

Scientia et PRAXIS

Vol.04. No.07. Jan-Jun (2024): 58-80

<https://doi.org/10.55965/setp.4.07.a3>

eISSN: 2954-4041

Circular economy in business, management, and accounting: A bibliometric study of the construct

Economía circular en los negocios, la gestión y la contabilidad: un estudio bibliométrico del constructo

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Keywords: circular economy, business performance, management, accounting, sustainability.

Palabras Clave: economía circular, desempeño empresarial, gestión, contabilidad, sustentabilidad.

Received: Jan-2-2024; **Accepted:** Apr-4-2024

ABSTRACT

Context. Studying and applying the Circular Economy (CE) is becoming a trend and its presence is increasing as a business model that can balance achieving business objectives and preserving the well-being of future generations through the company's positive impact on the environment.

Problem. This study is crucial for understanding the global landscape of CE research, pinpointing influential factors in highly cited works, and guiding future research initiatives. The findings will contribute to shaping the direction of academic endeavors in Circular Economy and supporting informed decision-making for researchers, policymakers, and practitioners invested in sustainable practices. The research aims to investigate the evolution of CE research in key geographic regions, understand the pivotal drivers and performance measures influencing the most cited research articles in this domain, and identify crucial future research directions. "The research problem aims to investigate a central question and its specific dimensions. The primary inquiry is: 'How has the field of Circular Economy (CE) evolved and become more significant, particularly about business models and increasing environmental awareness?' This general question is then broken down into three specific research questions: How has the volume of CE research evolved based on key geographic regions? What types of key CE drivers and performance measures relate to the most cited research articles? What are the most important future research directions in the field of CE research?"

Purpose. The main purpose of this research was to further examine the study methods of the Circular Economy, specifically within the fields of business, management, and accounting. The goal was to highlight the current trends and directions of research related to the CE. This information is intended to guide current and future research on key issues in corporate sustainability.

Methodology. The process used as a method is through a bibliometric review of scientific articles on CE published in the Scopus database, analyzing the period from 2008 to 2023. Co-occurrence maps of circular economy keywords, titles and summaries were created. Representation networks were carried out with the bibliometric analysis software **VOSviewer, version 1.6.8** (Van & Waltman, 2018).

Theoretical and Practical Findings. The main theoretical contribution revealed a significant and steadily accelerating volume of academic interest in the field of CE and its relevance on business

contexts. And, as a practical contribution, it was found that future research should focus not only on quantitative bibliometric analysis but also on the qualitative aspects to fully comprehend the development and direction of this crucial field.

Transdisciplinary and sustainable innovation originality. The proposed research is valuable and innovative because it acknowledges that the discourse on **CE** is not a static field but an evolving conversation. This evolution is shaped by the ongoing interaction of research, business practices, policy-making, and societal needs. Recognizing the dynamic nature of the **CE** conversation, the proposed research aims to make a significant contribution by monitoring and analyzing emerging trends.

The ability to adapt and respond to the ongoing interactions between research, business practices, policies, and societal needs ensures that the findings of this research are relevant and applicable in a constantly changing context. Furthermore, the research goes beyond merely analyzing the evolution of the **CE** conversation; it also seeks to identify the key factors driving it. By highlighting these fundamental drivers, the research can shed light on critical areas that require attention and guide the future development of the **CE**.

Conclusions and limitations. Therefore, the increasing pace of publications and citations signals not only the growth of the field but also the increasing urgency and significance of transitioning towards a **CE** in a world grappling with the dual challenge of economic development and environmental sustainability.

RESUMEN

Contexto. El estudio y la aplicación de la Economía Circular (**EC**) están emergiendo como una tendencia en aumento, consolidándose como un modelo de negocio capaz de establecer un equilibrio entre el logro de objetivos empresariales y la preservación del bienestar de las generaciones futuras, a través del impacto positivo de la empresa en el entorno ambiental.

Problema. Este estudio es crucial para comprender el panorama global de la investigación en Economía Circular (**EC**), identificar factores influyentes en trabajos altamente citados y orientar futuras iniciativas de investigación. Los hallazgos contribuirán a dar forma a la dirección de los esfuerzos académicos en Economía Circular y respaldarán la toma de decisiones informada para

investigadores, formuladores de políticas y profesionales comprometidos con prácticas sostenibles. La investigación tiene como objetivo indagar la evolución de la investigación en **EC** en regiones geográficas clave, entender los impulsores cruciales y las medidas de rendimiento que influyen en los artículos de investigación más citados en este ámbito, e identificar direcciones cruciales para futuras investigaciones. "El problema de investigación tiene como objetivo investigar una pregunta central y sus dimensiones específicas. La investigación principal es: '¿Cómo ha evolucionado y adquirido mayor relevancia el campo de la Economía Circular (**EC**) a lo largo del tiempo, especialmente en relación con los modelos de negocio y el aumento de la conciencia ambiental?' Esta pregunta general se desglosa en tres preguntas de investigación específicas, incluyendo: ¿Cómo ha evolucionado el volumen de la investigación en **EC** en función de regiones geográficas clave? ¿Qué tipos de impulsores y medidas de rendimiento de la **EC** se relacionan con los artículos de investigación más citados? ¿Cuáles son las direcciones de investigación más importantes en el campo de la investigación en **EC**?

Objetivo. El propósito principal de esta investigación fue profundizar en los métodos de estudio de la **EC**, en particular en los campos de negocios, gestión y contabilidad. El objetivo era destacar las tendencias actuales y las direcciones de investigación relacionadas con la **EC**. Esta información tiene la intención de orientar la investigación actual y futura sobre cuestiones clave en sostenibilidad corporativa.

Metodología. El método empleado en este proceso consistió en una revisión bibliométrica de artículos científicos sobre **EC** publicados en la base de datos Scopus, analizando el período comprendido entre 2008 y 2023. Se crearon mapas de co-ocurrencia de palabras clave, títulos y resúmenes relacionados con la economía circular. Se llevaron a cabo redes de representación mediante el software de análisis bibliométrico **VOSviewer version 1.6.8** (Van & Waltman, 2018).

Hallazgos Teóricos y Prácticos. La contribución teórica principal puso de manifiesto un volumen significativo y continuamente creciente de interés académico en el ámbito de la **EC** y su relevancia en contextos empresariales. En términos de contribución práctica, se concluyó que las investigaciones futuras deberían centrarse no solo en el análisis bibliométrico cuantitativo, sino también en los aspectos cualitativos para comprender completamente el desarrollo y la dirección de este campo crucial.

Originalidad desde el punto de vista transdisciplinar y de innovación sostenible. Se reconoció que el discurso sobre la EC no es un campo estático, sino una conversación en evolución, moldeada por la interacción continua entre la investigación, la práctica empresarial, la formulación de políticas y las necesidades de la sociedad.

Conclusiones y limitaciones. Por lo tanto, el creciente ritmo de publicaciones y citas no solo indica el crecimiento del campo, sino también la creciente urgencia y significado de avanzar hacia una EC en un mundo que enfrenta el desafío dual del desarrollo económico y la sostenibilidad ambiental.

1. INTRODUCTION

In the contemporary business landscape, development transcends mere economic impact, significantly influencing the environmental dynamics of a region (Camón & Celma, 2020). With rising environmental consciousness, companies now recognize the weight environmental issues carry, impacting customer choices and industry practices (Tsai & Liao, 2017). Therefore, the topics that are becoming increasingly relevant and important are those related to tools that focus on the environment and society (Soto & Pinzón, 2023). This emerging awareness underscores the urgency to align business objectives with overarching sustainability goals, bridging the gap between business performance (BP) and the Circular Economy (CE).

The CE is envisaged as an innovative business model, fostering a sustainable economy and a thriving society. It incorporates dimensions of sustainable development, including social and economic sustainability (Ghisellini et al., 2016). Structurally, the CE is underpinned by three core elements: value creation, value transfer, and value capture, each embodying tangible, quantifiable economic values, as well as intangible, non-monetary benefits (Ranta et al., 2018; Urbinati et al., 2017; Secundo et al., 2017; Wamba et al., 2015).

The evolution of CE research, initially rooted in environmental sustainability and industrial ecology, is noteworthy (Merli et al., 2018). Currently, its applications span diverse spheres, including social, economic, political, cultural, academic, and institutional domains (Da Costa,

2022). This broad application spectrum signals a paradigm shift from traditional linear production-consumption models to more sustainable, circular frameworks (Zeng et al., 2022).

This paper contributes to the growing body of CE literature by conducting a comprehensive bibliometric study. It critically examines the intersection of CE with business, management, and accounting, areas pivotal for the practical implementation of sustainable practices. By exploring the transdisciplinary nature and sustainable innovation in these fields, this study seeks to illuminate the pathways through which CE principles can be effectively integrated into mainstream business practices.

The research question guiding this study is: How has the concept of the Circular Economy been integrated into the fields of business, management, and accounting, and what are the implications for sustainable innovation? This study aims to unravel the intricate relationship between CE and these domains, highlighting not only the current state of research but also identifying potential areas for future investigation and innovation. In doing so, this study contributes to the broader understanding of CE, underscoring its significance as a driver for sustainable business practices and policy implications.

2. CONTEXT DESCRIPTION

The scale of the environmental challenge facing the world mandates that all sectors, including businesses within supply chains of major multinationals, the multinationals themselves, and small to medium-sized enterprises, contribute to transformative change. The United Nations Environment Programme (2021) asserts that savvy businesses seize this transformation as an opportunity, while others risk lagging behind.

The World Economic Forum's 2020 Global Risks Report (WEF, 2020) identifies environmental risks as the primary threat to economic growth and market prosperity, a stark contrast to its 2010 assessment where environmental risks were not even a point of discussion.

This reveals a clear acknowledgment of the direct linkage between commercial risks and ecological crises. Likewise, it is highlighted that the strong link between open innovation and eco-innovation activities allows companies to substantially increase their social responsibility (Pinzón & Maldonado, 2023). The United Nations Environment Programme (UNEP, 2021) emphasizes the need for a significant transformation of social and economic systems to avert the worst of

anticipated ecological damage. Without transforming how energy, food, and resources are produced and consumed, profound environmental impacts, particularly on populations living in poverty, are inevitable.

The World Trade Organization, through its Trade and Environmental Sustainability Structured Discussions (WTD, 2021), aims to identify and compile best practices and explore opportunities for voluntary actions and partnerships. These initiatives are geared towards ensuring that trade and trade policies support and contribute to: (i) achieving a more resource-efficient circular economy; (ii) promoting sustainable supply chains and addressing the challenges and opportunities from sustainability standards and related measures, especially for developing members; and (iii) promoting and facilitating access to environmental goods and services, including fostering the global adoption of low-emission, climate-friendly technologies.

The **CE** is attributed with the capacity to prevent, reduce, and negate the loss and destruction of value, for example, through lower emissions of atmospheric pollutants, reduced biodiversity loss, and habitat degradation associated with natural resource extraction (Ellen MacArthur Foundation, 2013). Due to these attributes, **CE** practices are strongly linked to the following United Nations Sustainable Development Goals (**SDGs**) (United Nations, 2015):

SDG 6: Clean Water and Sanitation

SDG 7: Affordable and Clean Energy

SDG 12: Responsible Consumption and Production

SDG 15: Life on Land

Considering the robust relationship between these **SDGs** and the role of businesses in the economy and development, this research is centered on the productive sector of Aguascalientes. It investigates the sector's influence on reducing structural waste through enhanced resource management, focusing on the circular economy.

3. LITERATURE REVIEW

This section develops the conceptualization of **CE** in the business context, commencing with the identification of definitions in an initial phase and subsequently delineating the context within business models.

3.1 Circular Economy in businesses

A widely used definition in **CE** research is the one proposed by the Ellen MacArthur Foundation (**EMF**), which defines **CE** as “an industrial economy that is restorative or regenerative by intention and design” (EMF, 2013, p.14). This definition focuses on the notion of restorative and regenerative performance and incorporates both economic and environmental aspects. The **CE** is implemented through the use of cyclic material flows, renewable energy sources, and cascading energy flows, as indicated by Korhonen et al. (2018). Therefore, a circular business model is the simplified representation of a complex organizational system and relationships aimed at *"reducing, narrowing, and closing resource cycles"* (Geissdoerfer et al., 2018).

In this regard, producers could benefit from the reduction of raw material costs. Consequently, products are returned to the manufacturer at the end of their lifecycle, enabling the recovery of secondary raw materials while simultaneously fostering enduring relationships with customers. This, in turn, engenders a new value proposition within this system, impacting both the creation and delivery of value and the capture of value (De Angelis et. al., 2018). In the context of value creation, fundamental approaches include crafting experiences, optimizing resource usage, updating products, intervening across the product lifecycle, and managing waste (Jabbour, 2019).

3.2. Circular Economy

In the realm of the circular economy, value creation encompasses enterprises dedicated to formulating products and services that not only cover all related expenses but are also crafted in adherence to eco-design principles, thereby addressing long-term sustainability concerns (Geissdoerfer et al., 2018).

In the context of business and industry, Circular Economy (**CE**) is assessed based on dimensions related to resource management (reduce, reuse, and recycle), efficient management of energy, water, and materials, environmental impact in terms of emissions and generated waste, and

indicators of transition towards the Circular Economy (Nuñez et. al., 2018). Furthermore, **CE** can be measured through elements that align with various aspects of the process of implementing **CE** practices, such as internal processes and operations, organizational changes and strategies, incentives for adopting the **CE**, and barriers to **CE** adoption (Klein et al., 2022).

Therefore, the primary objective of a **CE** is to attain sustainable levels of consumption and production by implementing cleaner production methods and effectively managing the life cycle of products. This is done with the ultimate goal of fostering a balance between economic development and environmental protection (Lorek & Spangenberg, 2014; Geissdoerfer et al., 2017).

3.3. Business Performance

Business performance (**BP**) is closely connected to attaining the set organizational objectives (Morales, 2020; Melgarejo & Simon 2019). Consequently, it frequently serves as a means to draw in fresh investors (Shad & Lai, 2019) and is associated with factors concentrating on the corporation's viability, such as its mission, vision, and objectives (Gálvez & García, 2011).

There are diverse perspectives on how to approach **BP**, depending on the organization's goals and the industry context in which a company formulates its strategies. **BP** plays a crucial role in determining the trajectory of success or failure for a business (Lucky, 2011). Additionally, according to Al Ansari et al. (2013), **BP** can indicate how effectively a company manages its internal resources and adapts to its external environment, resulting in improved growth and productivity. In this context, performance signifies an ongoing and dynamic process involving key players in the hierarchy: managers, partners, and employees, reflecting the outcomes of business activities and strategic management processes (Yusuff, 2019).

The assessment of **BP** can be conducted through the application of a balanced scorecard framework, which is segmented into four dimensions: financial, customer, internal business processes, and learning and growth (Cheah & Li, 2018). Within the broader context of business and industry, the convergence of CE, cleaner production, and Industry 4.0 signifies a paradigm shift towards innovative approaches that contribute substantively to sustainable business performance (Gupta et al., 2021). As the theoretical foundation suggests, the success of businesses

is intricately tied to the adoption of circular practices, cleaner production methods, and the incorporation of Industry 4.0 technologies.

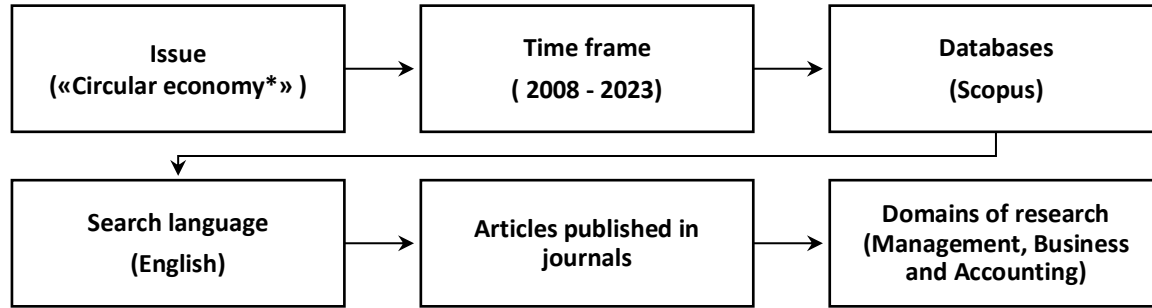
4. METHODOLOGY AND MATERIALS

The research is developed through the application of the scientific method, since it seeks to obtain relevant and reliable information, to understand, verify, correct, or apply knowledge (Tamayo, 2004) by a Bibliometric method, which is the study of the quantitative aspects of the production, dissemination, and use of published information (Moed & Glänzel, 2005). This technique is a form of scientific mapping and is used as a classification and visualization tool that seeks to evaluate and analyze the scientific literature to reveal the structure and dynamics of scientific fields (Donthu et al., 2021). With scientific mapping, relationships between publications are identified based on linkage to articles in bibliographic records, where link strength is measured by the number of links between articles (Zupic & Cater, 2015).

This scientific mapping can be done by co-authorship analysis, co-citation, linking bibliography, and co-word analysis, which are relational techniques to discover clusters of knowledge in a specific field (Donthu et al., 2021; Mukherjee et al., 2022).

Articles published between the years 2008-2023 (both included) in Scopus scientific journals, analyzing a total of 2512 published articles. The construction of the bibliometric analysis representation networks was carried out with the **VOSviewer** bibliometric analysis software (Van Eck & Waltman, 2010). The information used for the search and the selected articles followed the inclusion criteria methodology that Todeschini & Baccini (2016) suggested, these criteria were implemented to prevent the addition of research papers that could alter the effects of the study on the analysis. Therefore, if any article does not meet these criteria, it is discarded for the final corpus of documents (see **Figure 1**).

Figure 1. Study search criteria.



Source: Own elaboration based on Todeschini & Baccini (2016).

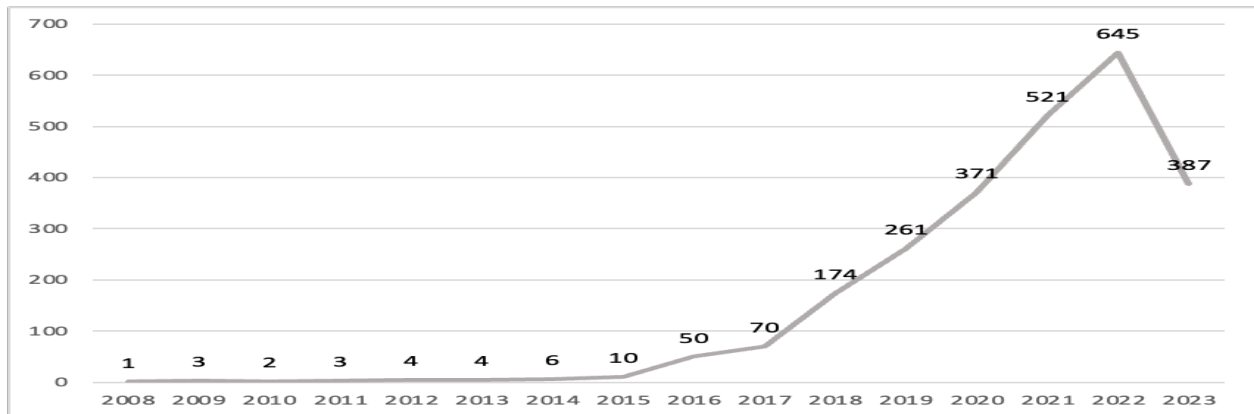
5. RESULTS

The results are presented through two specific approaches: the first highlighting the evolution of Circular Economy research during the corresponding period, and the second, analyzing the top authors cited in this thematic area.

5.1 Evolution of CE Investigations (2008-2023)

Research question 1 focuses on analyzing the evolution in the volume of Circular Economy (CE) investigations over time, spanning the period from 2008 to 2023. As depicted in **Figure 2**, there was a significant evolution in the number of papers published annually, beginning with a single article in 2008 and continuing with a low volume for the subsequent years: 2009 (3 papers), 2010 (2 papers), 2011 (3 papers), 2012 and 2013 (4 papers each), 2014 (6 papers), and 2015 (10 papers). A notable surge in publication volume commenced in 2016, with 50 papers, escalating to 70 in 2017, 174 in 2018, 261 in 2019, 371 in 2021, 521 in 2022, and reaching a peak of 645 papers in 2023. As of the current year, 2023, a total of 387 papers have been published.

Figure 2. Distribution of Scopus articles from 2008 to 2023.



Source: Own elaboration based on the results in Scopus 2023.

The inaugural article, published in 2008 by Mont (2008), titled “*Innovative approaches to optimizing design and use of durable consumer goods,*” aimed to understand the complexities of product durability from environmental and economic perspectives. This article has since accrued 102 citations. Contrastingly, the most recent paper from 2023, “*Assessing the role of cogeneration and waste-to-energy units in the electricity and district heating markets*” by Allevi et al. (2023), analyzed the operations of a utility using waste-to-energy and cogeneration plants.

5.2 Analysis of Top-Cited Authors in CE Research

The second research question involved an analysis of the 10 most-cited authors in CE research, along with their performance drivers and CE measurements (**Table 1**). This analysis emphasized variables related to CE, such as economic systems, interdisciplinary exploration, supply chain management, drivers, barriers, and sustainability practices.

Table 1. The top 10 most cited authors.

Top 10	Quotes	Authors	Year	Paper title	Source
1	2572	Ghisellini et al.	2016	A review on circular economy: The expected transition to a balanced interplay of environmental and economic systems	Journal of Cleaner Production, 114, pp. 11–32

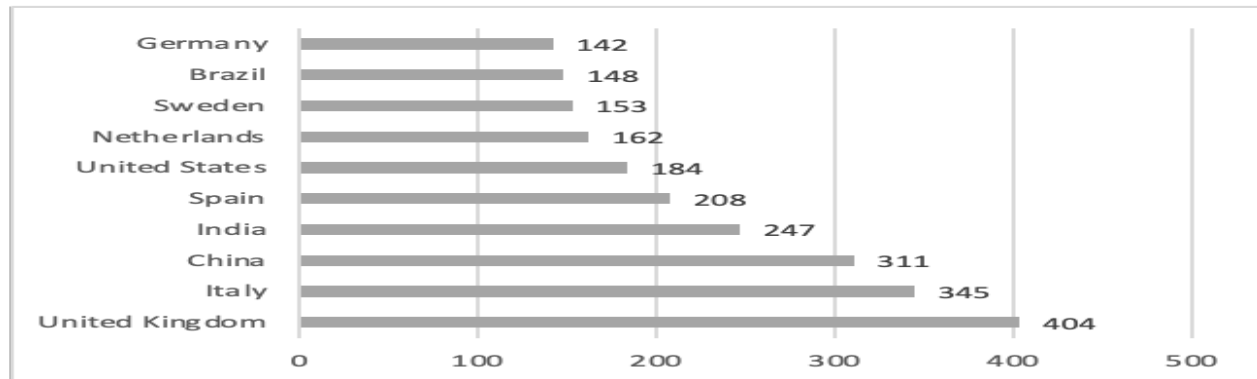
2	1277	Murray et al.	2017	The Circular Economy: An Interdisciplinary Exploration of the Concept and Application in a Global Context	Journal of Business Ethics, 140(3), pp. 369–380
3	770	Su et al.	2013	A review of the circular economy in China: Moving from rhetoric to implementation	Journal of Cleaner Production, 42, pp. 215–227
4	714	Genovese et al.	2017	Sustainable supply chain management and the transition towards a circular economy: Evidence and some applications	Omega (United Kingdom), 66, pp. 344–357
5	605	Korhone n et al.	2018	Circular economy as an essentially contested concept	Journal of Cleaner Production, 175, pp. 544–552
6	587	Govindan et al.	2018	A systematic review on drivers, barriers, and practices towards circular economy: a supply chain perspective	International Journal of Production Research, 56(1-2), pp. 278–311
7	532	Geng et al.	2012	Towards a national circular economy indicator system in China: An evaluation and critical analysis	Journal of Cleaner Production, 23(1), pp. 216–224
8	500	D'Amato et al.	2017	Green, circular, bio economy: A comparative analysis of sustainability avenues	Journal of Cleaner Production, 168, pp. 716–734
9	492	Geissdoe rfer et al.	2018	Business models and supply chains for the circular economy	Journal of Cleaner Production, 190, pp. 712–721
10	489	Prieto-Sandoval et al.	2018	Towards a consensus on the circular economy	Journal of Cleaner Production, 179, pp. 605–615

Source: Own elaboration based on the results in Scopus 2023.

In **Table 1**, the range of years for the top 10 most-cited papers spanned from 2013 to 2018. The paper by Ghisellini et al. (2016), titled “*A review on circular economy: The expected transition to a balanced interplay of environmental and economic systems,*” held the highest citation volume with 2572 citations. The tenth position was occupied by “*Green circular bio-economy: A comparative analysis of sustainability avenues,*” amassing 500 citations. Notably, the most recent articles with high citation volumes, published in 2018, were by Govindan and Hasanagic (2018) and Geng et al. (2018), with 587 and 532, citations respectively.

Regarding the volume of papers published by the geographic region from 2008 to 2023, we attained **Figure 3**.

Figure 3. Top 10 countries with CE papers in Scopus from 2008 to 2023.



Source: Own elaboration based on the results in Scopus 2023.

The United Kingdom led with a total of 404 papers, followed by Italy with 345 and China with 311. Other significant contributors included India (247 papers), Spain (208), the United States (184), the Netherlands (162), Sweden (153), Brazil (148), and Germany (142).

For the third research question concerning the most relevant lines of research based on the volume of links between keywords related to **CE**, a co-occurrence map of the keywords was constructed. The most relevant keywords, as shown in **Figure 4**. It formed five clusters with valid keywords. Cluster 1, containing the keyword “*Circular Economy*”, comprises a total of 999 links (network in red). Cluster 2, focusing on “*Recycling*”, comprised 662 links (network in green). Cluster 3, highlighting “*Economics*”, included 632 links (purple network). Other clusters and keywords also emerged, signifying the interconnectivity within the **CE** research domain.

6. DISCUSSION

The discussion section of the research is articulated by emphasizing two key perspectives. The first approach aims to underscore the theoretical implications that were attained, while the second is dedicated to exploring the practical implications within the research context.

6.1. Theoretical implications

The study shows a significant and steady increase in academic interest in CE, particularly in the fields of business management and accounting. This upward trend indicates a paradigm shift toward integrating sustainability in these disciplines, however, a possible area of study hasn't been explored enough, while Angelis (2018) posits that the CE can enhance relationships between producers and consumers through the integration of consumers in the product lifecycle, leading to a novel value proposition, according to the data collected in this study, this argument warrants scrutiny due to a notable gap in empirical evidence.

Specifically, there is a scarcity of research focusing on the consumer as the primary unit of analysis in the CE context. This oversight is significant as it leaves assumptions about CE's impact on consumer-producer relationships largely speculative. Understanding consumer behavior and attitudes is crucial for the successful implementation of CE principles. Therefore, the lack of consumer-centric studies may lead to misguided strategies and overlook vital insights.

Future research should, thus, prioritize examining consumer perspectives within CE to fully comprehend and leverage its potential in reshaping producer-consumer dynamics.

The bibliometric analysis reveals a growing recognition of CE's role in fostering sustainable business models. It bridges environmental sustainability and economic feasibility, reflecting the transdisciplinary nature of CE. The ongoing discourse in CE, shaped by research, practice, policy-making, and societal needs, suggests the potential formation of new knowledge domains. This likely leads to groundbreaking theories that encompass multiple disciplines, driving sustainable innovation across sectors.

6.2. Practical implications

The accelerating pace of publications and citations in **CE** research underscores the urgency and importance of transitioning towards sustainable economic models in light of global environmental and economic challenges. While the study offers valuable quantitative insights, there remains a need for more qualitative analyses to fully grasp the development and direction of **CE**. Future research might focus more on case studies and qualitative investigations to complement the existing bibliometric data. Also, we propose a frame for researchers (see **Table 2**) to consider future research lines that, according to the data analyzed in this research can be helpful to innovate in the **CE** realm.

Table 2. Future research topics.

1.Sustainable Supply Chain Management in CE	2.Impact of AI on CE Efficiency
3.Consumer Behavior Models for CE Adoption	4. CE Applications in the Healthcare Industry
5.Circular Business Model Innovation	6.Effectiveness of Global CE Policies
7.Advanced Materials for CE	8. CE in Urban Planning and Smart Cities
9.Circular Economy and Green Energy	10.Social Entrepreneurship in CE

Source: Own.

The transdisciplinary nature of **CE** suggests the emergence of new theoretical frameworks that could revolutionize our understanding of sustainability in business and beyond. Future researchers might explore these possibilities to further contribute to the body of knowledge in sustainable innovation.

Bibliometric research in the field of **CE** is currently providing invaluable insights for businesses, governments, and society. As companies are continuously analyzing emerging trends and challenges in **CE**, this research guides them in making data-driven decisions. These insights are crucial for identifying sustainable growth opportunities and aligning operations with **CE** principles, leading to cost savings and enhanced corporate responsibility. Simultaneously, governments are using these findings to inform policy development and foster public-private partnerships, ensuring that policies are grounded in evidence-based practices.

At the societal level, this ongoing research plays a pivotal role in raising public awareness about **CE**. It educates consumers and citizens about sustainable consumption and production

patterns, contributing to a cultural shift towards sustainability. This aligns with the insights from the Ellen MacArthur Foundation (EMF, 2012), which emphasizes the importance of prioritizing sectors where CE can have the greatest impact. The foundation's focus on the global nature of CE resonates with the international trends and successful case studies highlighted in bibliometric analyses.

The necessity of this type of research is evident in its role in driving evidence-based progress in CE. It's not just tracking the evolution of CE concepts but also ensuring that comprehensive, robust data inform the strategies for advancing CE. By providing a thorough overview of the current state of research, this continuous study assists in making informed decisions, developing effective policies, and prioritizing sectors for maximum impact, thereby contributing significantly to the global movement towards sustainability and circularity.

7. CONCLUSION

After reviewing the foregoing, we proceed to introduce the conclusions of the research, emphasizing the response to the research hypotheses posed at the outset. The main findings are showcased along with the final scope of the investigation.

7.1. How to answer the question explaining the hypotheses.

In addressing the research question and hypotheses of this study, the extensive bibliometric analysis conducted reveals a dynamic and evolving academic interest in the Circular Economy (CE), especially evident from 2016 onwards. This trend, reflected in the growing volume of publications and citations, confirms the hypothesis that CE is increasingly recognized as crucial in academic and business contexts. The seminal works of Ghisellini et al. (2016), Govindan & Hasanagic (2018), and Geng et al. (2018) have become cornerstones in the literature, establishing new knowledge in the nexus of environmental and economic sustainability. This aligns with the journal's focus on transdisciplinary and sustainable innovation, highlighting the study's originality and value.

7.2. Research findings.

The findings of this research are multifaceted. The substantial growth in CE publications and their considerable impact through citations underscore the field's theoretical advancement.

Practically, these findings indicate a burgeoning discourse, with implications for environmental and business practices. The gestation period observed for new ideas, particularly between 2013 and 2018, emphasizes the need for ongoing monitoring of emerging literature to grasp its future impact. The geographical distribution analysis, particularly the underrepresentation of Latin American countries apart from Brazil, points towards disparities in global research contributions, suggesting areas for academic expansion and collaboration.

7.3. Research the final scope.

Reflecting on the scope of this research, it is evident that while the field of CE is rapidly maturing, it still presents significant opportunities for further exploration. The limitations in terms of geographical diversity and the relative novelty of the field highlight potential areas for future studies. The thematic clusters identified, such as *Circular Economy*, *Recycling*, *Economics*, *Remanufacturing*, and *Sustainability* call for an interdisciplinary approach to CE, necessitating cross-sectoral cooperation and a more inclusive global academic dialogue. The contrast in regional representation in CE research underscores the importance of bibliometric analysis in identifying gaps and fostering more equitable global contributions. In summary, this study not only maps the current landscape of CE research but also opens avenues for more inclusive and comprehensive future research, vital for the global progression towards a sustainable economy.

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