowledge and highlighting critical research gaps, this study establishes a foundational roadmap for scholars and practitioners pursuing sustainability through circular economic models.

Keywords— Sustainability, Sustainable Development Goals, Circular economy, Network analysis, Systematic Literature Review, Bibliometrics

1. INTRODUCTION

Circular Economy (CE) has become a hot topic among experts and researchers lately (Kirchherr *et al.*, 2017; Valverde and Aviles-Palacios, 2021; Abalansa *et al.*, 2021; UNCTAD, n.d.). Back in the 1990s, it started gaining attention because China's economy was booming, but resources were getting scarce (Wang *et al.*, 2013). Basically, CE is about using resources wisely, keeping the environment safe, and boosting the economy. Different countries have their own take on CE, shaped by their cultures, societies, and politics (Calonge *et al.*, 2022). Some countries like the UK, Switzerland, Denmark, and Qatar are already putting CE ideas into action,

especially when it comes to managing waste and reusing materials (Geissdoerfer *et al.,* 2017). In the early 1990s, Germany integrated the idea of CE into its environmental policy in response to worries about the extraction of natural resources for future economic growth (Geng and Doberstein, 2008). Companies throughout the world are also stressing CE as a strategy to reduce their environmental effect and improve their long-term viability, all while growing their bottom line (earnings) and catering to the desires of all actors in the value chain (Camilleri, 2017). Nevertheless, CE has further gained ground in recent years as a way for tackling some of the world's most important and interconnected sustainable development concerns (Dinca *et al.,* 2022). Currently, organisations from both the business and governmental sectors are pushed to enhance sustainability by the United Nations Sustainable Development Goals (SDGs) 2030 (Cai and Choi, 2020; Jørgensen and Pedersen, 2018). Many stakeholders have welcomed and enthusiastically embraced the idea of sustainability (Siegel and Bastos, 2020) in response to growing concerns about environmental problems (Taibjee and Woodley, 2020; Shulla *et al.,* 2021) such as global warming, greenhouse gas emissions, increasing temperatures, carbon footprint, and water pollution. As a result, CE practises and novel business models are also being developed at an exponential rate as a direct infusion of digital technology. Digital technology has emerged as a key catalyst in advancing the concept of CE, as demonstrated by several studies in the field (Lopes *et al.,* 2018; Ingemarsdotter *et al.,* 2020; Khan *et al.,* 2022; Buchi *et al.,* 2020). In various industries, organizational efficiency has been significantly enhanced by I4.0 (Ardito *et al.,* 2019; Antikainen *et al.,* 2018). Although the interest in this area is growing, there remains some uncertainty over how CE relates with SDGs. Some articles have shown that CE could be used to tackle worldwide challenges on sustainability (Chen *et al.,* 2020). However there exists no clear agreement on how CE can be effectively aligned with the SDGs because there is no comprehensive literature on the subject so far This paper contends that failure to address these ambiguities may consign them into insignificance in no time. Previous studies investigating the connection between CE practices and SDGs have employed mixed methods approaches (Schöggl *et al.,* 2020) and have identified direct contributions to SDGs 6, 7, 8, 12, and 15 (Schroeder *et al.,* 2019). However, they also emphasize the need for further research to delineate the specific types of partnerships and implementation strategies required for effective alignment. While these prior researchers have given attention to CE and SDGs links, they've scarcely focused on the many barriers, mitigation measures and possibilities that can be beneficial in the successful implementation of CE for reaching SDGs, which we have addressed. Furthermore, relatively few research have sought to map the various SDGs and CE practices. To the best of our ability, this study is an initiative to analyse how CE practices can help in attainment of the SDGs. The objectives of this paper are as follows:

- To provide a precise investigation of the development of CE and SDGs field by conducting a systematic literature review, using PRISMA, bibliometric and network analysis.
- To develop a synergistic and conceptual framework in the form of 'Barriers, Mitigation and Opportunities' linked with SDGs and CE integration.
- To identify to what extent CE practices are relevant for achievement of SDGs.
- To provide future research directions for the identified emerging trends.

2. METHODOLOGY

Systematic reviews are now expressly acknowledged as a form of review-based research in numerous areas (Kraus *et al.,* 2020; Paul and Criado, 2020). With the aim to maintain quality of study, research papers indexed in the Social Sciences Citation Index and Science Citation Index Expanded were reviewed systematically for this investigation.

2.1 Selection Criteria

PRISMA is utilised as a formal systematic review guideline for data collecting, providing a consistent peer-reviewed technique to contribute to the quality assurance and replicability of the review process. This paper employs a comprehensive criterion for selection of research papers based on PRISMA protocol. The study adopted the following process for extracting articles from Web of Science (WOS): (i) The search query operated was "circular AND economy" or "CE" or "circular economy" or "circularity" or "circular" AND "SDG*" or "sustainable development goal*"; (ii) the time period criteria was kept open ended and we got the papers from 2016-2025; (iii) the relevant disciplines considered were business, management, economics, and business finance, and (iv) research papers published in English only were considered. The above-mentioned criteria yielded us 166 research articles in the WOS database (Figure 1).

2.2 Technique adopted in analysis

In order to gain insights on the state of the research in CE and SDGs, this study used bibliometric and thematic analysis. Firstly, a bibliometric study was performed using VOSviewer. Secondly, network analysis (keyword co-occurrence analysis) was conducted using VOSviewer software.

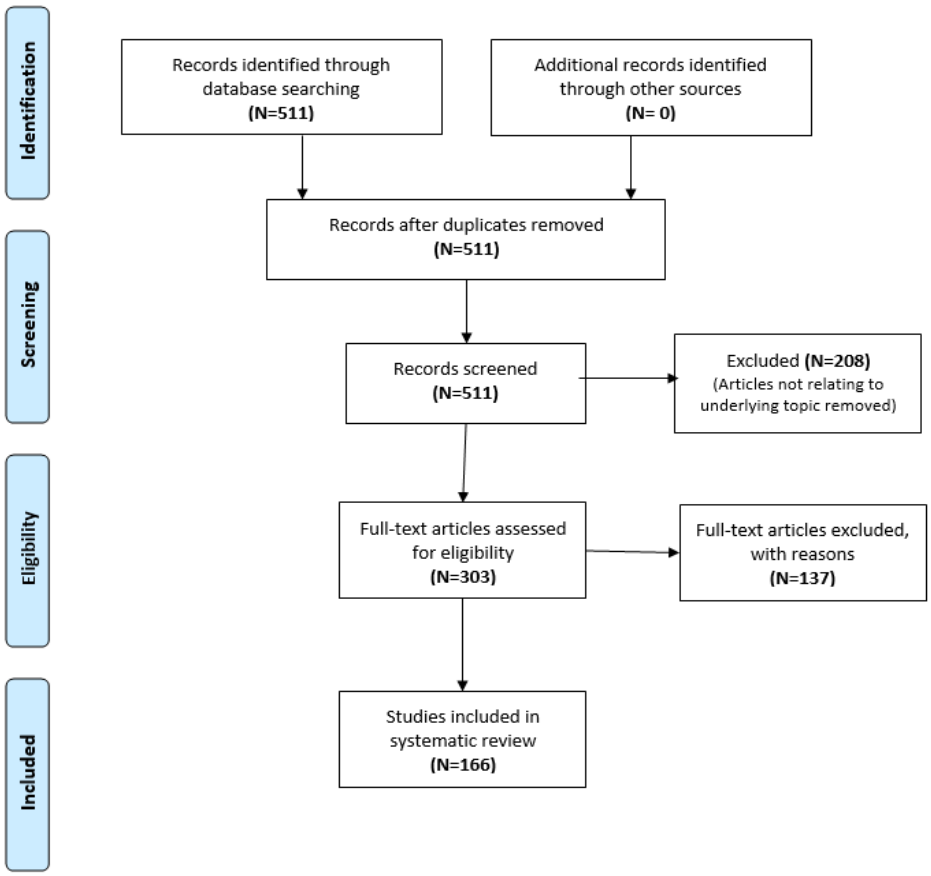

Figure 1: PRISMA

3. FINDINGS

3.1 Publication Trend

The authors evaluated the number of articles published in CE and SDGs domain over the last 8 years. As shown in Figure 2, CE and SDGs research fields shows an upward publication trend. The publication trend also shows that CE and SDGs is an emerging research area that has gained traction in the management domain in the last ten years. In light of the above finding, we anticipate that further studies examining the connections between CE and the SDGs will be published in the future years.

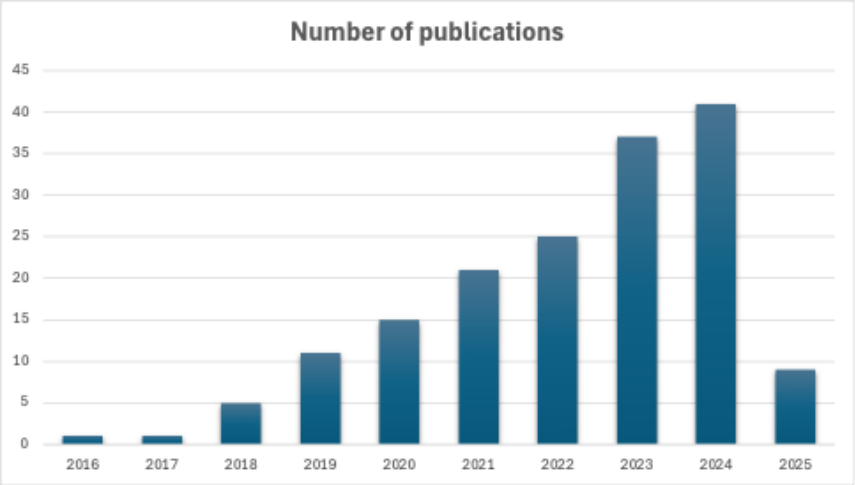

Figure 2: Publication Trend

3.2 Most productive countries

According to the findings, over 70 countries and regions have made major contributions to the underlying field. England, Spain, Germany, Italy and Australia are the top five countries that have contributed most in the domain of CE and SDGs, as seen in Figure 3.

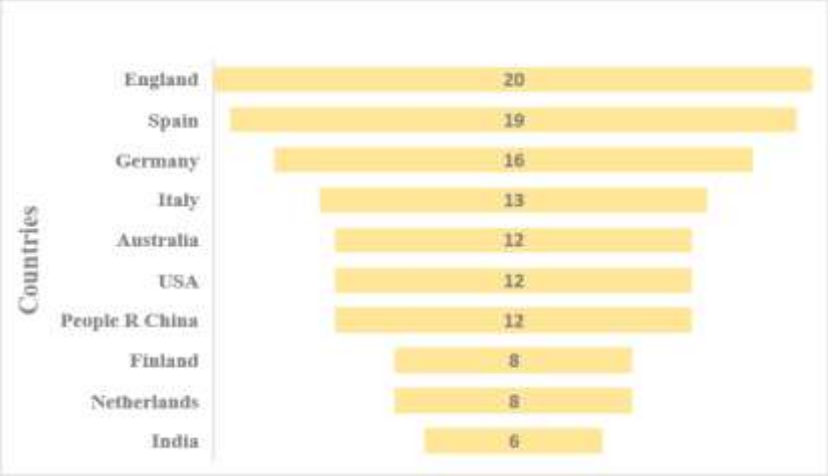

Figure 3: Most Productive Countries

3.3 Most influential sources

Figure 4 depicts the most prominent sources in the field of CE and SDGs research based on the number of citations received by each source. Journal of Cleaner Production papers have been cited the most (1195 times), which is not surprising given the journal's focus on sustainability. Among the other top publication sources based on the number of citations, Sustainability and Resources conservation and recycling journals have also made significant contributions.

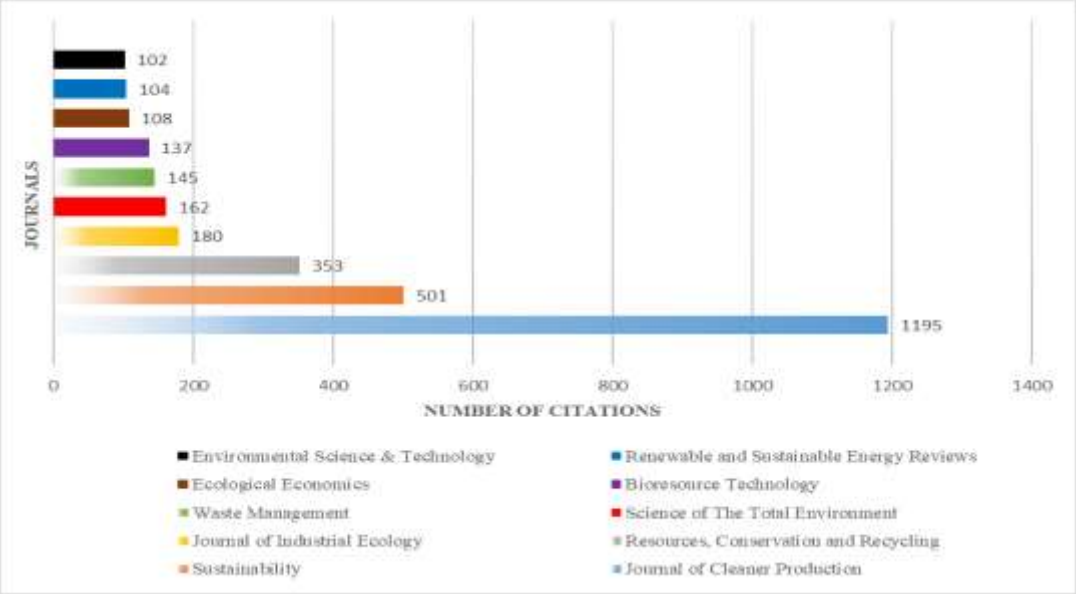

Figure 4: Most influential sources

3.4 Network Analysis - Co-occurrence Analysis

The keyword co-occurrence analysis is employed to track the thematic growth of the CE and SDGs area since keywords are excellent indicators of an article's primary emphasis or substance (Strozzi *et al.*, 2017) (Figure 5). Co-occurrence analysis of keywords using VOSviewer helped in identifying major themes and clusters that were divided into the following categories:– Cluster 1 - Red : Impact of CE on Climate Change and Renewable Energy (SDGs 7 and 13); Cluster 2 - Green: Impact of CE on SDGs (Overall SDGs); Cluster 3 - Blue: Role of Innovation in CE (SDGs 8, 9, 12); Cluster 4 - Yellow: Impact of CE on Supply Chain Management (SDG 9); and Cluster - 5 Purple: Role of Governance in achieving SDGs and CE (SDGs 11 and 12).

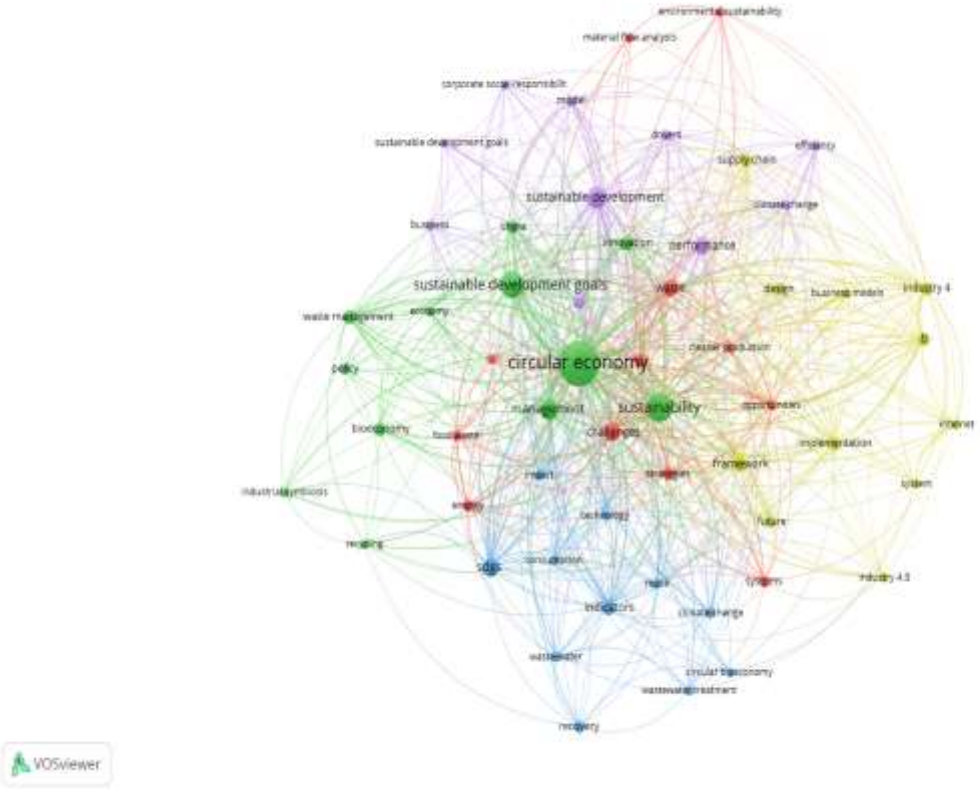

Figure 5: Co-occurrence Analysis

Cluster 1- Red: Impact of CE on Climate Change and Renewable Energy (SDGs 7 and 13)

According to (Khanna *et al.,* 2022), the significance of the CE to climate change is an emerging field of study that requires further investigation. The traditional approach of linear economy is based on "take-make-dispose" strategy (Kandpal *et al.,* 2024). This strategy is very taxing on the overall resources as it hinders efficient utilization of those resources. This approach is exceedingly resource-intensive and extracts a substantial amount of material which further intensifies the resource and climatic crisis (Sharmina *et al.,* 2021). According to (Ellen MacArthur Foundation, 2019a), the present model of linear consumption and production has serious ramifications for future generations. Land, water, and other natural resource management is extremely burdensome for stakeholders. In his article, (Sariatli, 2017) asserts that 21 billion tons of raw ingredients are not consolidated into the end product. His research is supported by the economic modelling and empirical data of the Ellen MacArthur Foundation (Ellen MacArthur Foundation, 2019) and the Sustainable Europe Research Institute (SERI) study (Sariatli, 2017). This could have occurred as a result of inefficiencies in the supply chain and storage structures, as well as potential losses incurred during the transformation stage of raw materials into finished goods (Sariatli, 2017). In order to combat climate change in a methodical and economical manner, the CE principles provide a methodology (Ellen MacArthur Foundation, 2019). According to research conducted by the Ellen MacArthur Foundation (Sariatli, 2017), the possibility exists that greenhouse gas emissions may be cut by forty percent by the year 2050 if CE principles were implemented in four important industries: aluminum, cement, plastic, and steel (Ellen MacArthur Foundation, 2019). In addition, if the CE principles were applied to food waste, it would be possible to achieve reductions in emissions of up to forty nine percent.

Cluster 2 - Green: Impact of CE on SDGs (Overall SDGs)

The CE is gaining support as a strategy for achieving regional, national, and international sustainability (Schroeder *et al.,* 2019; Garcia-Saravia Ortiz-de-Montellano *et al.,* 2023). Developed and underdeveloped nations may both reap the economic, social, and environmental advantages of CE approaches (Schroeder *et al.,* 2019; Ferraz and Pyka, 2023, Puma *et al.,* 2024). As CE focuses on efficient utlization of resources, therefore it has a direct impact on SDG 12 (Consumption and Production) (Dinca *et al.,* 2022). Many studies suggest that CE practises and concepts cut across many SDGs, and that adopting CE practises is essential for realising many of the goals specified in a number of the SDGs, not only SDG 12. (Sariatli, 2017) conducted an extensive mapping study of the 17 SDGs and their 169 associated goals. The study concluded that CE practices have a major impact on SDGs 6 (Clean Water and Sanitation), 7 (Affordable and Clean Energy), 8 (Decent Work and Economic Growth), 12 (Responsible Consumption and Production), and 15 (Life on Land). A CE can help achieve universal and equitable access to safe and affordable drinking water (SDG 6) by the development of technologies and systems like Small scale water purification technologies; Desalination; and Wastewater treatment to reduce waste water discharge into drinking water sources. CE can help in achieving affordable and clean energy (SDG 7). The CE also has the potential to contribute further to innovation and the development of jobs (SDG 8). Job creation is also a very important aspect working in favour of CE. (Sulich and Sołoducho-Pelc, 2021) in his study compared primary production and the huge disposal practise of the linear economy with the circular economy practices and concluded that CE creates more sustainable jobs (Sulich and Sołoducho-Pelc, 2021). Several studies have also shown that if the UN, the governments of different countries, and investors support green initiatives, CE can create about 24 million jobs by 2030. SDG 12 mainly focuses on water, waste, sustainable products and services, sustainable supply networks and renewable energy synergies. For the successful implementation of CE , we need to rethink, reduce, reuse, redesign, fix, refurbish, remanufacture, recycle, and find new uses for things (Sariatli, 2017). Forestry, circular farming, organic farming, and the management of organic waste all support address SDG 15 (Ibn-Mohammed *et al.,* 2021). Also, circular water management practises are needed for sustainable forest management in dry areas (Tomar *et al.,* 2021).

Cluster 3 - Blue: Role of Innovation in CE (SDGs 8, 9, 12)

The current linear economic model based on “take-make-dispose” is reaching its physical limitations (Ellen MacArthur Foundation, 2021) amid estimates that the waste produced annually will reach 2.59 billion ton by 2030 and that this total will surge to 3.40 billion tons worldwide by 2050. UN SDGs 2030 that attempts to strike a balance between the three elements of sustainable development (economic, environmental, and social). Furthermore, it emphasizes the significance of sustainable management of our planet's natural resources to the advancement of society and the economy. Business model innovation has been a major focus of research in CE (Mishra *et al.,* 2023; Govindan, 2023). (Lewandowski, 2016) identified two critical factors for a smooth transition to CE model – first, reverse logistics based on take-back system and secondly internal and external CE adoption factors. When compared to more conventional linear business models, the innovations required by circular business models come with a far higher chance of failure (Linder and Williander, 2015). In the context of circularity, there is a high association between business model innovation and product innovation, according to Bocken *et al.,* (2016). Numerous authors have proposed novel methodologies for business model innovation and product design, all of which rely on closing resource cycles. The process of closing the resource cycle consists of optimal utlilisation, which may be accomplished through the creation of durable products and the extension of product lifespans, most notably through service cycles that extend the useful life of things, such as remanufacturing and repair. In terms of both inputs and outputs, reducing the quantity of resources utilised in manufacturing is known as "resource efficiency." Moreover, as noted by Konietzko *et al.,* (2020), it is vital to contextualise innovation ecosystems within CE and sustainability contexts. (Konietzko *et al.,* 2020) suggested three principles for CE innovation, which addresses how companies interact with other organisations

to involves hit and trial approach by the companies in an structured way to transition to CE model; and platforms, which considers organization of social and e-commerce networks of organisations. Financial innovations, such as green bonds and fintech, are powerful drivers for CE, enabling organizations to integrate CE principles into strategic decision-making (Kumar *et al.,* 2024). Innovation, particularly in research and development and patents, enhances sustainable performance in SMEs practicing CE. It positively impacts social and environmental performance, indirectly boosting profitability (Zhang *et al.,* 2022). In developed economies, technological innovation is more critical, whereas societal innovation is pivotal in emerging markets. Knowledge development within companies is key to mainstreaming innovative CE solutions (Rataj *et al.,* 2024).

Cluster 4- Yellow: Impact of CE on Supply Chain Management (SDG 9)

CE seeks to keep the circulation of commodities, resources, energy, and components as efficient as possible in order to create value for company sustainability. As a result, CE includes three broad dimensions: sustainable supply chain efficiency, economic sustainability, and environmental sustainability (Zeng *et al.,* 2017; Ivan Kurniawan and Yudi Fernando, 2023). In the literature, the incorporation of CE into the processs of supply chain (SCM) has been referred to as a circular supply chain (Chizaryfard *et al.,* 2020; Nasir and Du, 2017; Zeng *et al.,* 2017; Erdiaw-Kwasie, 2023). Circular supply chain management refers to the system of management of both natural and industrial ecosystems within the supply chain (Wankhade and Kundu, 2018). This holistic approach is essential for the renewal of biological resources. It is considered as a forward-thinking strategy which involves economic, environmental and social concerns. It follows 3Rs principles: reduce, reuse, and recycle (Ripanti and Tjahjono, 2019). This strategy helps in minimizing wasteful resouces, maximizing resource efficiency, and fostering sustainable supply chain management. Moreover, it improves the coordination of supply chain networks and helps companies achieve their CE goals by enhancing information control, risk management, supplier selection, value co-creation, and customer satisfaction based on environmental, social, and economic standards (Zeng *et al.,* 2017; Genovese *et al.,* 2017). Circular supply chain management also encourages collaboration among supply chain members, increasing their competitiveness. This ensures that long-term economic value creation also benefits society and the environment (Ripanti and Tjahjono, 2019; Vegter *et al.,* 2020).

Cluster 5- Purple: Role of Governance in achieving SDGs and CE (SDGs 11, 12)

In response to the public's call for a sustainable world, governments have given their appreciation to the public by laws and programs aimed at sustainable development (Mio *et al.,* 2020; Moslehpour *et al.,* 2018). It is the SDGs that offer resolutions to the challenges of sustainable development that almost all countries are now facing (Yin *et al.,* 2023; Sandoval *et al.,* 2018; Liu *et al.,* 2021; Jonsdottir *et al.,* 2021). Ferrero et al. (2013) had an analysis of the relationship between SDGs and internal corporate governance in the European corporates during the period of 2016-17. Corporate governance mechanisms, including board size among others were explored, and the authors analyzed the correlation of such mechanisms with the perfunctory of the sustainable development preserving the natural ecosystem~ companies were likely to succeed in meeting the sustainable development goals when they have corporate governance as well as the effective implementation of these principles through their board independence, board meetings, board size, and board composition.

4. HOLISTIC FRAMEWORK

In this section, the authors have proposed a framework in the form of 'Barriers, Mitigation Strategies and Opportunities' - BMO framework (Aggarwal and Manaswi, 2022) associated with the implementation of CE practices for successful attainment of SDGs (Table I). As per World Business Council for Sustainable Development, a CE represents a potentially lucrative commercial opportunity of up to $4.5 trillion that has the

potential to spur the development of new industries, generate employment opportunities, reduction of emission of greenhouse gases, and optimise the usage of scarce renewable natural resources.

Table I: BMO Framework

	Particulars	**Citations**
Barriers	● Technological constraints ● Cultural barriers ● Lack of awareness among businesses and its stakeholders ● Lack of environmental regulations and laws by the Government ● Lack of infrastructure and support ● Lack of supply chain management ● Lack of recycling technology ● Lack of financial resources (High upfront investment cost) ● Disrupting consumer's convenience ● Lack of acceptance from community and society	(Jorgensen and Tynes, 2018, Bressanelli *et al.*, 2018; Kerin and Pham, 2019; Jabbour *et al.*, 2019; Rizos *et al.*, 2016; Ranta *et al.*, 2018; Preston, 2012; Hetherington *et al.*, 2024; Dace *et al.*, 2024)
Mitigating Strategies	● Information Communication Technology ● Big Data ● Industry 4.0 ● Changing organizational culture ● Amendment of Environmental rules and regulations ● Government support ● Increased funding ● Public Private Partnerships ● Spreading awareness	(Bressanelli *et al.*, 2018; Cezarino *et al.*, 2018; Jorgensen and Tynes, 2018; Geng and Doberstein, 2008; Salmenperä *et al.*, 2021; , Hina *et al.*, 2022; Khan *et al.*, 2023; Hoosain *et al.*, 2023; David *et al.*, 2025; Strippoli *et al.*, 2024)
Opportunities	● Job creation ● Smart Products ● Achieving Industry 5.0 ● Sustainable business model ● Mitigation of Negative Environmental Externalities ● Achievement of SDGs ● Efficient research and development on CE ● Sustainable and Resilient Supply Chain Management ● Leveraging on Digital Technology ● Smart Cities ● Resource conservation	(Haas *et al.*, 2015; Büyüközkan *et al.*, 2021; Ellen MacArthur Foundation, 2013; Rabbi and Amin, 2024; Terra dos Santos *et al.*, 2023; Clement *et al.*, 2023; Zhuang *et al.*, 2023; Gao *et al.*, 2024)

5. MAPPING OF CE AND SDGS

In this section, the authors answer research objective 3. In order to assess the impact of CE on SDG the authors used an exploratory matching exercise consisting of three categories (1) CE directly impacts SDGs; (2) CE indirectly impacts SDGs; and (3) Weak link between SDGs and CE. The authors analysed findings and implications from the selected set of research papers followed by assessment of CE initiatives for achievement SDG Goals. Figure 6 depicts three types of relationship between CE and SDGs as well as the supporting literature for each category.

CE practices have a clear and direct influence on certain SDGs owing to their fundamental nature of increasing resource efficiency, waste reduction, and sustainable consumption patterns (Gao *et al.,* 2024; Kandpal *et al.,* 2024a). CE initiatives such as water recycling directly contribute to ensuring access to clean water and sanitation (SDG 6) (Yosep *et al.,* 2024), while the adoption of renewable energy sources and energy efficiency measures directly supports the goal of affordable and clean energy (SDG 7) (Strielkowski *et al.,* 2021). CE promotes job creation and economic development (SDG 8) (Garcia-Saravia Ortiz-de-Montellano *et al.,* 2023). Similarly, CE's emphasis on reducing waste and promoting sustainable consumption patterns directly aligns with the objective of responsible consumption and production (SDG 12), and practices such as sustainable forestry and biodiversity conservation directly contribute to preserving terrestrial ecosystems and biodiversity (SDG15).

In addition to making a direct impact, adopting CE practices can also have an indirect impact on several SDGs, thereby positively influencing an additional 28 targets. For instance, CE practices like repair, remanufacturing, and recycling can create job opportunities, indirectly supporting poverty reduction (SDG 1). Moreover, CE practices concerning water management and agriculture help build resilience. By implementing CE principles such as composting and diversified integrated farming, local agriculture improves soil quality, enhancing farm productivity and resilience (SDG 2) (Ellen MacArthur Foundation, 2019b).Circular food system initiatives, which minimize food waste and repurpose it into animal feed, open up farm land for human consumption.

The shift to a circular economy is crucial in reducing the negative effects of cities on the environment and resource depletion, especially because three-quarters of the world's population is expected to live in cities by 2050. Low-income populations may find it easier to get housing if they follow CE principles, which include adaptable, flexible, and modular construction designs. CE practices directly and indirectly contribute to climate change mitigation and resilience building. According to the 2019 Circular Gap Report, the implementation of CE practices could potentially reduce greenhouse gas emissions by over a third by 2100, complementing existing low-carbon technologies (Circularity Gap Report, 2019). By curbing waste generation and terrestrial leakages, CE practices also minimize ocean pollution, including the recovery of nutrients from wastewater streams before they reach marine environments. Additionally, CE's role in combating climate change indirectly aids in mitigating ocean acidification.

While CE practices have the potential to advance various SDGs, some targets may not exhibit a clear or robust connection with CE (SDGs 3,4,5.9,10,16 and 17) . For example, there is a scarcity of published data that explicitly demonstrates how CE directly enhances health or reduces infant mortality rates through methods such as improved water treatment or reduced contamination. Furthermore, it is crucial to evaluate the potential benefits and expenses of alternative alternatives, including the recycling of human refuse. The linkages between CE practices and several of the Sustainable Development Goal 3 targets, including those that are intended to empower women and girls and eradicate discrimination, violence, and detrimental behaviours against them, were discovered to be either non-existent or inadequate.

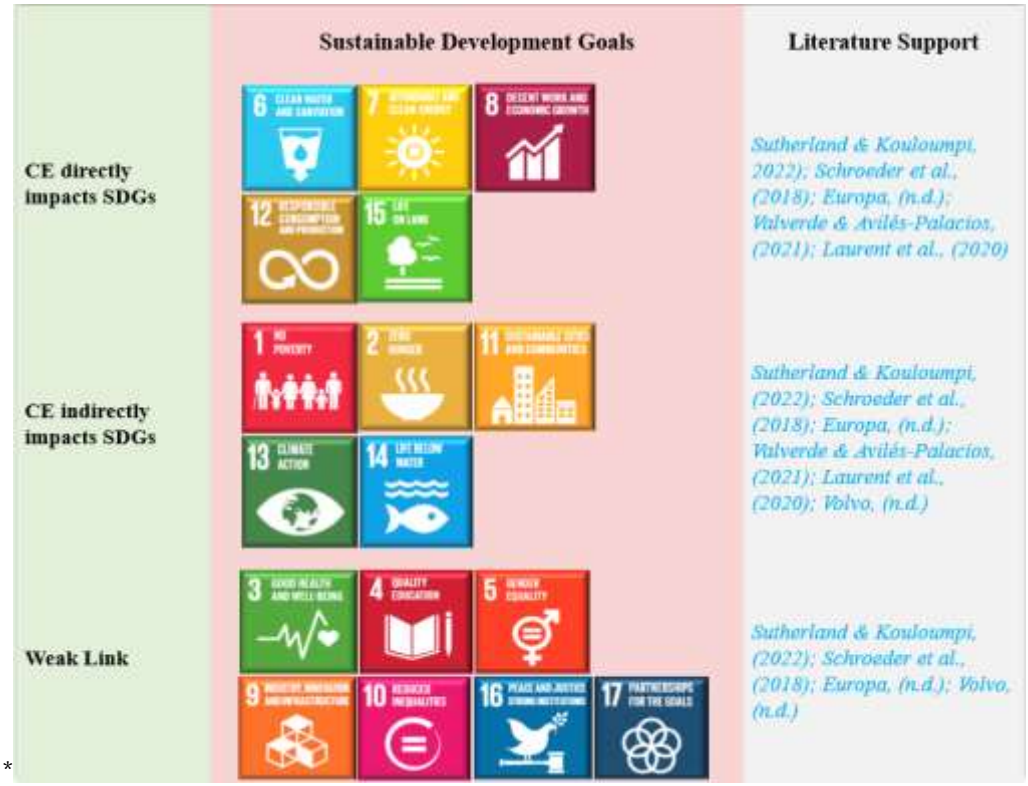

Figure 6: Mapping CE and SDGs

6. FUTURE RESEARCH DIRECTIONS

Table II presents the directions of future research that have been formulated in this section. The directions have been categorised into five clusters, which are the same clusters that were identified in Section 3.4 (Figure 5) during the systematic review. These directions were developed by examining the limitations and prospective research directions in the selected set of papers for the review, and subsequently filtering and segregating these directions among clusters.

Table II: Future Research Directions

Cluster	Future Research Directions
Cluster 1 - Red : Impact of CE on Climate Change and Renewable Energy (SDGs 7 and 13)	• There is a lack of scholarly output that specifically addresses the CE's significance to the Climate crisis (Hernandez *et al.*, 2020) . • Energy infrastructure on Small Island Developing States can also benefit from circular solutions, such as the use of solar photovoltaic (PV) closed-loop minigrids in place of generators powered by diesel fuel (Kleineidam and Dörr, 2015).

	• Rural electrification can also be improved with circular solutions.
Cluster 2 - Green: Impact of CE on SDGs (Overall SDGs)	• CE has the ability to support other SDGs, such as SDG 1,2,3,5 and 10. • Application of CE principles in regional agriculture, such as composting and the use of a variety of integrated farming techniques, results in an improvement of the soil, which, in turn, increases agricultural productivity and the robustness of the system, with the ultimate goal of eradicating world hunger (SDG 2). • When it comes to reaching SDG 3, which focuses on maintaining excellent health and wellbeing, agriculture is one area which needs attention. The current global food system is responsible for the emission of greenhouse gases, relies on ever-increasing quantities of synthetic chemical additions that may be toxic, and is becoming increasingly destructive to the health of soil and biodiversity (Laurent *et al.*, 2020).
Cluster 3 - Blue: Role of Innovation in CE (SDGs 8, 9, 12)	• Numerous disadvantaged groups, such as migrant workers, people with lower levels of education, and people with disabilities, will have access to work (SDG 8). Lays the groundwork for inclusive and sustainable growth. • Big Data, Industry 4.0 and the Internet of Things can play an important role in SDGs achievement . • Digital technologies can be leveraged to implement CE strategies (Vann Yaroson *et al.*, 2023).
Cluster 4 - Yellow: Impact of CE on Supply Chain Management (SDG 9)	• More research on the effects of digital transformation on CE practises across the local and global value chain, as well as research on the inclusion of digitalization into CE, would be helpful.

Cluster - 5 Purple: Role of Governance in achieving SDGs and CE (SDGs 11 and 12)	• Which sectors are adopting the CE model, and what are the enabling features? • The question "Who are the primary stakeholders in firm-level infrastructure planning?" is an important one for future researchers to consider. • (Wagner and Heinzel, 2020) recently emphasised the need for more research into which demographic factors are significant for CE awareness.

7. CONCLUSION

Circular initiatives are picking up pace all around the world. Improving livelihoods, driving economic growth, and creating decent jobs are some of the areas in CE plays a very critical role. The authors present a systematic study of 166 research papers (2016-2025) in CE-SDGs field. The study reveals that CE and SDGs is a growing research area. The bibliometric analysis further revealed that countries like England, Germany, Spain, Australia and Italy have done major contributions in this area. Developed/industrialized nations make up the majority of the top contributors, suggesting that researchers from developing nations can contribute more to the underlying research stream. The co-occurrence analysis of keywords yielded the following emerging themes: Cluster 1 - Red : Impact of CE on Climate Change and Renewable Energy (SDGs 7 and 13); Cluster 2 - Green: Impact of CE on SDGs (Overall SDGs); Cluster 3 - Blue: Role of Innovation in CE (SDGs 8, 9, 12); Cluster 4 - Yellow: Impact of CE on Supply Chain Management (SDG 9); and Cluster - 5 Purple: Role of Governance in achieving SDGs and CE (SDGs 11 and 12).

The authors found that CE activities may be crucial in achieving several SDGs. To further understand how CE activities aid in the effective attainment of SDGs, a matching exercise was also carried out. The exercise revealed that there is a direct impact of CE initiatives on SDG 6, 7, 8, 12 and 15 (Figure 6). According to the authors, there are also various studies showing the indirect impact of CE on SDGs, such as those related to eliminating poverty (SDG 1), ending hunger and sustainable food production (SDG 2), and those SDGs aiming for biodiversity protection in the oceans (SDG 14). The study reaches the conclusion that a wide range of SDG targets can be achieved by using CE practises as a "toolbox" and through targeted implementation strategies. The article also discusses the "Barriers, Mitigation Strategies, and Emerging Opportunities" that will help in the effective implementation of CE for achieving SDGs. While there are clear advantages to putting the framework into action, they won't be fully realised until the strategy and practicality are thoroughly measured. The CE helps reduce greenhouse emissions among others. Efficient use of resources, equitable treatment of minorities, and a variety of secure, decent employment opportunities are just some of the ways in which a holistic approach to its implementation can help form a more just and equitable world. While circularity has a direct bearing on some SDGs, its connections to others also hint at immense potential: a global CE can drive the realisation of the SDGs if it is applied in a comprehensive fashion.

8. IMPLICATIONS

Organizations, society, and the planet as a whole all stand to benefit greatly from adopting a CE practices. This research is unique among reviews because it explicitly classifies the challenges, solutions, and possibilities associated with implementing CE. The study is relevant for researchers, policymakers, as well as for managers of firms. Many advanced economies, like the United States, China, and Europe, use CE practises across a variety of industries. In these countries, there is widespread support for CE among businesses, and everyone

involved appreciates the benefits of adopting CE practises. Since more and more businesses rely on technology for this same reason, the CE needs to deploy with due diligence. The tendency of many businesses to employ technology could impair sustainability by eliminating jobs and squandering resources. When a company adopts circularity, it often discards and replaces a large number of resources due to a lack of technical advancements like various I4.0 tools, blockchain and 3D printing. Developing nations like India need to proceed cautiously, as this could lead to widespread unemployment and a rise in food insecurity. In order to begin the transition to circularity, businesses should prioritise the sustainable use of raw materials, renewable sources, and other energy forms. Furthermore, governments in emerging nations need to teach their citizens how to limit their populations.

9. LIMITATIONS

The research papers used in this investigation were published between the years 2016 and 2025. The temporal frame of these investigations can be expanded in subsequent research to offer a more comprehensive picture. We adhered to the predefined keywords and inclusion-exclusion criteria; it is possible that we overlooked some essential keywords. In the future, scholars can broaden their keyword choices to investigate holistic areas related to CE and SDGs. In conclusion, although we took into account the emerging research themes when formulating propositions for potential future research directions, those propositions need to be empirically tested by the future researchers.

REFERENCES:

Abalansa, S., El Mahrad, B., Icely, J. and Newton, A. (2021), "Electronic waste, an environmental problem exported to developing countries: the GOOD, the BAD and the UGLY", Sustainability, Vol. 9, pp. 5302. https://doi.org/10.3390/su13095302

Aggarwal, P. and Manaswi, K. (2022), "Role of circular economy, industry 4.0 and supply chain management for tribal economy: a systematic review", Journal of the Anthropological Survey of India, Vol. 2, pp. 265-280. https://doi.org/10.1177/2277436x221125914

Antikainen, M., Uusitalo, T. and Kivikytö-Reponen, P. (2018), "Digitalisation as an enabler of circular economy", Procedia CIRP, pp. 45-49. https://doi.org/10.1016/j.procir.2018.04.027

Ardito, L., Petruzzelli, A.M., Panniello, U. and Garavelli, A.C. (2018), "Towards industry 4.0", Business Process Management Journal, Vol. 2, pp. 323-346. https://doi.org/10.1108/bpmj-04-2017-0088

Bocken, N.M.P., de Pauw, I., Bakker, C. and van der Grinten, B. (2016), "Product design and business model strategies for a circular economy", Journal of Industrial and Production Engineering, Vol. 5, pp. 308-320. https://doi.org/10.1080/21681015.2016.1172124

Bressanelli, G., Perona, M. and Saccani, N. (2018), "Challenges in supply chain redesign for the circular economy: a literature review and a multiple case study", International Journal of Production Research, Vol. 23, pp. 7395-7422. https://doi.org/10.1080/00207543.2018.1542176

Büchi, G., Cugno, M. and Castagnoli, R. (2020), "Smart factory performance and industry 4.0", Technological Forecasting and Social Change, 119790. https://doi.org/10.1016/j.techfore.2019.119790

Büyüközkan, G., Tüfekçi, G. and Uztürk, D. (2021), "Evaluating blockchain requirements for effective digital supply chain management", International Journal of Production Economics, 108309. https://doi.org/10.1016/j.ijpe.2021.108309

Cai, Y.-J. and Choi, T.-M. (2020), "A United Nations' sustainable development goals perspective for sustainable textile and apparel supply chain management", Transportation Research Part E: Logistics and Transportation Review, 102010. https://doi.org/10.1016/j.tre.2020.102010

Calonge, A.A., Sáez-Martínez, F.J. and Ruiz-Palomino, P. (2022), "Evolution of research on circular economy and related trends and topics. a thirteen-year review", Ecological Informatics, 101716. https://doi.org/10.1016/j.ecoinf.2022.101716

Camilleri, M.A. (2017), "Corporate sustainability and responsibility: creating value for business, society and the environment", Asian Journal of Sustainability and Social Responsibility, Vol. 1, pp. 59-74. https://doi.org/10.1186/s41180-017-0016-5

Cezarino, L.O., Alves, M.F.R., Caldana, A.C.F. and Liboni, L.B. (2018), "Dynamic capabilities for sustainability: revealing the systemic key factors", Systemic Practice and Action Research, Vol. 1, pp. 93-112. https://doi.org/10.1007/s11213-018-9453-z

Chen, L., Hung, P. and Ma, H. (2020), "Integrating circular business models and development tools in the circular economy transition process: a firm-level framework", Business Strategy and the Environment, Vol. 5, pp. 1887-1898. https://doi.org/10.1002/bse.2477

Chizaryfard, A., Trucco, P. and Nuur, C. (2020), "The transformation to a circular economy: framing an evolutionary view", Journal of Evolutionary Economics, Vol. 2, pp. 475-504. https://doi.org/10.1007/s00191-020-00709-0

Circle Economy (2019), The Circularity Gap Report 2019, Circle Economy, Amsterdam.

Clement, J., Ruysschaert, B. and Crutzen, N. (2023), "Smart city strategies – a driver for the localization of the sustainable development goals?", Ecological Economics, 107941. https://doi.org/10.1016/j.ecolecon.2023.107941

Dace, E., Cascavilla, A., Bianchi, M., Chioatto, E., Zecca, E., Ladu, L. and Yilan, G. (2024), "Barriers to transitioning to a circular bio-based economy: findings from an industrial perspective", Sustainable Production and Consumption. https://doi.org/10.1016/j.spc.2024.05.029

David, L., Aigbavboa, C., Adepoju, O. and Nnamdi, N. (2025), "Applying circular economy strategies in mitigating the perfect storm: the built environment context", Sustainable Futures. https://doi.org/10.1016/j.sftr.2025.100444

Dincă, G., Milan, A.-A., Andronic, M.L., Pasztori, A.-M. and Dincă, D. (2022), "Does circular economy contribute to smart cities' sustainable development?", International Journal of Environmental Research and Public Health, Vol. 13, pp. 7627. https://doi.org/10.3390/ijerph19137627

Ellen MacArthur Foundation (2013), Towards the circular economy Vol. 2: opportunities for the consumer goods sector, Ellen MacArthur Foundation, Isle of Wight.

Ellen MacArthur Foundation (2019a), Completing the picture: how the circular economy tackles climate change, Ellen MacArthur Foundation, Isle of Wight.

Ellen MacArthur Foundation (2019b), "Our food system is no longer fit for the 21st century. here are three ways to fix it", available at: https://www.weforum.org/agenda/2019/01/how-to-build-a-circular-economy-for-food/ (accessed 20 June 2018).

Ellen MacArthur Foundation (2021), Delivering the circular economy: a toolkit for policymakers, Ellen MacArthur Foundation, Isle of Wight.

Erdiaw-Kwasie, M.O. (2023), "Circularity challenges in SDGs implementation: a review in context", in Sustainable Development Goals Series, Springer Nature Singapore, Singapore, pp. 3-18. http://dx.doi.org/10.1007/978-981-99-3083-8_1

Europa (n.d.), "Circular economy & SDGs - how circular economy practices help to achieve the sustainable development goals", available at: https://circulareconomy.europa.eu/platform/sites/default/files/3228_brochure_sdg_-_hch_cmyk_a4_portrait_-_0520-012.pdf (accessed 30 October 2022).

Ferraz, D. and Pyka, A. (2023), "Circular economy, bioeconomy, and sustainable development goals: a systematic literature review", Environmental Science and Pollution Research. https://doi.org/10.1007/s11356-023-29632-0

Ferrero, J.M., Garcia-Sanchez, I.M. and Cuadrado-Ballesteros, B. (2013), "Effect of financial reporting quality on sustainability information disclosure", Corporate Social Responsibility and Environmental Management, Vol. 1, pp. 45-64. https://doi.org/10.1002/csr.1330

Gao, J.Q., Li, D., Qiao, G.H., Jia, Q.R., Li, S.R. and Gao, H.L. (2024), "Circular economy strategies in supply chains, enhancing resource efficiency and sustainable development goals", Environmental Science and Pollution Research, Vol. 6, pp. 8751-8767. https://doi.org/10.1007/s11356-023-31551-z

Garcia-Saravia Ortiz-de-Montellano, C., Samani, P. and van der Meer, Y. (2023), "How can the circular economy support the advancement of the Sustainable Development Goals (SDGs)? a comprehensive analysis", Sustainable Production and Consumption, pp. 352-362. https://doi.org/10.1016/j.spc.2023.07.003

Geissdoerfer, M., Savaget, P., Bocken, N.M.P. and Hultink, E.J. (2017), "The circular economy – a new sustainability paradigm?", Journal of Cleaner Production, pp. 757-768. https://doi.org/10.1016/j.jclepro.2016.12.048

Geng, Y. and Doberstein, B. (2008), "Developing the circular economy in China: challenges and opportunities for achieving 'leapfrog development'", International Journal of Sustainable Development & World Ecology, Vol. 3, pp. 231-239. https://doi.org/10.3843/susdev.15.3:6

Genovese, A., Acquaye, A.A., Figueroa, A. and Koh, S.C.L. (2017), "Sustainable supply chain management and the transition towards a circular economy: evidence and some applications", Omega, pp. 344-357. https://doi.org/10.1016/j.omega.2015.05.015

Govindan, K. (2023), "How digitalization transforms the traditional circular economy to a smart circular economy for achieving SDGs and net zero", Transportation Research Part E: Logistics and Transportation Review, 103147. https://doi.org/10.1016/j.tre.2023.103147

Haas, W., Krausmann, F., Wiedenhofer, D. and Heinz, M. (2015), "How circular is the global economy?: an assessment of material flows, waste production, and recycling in the European Union and the world in 2005", Journal of Industrial Ecology, Vol. 5, pp. 765-777. https://doi.org/10.1111/jiec.12244

Hernandez, R.R., Jordaan, S.M., Kaldunski, B. and Kumar, N. (2020), "Aligning climate change and sustainable development goals with an innovation systems roadmap for renewable power", Frontiers in Sustainability. https://doi.org/10.3389/frsus.2020.583090

Hetherington, J., Loch, A., Juliano, P. and Umberger, W. (2024), "Barriers to circular economy adoption are diverse and some are business-model specific: evidence from the Australian cheese manufacturing sector", Journal of Cleaner Production. https://doi.org/10.1016/j.jclepro.2024.143879

Hina, M., Chauhan, C., Kaur, P., Kraus, S. and Dhir, A. (2022), "Drivers and barriers of circular economy business models: where we are now, and where we are heading", Journal of Cleaner Production, 130049. https://doi.org/10.1016/j.jclepro.2021.130049

Hoosain, M.S., Paul, B.S., Doorsamy, W. and Ramakrishna, S. (2023), "The influence of circular economy and 4IR technologies on the climate–water–energy–food nexus and the SDGs", Water, Vol. 4, pp. 787. https://doi.org/10.3390/w15040787

Ibn-Mohammed, T., Mustapha, K.B., Godsell, J., Adamu, Z., Babatunde, K.A., Akintade, D.D., Acquaye, A., Fujii, H., Ndiaye, M.M., Yamoah, F.A. and Koh, S.C.L. (2021), "A critical analysis of the impacts of COVID-19 on the global economy and ecosystems and opportunities for circular economy strategies", Resources, Conservation and Recycling, 105169. https://doi.org/10.1016/j.resconrec.2020.105169

Ingemarsdotter, E., Jamsin, E. and Balkenende, R. (2020), "Opportunities and challenges in IoT-enabled circular business model implementation – a case study", Resources, Conservation and Recycling, 105047. https://doi.org/10.1016/j.resconrec.2020.105047

Kurniawan, I. and Fernando, Y. (2023), "Circular economy supply chain for sustainable development goals (SDGS): a review and future opportunities", International Journal of Industrial Management, Vol. 1, pp. 32-39. https://doi.org/10.15282/ijim.17.1.2023.9211

Jabbour, A.B.L. de Sousa, Jabbour, C.J.C., Godinho Filho, M. and Roubaud, D. (2018), "Industry 4.0 and the circular economy: a proposed research agenda and original roadmap for sustainable operations", Annals of Operations Research, Vol. 1-2, pp. 273-286. https://doi.org/10.1007/s10479-018-2772-8

Jabbour, A.B., Rojas Luiz, J.V., Rojas Luiz, O., Jabbour, C.J.C., Ndubisi, N.O., Caldeira de Oliveira, J.H. and Junior, F.H. (2019), "Circular economy business models and operations management", Journal of Cleaner Production, pp. 1525-1539. https://doi.org/10.1016/j.jclepro.2019.06.349

Jonsdottir, G.E., Sigurjonsson, T.O., Alavi, A.R. and Mitchell, J. (2021), "Applying responsible ownership to advance SDGs and the ESG framework, resulting in the issuance of green bonds", Sustainability, Vol. 13, pp. 7331. https://doi.org/10.3390/su13137331

Jørgensen, S. and Tynes, L.J. (2018), "The circular rather than the linear economy", in Springer International Publishing, Cham, pp. 235-243. https://doi.org/10.1007/978-3-319-91971-3_8

Kandpal, V., Jaswal, A., Santibanez Gonzalez, E.D.R. and Agarwal, N. (2024), "Sustainable energy transition, circular economy, and ESG practices", in Circular Economy and Sustainability, Springer Nature Switzerland, Cham, pp. 1-51. http://dx.doi.org/10.1007/978-3-031-52943-6_1

Kerin, M. and Pham, D.T. (2019), "A review of emerging industry 4.0 technologies in remanufacturing", Journal of Cleaner Production, 117805. https://doi.org/10.1016/j.jclepro.2019.117805

Khan, I.S., Ahmad, M.O. and Majava, J. (2023), "Industry 4.0 innovations and their implications: an evaluation from sustainable development perspective", Journal of Cleaner Production, 137006. https://doi.org/10.1016/j.jclepro.2023.137006

Khan, K., Su, C.W. and Khurshid, A. (2022), "Circular economy: the silver bullet for emissions?", Journal of Cleaner Production, 134819. https://doi.org/10.1016/j.jclepro.2022.134819

Khanna, M., Gusmerotti, N.M. and Frey, M. (2022), "The relevance of the circular economy for climate change: an exploration through the theory of change approach", Sustainability, Vol. 7, pp. 3991. https://doi.org/10.3390/su14073991

Kirchherr, J., Reike, D. and Hekkert, M. (2017), "Conceptualizing the circular economy: an analysis of 114 definitions", Resources, Conservation and Recycling, pp. 221-232. https://doi.org/10.1016/j.resconrec.2017.09.005

Kleineidam, P. and Dörr, J. (2015), "Renewable power generation 2015: the latest world-market status", Renewable Energy Focus, Vol. 5-6, pp. 160-163. https://doi.org/10.1016/j.ref.2015.10.027

Konietzko, J., Bocken, N. and Hultink, E.J. (2020), "Circular ecosystem innovation: an initial set of principles", Journal of Cleaner Production, 119942. https://doi.org/10.1016/j.jclepro.2019.119942

Kraus, S., Breier, M. and Dasí-Rodríguez, S. (2020), "The art of crafting a systematic literature review in entrepreneurship research", International Entrepreneurship and Management Journal, Vol. 3, pp. 1023-1042. https://doi.org/10.1007/s11365-020-00635-4

Kumar, B., Kumar, A., Sassanelli, C. and Kumar, L. (2024), "Exploring the role of finance in driving circular economy and sustainable business practices", Journal of Cleaner Production. https://doi.org/10.1016/j.jclepro.2024.144480

Laurent, A., Owsianiak, M., Dong, Y., Kravchenko, M., Molin, C. and Hauschild, M.Z. (2020), "Assessing the sustainability implications of research projects against the 17 UN sustainable development goals", Procedia CIRP, pp. 148-153. https://doi.org/10.1016/j.procir.2020.01.077

Lewandowski, M. (2016), "Designing the business models for circular economy—towards the conceptual framework", Sustainability, Vol. 1, pp. 43. https://doi.org/10.3390/su8010043

Linder, M. and Williander, M. (2015), "Circular business model innovation: inherent uncertainties", Business Strategy and the Environment, Vol. 2, pp. 182-196. https://doi.org/10.1002/bse.1906

Liu, S., Xing, J., Westervelt, D.M., Liu, S., Ding, D., Fiore, A.M., Kinney, P.L., Zhang, Y., He, M.Z., Zhang, H., Sahu, S.K., Zhang, F., Zhao, B. and Wang, S. (2021), "Role of emission controls in reducing the 2050 climate change penalty for PM2.5 in China", Science of The Total Environment, 144338. https://doi.org/10.1016/j.scitotenv.2020.144338

Mio, C., Panfilo, S. and Blundo, B. (2020), "Sustainable development goals and the strategic role of business: a systematic literature review", Business Strategy and the Environment, Vol. 8, pp. 3220-3245. https://doi.org/10.1002/bse.2568

Mishra, R., Singh, R.K. and Rana, N.P. (2023), "Digital orientation, digital eco-innovation and circular economy in the context of sustainable development goals", Business Strategy and the Environment. https://doi.org/10.1002/bse.3619

Moslehpour, M., Pham, V., Wong, W.-K. and Bilgiçli, İ. (2018), "e-purchase intention of Taiwanese consumers: sustainable mediation of perceived usefulness and perceived ease of use", Sustainability, Vol. 1, pp. 234. https://doi.org/10.3390/su10010234

Nasir, M.A. and Du, M. (2017), "Integration of financial markets in post global financial crises and implications for British financial sector: analysis based on a panel VAR model", Journal of Quantitative Economics, Vol. 2, pp. 363-388. https://doi.org/10.1007/s40953-017-0087-2

Paul, J. and Criado, A.R. (2020), "The art of writing literature review: what do we know and what do we need to know?", International Business Review, Vol. 4, 101717. https://doi.org/10.1016/j.ibusrev.2020.101717

Preston, F. (2012), A Global Redesign? Shaping the Circular Economy, Energy, Environment and Resource Governance, London.

Puma, G., Salles, A. and Bragança, L. (2024), "Nexus between urban circular economies and sustainable development goals: a systematic literature review", Sustainability. https://doi.org/10.3390/su16062500

Rabbi, M. and Amin, M. (2024), "Circular economy and sustainable practices in the food industry: a comprehensive bibliometric analysis", Cleaner and Responsible Consumption. https://doi.org/10.1016/j.clrc.2024.100206

Ranta, V., Aarikka-Stenroos, L. and Mäkinen, S.J. (2018), "Creating value in the circular economy: a structured multiple-case analysis of business models", Journal of Cleaner Production, pp. 988-1000. https://doi.org/10.1016/j.jclepro.2018.08.072

Rataj, O., Kemp, R. and Mordaszewska, K. (2024), "Mainstreaming innovative circular economy solutions—a comparative study between entrepreneurs in developed versus emerging markets and developing economies", Business Strategy and the Environment. https://doi.org/10.1002/bse.3957

Ripanti, E.F. and Tjahjono, B. (2019), "Unveiling the potentials of circular economy values in logistics and supply chain management", The International Journal of Logistics Management, Vol. 3, pp. 723-742. https://doi.org/10.1108/ijlm-04-2018-0109

Rizos, V., Behrens, A., van der Gaast, W., Hofman, E., Ioannou, A., Kafyeke, T., Flamos, A., Rinaldi, R., Papadelis, S., Hirschnitz-Garbers, M. and Topi, C. (2016), "Implementation of circular economy business models by small and medium-sized enterprises (SMEs): barriers and enablers", Sustainability, Vol. 11, pp. 1212. https://doi.org/10.3390/su8111212

Salmenperä, H., Pitkänen, K., Kautto, P. and Saikku, L. (2021), "Critical factors for enhancing the circular economy in waste management", Journal of Cleaner Production, 124339. https://doi.org/10.1016/j.jclepro.2020.124339

Sandoval, V.P., Jaca, C. and Ormazabal, M. (2018), "Towards a consensus on the circular economy", Journal of Cleaner Production, pp. 605-615. https://doi.org/10.1016/j.jclepro.2017.12.224

Sariatli, F. (2017), "Linear economy versus circular economy: a comparative and analyzer study for optimization of economy for sustainability", Visegrad Journal on Bioeconomy and Sustainable Development, Vol. 1, pp. 31-34. https://doi.org/10.1515/vjbsd-2017-0005

Schöggl, J.-P., Stumpf, L. and Baumgartner, R.J. (2020), "The narrative of sustainability and circular economy - a longitudinal review of two decades of research", Resources, Conservation and Recycling, 105073. https://doi.org/10.1016/j.resconrec.2020.105073

Schroeder, P., Anggraeni, K. and Weber, U. (2018), "The relevance of circular economy practices to the sustainable development goals", Journal of Industrial Ecology, Vol. 1, pp. 77-95. https://doi.org/10.1111/jiec.12732

Sharmina, M., Edelenbosch, O.Y., Wilson, C., Freeman, R., Gernaat, D.E.H.J., Gilbert, P., Larkin, A., Littleton, E.W., Traut, M., van Vuuren, D.P., Vaughan, N.E., Wood, F.R. and Le Quéré, C. (2020), "Decarbonising the critical sectors of aviation, shipping, road freight and industry to limit warming to 1.5–2°C", Climate Policy, Vol. 4, pp. 455-474. https://doi.org/10.1080/14693062.2020.1831430

Shulla, K., Voigt, B.-F., Cibian, S., Scandone, G., Martinez, E., Nelkovski, F. and Salehi, P. (2021), "Effects of COVID-19 on the sustainable development goals (SDGs)", Discover Sustainability, Vol. 1. https://doi.org/10.1007/s43621-021-00026-x

Siegel, K.M. and Bastos Lima, M.G. (2020), "When international sustainability frameworks encounter domestic politics: the sustainable development goals and agri-food governance in South America", World Development, 105053. https://doi.org/10.1016/j.worlddev.2020.105053

Strielkowski, W., Civín, L., Tarkhanova, E., Tvaronavičienė, M. and Petrenko, Y. (2021), "Renewable energy in the sustainable development of electrical power sector: a review", Energies, Vol. 24, pp. 8240. https://doi.org/10.3390/en14248240

Strippoli, R., Gallucci, T. and Ingrao, C. (2024), "Circular economy and sustainable development in the tourism sector – an overview of the truly-effective strategies and related benefits", Heliyon, Vol. 10. https://doi.org/10.1016/j.heliyon.2024.e36801

Strozzi, F., Colicchia, C., Creazza, A. and Noè, C. (2017), "Literature review on the 'Smart Factory' concept using bibliometric tools", International Journal of Production Research, Vol. 22, pp. 6572-6591. https://doi.org/10.1080/00207543.2017.1326643

Sulich, A. and Sołoducho-Pelc, L. (2021), "Renewable energy producers' strategies in the Visegrád group countries", Energies, Vol. 11, pp. 3048. https://doi.org/10.3390/en14113048

Sutherland, A.B. and Kouloumpi, I. (2022), "Guest article: more than just SDG 12: how circular economy can bring holistic wellbeing", available at: https://sdg.iisd.org/commentary/guest-articles/more-than-just-sdg-12-how-circular-economy-can-bring-holistic-wellbeing/ (accessed 20 June 2018).

Taibjee, H. and Woodley, L. (2020), "Encouraging sustainable action in a food company: impacting environmentally sustainable dietary and lifestyle behaviours using an in-house sustainability toolkit and challenge", Nutrition Bulletin, Vol. 4, pp. 495-502. https://doi.org/10.1111/nbu.12466

Terra dos Santos, L.C., Frimaio, A., Giannetti, B.F., Agostinho, F., Liu, G. and Almeida, C.M.V.B. (2023), "Integrating environmental, social, and economic dimensions to monitor sustainability in the G20 countries", Sustainability, Vol. 8, pp. 6502. https://doi.org/10.3390/su15086502

Tomar, J.M.S., Ahmed, A., A. Bhat, J., Kaushal, R., Shukla, G. and kumar, R. (2021), "Potential and opportunities of agroforestry practices in combating land degradation", in Agroforestry - Small Landholder's Tool for Climate Change Resiliency and Mitigation, IntechOpen, London. http://dx.doi.org/10.5772/intechopen.97843

UNCTAD (n.d.), "Circular economy", available at: https://unctad.org/topic/trade-and-environment/circular-economy (accessed 15 February 2023).

Valverde, J.-M. and Avilés-Palacios, C. (2021), "Circular economy as a catalyst for progress towards the sustainable development goals: a positive relationship between two self-sufficient variables", Sustainability, Vol. 22, pp. 12652. https://doi.org/10.3390/su132212652

Vann Yaroson, E., Chowdhury, S., Mangla, S.K., Dey, P., Chan, F.T.S. and Roux, M. (2023), "A systematic literature review exploring and linking circular economy and sustainable development goals in the past three decades (1991–2022)", International Journal of Production Research, Vol. 4, pp. 1399-1433. https://doi.org/10.1080/00207543.2023.2270586

Vegter, D., van Hillegersberg, J. and Olthaar, M. (2020), "Supply chains in circular business models: processes and performance objectives", Resources, Conservation and Recycling, 105046. https://doi.org/10.1016/j.resconrec.2020.105046

Wagner, M.M. and Heinzel, T. (2020), "Human perceptions of recycled textiles and circular fashion: a systematic literature review", Sustainability, Vol. 24, pp. 10599. https://doi.org/10.3390/su122410599

Wang, E.A., Hong, C.S., Shavat, S., Kessell, E.R., Sanders, R. and Kushel, M.B. (2013), "Wang et al. respond", American Journal of Public Health, Vol. 6, pp. e6-e7. https://doi.org/10.2105/ajph.2013.301363

Wankhade, N. and Kundu, G.K. (2018), "Supply chain performance management: a structured literature review", International Journal of Value Chain Management, Vol. 3, pp. 209. https://doi.org/10.1504/ijvcm.2018.093885

Yin, C., Zhao, W., Fu, B., Meadows, M.E. and Pereira, P. (2023), "Key axes of global progress towards the sustainable development goals", Journal of Cleaner Production, 135767. https://doi.org/10.1016/j.jclepro.2022.135767

Yosep, Y., Mulkhan, U., Hasanudin, U. and Iryani, D.A. (2024), "Unleashing the sustainable transition of circular economy: a case study of SMEs tapioca industry in Lampung, Indonesia", Circular Economy and Sustainability. https://doi.org/10.1007/s43615-024-00358-6n, 137503. https://doi.org/10.1016/j.jclepro.2023.137503

Zeng, H., Chen, X., Xiao, X. and Zhou, Z. (2017), "Institutional pressures, sustainable supply chain management, and circular economy capability: empirical evidence from Chinese eco-industrial park firms", Journal of Cleaner Production, pp. 54-65. https://doi.org/10.1016/j.jclepro.2016.10.093

Zhang, Z., Zhu, H., Zhou, Z. and Zou, K. (2022), "How does innovation matter for sustainable performance? evidence from small and medium-sized enterprises", Journal of Business Research. https://doi.org/10.1016/j.jbusres.2022.08.034

Zhuang, G.-L., Shih, S.-G. and Wagiri, F. (2023), "Circular economy and sustainable development goals: exploring the potentials of reusable modular components in circular economy business model", Journal of Cleaner Production, 137503. https://doi.org/10.1016/j.jclepro.2023.137503