

Circular Economy Marketing: Mapping Research on Product Longevity, Reuse, Repair, and Responsible Consumption

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Abstract- *The research in the field of the circular economy (CE) has shifted focus from production efficiency and recycling and waste management to market-oriented issues related to consumer engagement, value creation and communication, and circular consumption. A comprehensive bibliometric and science-mapping analysis of circular economy marketing research is conducted in this study to explore the evolution of research, theoretical underpinnings, conceptual structure, co-occurrence network and emerging research fronts. A total of 408 articles from 227 sources were analysed from 2011 to 2026 and were exclusively analysed by using RStudio software and Bibliometrix package. The techniques used were performance analysis, citation analysis, co-citation analysis, bibliographic coupling, keyword co-occurrence analysis, co-authorship analysis, thematic mapping and thematic evolution. The findings show a quick growth of the scholarly output as the growth rate of publications is 31.38% per year and over 85% of the articles have been published after 2021. The intellectual substance is based on the theory of circular economy, on circular business models, on sustainable consumption, on consumer behaviour, on supply-chain management and on remanufacturing. Recent research trends focus on circular product adoption, purchase intention, customer value, green identity, second-hand consumption, circular communication and strategic market transformation. The thematic results show a transition from circularity by production and recycling to circularity from a consumer and market perspective. The study further develops the idea of marketing for circularity, implying marketing is not just a tool to promote environmentally preferable products, but also to enable re-use, re-pair, return, share, re-sale, recovery and ongoing involvement of stakeholders in circular value systems. The results give an integrated knowledge base and directions for future circular economy marketing research.*

Keywords: *Circular Economy, Circular Economy Marketing, Sustainable Marketing, Consumer Behavior, Circular Consumption, Bibliometric Analysis, Science Mapping, Thematic Evolution.*

I. INTRODUCTION

1.1 Background

The current linear economy – one in which resources are extracted, used and discarded – has led to rising levels of resource depletion, waste and environmental strain. In response, a new economic paradigm has developed – the circular economy (CE) – which aims to break the link between economic growth and consumption of material resources by reducing, slowing and closing material and energy cycles (Bocken et al., 2016; Geissdoerfer et al., 2017). CE thus covers not only recycling, but also the following product life stages: longevity, maintenance, reuse, repair, refurbishment, remanufacturing, sharing and material recovery (Kirchherr et al., 2017).

However, circular transformation can't be attained only by production technologies, resource-efficient production, reverse logistic or waste-management. Adopting circular products and business models ultimately demands consumer and organizational customers to accept unfamiliar offerings and actively engage in the re-use, re-pair, share, re-sale, return and re-cycle practices (Camacho-Otero et al., 2018; Shevchenko et al., 2023). For instance, consumer knowledge and perceptions of value and risk can have a great impact on their willingness to buy remanufactured products (Wang & Hazen, 2016). Therefore, the shift from a production-focused circularity towards a market and customer-centric circularity is accompanied by increasing relevance of value communication, trustworthy sustainability claims, circular brandings, customer engagement, and product-service systems. Marketing is, as a result, a key enabler for circular value creation becoming a reality in the market.

1.2 Circular Economy–Marketing Interface

Marketing is responsible for circular systems not just at the buying stage. Firms need to develop strong circular value propositions, let customers know about these value propositions in terms of functionality, cost, environmental and social impact, involve customers during the adoption and use of their product, and assist customers in returning, reusing, repairing, reselling or repurchasing their product. Research shows that the circular value propositions are different from traditional linear propositions, as they rely on other mechanisms to generate value for the customer or other stakeholders (Ranta et al., 2020).

Thus, it is possible to differentiate circular economy marketing from traditional green marketing. Green marketing tends to focus on the environmental attributes of a product and products that are environmentally preferable, while sustainability marketing focuses on social and ecological issues (Peattie & Belz, 2010). Circular economy marketing takes this one step further and fosters further customer involvement after the initial purchase of items within these loops of retaining resources. Marketing communication can therefore not only stimulate buying behaviour, but also sharing, repairing, take-back, reusing, refurbishing and recycling behaviour (Chamberlin & Boks, 2018). Studies with consumers also reveal that perceived value, identity and product congruity affect the acceptance of the circular offer (Confente et al., 2020).

1.3 Problem Statement

Although this interface has become increasingly important, knowledge on the circular economy marketing is scattered among a number of partially interdependent fields, such as sustainable marketing, green marketing, sustainable consumption, circular business models, consumer behavior, sharing and collaborative consumption, product-service systems, eco-labelling, sustainability communication, reverse logistics, remanufacturing, and sustainable branding. Previous reviews have helped to establish the multi-faceted nature of the CE–marketing connection. For example, Rejeb et al. (2022) found four research streams: green marketing, remanufacturing marketing, product-service systems and consumer oriented approaches.

This means that it is no longer correct to claim that there are no bibliometric studies examining the CE–marketing relation. Most recently, Rana et al. (2026) conducted a bibliometric mapping analysis based on papers included in Scopus on CE and marketing research from 2016 to 2025, which revealed three major clusters: circular value creation, sustainable consumer behaviour, and circular supply-chain practices. Their results suggest, however, that this is still an area of research that is theoretically fragmented. The relevant gap therefore relates to a better understanding of how the intellectual foundations, the current research fronts, the marketing oriented themes, the collaboration networks and the thematic trajectories all contribute to the development of circular economy marketing.

1.4 Research Objectives

In this context, the current study aims to offer a multi-dimensional bibliometric and science mapping evaluation of CE marketing. Specifically, it aims at: (RO1) Analyzing the evolution of circular economy marketing research and its key contributors; (RO2) Defining the intellectual, conceptual and social frameworks of the field of marketing research on the circular economy; (RO3) Mapping the evolution of key, emerging and possibly declining research themes; and (RO4) Building a conceptual framework and future research agenda. These aims are collectively directed at a systematic understanding of the development, structure and future course of circular economy marketing scholarship, transcending descriptive publication statistics.

1.5 Research Questions

In an effort to achieve these goals, the following research questions are considered:

RQ1: What is the development of scientific literature pertaining to circular economy marketing?

RQ2: What authors, publications, journals, institutions and countries have been most influential in developing the field?

RQ3: What are the key conceptual and intellectual frameworks that dominate the marketing research on CE?

RQ4: What are the main research themes throughout the years and what themes are coming up, growing or dying down?

RQ5: What are the theoretical, contextual and methodological gaps for future studies on circular economy marketing?

1.6 Contributions of the Study:

This research has three key contributions. First, the descriptive contribution is that it provides an updated and systematic map of the growth of publications, scholarly influence, and collaboration patterns in the field of circular economy marketing. Second, it offers a theoretical contribution, which helps uncover the intellectual roots, conceptual connections, and research fields of circular economy principles and marketing, customer value, sustainable consumption and consumer behavior. Third, it's forward-looking, analyzing thematic evolution and emerging research fronts to spot areas that are less well developed and develop a coherent future research agenda. Thus, the study sees the circular economy marketing as not only a marketing of environmental superior products but as a market-oriented approach to support ongoing stakeholder engagement in circular value creation and resource-retention approaches.

II. CONCEPTUAL BACKGROUND

2.1 Circular Economy

The circular economy (CE) is a change of paradigm from the traditional linear take–make–use–dispose approach which is based on the extraction of resources, their conversion to products, their use, and their disposal. Instead, CE aims to keep the economic and functional utility of products, parts and materials for as long as possible by reducing, slowing and closing resource cycles (Bocken et al., 2016). CE strategies thus refer to a hierarchy of value-retention strategies, ranging from reduce, reuse, repair, refurbish, remanufacture, repurpose and recycle, to regenerative strategies to restore natural systems and lessen reliance on limited resources. Reike et al. (2018) show that circularity is not limited to recycling and Kirchherr et al. (2017) also stress that a systemic change is needed for CE.

In this context, circularity can be thought of as a shift from the disposal mindset to a continued value retention mindset. In such a system, products are designed to be used, maintained, recovered and recirculated in a successive series of loops. Strategies

like reduction, re-use, repair and refurbish are important, as they can retain more embedded value than material re-cycling alone (Reike et al., 2018). CE therefore alters the very idea of product lifecycles, ownership and value creation and the relationships with customers within the firm.

2.2 Marketing and Sustainability

Marketing thought has been gradually shifting from traditional marketing to green marketing, sustainability marketing and more recently circular economy marketing. While conventional marketing has focused on customer needs, exchange, market demand and organisational performance, green marketing added environmental aspects to the product development, positioning, promotion and purchasing process. Later, sustainability marketing expanded this view to also include customer satisfaction, ecological integrity and broad society welfare (Peattie & Belz, 2010).

Circular economy marketing takes this further, as circularity involves more than communicating about an environmental attribute and imploring customers to choose a 'greener' product. Marketing should enable behaviours that keep products and resources in circular flows such as the use, maintenance, repair, sharing, take back, reuse, refurbishment, remanufacturing and recycling. On the other hand, communication strategies are necessary to overcome behavioral barriers linked with circular offerings (Chamberlin & Boks, 2018), and green marketing, remanufacturing marketing, and product-service systems are listed as major intersections between CE and marketing research (Rejeb et al., 2022). Now, the marketing function becomes one no longer only about one-off transactions but rather about long-term involvement in circular systems.

2.3 Thinking in terms of CE Marketing

With these viewpoints in mind, this study theorises circular economy marketing as the strategies, practices and market relationships used by organisations in order to create, communicate, deliver, sustain and recover value and engage consumers and other stakeholders in resource-retaining and regenerative systems. This conceptualization views marketing as a 'mediator' between circular business models and actors whose involvement is necessary when the

model is put into practice. The research on circular value propositions already shows that businesses need to communicate a value proposition that is different from their linear counterparts when transitioning to circular business models (Ranta et al., 2020).

The proposed concept consists of five interwoven dimensions for analytical purposes. Circular offering refers to products, services and business models that are based on durability, re-use, re-pair, share, refurbish, recover. Circular value proposition is the economic, functional, environmental, social and experiential value provided to customers and stakeholders. Circular communication is about credible sharing circular characteristics and sustainability benefits, and fostering awareness and trust. Circular customer behaviour refers to the customers' acceptance, acquisition, use, maintenance, repair, sharing, re-sale, return and recycling behaviours. Last, circular value recovery describes the mechanisms by which products, components, materials, and customer relationships are re-entered into subsequent cycles of value creation.

2.4. The Need for Science Mapping

Since literature is growing interdisciplinary and the concepts, theoretical foundations and terminology in the field of circular economy is rather fragmented, the science-mapping approach appears to be particularly suitable for circular economy marketing. Conventional narrative reviews are useful for detailed analysis but are hard to implement when there are many published papers in a research field that are interrelated. Bibliometric analysis is a systematic tool for measuring and analyzing scientific output, impact, intellectual structure, conceptual relationship, collaborative network, and the development of research themes (Donthu et al., 2021). The science-mapping techniques also enable the visualization of the less easily discernible association between publications, authors, references, and keywords, using software like Bibliometrix and VOSviewer (Aria & Cuccurullo, 2017; van Eck & Waltman, 2010). Science mapping therefore serves as a suitable methodological approach to support the transition from a disjointed knowledge base in CE and marketing to an integrated conceptual development used in this study.

III. RESEARCH METHODOLOGY

3.1 Research Design

This paper uses a bibliometric performance-analysis/science-mapping method to systematically analyze the evolution and knowledge landscape of circular economy marketing research. Bibliometric analysis is apt for a rapidly growing and interdisciplinary literature as it allows large volumes of scientific information to be assessed using repeatable quantitative methods (Donthu et al., 2021). The analysis is divided into two complementary parts – performance analysis and science mapping.

Performance analysis is conducted based on the productivity and impact of the research domain, using indicators concerning the annual scientific output, the impact on citations, authors, journals, institutions and countries. It thus gives a general overview of the growth of the field and most significant contributors. Science mapping, on the other hand, deals with the relationship between bibliographic entities, and shows the underlying structure of a research domain (Zupic & Čater, 2015). In the current study, science mapping includes co-citation analysis, bibliographic coupling, key words co-occurrence analysis, co-authorship analysis, thematic mapping and thematic evolution.

Processing, cleaning, statistical analysis, construction of the network, clustering and visualisation of the data were carried out solely in RStudio, mainly employing the bibliometrix R package (Aria & Cuccurullo, 2017). No VOSviewer, Gephi or other bibliometric visualization software has been used. This single environment workflow was followed to focus on methodological consistency and reproducibility.

3.2 Database Selection

The bibliographic data was only collected from Scopus, which was chosen for being the only bibliographic database that offers structured bibliographic information as it is needed for bibliometric and science-mapping analysis, which included information on authors, affiliations, sources, citations, abstracts, keywords and cited references. A single bibliographic database also eliminates some of the problems that could occur when mixing databases that are differently indexed, use different field tags, distinguish between different types of citations, and/or

format duplicate records in different ways. This bibliographic data was downloaded from Scopus on 9th August 2026. 408vpublications were included in the provided Scopus data, spanning from 2011 to 2026. All records are articles, written in English. There were no subjective restrictions to maintain the interdisciplinary nature of marketing of circular economy, as it is relevant to marketing, management, sustainability, consumer research, production, innovation and supply-chain research. The full bibliographic data and cited references were exported in csv format for further processing using RStudio. The filtering of the data to a uniform format of the Scopus data was particularly relevant for network analyses as it depends on standardized references and metadata for co-citation, bibliographic coupling, and collaboration measures.

3.3 Search Strategy

The search strategy was developed iteratively to balance comprehensiveness with topical relevance. Preliminary searches were evaluated by inspecting a sample of approximately 50 records to determine whether the terminology captured marketing-oriented circular economy research without allowing unrelated engineering or materials-based circularity studies to dominate the dataset. Particular attention was paid to the breadth created by the term *circularity* and to whether important marketing studies were adequately represented.

The final Scopus search was conducted within the title, abstract, and keyword fields (TITLE-ABS-KEY) using the following query:

TITLE-ABS-KEY(("circular econom" OR "circular business model*" OR circularity) AND (marketing OR "marketing strateg*" OR "sustainable marketing" OR "green marketing" OR branding OR advertising OR "marketing communication*" OR "customer engagement"))*

The wildcard symbol (*) enabled retrieval of relevant lexical variations, such as *economy/economies*, *model/models*, *strategy/strategies*, and *communication/communications*. Broader consumer-related expressions were considered during pilot testing; however, highly general terms such as *consumer* or *consumption* were not used independently because they substantially broaden the scope beyond research with an identifiable marketing orientation. Instead, consumer-related studies were retained when they occurred within the CE–marketing search domain.

The search was restricted to English-language articles indexed in Scopus up to the retrieval date. The resulting records constituted the initial bibliographic pool for eligibility assessment.

3.4 Inclusion and Exclusion Criteria

Eligibility criteria were established before the final analysis to improve transparency and reduce subjective post hoc selection.

Table 1. Eligibility criteria for document selection

Criterion	Inclusion	Exclusion
Database	Scopus-indexed publications	Publications not indexed in Scopus
Document type	Journal articles	Editorials, notes, book reviews, corrections, books, and unrelated conference material
Language	English	Non-English publications
Time coverage	Publications indexed up to August 9, 2026	Publications outside the selected search period
Topical relevance	Explicit relationship between CE/circularity and marketing, market, customer, or consumption phenomena	Incidental use of “circular,” “marketing,” or related terminology
Bibliographic information	Records containing sufficient metadata for bibliometric analysis	Records with insufficient identifying metadata
Duplication	Unique bibliographic records	Duplicate records

A central criterion was substantive rather than purely lexical relevance. Thus, a study was not considered relevant merely because “marketing” appeared incidentally—for example, in a description of the manufacturing and marketing of a material. The article had to contribute meaningfully to market, customer, marketing strategy, communication, consumer behavior, value creation, or another phenomenon relevant to the CE–marketing interface.

3.5 Screening Procedure

Figure 1. PRISMA Flow Diagram of Literature Identification and Screening

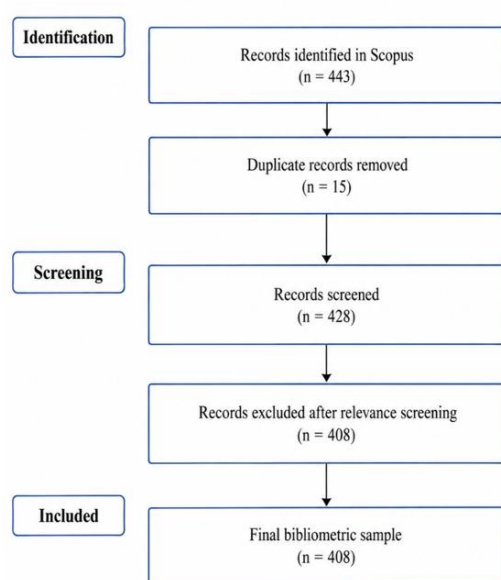


Figure 1. Literature identification and screening flow diagram

Study identification and selection followed a PRISMA-style reporting procedure to ensure transparency in documenting how the analytical sample was constructed. PRISMA 2020 provides an established framework for reporting the identification, screening, exclusion, and final inclusion of records (Page et al., 2021). The Scopus search produced 408 records. Duplicate identification was conducted using unique identifiers, titles, and DOI information within RStudio. No duplicate Scopus EIDs were detected in the supplied dataset; therefore, 408 records proceeded to title and abstract screening. During screening, documents were evaluated against the predefined topical eligibility criteria, with particular attention to

records in which circular-economy or marketing terminology was incidental rather than conceptually relevant.

3.6 Data Cleaning and Preprocessing

Data preprocessing was performed entirely within RStudio before calculating bibliometric indicators or constructing networks. The Scopus CSV file was imported and transformed into a bibliographic data frame compatible with bibliometrix. The package provides dedicated routines for importing Scopus bibliographic records and constructing co-citation, bibliographic-coupling, collaboration, and co-word networks (Aria & Cuccurullo, 2017).

Cleaning procedures addressed variations in author names, institutional affiliations, country names, author keywords, indexed keywords, abbreviations, spelling variants, capitalization, and singular/plural forms. Keyword harmonization was performed through scripted replacement dictionaries in R rather than through an external thesaurus program. For example, variants such as *circular economy* and confirmed abbreviations referring to the same construct were standardized where conceptually justified, while spelling variants such as *consumer behavior* and *consumer behaviour* were consolidated. Terms were merged only when they represented the same underlying construct. Conceptually related but theoretically distinct expressions were retained separately. For example, *sustainability* and *sustainable development* were not automatically combined simply to produce denser networks. Author and affiliation variants were similarly standardized only after contextual verification. These procedures reduced artificial fragmentation while preserving meaningful conceptual distinctions.

3.7 Analytical Techniques

The analytical workflow was implemented through scripted procedures in RStudio using bibliometrix. Bibliometric methods such as citation analysis, co-citation, bibliographic coupling, co-authorship, and co-word analysis capture different but complementary dimensions of a scientific field (Zupic & Čater, 2015).

Table 2. Bibliometric techniques employed in the study

	Analytical technique	Purpose
Performance	Publication analysis	Examine growth and productivity of the field
Influence	Citation analysis	Identify influential publications, authors, and sources
Conceptual	Keyword co-occurrence analysis	Reveal major concepts and thematic clusters
Intellectual	Co-citation analysis	Identify foundational knowledge structures
Research front	Bibliographic coupling	Detect contemporary and emerging research streams
Social	Co-authorship analysis	Examine author, institutional, and country collaboration
Temporal	Thematic mapping and thematic evolution	Trace the development, emergence, and decline of research themes

Source: Researchers own compilation

Performance indicators were generated using bibliographic summary functions, while bibliographic networks were constructed using the network-analysis functions available in bibliometrix. Keyword co-occurrence analysis was used to reveal the conceptual structure of circular economy marketing, whereas co-citation analysis identified the literature's intellectual foundations. Bibliographic coupling was employed to detect contemporary research fronts because publications sharing references are likely to address related current research problems. Co-authorship networks were used to assess scientific collaboration among authors and countries. Finally, thematic maps and thematic evolution analyses were generated in RStudio to examine how research themes developed across different periods. Employing all analytical stages within a single RStudio workflow enhances reproducibility and ensures that data cleaning, network construction, clustering, and visualization are based on the same standardized bibliographic dataset.

IV. RESULTS AND DATA ANALYSIS

4.1 General Bibliometric Profile and Evolution of Scientific Production

The final dataset comprised 408 articles published between 2011 and 2026 across 227 sources. As summarized in Table 3, the field recorded an annual growth rate of 31.38%, indicating a rapidly expanding research domain. The relatively low average document age of 2.95 years further confirms that circular economy marketing is a comparatively recent and dynamically developing area of scholarship. Collectively, the documents cited 54,935 references

and received an average of 27.59 citations per article. The dataset contained 1,431 author keywords and 1,732 Keywords Plus terms, illustrating substantial conceptual diversity.

Table 3. Main characteristics of the bibliometric dataset

Indicator	Result
Timespan	2011–2026
Documents	408
Sources	227
Annual growth rate	31.38%
Average document age	2.95 years
Average citations per document	27.59
References	54,935
Author keywords	1,431
Keywords Plus	1,732
Authors	1,352
Single-authored documents	47
Co-authors per document	3.51
International co-authorship	30.15%

Source: Researchers own compilation

Annual scientific production demonstrates a clear transition from an initially fragmented research area to

a rapidly expanding body of scholarship. Only one article was published annually in 2011, 2012, and 2013, followed by two articles in 2015 and five in 2016. Publication activity subsequently accelerated, reaching 11 articles in 2018, 19 in 2020, 38 in 2021, 45 in 2022, 48 in 2023, 64 in 2024, and 93 in 2025. By August 9, 2026, a further 60 articles had already been indexed. Because 2026 represents an incomplete publication year, its output should not be directly interpreted as a decline relative to 2025.

A particularly notable finding is that 348 of the 408 articles (85.3%) were published between 2021 and

2026, while approximately 65.0% appeared from 2023 onward. This concentration indicates that circular economy marketing has moved beyond its early exploratory phase and entered a period of accelerated scholarly attention. The pattern displayed in Figure 2 therefore supports the view that the interface between marketing and circularity is emerging as a distinct research conversation rather than remaining a peripheral component of the broader circular economy literature.

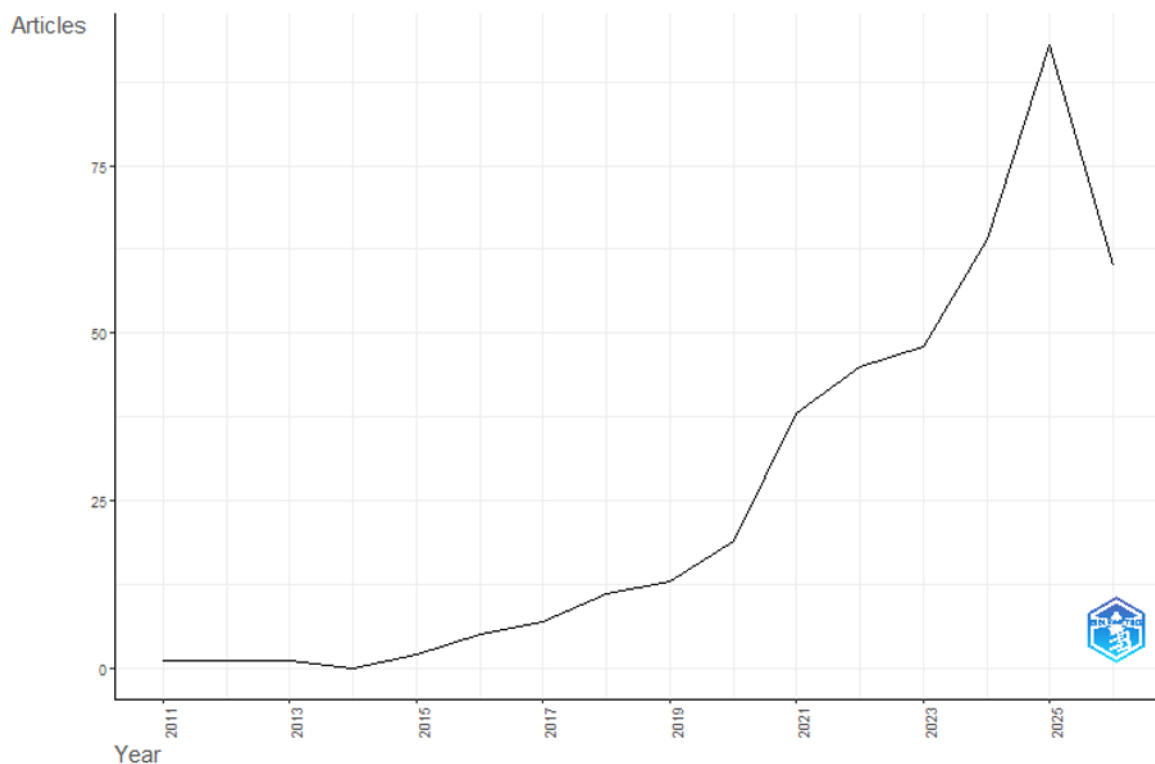


Figure 2. Annual scientific production in circular economy marketing, 2011–2026

Citation patterns should be interpreted together with publication age. The overall mean was 27.59 citations per article, but older publication cohorts naturally accumulated greater citation counts. The single article published in 2011 averaged 193 citations, whereas the five articles published in 2016 averaged 153.20 citations each and the 11 articles published in 2018 averaged 115.45 citations. Among more recent cohorts, articles published in 2020 averaged 77.26 citations and those from 2021 averaged 60.24 citations. The decline in mean citations among the

2024–2026 cohorts primarily reflects their shorter citation windows rather than weaker scholarly influence. Thus, raw citation averages should not be used to conclude that earlier research is intrinsically more influential.

4.2 Source and Author Productivity

Publication activity was distributed across a large number of journals, although a relatively small group of sustainability and environmental-management outlets accounted for a substantial proportion of the

literature. Sustainability was the most productive source, with 45 articles, followed by the *Journal of Cleaner Production* with 26 publications, *Resources, Conservation and Recycling* with 15, and *Circular Economy and Sustainability* with 13. Together, these four sources contributed 99 articles, representing approximately 24.3% of the complete dataset.

Other important publication outlets included *Business Strategy and the Environment* (8 articles), *Technological Forecasting and Social Change* (5), *Business Strategy and Development* (4), *Industrial Marketing Management* (4), *Journal of Business Research* (4), and *Journal of Business and Industrial Marketing* (4). The presence of both sustainability-oriented and mainstream marketing/management journals demonstrates the interdisciplinary character of the field. Nevertheless, the prominence of sustainability-focused outlets indicates that circular economy marketing has developed primarily from the environmental and sustainability literature and is only gradually becoming integrated into the mainstream marketing discipline.

Table 4. Leading publication sources

Rank	Source	Articles
1	Sustainability	45
2	Journal of Cleaner Production	26
3	Resources, Conservation and Recycling	15
4	Circular Economy and Sustainability	13
5	Business Strategy and the Environment	8
6	Technological Forecasting and Social Change	5
7	Business Strategy and Development	4
8	Industrial Marketing Management	4
9	Journal of Business and Industrial Marketing	4
10	Journal of Business Research	4

Source: Researchers own compilation using R studio's bibliomatrix

The authorship structure was considerably more dispersed. The 408 documents involved 1,352 authors, suggesting that the field has attracted a broad research community without being dominated by a small number of highly prolific scholars. Wang X. was the most productive author, with five publications. Alam S. S., Donner M., Fraccascia L., Iraldo F., Jan M. T., Kokash H. A., and Magnier L. each contributed three articles. Most other recurrent authors produced two publications.

This relatively flat productivity distribution suggests that circular economy marketing has not yet developed a highly concentrated core author community. Instead, researchers from multiple disciplinary backgrounds appear to be entering the field. Collaboration is nevertheless substantial: articles contained an average of 3.51 co-authors, only 47 documents were single-authored, and 30.15% of publications involved international co-authorship. These indicators suggest that knowledge production in the field is predominantly collaborative.

4.3 International Collaboration Structure

The country collaboration network further illustrates the internationalization of circular economy marketing research. Aggregating the country-pair frequencies reported by Biblioshiny shows that the United Kingdom occupied the most connected position, with a cumulative international collaboration frequency of 31 across approximately 25 partner countries. China and the Netherlands followed with weighted collaboration frequencies of 29 each, while Italy recorded 27 and both India and the United States recorded 25.

The most frequent bilateral research relationships were India–United Kingdom, Italy–Netherlands, Italy–Spain, and Malaysia–Saudi Arabia, each appearing four times. Other comparatively strong links included Brazil–France, China–Australia, China–United States, Netherlands–Finland, and United States–Finland, each with three collaborations.

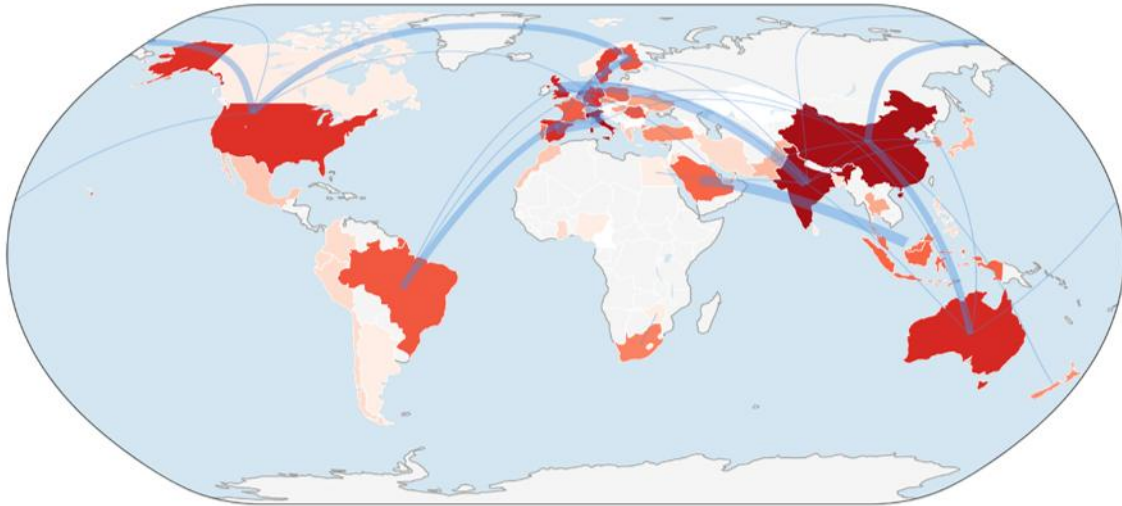


Figure 3. International research collaboration network in circular economy marketing

Source: Researchers own compilation using R studio's bibliomatrix

The collaboration structure indicates that the knowledge base is internationally distributed rather than confined to a single national research system. European countries, particularly the United Kingdom, Italy, the Netherlands, Finland, Spain, Germany, Sweden, and France, occupy important connecting positions. China, India, Australia, Malaysia, Saudi Arabia, and the United States also participate extensively in international partnerships. Nevertheless, the international co-authorship rate of 30.15% suggests considerable scope for deeper cross-country research. This is especially relevant for circular economy marketing because consumer acceptance, infrastructure, environmental regulation,

purchasing power, cultural norms, and circular practices may differ substantially between developed and emerging markets.

4.4 Intellectual Structure of Circular Economy Marketing

Co-citation analysis was used to reveal the intellectual foundations on which the field has developed. The network generated by Biblioshiny produced five major clusters, indicating that circular economy marketing draws from several interconnected knowledge traditions rather than from a single theoretical foundation.

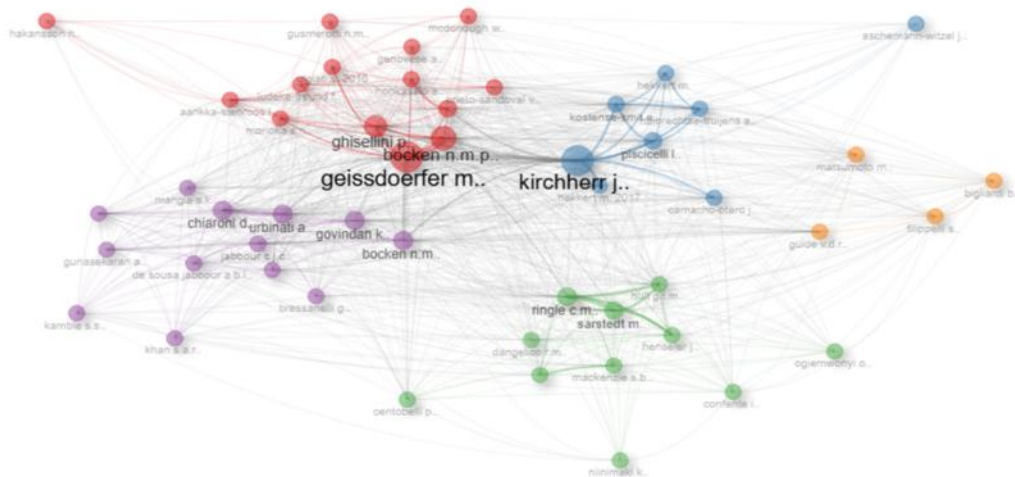


Figure 4. Co-citation network and intellectual structure of circular economy marketing

Cluster 1 can be interpreted as the foundational circular economy and circular business-model stream. Its most central references included *Geissdoerfer*, *Bocken*, *Ghisellini*, *Prieto-Sandoval*, *Korhonen*, *Aarikka-Stenroos*, and *Lüdeke-Freund*. *Geissdoerfer* displayed the highest *PageRank* within this cluster (0.0488) and *substantial betweenness centrality* (79.96), demonstrating the bridging role of foundational CE conceptualizations. This cluster establishes the sustainability, circular business-model, value-creation, and systemic-transition foundations upon which marketing-oriented CE research has subsequently developed. Cluster 2 represents conceptualization of circularity and the consumer side of the circular economy. *Kirchherr* occupied a particularly important position, recording the highest betweenness centrality in the entire co-citation network (127.36). Other important nodes included *Camacho-Otero*, *Piscicelli*, *Hekkert*, and related works concerning circular consumption and consumer participation. The position of this cluster demonstrates that defining CE and understanding consumer involvement constitute an important intellectual bridge between macro-level circularity and market-level implementation. Cluster 3 reflects marketing, consumer behavior, sustainability, and empirical research foundations. Prominent nodes included *Ringle*, *Sarstedt*, *Dangelico*, *Hensele*, *Podsakoff*,

Niinimäki, and *Confente*. The presence of both marketing/sustainability scholars and methodological references suggests that this stream provides much of the empirical and behavioral foundation for investigating consumer intention, sustainable products, green identity, perceived value, and purchasing behavior. Cluster 4 captures circular supply chains, operations, digitalization, and business-model transformation. *Govindan*, *Bocken*, *Jabbour*, *Urbinati*, *Chiaroni*, *Garza-Reyes*, *Mangla*, *Kamble*, and *Bressanelli* were prominent nodes. This cluster connects market-oriented CE research with operational systems required to deliver, return, remanufacture, and recirculate products. Finally, Cluster 5 represents remanufacturing, refurbishment, and product-life-extension research, with *Guide*, *Matsumoto*, *Bigliardi*, and *Filippelli* among the visible nodes. Its presence highlights the importance of consumer acceptance and commercialization of remanufactured and refurbished products as an established component of circular economy marketing.

4.5 Current Research Fronts: Bibliographic Coupling Analysis

While co-citation identifies the historical intellectual foundations of a field, bibliographic coupling provides insight into contemporary research fronts. The

coupling analysis generated three principal clusters comprising 250 highly connected documents. The first and most impactful cluster contained 92 documents and was characterized by the terms *circular economy*, *sustainability*, and *green marketing*. It recorded an impact score of 2.038, the highest among the three clusters. Its most influential documents included Agostini et al. (2021), Pisitsankkhakarn and Vassanadumrongdee (2020), Bigliardi et al. (2022), Wang and Hazen (2016), and Confente et al. (2020). These studies predominantly examine refurbished, remanufactured, and circular products through constructs such as seller reputation, product knowledge, perceived value, green self-identity, and purchase intention. Accordingly, this stream can be interpreted as circular product adoption and consumer value formation.

The second cluster comprised 48 documents and was particularly associated with *purchase intention*. Recent contributions address perceived risk, marketing-mix barriers, inconvenience, fashion rental, second-hand consumption, sustainability marketing education, and changing consumption patterns. Shashi et al. (2024) and Ritch and Siddiqui (2023) were among the leading documents. This stream represents an emerging circular consumption and behavioral-transition research front, with increasing attention to second-hand markets, access-based consumption, rental systems, consumer hesitation, and market education.

The third cluster was the largest, containing 110 documents, and displayed the highest network centrality (0.464). Its dominant labels were *circular economy*, *sustainability*, and *marketing*. Highly

connected studies included Mostaghel et al. (2023), Chamberlin and Boks (2018), Gusmerotti et al. (2019), Lu et al. (2024), and Ozanne et al. (2021). This cluster extends beyond individual purchase decisions toward marketing theory, circular communication, green marketing strategy, organizational transition, public policy, and wider market transformation. It can therefore be labelled strategic marketing for circular transition.

Table 5. Main research fronts identified through bibliographic coupling

Cluster	Documents	Dominant orientation	Selected leading studies
1	92	Circular product adoption and consumer value	Agostini et al.; Wang & Hazen; Confente et al.
2	48	Circular consumption, purchase intention, and behavioral barriers	Shashi et al.; Ritch & Siddiqui
3	110	Strategic marketing and circular-system transformation	Mostaghel et al.; Chamberlin & Boks; Gusmerotti et al.

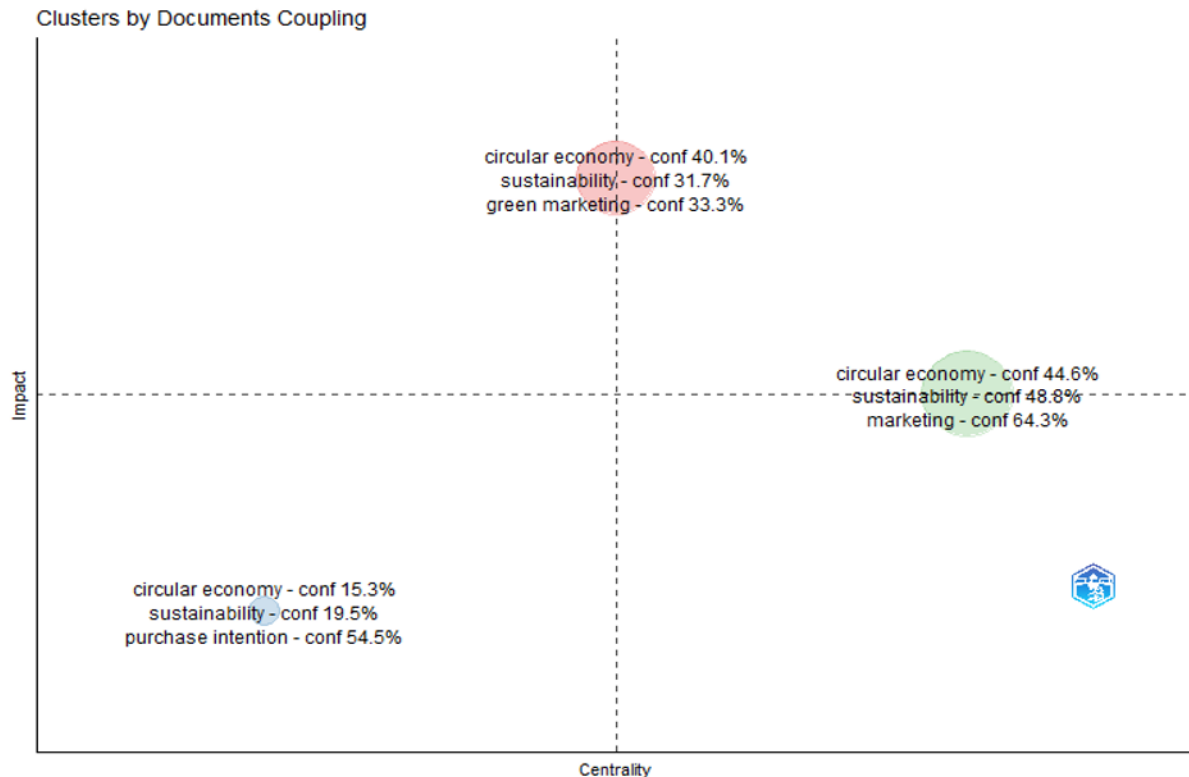


Figure 5. Bibliographic coupling map of contemporary circular economy marketing research

Source: Researchers own compilation using R studio's bibliomatrix

Importantly, Cluster 3 was the largest and most structurally central, whereas Cluster 1 generated the greatest local citation impact. This indicates a field that appears to be shifting from an earlier emphasis on whether consumers will purchase circular products toward a wider question of how marketing can facilitate the transition to circular markets and consumption systems.

4.6 Conceptual Structure and Thematic Positioning

The thematic analysis based on merged keywords identified five principal keyword communities. The largest substantive cluster was centered on circular economy, with a cluster frequency of 1,048 and high centrality (16.16). Its most frequent terms included *circular economy* (286 occurrences), *marketing* (130),

sustainability (99), *consumption behavior* (32), *green marketing* (21), *perception* (17), *innovation* (16), and *sustainable consumption* (16). Its relatively high centrality but moderate density positions it as a basic and transversal theme: it is strongly connected to the overall field but remains sufficiently broad to accommodate several developing research directions. A second cluster centered on recycling included waste management, economics, waste disposal, climate change, municipal solid waste, environmental policy, electronic waste, and stakeholder issues. With a centrality of 14.95 and density of 55.46, this theme occupies an intermediate position and represents an established link between traditional end-of-life circularity and the broader CE research domain.

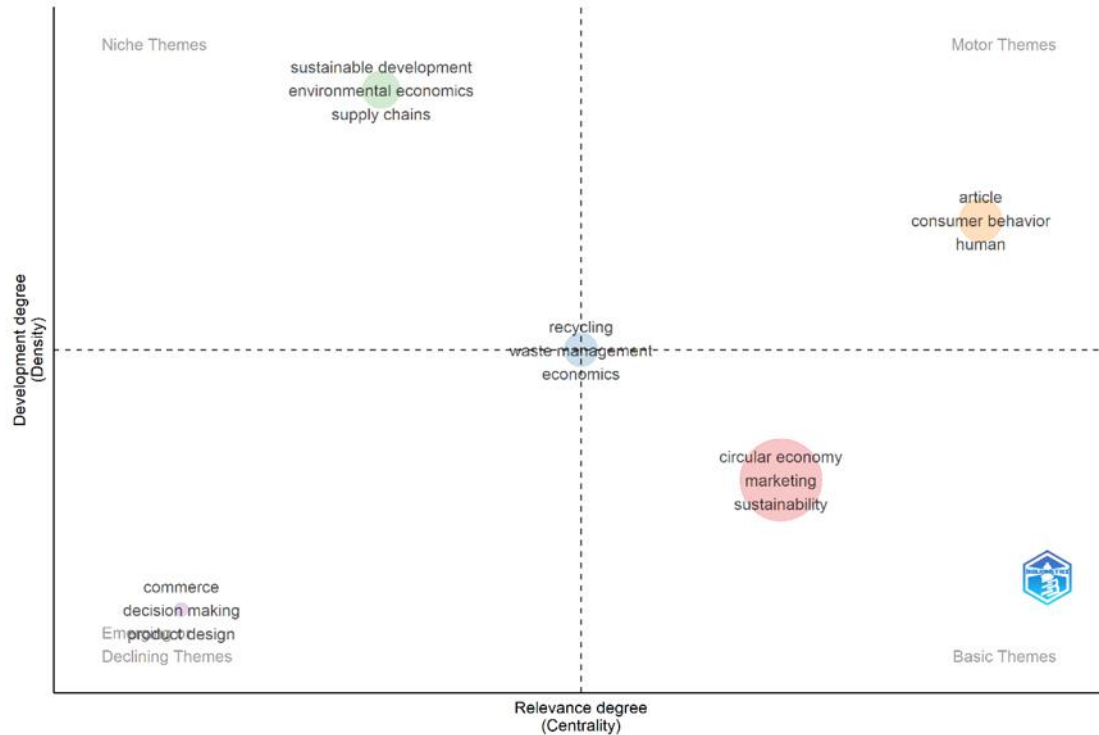


Figure 6. Thematic map of circular economy marketing research

The sustainable development cluster demonstrated comparatively high density (66.17) but somewhat lower centrality (14.21). Its constituent terms included environmental economics, supply chains, environmental impact, business models, life-cycle analysis, environmental protection, and strategic approaches. The high internal development of this cluster combined with its weaker connection to the center of the marketing literature suggests a specialized or niche theme that provides important sustainability and life-cycle foundations but is not yet fully integrated with customer-facing CE research.

A fourth community was automatically labelled *commerce*. Inspection of its substantive terms—*decision making*, *product design*, *carbon footprint*, *economic and social effects*, *economic analysis*, and *circular business model*—suggests that a more meaningful interpretation is market decision-making and circular product/business-model design. With relatively low centrality (9.25) and density (39.64), this cluster falls within the emerging-or-declining area of the thematic map. Given the growing importance of circular business models and product design, its position is more plausibly interpreted as emerging and still weakly consolidated rather than declining.

The fifth cluster received the automatic Biblioshiny label *article*, which is not theoretically meaningful. Examination of its constituent keywords shows that it is substantively characterized by consumer behavior, sales, purchase intention, purchasing, consumer attitudes, packaging, and the textile industry. It is therefore more appropriately interpreted as a consumer purchase and market-behavior theme. This cluster recorded the highest centrality (21.21) and high density (62.07), positioning it as a motor theme. This finding is particularly important because it demonstrates that consumer-oriented marketing research has moved toward the structural center of the circular economy literature.

Taken together, the thematic findings reveal a transition from conventional resource and waste-oriented circularity toward consumer, market, and behavioral dimensions of CE. Recycling and sustainable-development research remain important knowledge foundations, but consumer behavior, purchase intention, green marketing, circular product adoption, value communication, and business-model innovation increasingly connect the technical logic of circularity with actual market participation. The

results therefore reinforce the emerging distinction between merely marketing circular products and the broader role of marketing for circularity, in which marketing facilitates value creation, consumption change, product recovery, and long-term participation in circular systems.

V. DISCUSSION

The findings demonstrate that circular economy marketing has developed from a relatively marginal research area into a rapidly expanding and increasingly interdisciplinary field. The sharp rise in publications after 2021, together with an annual growth rate exceeding 30%, suggests that scholarly attention has shifted from viewing circularity primarily as a production, waste-management, and supply-chain issue toward recognizing the importance of market participation, consumer behavior, and value communication. This development is consistent with broader arguments that circular systems cannot function effectively without changes in consumption practices, customer acceptance, and stakeholder engagement (Camacho-Otero et al., 2018; Kirchherr et al., 2017). The results therefore support the growing conceptual relevance of marketing within CE implementation.

The intellectual structure further indicates that circular economy marketing is built on several complementary knowledge foundations. Foundational CE and circular business-model studies provide the systemic basis of the field, while consumer-oriented, marketing, methodological, supply-chain, and remanufacturing research extends circularity toward market implementation. The central position of scholars such as Geissdoerfer, Kirchherr, Bocken, and related contributors shows that CE conceptualization and business-model innovation remain critical intellectual anchors. At the same time, the emergence of consumer-behavior and marketing-oriented references indicates increasing recognition that circular value must be perceived, accepted, and acted upon by customers. This reinforces the argument that circular business models require not only operational redesign but also compelling value propositions and mechanisms that encourage consumer participation (Ranta et al., 2020).

The bibliographic coupling results reveal an important shift in contemporary research priorities. Earlier and highly influential work concentrated heavily on remanufactured products, perceived value, product knowledge, green self-identity, and purchase intention (Confente et al., 2020; Wang & Hazen, 2016). More recent research fronts broaden this perspective toward second-hand consumption, rental models, behavioral barriers, sustainability education, communication, organizational transformation, and marketing strategies for circular transition. This development suggests that the field is moving from the relatively narrow question of whether consumers will purchase circular products toward the broader question of how markets and marketing systems can enable circularity. The thematic structure supports this interpretation. Consumer behavior, purchase intention, sales, attitudes, and related market variables occupy a highly central and well-developed position, whereas circular economy, sustainability, and green marketing form a broad foundational theme. In contrast, circular product design and business-model decision making appear less consolidated, suggesting opportunities for stronger integration between product innovation and customer-facing marketing strategies. Similarly, recycling and sustainable-development themes remain important but are increasingly complemented by market-oriented and behavioral research.

Collectively, these findings suggest a conceptual distinction between marketing circular products and marketing for circularity. The former focuses primarily on promoting environmentally preferable, refurbished, recycled, or remanufactured offerings. The latter represents a broader strategic orientation in which marketing supports prolonged product use, repair, sharing, return, resale, recovery, and repeated participation in circular value systems. This distinction extends conventional green marketing by positioning customers as active participants in resource-retention processes rather than merely purchasers of environmentally responsible products (Chamberlin & Boks, 2018; Peattie & Belz, 2010). Circular economy marketing can therefore be understood as an emerging integrative field connecting circular business models, customer value, consumption behavior, communication, and value recovery.

VI. CONCLUSION AND FUTURE RESEARCH DIRECTIONS

This study maps the development and knowledge structure of circular economy marketing and shows that the field has expanded rapidly from a predominantly sustainability- and production-oriented perspective toward a stronger focus on consumers, value creation, communication, and market participation. The findings indicate that circular economy marketing is increasingly concerned not only with promoting circular products but also with enabling consumers and other stakeholders to participate in reuse, repair, sharing, refurbishment, resale, return, and recycling activities. This supports the broader concept of marketing for circularity, in which marketing contributes to maintaining products, materials, and customer relationships within circular value systems.

From a practical perspective, firms should integrate marketing more closely with product design, sustainability, operations, and reverse logistics. Circular offerings require clear and credible value propositions that communicate functional, economic, and environmental benefits while reducing consumer concerns regarding quality, risk, and convenience. Firms should also extend marketing beyond the point of sale by using take-back programs, repair services, resale platforms, customer education, loyalty incentives, and transparent sustainability communication to encourage long-term participation in circular practices.

Future research should strengthen the theoretical foundations of circular economy marketing and move beyond the dominant emphasis on purchase intention toward actual circular behaviors. Greater attention is needed to circular branding, pricing, trust, digital product passports, artificial intelligence, product-service systems, and the effectiveness of circular communication strategies. Comparative studies across developed and emerging economies are also required to understand how cultural, institutional, and economic conditions influence circular consumption. Finally, longitudinal, experimental, and cross-country research should examine whether circular marketing capabilities simultaneously improve consumer

engagement, brand performance, resource efficiency, environmental outcomes, and firm competitiveness.

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