

# MAPPING THE INTELLECTUAL STRUCTURE OF CIRCULAR ECONOMIC ENTREPRENEURSHIP: A BIBLIOMETRIC AND SYSTEMATIC REVIEW

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## ABSTRACT

Circular economy entrepreneurship has emerged as an important research stream in the context of the transition toward sustainable development. However, the existing body of knowledge remains fragmented and lacks integrative reviews. This study aims to systematize the intellectual structure and identify the main development trends of circular economy entrepreneurship by combining bibliometric analysis and a systematic review approach. Data were retrieved from the Scopus database, yielding 305 initial records. After screening process, 121 articles were retained for analysis. In the first stage, bibliometric methods were employed to describe publication trends over time, identify leading publication sources, and map the intellectual structure through keyword co-occurrence analysis and network visualization using VOSviewer. In the second stage, a systematic review was conducted on highly influential to synthesize theoretical foundations, methodological approaches, research contexts, and major limitations. This study contributes by clarifying the intellectual architecture of the field, integrating science mapping within depth content analysis, and proposing priority research directions for the next three to five years.

**Keywords:** Circular economy, Circular economy entrepreneurship, bibliometric analysis, systematic review.

## 1. INTRODUCTION

The intersection of entrepreneurship and the circular economy model mark a shift in how value is created, delivered, and captured in the modern economy. Traditional linear economic models are increasingly recognized as unsustainable due to their reliance on finite resources, leading to environmental degradation and social inequality. In contrast, the circular economy has emerged as a transformative framework seeking to decouple economic growth from resource consumption by eliminating waste, maintaining the use of products and materials, and regenerating natural systems [1, 2]. Entrepreneurship in this context is not merely about starting new business ventures; it involves reimagining business models, value chains, and stakeholder relationships to drive innovation toward sustainability. Circular entrepreneurs act as catalysts for systemic change, leveraging opportunities to create economic, environmental, and social value through closed-loop systems, resource efficiency, and collaborative networks [1, 3, 4]. Thus, research on circular economy entrepreneurship is both timely and essential for promoting sustainable development goals and building a restorative, inclusive economy.

Several prominent authors have provided comprehensive and complementary perspectives on this intersection. [5] systematized the relationship between entrepreneurship and the circular economy using business logic classification (causation vs. effectuation) and value-creation mechanisms, thereby illustrating the transition from a linear model to a circular model driven by innovation and resource recombination. [6] further extend the discussion by classifying key actors (transitioning SMEs, “born-circular” firms, and social enterprises), emphasizing the role of the ecosystem while noting that existing research remains largely focused on SMEs in Europe. [7] also provide quantitative evidence from India (using BWM-ISM-Fuzzy MICMAC), identifying critical antecedents such as technological infrastructure and clear economic benefits that drive MSMEs toward green transformation.

While previous systematic reviews have explored the intersection of the circular economy and business, a comprehensive bibliometric mapping specifically dedicated to circular economy entrepreneurship remains scarce. Our study explicitly addresses this gap by utilizing a combined bibliometric and systematic review approach to isolate the distinct entrepreneurial mechanisms. By integrating science mapping with in-depth content analysis of highly cited works, this study provides a more precise and up-to-date intellectual architecture of circular entrepreneurship.

This study aims to systematize and analyze the knowledge landscape of circular entrepreneurship using bibliometric analysis. Specifically, it seeks to: (i) describe the evolution of research trends over time; (ii) clarify the intellectual structure of the field based on co-citation and keyword co-occurrence analyses; (iii) identify the main research themes and the characteristics of each thematic cluster; (iv) determine prominent research gaps from thematic clusters and citation trends; and (v) propose priority research directions for the next 3–5 years, aligned with the context and implementation capacity of authors/research groups in Vietnam. To achieve these objectives, the study answers five research questions (RQs):

RQ1: What is the overall Picture (publications/year, growth rate, influential articles/organizations/countries) of circular entrepreneurship over time?

RQ2: How is the intellectual structure of this topic being formed? (Including co-citation and keyword co-occurrence)

RQ3: What are the main themes in circular economy entrepreneurship?

RQ4: What prominent gaps emerge from thematic clusters and citation trends?

RQ5: What research directions can Vietnamese authors focus on in the next 3-5 years?

## **2. CONCEPT OF CIRCULAR ECONOMY ENTREPRENEURSHIP**

To clearly establish the theoretical boundaries of this study, it is necessary to distinguish circular economy entrepreneurship (CEE) from related concepts such as sustainable entrepreneurship and green entrepreneurship. Sustainable entrepreneurship is broadly conceptualized around the “triple bottom line”, aiming to simultaneously generate economic, social, and ecological value without necessarily altering underlying production systems [8]. Green entrepreneurship (or eco-entrepreneurship) is more narrowly focused on addressing environmental degradation through eco-friendly products, clean technologies, and pollution reduction [7, 9]. However, green entrepreneurs often still operate within a traditional linear economic paradigm, primarily seeking to minimize environmental harm [1, 8].

In contrast, the circular economy (CE) is a regenerative system designed to minimize resource inputs, waste, emissions, and energy leakage by creating closed-loop systems in which products, materials, and resources are reused, repaired, refurbished, remanufactured, and recycled [1, 10]. Entrepreneurship within the circular economy often referred to as circular entrepreneurship involves the discovery and exploitation of business opportunities aligned

with circular economy principles. [8] circular entrepreneurship focuses on creating value not only for firms but also for the broader system, including ecological and social value, which constitutes the core of value creation logic in circular economy models. To generate such value, circular entrepreneurs develop innovative business models that prioritize resource efficiency, waste reduction, and sustainability. These models often involve redesigning products, reconfiguring supply chains, and rethinking customer relationships to minimize environmental impact and enhance resource efficiency [3]. In summary, circular entrepreneurship refers to the creation of innovative business solutions aligned with circular economy principles, emphasizing sustainability, resource efficiency, and value creation for both businesses and broader ecological and social systems. This approach not only supports sustainable development but also provides a competitive advantage in the market.

### **3. METHODOLOGY**

With a qualitative approach, this study adopts a bibliometric review to map the scientific landscape and visualize the development of research on “circular economy entrepreneurship”. Knowledge mapping covers key elements such as authors, keywords, journals, and annual publication trends [11]. By leveraging published bibliographic datasets, bibliometric analysis supports science mapping and performance analysis [2].

The research process consists of three main stages: document selection, bibliometric analysis, and an assessment of publication trends in the field.

In the first stage, data were retrieved from Scopus. Scopus was selected because it is a reputable database that is widely recognized in academic research. To extract data, we used the following query: Title-abs-key ( ( "circular econom\*" or "circular business model\*" or "closed-loop" ) and ( "entrepreneur\*" or "start-up\*" or "startup\*" or "new venture\*" or "eco-entrepreneur\*" or "sustainable entrepreneur\*" ) ) and ( limit-to ( subjarea , "busi" ) or limit-to ( subjarea , "envi" ) or limit-to ( subjarea , "econ" ) or limit-to ( subjarea , "soci" ) ) and ( limit-to ( doctype , "ar" ) )

The dataset excluded conference proceedings, editorial materials, and books. The initial search returned 305 records. A screening process was then conducted to remove manuscripts that were not directly relevant to the topic. The screening was carried out independently by two researchers. The results were compared and rechecked in a second round to ensure the highest possible data quality. After screening, 121 articles were retained for analysis.

In the second stage, we conducted a keyword cooccurrence analysis. VOSviewer was used to generate knowledge maps and construct bibliometric networks [12].

In the final stage, we conducted an in-depth assessment of highly influential publications based on citation counts. Reviewing these studies in terms of context, type of research, key contributions, and limitations provides a basis for identifying research gaps and clarifying future research directions.

The research procedure is summarized in Figure 1 below:

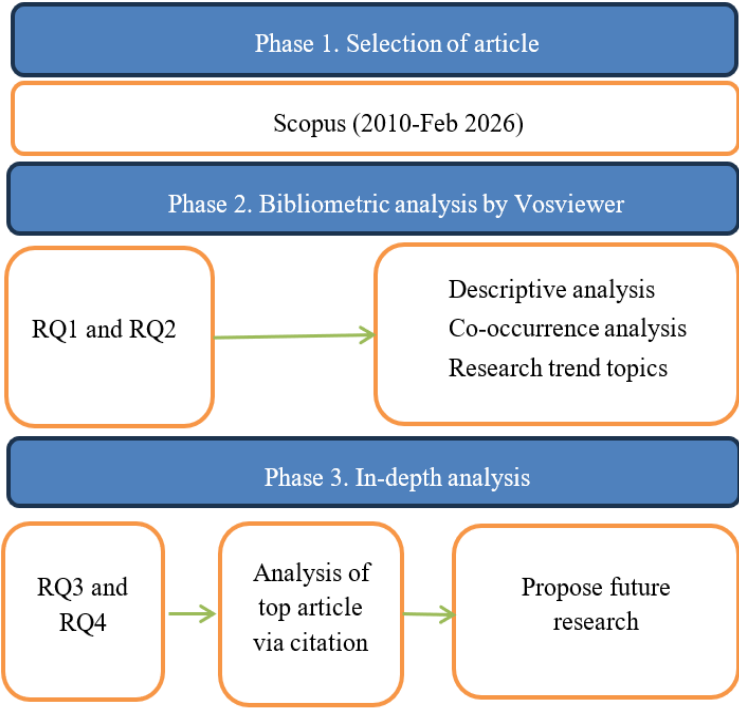


Figure 1. Research procedure

4. RESEARCH RESULTS

4.1. Number of Publications

Figure 2 reflects a strong upward trend in publications on circular economy entrepreneurship (CEE) from 2017-2026. The data indicate that this development can be divided into three distinct phases.

The initial phase 2017-2020 shows a very low and scattered number of publications, ranging from 1-2 articles per year. This suggests that CEE was still in its infancy, mainly focusing on conceptual exploration and theoretical linkages between the circular economy and entrepreneurship.

The early growth phase 2021-2023 records a significant increase, from 7 publications in 2021-15 in 2023. During this period, the topic began to take clearer shape within the academic community.

The boom phase 2024-2025 demonstrates a sharp surge, from 38 publications in 2024-46 in 2025. This growth rate indicates that CEE is transitioning from a niche topic to a more structured research stream, attracting strong attention from scholars in management, environmental economics, and innovation studies.

The recent growth in publications can be attributed to several factors, including:

First, the European Green Deal 2020 set the objective of achieving carbon neutrality by 2050 and introduced the Circular Economy Action Plan 2020 as a strategic pillar [13]. This plan prioritizes sustainable product design, extends producer responsibility, and promotes circular business models. As a result, it has triggered a wave of research on circular business models and the role of entrepreneurs in systemic transformation.

Second, the Horizon Europe program 2021-2027, with a budget of approximately €95.5 billion, strongly funds projects related to the circular economy, green innovation, and

sustainable business models particularly through Cluster 4 and Cluster 5 [14]. The increase in funding is likely directly correlated with the growth in scientific publications.

Third, the World Economic Forum 2022 emphasized that global supply chain disruptions during the pandemic have accelerated the need for localized production models, reuse strategies, and reduced resource dependency [15]. This has further highlighted the role of entrepreneurs in redesigning production and consumption systems.

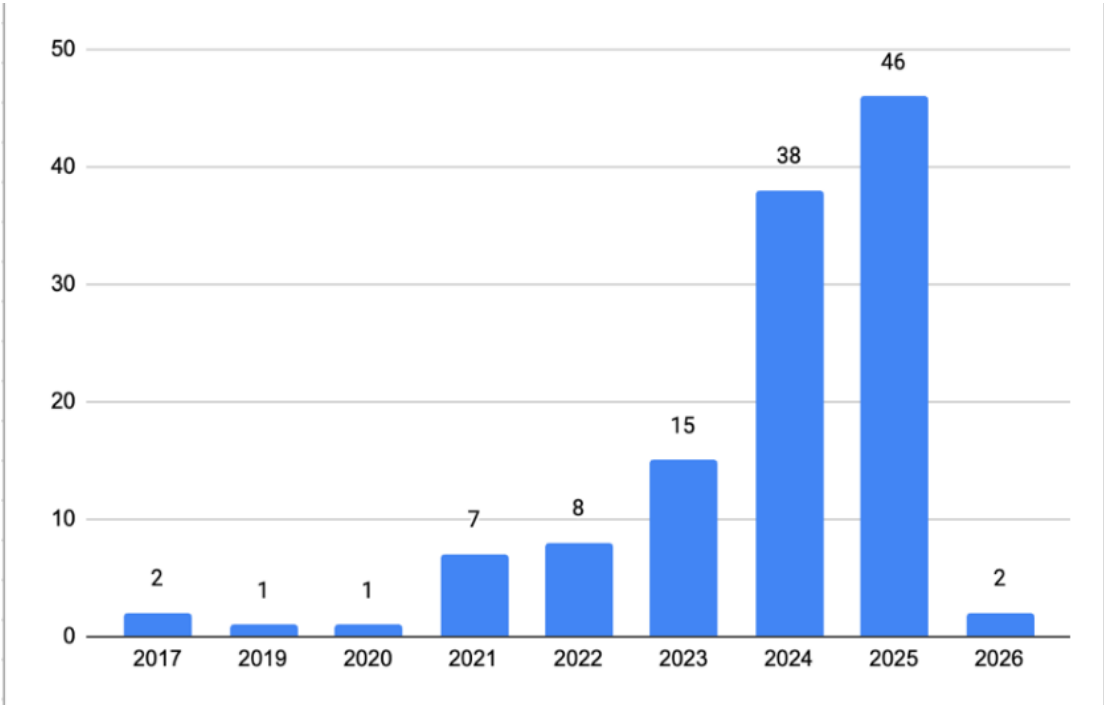


Figure 2. Number of publications during the period from 2017-2026

**4.2. Publication sources**

From Figure 2, the results show that Business Strategy and the Environment leads with 18 publications, followed by Journal of Cleaner Production with 15 and Sustainability with 13. The concentration of publications in these journals clearly reflects the dominant research orientation of the field, emphasizing corporate strategy, sustainable business models, and cleaner production. This indicates that circular entrepreneurship is not only approached from an environmental perspective but is also embedded within strategic management and business model innovation frameworks.

A group of journals with moderate representation includes International Small Business Journal and International Journal of Environmental Research and Public Health, each with 7 publications. The presence of International Small Business Journal confirms the central role of SMEs and startups in the circular ecosystem. Meanwhile, the inclusion of journals related to environmental and public health issues indicates an expansion toward social impacts and sustainable development.

Journals such as European Journal of Innovation Management, Sustainable Production and Consumption, Technological Forecasting and Social Change, Management Decision, and Emerald Emerging Markets Case Studies each contribute between 3 and 4 publications. This group reflects the interdisciplinary nature of the field, encompassing research directions

related to technological innovation, decision management, emerging markets, and system transformation forecasting.

Overall, the distribution of publications suggests that the knowledge structure of circular entrepreneurship is being shaped on an interdisciplinary foundation, integrating strategic management, innovation, sustainable production, and entrepreneurial ecosystems. The concentration in leading journals in management and environmental studies indicates that the field has achieved a high level of academic legitimacy and is transitioning from an emerging phase to one of expansion and deepening.

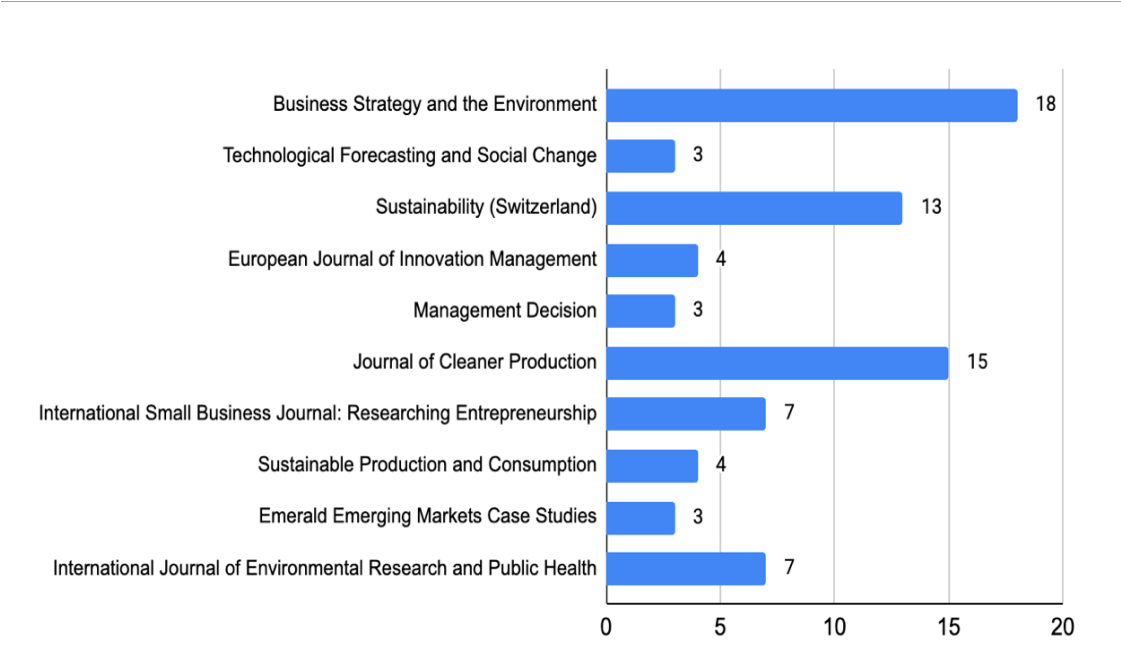


Figure 3. Publication sources

4.3. Topics studied in the field

4.3.1. Publication trend during the period from 2017 to 2026

The overlay map in Figure 4 illustrates the temporal shift in research focus within the field of circular economy entrepreneurship.

Keywords shown in dark blue, such as sustainable development, start-up, innovation, and business model, represent earlier research themes. This initial phase primarily focused on sustainability, green entrepreneurship, and general innovation, forming the conceptual foundation of the field.

Keywords in green, including circular economy, sustainability, and sustainable entrepreneurship, reflect an intermediate stage in which the concept of the circular economy became central and was increasingly integrated with entrepreneurship research.

More recent topics are represented by yellow keywords, such as circular start-up, dynamic capabilities, entrepreneurial ecosystem, and circular economy ecosystem. This indicates a shift in research toward dynamic capabilities, ecosystems, and system-level analysis, rather than focusing solely on individual business models.

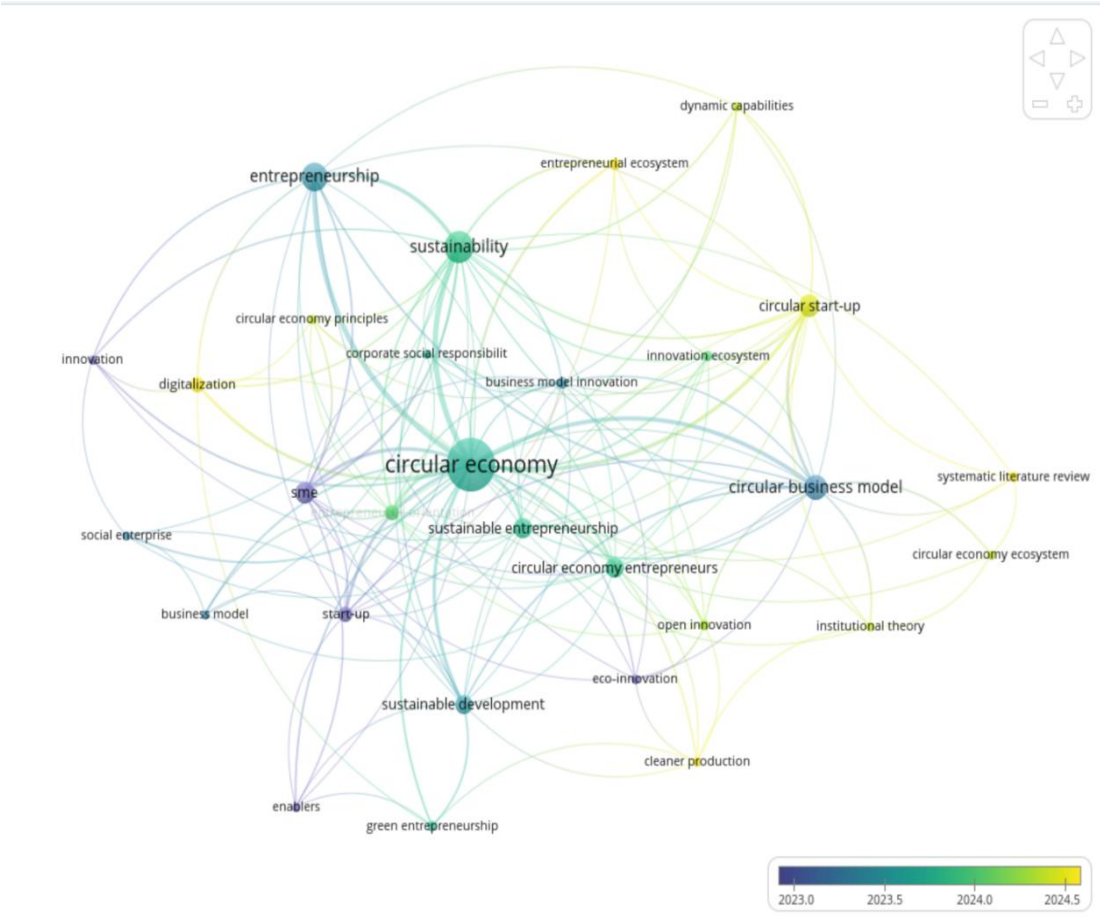


Figure 4. Overlay visualization

4.3.2. Circular economy entrepreneurship research hotspots

The knowledge structure of the circular economy entrepreneurship domain is illustrated in Figure 5. From the 121 publications extracted from the Scopus database, 286 distinct author supplied keywords were collected. By applying a minimum frequency threshold of two occurrences, 57 keywords satisfied the inclusion condition and were subsequently used to construct the co-occurrence network in VOSviewer.

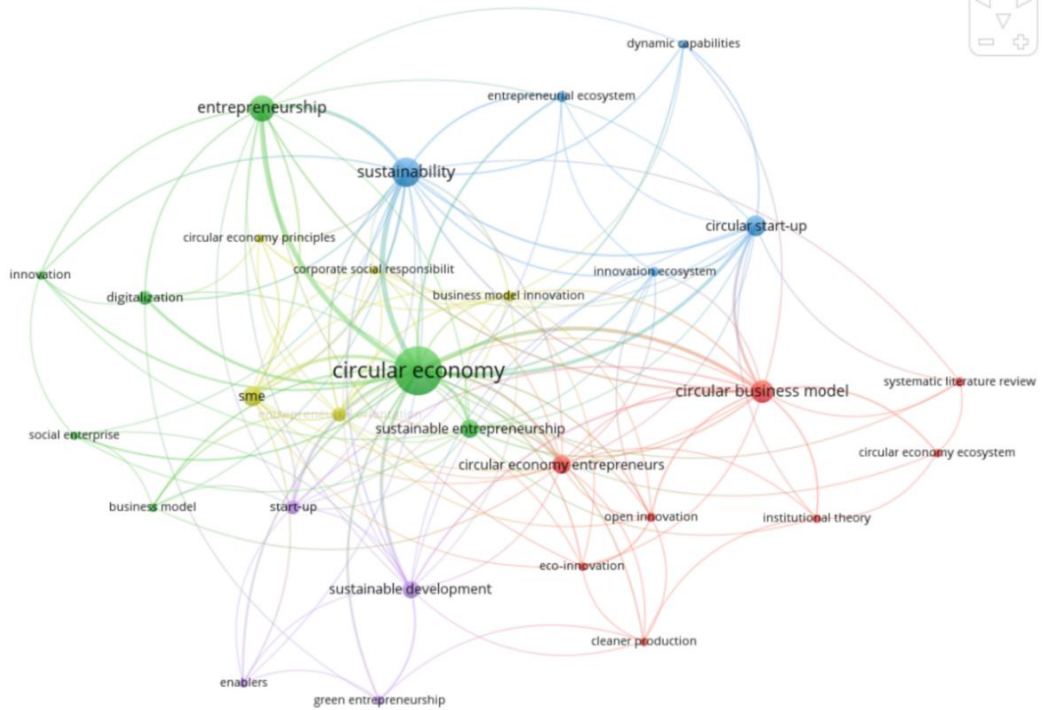


Figure 5. Co-word analysis

Cluster 1 (red) includes keywords such as “circular business model”, “circular economy entrepreneurs”, “cleaner production”, “eco-innovation”, “institutional theory”, “open innovation” and “systematic literature review”. The central focus of this cluster is the circular business model, highlighting a primary concern with capturing circular value within the business context. The presence of circular economy entrepreneurs emphasizes the critical role of entrepreneurs in the transition process. The keywords eco-innovation and cleaner production reflect the environmental and technological foundations of the cluster. The inclusion of open innovation indicates an ecosystem-oriented approach, where circular firms do not operate in isolation but rely on collaboration and knowledge sharing. Institutional theory serves as a key theoretical foundation, implying that the emergence and diffusion of circular business models are strongly influenced by institutional pressures, environmental regulations, and social norms. Finally, the presence of systematic literature review suggests that this cluster also contributes to synthesizing and structuring knowledge, helping to shape theoretical frameworks and define the research agenda for the field.

Cluster 2 includes keywords such as business model, circular economy, digitalization, entrepreneurship, innovation, social enterprise, and sustainable entrepreneurship. This cluster reflects a research stream focused on business model innovation in the context of digital transformation and sustainable entrepreneurship. The central keyword “circular economy” indicates that circular principles serve as the foundation for firms’ green transformation. The combination of business model and innovation highlights a focus on reconfiguring how firms create value in the transition toward a digital economy. The presence of digitalization implies the increasingly important role of digital technologies in optimizing resource use, connecting value chains, and developing circular business platforms. Entrepreneurship and sustainable entrepreneurship emphasize the role of entrepreneurs as key drivers of sustainable innovation.

Meanwhile, social enterprise expands the analysis to include models that generate social value, illustrating the intersection between economic objectives and societal impact.

Cluster 3 includes keywords such as circular start-up, dynamic capabilities, entrepreneurial ecosystem, innovation ecosystem, and sustainability. This cluster reflects a research direction focused on ecosystem-level analysis and organizational capabilities within the context of circular entrepreneurship. The term circular start-up indicates a focus on firms that are designed from inception based on circular economy principles. The concept of dynamic capabilities is used to emphasize firms' ability to adapt, reconfigure resources, and continuously innovate in order to sustain competitive advantage in a dynamic environment. This is particularly relevant as start-ups often need to frequently restructure to meet diverse stakeholder demands, especially regarding environmental concerns. The presence of entrepreneurial ecosystem and innovation ecosystem signals a shift from firm-level analysis to system-level perspectives, where networks, institutional support, and innovation infrastructure play decisive roles. Finally, sustainability serves as a guiding foundation, ensuring that entrepreneurial growth aligns with long-term development goals.

Cluster 4 includes keywords such as business model innovation, circular economy principles, corporate social responsibility, entrepreneurial orientation, and SME. This cluster reflects a research stream focused on strategic behavior and managerial orientation within firms, particularly small and medium-sized enterprises (SMEs). The presence of business model innovation and circular economy principles indicates a focus on applying circular principles to business model innovation. This emphasizes internal organizational transformation rather than merely adopting isolated technical solutions. Corporate social responsibility highlights the alignment between economic objectives and social responsibility, suggesting that circularity is viewed as an integral part of corporate sustainability strategies. Meanwhile, entrepreneurial orientation and SME underscore the importance of risk-taking, proactiveness, and innovativeness in small and medium-sized enterprises when implementing circular practices.

Cluster 5 includes keywords such as enablers, green entrepreneurship, start-up, and sustainable development. This cluster reflects a research stream focused on the enabling conditions and foundational drivers of green entrepreneurship within a sustainability context. The keywords "green entrepreneurship" and "start-up" indicate a focus on new ventures that pursue environmental goals from their inception. Sustainable development serves as a normative orientation, linking entrepreneurial activities with long-term economic, social, and environmental objectives. The term enablers points to a strong interest in supporting factors such as policies, finance, institutions, networks, and knowledge resources. Studies in this cluster typically analyze the necessary conditions for the emergence and growth of green and circular entrepreneurship.

Beyond the descriptive contents of these clusters, their co-occurrence patterns reveal the theoretical trajectory of circular economy entrepreneurship. Cluster 1 acts as the central intellectual anchor of the field, demonstrating that the "circular business model" remains the core unit of analysis, heavily supported by institutional theory. In contrast, Clusters 3 (entrepreneurial ecosystem) and 5 (enablers) represent emerging themes that signal a theoretical shift from firm-level analysis to macro-level systemic support. The co-occurrence of these clusters demonstrates that circular entrepreneurship is transitioning from a purely technical and environmental discipline (historically focused on eco-innovation and cleaner production) into a comprehensive socio-economic framework. This structural mapping implies that successful circular transitions require simultaneous micro-level capability building (Cluster 4) and macro-level digital and ecosystem integration (Clusters 2 and 3).

#### 4.3.3. Circular economy entrepreneurship research fundamentals

To further analyze trends and identify research gaps, we examined the ten most highly cited studies in this field. The details are presented in Table 1 below.

Table 1. Top cited publications

| No. | Reference                 | Purpose                                                                                                                                                                         | Journal                               | Methodology                                                                                                                | Key findings                                                                                                                                                                                                                  | Major limitations                                                                                                                                  |
|-----|---------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|----------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|
| 1   | Cullen and De Angelis [8] | Circular entrepreneurship examined through a business model lens, assessing ecological and social sustainability outcomes of firms embedding circular principles at their core. | Resources, Conservation and Recycling | Qualitative, single case study of the startup “Wasted Apple”.                                                              | Conceptualizes circular entrepreneurship through the integration of Entrepreneurial Process and Entrepreneurial Orientation within circular business models. Highlights practical implementation challenges often overlooked. | Based on a single case, limiting generalizability. Focuses only on a born circular firm rather than transitioning incumbents.                      |
| 2   | Demirel and Danisman [16] | Relationship between circular eco innovation and SME growth in Europe, and the role of financial resources.                                                                     | Business Strategy and the Environment | Quantitative, robust cross sectional regression using Flash EuroBarometer 441 survey of 5,100 SMEs across 28 EU countries. | Only very high investments in circular innovation above 10 percent of turnover positively affect firm growth. Alternative finance such as venture capital and angel investment is more effective than traditional finance.    | Cross sectional data does not allow dynamic growth analysis. Limited consideration of national and industry context factors.                       |
| 3   | Henry, et al. [17]        | Classification of circular start up business models in three major start up hubs Randstad, London, Berlin.                                                                      | Journal of Cleaner Production         | Mixed methods, content and frequency analysis of 128 circular startups.                                                    | Proposes five business model types design based, waste based, platform, service, and nature based. Adds Regenerate to the 4R framework. Shows start ups often adopt higher circularity levels than large corporations.        | Lacks direct sustainability performance metrics. Majority of data collected externally without direct interviews, possibly missing some practices. |
| 4   | Heshmati [18]             | Overview of circular economy as a national sustainable development strategy, focusing on implementation                                                                         | IZA Discussion Papers                 | Qualitative literature review and descriptive statistical analysis.                                                        | Synthesizes CE implementation at micro, meso, and macro levels. Compares CE indicator systems and identifies barriers such as lack of                                                                                         | Indicator weighting systems are not optimal. Heavy reliance on official statistics with potential                                                  |

|    |                           |                                                                                                                               |                                       |                                                                     |                                                                                                                                                                                                                                           |                                                                                                          |
|----|---------------------------|-------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|---------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|
|    |                           | and CE indicators in China.                                                                                                   |                                       |                                                                     | technology and weak economic incentives.                                                                                                                                                                                                  | reliability concerns.                                                                                    |
| 5  | Geissdoerfer, et al. [19] | Barriers and drivers of four circular business model innovation types start up, diversification, transformation, acquisition. | Business Strategy and the Environment | Qualitative multiple case study, expert interviews across 21 firms. | Identifies 25 barriers and 10 drivers across financial, legal, market, and technical categories. Startups face value chain barriers, incumbents face market and organizational inertia barriers.                                          | Small sample size. Interview based data may involve selfreporting bias. No acquisition cases identified. |
| 6  | Suchek, et al. [6]        | Knowledge mapping of entrepreneurship and circular economy research.                                                          | Business Strategy and the Environment | Qualitative systematic review.                                      | Identifies four major themes SME growth, born circular firms, social entrepreneurship in CE, and ecosystem support. Proposes future research directions.                                                                                  | Some reviewed studies do not centrally focus on entrepreneurship.                                        |
| 7  | Mondal, et al. [9]        | Drivers of green entrepreneurship and digitalization in CE and waste management among MSMEs.                                  | Journal of Cleaner Production         | Qualitative, expert interviews.                                     | Technology based enablers are most important. Top management and organizational coordination are key priorities. Clean technology infrastructure, green knowledge, training, digital capability, finance and subsidies are major drivers. | Limited expert sample size.                                                                              |
| 8  | Mondal, et al. [7]        | Identification of green entrepreneurship enablers in CE within manufacturing MSMEs.                                           | Journal of Cleaner Production         | Qualitative, comprehensive review and expert interviews.            | Technology and technological infrastructure are key enablers. Social norms, technology acceptance, R&D capability, environmental regulation and waste policies are critical drivers.                                                      | Limited representativeness of sample.                                                                    |
| 9  | Elf, et al. [20]          | Drivers of circular solutions to enhance customer engagement in UK fashion MSMEs.                                             | Business Strategy and the Environment | Qualitative, in-depth interviews.                                   | Fashion MSMEs adopt circular models beyond technology focus by strengthening customer interaction. Highlights importance of extended business customer engagement.                                                                        | Limited representativeness and context restricted to a developed country UK.                             |
| 10 | Bocken, et al. [21]       | Business model experimentation for circularity in a                                                                           | Economics and Policy of Energy        | Qualitative case study.                                             | Circular experimentation is iterative and adaptive.                                                                                                                                                                                       | Limited generalizability and context                                                                     |

|  |  |                                                                             |                     |  |                                                                                                        |                                          |
|--|--|-----------------------------------------------------------------------------|---------------------|--|--------------------------------------------------------------------------------------------------------|------------------------------------------|
|  |  | large international clothing retailer addressing sustainability challenges. | and the Environment |  | New circular models coexist with traditional ones. Organizational experimentation capability improves. | restricted to developed country setting. |
|--|--|-----------------------------------------------------------------------------|---------------------|--|--------------------------------------------------------------------------------------------------------|------------------------------------------|

First, regarding the main research directions, the literature can be grouped into three major thematic areas. The first group focuses on circular business models and the entrepreneurial process. These studies emphasize how firms integrate circular principles into their operations. Notably, Cullen and De Angelis [8] analyze circular entrepreneurship through the lens of business models and demonstrate that the combination of the entrepreneurial process and entrepreneurial orientation plays a crucial role in creating ecological and social value. Similarly, [20, 21] examine the experimentation of circular business models in large fashion companies, highlighting that the development of such models requires strong customer engagement and participation.

The second group concentrates on identifying barriers, enablers, and the development of circular business models for both incumbent firms and start-ups. [17] propose a classification system of five types of business models for circular start-ups, including design-based, waste-based, platform, service, and nature-based models, while also introducing the “regenerate” strategy into the traditional 4R framework. [19] extend this line of research by identifying 25 barriers and 10 drivers of circular business model innovation. Their findings suggest that start-ups often face value chain-related barriers, whereas transitioning firms encounter challenges related to markets and organizational inertia.

The third group focuses on the drivers of green entrepreneurship within the circular economy context. [7, 9] find that technological factors and technological infrastructure play the most critical role in promoting green entrepreneurship, alongside factors such as entrepreneurial knowledge, digital capabilities, training, and financial support. In addition, institutional factors including environmental regulations, waste management policies, social norms, and technology acceptance are identified as key drivers of the green entrepreneurial ecosystem.

Second, regarding research methods, most studies in this field adopt qualitative approaches, primarily case studies or expert interviews. [8, 21] use case studies to provide in-depth analysis of the formation of circular business models. [19] employ a multiple case study approach with expert interviews across 21 firms. [7] combine expert interviews with literature reviews. In contrast, quantitative research remains relatively limited. A notable example is [16], who use survey data from 5,100 SMEs across 28 EU countries to examine the relationship between eco-innovation and firm growth.

Third, the literature also highlights the critical role of institutional context and ecosystems in fostering circular entrepreneurship. [18] argues that the implementation of the circular economy should be analyzed at micro, meso, and macro levels, while major barriers include weak economic incentives and ineffective governance mechanisms.

## 5. DISCUSSION

The findings of this study help address the five research questions.

RQ1: The results indicate that circular economy entrepreneurship (CEE) remains a relatively new and promising research field. Data from Scopus show that the number of publications during the initial period 2017-2020 was quite low and mainly focused on conceptual development and theoretical foundations. From 2021-2023, the number of studies increased significantly, suggesting that issues related to entrepreneurship based on circular principles attracted growing scholarly attention during this period. Notably, the period from

2024-2025 witnessed a sharp surge in publications. The main sources of publications are leading journals such as *Business Strategy and the Environment*, *Journal of Cleaner Production*, and *Sustainability*.

RQ2: The keyword co-occurrence analysis shows that the intellectual structure of this field is being shaped through the interconnection of core concepts from the circular economy, innovation, and sustainable entrepreneurship. The analysis of 121 articles identified 286 keywords, of which 57 met the minimum occurrence threshold and were used to construct the knowledge network using VOSviewer. The network map indicates that the field's intellectual structure is formed through multiple closely interconnected thematic clusters. Central keywords such as circular economy, business model, innovation, entrepreneurship, and sustainability act as key nodes within the network. This suggests that research on circular entrepreneurship does not evolve as an isolated field but is built on an interdisciplinary foundation, integrating strategic management, technological innovation, institutional perspectives, and entrepreneurship.

RQ3: The co-word analysis reveals that circular entrepreneurship is currently structured into five main research clusters. The first cluster focuses on circular business models and related theoretical foundations such as eco-innovation, cleaner production, and institutional theory. The second cluster relates to business model innovation in the context of digital transformation and sustainable entrepreneurship, emphasizing the role of digital technologies and social enterprises. The third cluster centers on entrepreneurial ecosystems and the dynamic capabilities of circular start-ups. The fourth cluster examines strategic orientations and managerial behaviors within firms, particularly SMEs adopting circular economy principles. Finally, the fifth cluster addresses the enabling factors of green entrepreneurship, including policies, finance, networks, and supporting resources. The existence of these five distinct clusters indicates a theoretical maturation within the field. Circular entrepreneurship is evolving from isolated, technical conceptualizations of eco-innovation (Cluster 1) to a highly systemic perspective involving entrepreneurial ecosystems and dynamic capabilities (Cluster 3). The prominence of digitalization and social enterprise (Cluster 2) further interprets that circular transition is not merely a material strategy, but a socio-technical transformation where digital platforms and social value logic are indispensable for scaling circular start-ups.

RQ4: Drawing from the thematic network and highly cited literature, three prominent research gaps emerge. First, a geographical and contextual gap is evident; the intellectual foundation is heavily skewed toward developed European economies, leaving the entrepreneurial transition mechanisms in emerging economies largely underexplored. Second, a methodological gap exists due to the over-reliance on qualitative case studies, which restricts the field's ability to provide causal, quantitative evidence on the financial viability of circular models. Finally, a technological-integration gap remains; while digitalization is recognized as a key enabler, empirical evidence on how specific digital technologies (e.g., IoT, blockchain) serve as dynamic capabilities to trace closed-loop systems is still insufficiently developed.

RQ5: Based on the identified research gaps, Vietnamese scholars could focus on several promising research directions over the next 3-5 years. First, there is a need to develop empirical studies on circular entrepreneurship in the context of emerging economies, particularly in Vietnam. This would help clarify the role of institutional factors, policies, and innovation ecosystems in fostering circular enterprises. Second, future research could examine the relationship between digital transformation, business model innovation, and the development of circular entrepreneurship. Third, more quantitative studies are needed to measure the impact of circular business models on firms' economic performance and sustainable development.

## 6. CONCLUSION - MANAGERIAL IMPLICATIONS - FUTURE RESEARCH DIRECTIONS

### 6.1. Conclusion

This study systematizes the knowledge landscape of circular economy entrepreneurship (CEE) through bibliometric analysis and a systematic review of 121 articles from the Scopus database. In terms of development trends, the field is currently experiencing a strong research surge, particularly during the period from 2024-2025. Its development lies primarily at the intersection of strategic management, business model innovation, and sustainable development. Regarding the intellectual structure, CEE does not evolve as an isolated field but is inherently interdisciplinary, structured into five core thematic clusters: (1) circular business models and institutional theory; (2) business model innovation linked to digital transformation and sustainable entrepreneurship; (3) entrepreneurial ecosystems and the dynamic capabilities of circular start-ups; (4) strategic behavior and managerial orientation in SMEs; and (5) enablers that drive green entrepreneurship.

### 6.2. Managerial implications

From a theoretical perspective, this study contributes to the academic literature by clarifying the fragmented knowledge structure of circular entrepreneurship. The keyword analysis reveals an important shift in research focus from examining individual circular business models to analyzing them through system-level perspectives, including innovation ecosystems and organizational dynamic capabilities.

From a practical perspective, entrepreneurs and small and medium-sized enterprises (SMEs) should leverage digital technologies to optimize resource use and develop circular business platforms; clearly define circular business models from the outset by integrating the entrepreneurial process with entrepreneurial orientation to create comprehensive ecological, social, and economic value; and actively engage in open innovation ecosystems while utilizing institutional support, policy networks, and financial resources to overcome value chain and market barriers.

### 6.3. Limitations and future research directions

This study still has several limitations. The dataset was extracted solely from the Scopus database, which may have led to the omission of valuable academic publications from other databases. In addition, the data filtering process excluded conference proceedings and books, which somewhat limits the comprehensiveness of the field coverage.

Therefore, future research could focus on conducting more empirical studies in the context of emerging economies (such as Vietnam) to better understand the impact of institutional factors, specific policy frameworks, and local ecosystems in promoting circular enterprises. Furthermore, scholars may undertake large-scale quantitative studies to test theoretical relationships and provide empirical evidence on the economic, social, and environmental performance of circular business models.

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