

# Thematic evolution, emerging trends for sharing economy business model research, and future research directions in the post-COVID-19 era

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This study explored the scientometrics and current dynamics of the area of sharing economy business models (SEBMs). Using bibliometric analysis, it examined a collection of 561 studies from the Web of Science and Scopus databases to detect the thematic evolution, strategy map, and emerging trends in SEBM literature as well as to forecast research directions. The results showed that SEBMs is a relatively new multidisciplinary research area that grew rapidly between 2014 and 2019; since then, the publication growth has flattened. Research on SEBMs currently focuses on sustainability, sustainable development, tourism, new technology application, and business management, with less attention given to social effects and public acceptance, determinants of success, and regional entrepreneurial ecosystem. The thematic analysis revealed that sustainability-oriented themes are at the center. Six emerging trends were detected: (1) industry-oriented research such as transportation, tourism, accommodation, energy, and others, (2) sustainability-oriented studies, including social, environmental, and economic perspectives, (3) sustainable organizational development concerning social acceptance, trust, legitimacy, and satisfaction, (4) new technology-oriented and innovation-focused studies such as blockchain, big data, social media, and e-platforms, (5) country- and region-oriented studies, particularly for emerging countries, (6) effects of entrepreneurial ecosystem factors on SEBM development. Based on the current thematic map and evolution, this paper suggests several critical research directions. The paper provides (1) providing a one-stop literature overview on SEBM area for two time slices: fast-growing-initiation phase (before COVID-19) and transitional phase (during COVID-19), (2) identifying research focuses, emerging trends, and gaps, (3) developing novel research avenues for investigation, and (4) aligning expected contributions to the area. By providing new knowledge, the research theoretically contributes to many disciplines given that SEBM studies were found to be multidisciplinary. It also has numerous implications for policymakers and practitioners.

## 1. Introduction

Thousands of years of the human behavior of sharing resources (e.g., food and living spaces) has evolved into what is called ‘the sharing economy’, a phenomenon that appeared as early as the 1990s with the development of new technologies, particularly the internet because it opened the way for information sharing and online transactions. Therefore, the sharing economy was born in the Internet Age (Belk, 2014, 2017), which is associated with the gig, collaborative, and platform economies (Silva and Moreira, 2022). Over the past three decades, the rapid development of the internet, cloud, blockchain, social media, and e-commerce platforms in the business world has significantly changed people’s daily lives and facilitated the feasibility of economic sharing from goods and assets to services based on the concept of ‘what’s mine is yours’ (Richter et al., 2017). Public and governmental perceptions of the sharing economy have changed substantially worldwide (Cohen and Kietzmann, 2014); it has come to be seen as one important pathway for socio-economic progress, employment advancement, and income growth.

From an academic research perspective, the sharing economy has steadily attracted interest in the last decade (Cohen and Kietzmann, 2014; Cheng, 2016; Kraus et al., 2020). The sharing economy field of study has been exponentially expanding geometrically and disciplinarily (Kraus et al., 2020); research articles published in accredited journals have increased from 2014 at an average rate of 30% (Netto and Tello-Gamarra, 2020; Silva and Moreira, 2022), and the citation number grew from 2 to 55 between 2014 to 2019 (Kraus et al., 2020). With this fast-growing number of publications, calls have been made to map the emerging sharing economy research field and to identify avenues for additional research attention (Agarwal and Steinmetz, 2019; Kraus et al., 2020). Literature reviews are widely used to discover themes, patterns, processes, and outcomes with regard to a research field (Snyder, 2019). In this regard, qualitative literature review approaches have been employed to identify thematic research clusters relating to the sharing economy phenomenon (Cheng, 2016; Agarwal and Steinmetz, 2019).

Business models have featured prominently in sharing economy research (Richter et al., 2017; Curtis, 2021). Scholars have agreed that the core of the sharing economy is to share under-utilized assets for monetary and non-monetary benefits based on a business model supported by information and communication technologies and Web 2.0 (Richter

et al., 2017; Yin, 2022). Yin (2022) emphasized that the future advancement of the sharing economy relies on new business models, yet this critical role of sharing economy business models (SEBMs) has not yet been sufficiently explored (Yin, 2022). To date, there has been a lack of thematic study and future research direction exploration in the area of SEBMs, particularly in the post-COVID-19 era.

Some retrospective works on the evolution of the area have focused on specific areas such as asset-sharing, peer-to-peer business models, crowdsourcing, access-based consumption, and community or specific platforms (e.g., Airbnb and Uber), while others have had a broader focus. For instance, Silva and Moreira (2022) conducted a bibliometric analysis focused on entrepreneurship and the sharing economy, collecting 506 articles between 1991 and May 2021 from Scopus and Web of Science (WOS). They found that sharing economy (platform) developers are key to developing strategies and policies and taking action to achieve social welfare through entrepreneurship in a platform ecosystem (Silva and Moreira, 2022). As another example, Kraus et al. (2020) analyzed the state-of-the-art of the sharing economy to explore research patterns by collecting publications from WOS core collection between January 2013 and February 2020. They detected six clusters in the sharing economy literature: (1) product liability, (2) organizing framework, (3) profile characteristics, (4) diverse economies, (5) consumption systems, and (6) everyday life (Kraus et al., 2020). Using a mixed method, one research paper set out to identify concurrent themes (Trabucchi et al., 2019). Five themes emerged: consumers’ motivations; impact on society; market and policy; business model and revenue model; and definitions or frameworks. And there is a conceptual study for a business model framework based on a qualitative literature review (Ritter and Schanz, 2019). No quantitative investigation focusing on SEBMs has been carried out, which is unfortunate given that they have occupied an unparalleled central position in the sharing economy revolution (Kumar et al., 2018; Wang, 2022).

This bibliometric study aims to fill the above-mentioned gaps by systematizing the scientific achievements related to SEBMs, providing a holistic overview of the currently fragmented literature, and proposing future research streams. To this end, four objectives were established: (1) visualize the network of publications shaping the overall intellectual structure of the SEBM field by considering all articles existing in accredited scholar databases (WoS and Scopus in this case), (2) map the clusters of thematically related publications, (3) reveal

the emerging development paths that each thematic cluster represents and the strategic principles they embody, and (4) explore future research directions. With these in mind, a bibliometric analysis was conducted to answer the following research questions: (1) What is the current publication trend in SEBM research? (2) Which are the most influential sources (journals) for SEBM research? (3) What thematic evolution happened in SEBM research in the time slices before COVID-19 and during COVID-19? (4) What are the themes in SEBM research without considering COVID-19's effects? (5) What are the themes in SEBM research before COVID-19? (6) What are the themes in SEBM research during COVID-19, (7) What are the emerging trends in SEBM research? And (8) What are the future directions for SEBM research?

This paper begins with a brief explanation of bibliometric analysis and its use in SEBM research before proceeding to outline the methodology, including research design; the processes of data collection, analysis, and visualization; and a centralized description of metric measures used in the research. Comprehensive analytical results for dataset description, scientific production, and citation of SEBM literature, publication source analysis, and thematic analysis including SEBM research evolution, and thematic maps with and without considering COVID-19 effects are then presented. After that, the emerging trends are synthesized, and future research directions are forecasted. As the conclusion, the study is summarized, and its theoretical contribution, practical implications, and research limitations are discussed.

## 2. Bibliometric analysis and sharing economy studies

Originating in the field of information science, bibliometric analysis aims to quantify what has already been published and evaluate the evolution of related subjects and fields. Bibliometrics can reveal the macro and meso structures of scientific production development and its application, the development history of a specific field, current research trends, and future directions (Klarin and Suseno, 2021). Scholars have highlighted that the basic items of bibliometric analysis are articles, authors, citations, co-citations, partnerships, co-authorships, affiliations, countries, and journals, as well as the interrelationship among these attributes (Filser et al., 2020; Kraus et al., 2020). In various contexts, Berbegal-Mirabent (2021) Kumar et al. (2018), and Moon et al. (2019) discussed three

techniques for big data analytics – descriptive, predictive, and prescriptive – which are useful to consider in relation to this study's bibliometric analysis.

Descriptive analytics can provide a static overview of the state-of-the-art of a specific research subject based on existing data. The results are a response to questions such as 'What happened?' and 'What is happening?'. Descriptive analytics is used as a starting point to analyze generic or specific issues and address purposely designed innovative questions. In this study, questions that needed to be answered revolve around what themes/clusters exist in current SEBM research from the perspectives of article coupling, author coupling, co-occurrence of author keywords, and co-citations. Importantly, these research themes helped to generate a conceptual framework for SEBM research; in other words, bibliometric analysis can go beyond the descriptive.

Predictive analyses provide estimations about the future state using forecasting and simulation to answer questions of 'what will happen?' and 'why will it happen?' These estimates can include understanding a field's most current conversations as well as field evolution, the state-of-the-art valuation, and optimal research themes, sometimes through content analysis. This study's bibliometric analysis considered the potential of combining predominant themes and keywords in SEBM research to predict the research directions in the post-COVID-19 era.

Drawing on predictive results, bibliometric analysis in the form of prescriptive analytics can use simulation and optimization to consider questions such as 'what should we do?' and 'why shall we do it?' This type of analytics is suitable for exploring SEBM research. In this study, prescriptive analytics helped guide future SEBM research decisions by classifying themes into niche, motor, emerging, and basic (Moon et al., 2019). Researchers can then select the most beneficial themes or combinations of themes for further investigation and apply a conceptual framework.

Furthermore, bibliometric analysis provides the field evolution of author keywords, authors, collaboration through historical bibliometrics, and thematic trends. Based on this information, Duan (2023) and Donthu et al. (2021) explained that bibliometrics statistically analyses the characteristics of publications and seeks to quantify, describe, and predict the scientific conversation process. Over time, conversation studies reveal the behavior models and academic patterns that were established in a field. Thus, bibliometric analysis can be employed to focus on performance analyses, which

concentrate on the productivity and impact of field publications. Akhmedova et al. (2021) conducted a hybrid review which combined bibliometric analysis and the antecedents, decisions, and outcomes (ADO) framework to identify research themes, theoretical frameworks, and related contexts and methods to service quality in the sharing economy. They classified quality in SEBMs into four quadrants: quality is not a priority and not specified; quality is not a priority but specified; quality is one of the priorities; quality has online and offline dimensions, and quality is a priority and specified in terms of qualities of website, platform, and service provided by peers (Akhmedova et al., 2021). This category of application is most commonly used to answer the question of ‘what we are researching’ (da Silveira et al., 2016; Yang and Xia, 2021; Silva and Moreira, 2022).

Bibliometrics can also be employed to focus on scientometric mapping, which investigates themes within a specific research area by engaging in citation analysis, co-citation analysis, bibliometric coupling, co-keyword, and co-authorship analyses. Kraus et al. (2020) identified four clusters of existing research through co-citation analysis: freelance work and its implications; transportation and solutions for the sustainable development of the sharing economy; user experience and collaborative consumption; and the sharing economy in the context of hospitality and tourism. This category of application can be employed to forecast the future research directions through thematic mapping, thematic evolution factor analysis, and other enrichment technologies.

In summary, based on the findings of a bibliometric analysis and scientometric mapping, several indicators can be identified, including the most influential documents, authors, journals, and participants. Thus, the portrait and framework of a research field can be generated, thematic mappings, and evolutions created, current trends identified and future research

directions predicted. The next section will describe how bibliometric analysis will be applied for this study.

### 3. Methodology

When the scope of a review is broad and the dataset too large for manual review, bibliometric analysis is the best instrument for encapsulating abundant data to present the intellectual structure and emerging trends of a research theme (interchangeably used with cluster or topic in this study) within a field (Donthu et al., 2021). This research applied bibliometric analysis to quantitatively review the state of the research on the theme of business models in the sharing economy field (Netto and Tello-Gamarra, 2020). The approach has grown exponentially in business and management disciplines over the last 20 years and has created new knowledge as a result (Donthu et al., 2020). Another strength of bibliometric analysis is that it is suitable for a multidisciplinary, multi-theoretical, and multi-methodological study.

#### 3.1. Research design

This study followed five steps – project designing, database selection, dataset creation, data analysis, and reporting – to achieve the research objectives of this study (Figure 1). After establishing the research aim, target, and strategy, a series of keywords were defined for database searches. The two most commonly used databases (WoS and Scopus) were selected to enhance the dataset and avoid missing any articles. By removing duplicates and merging two outputs into one, the final dataset was established. In the next step, Bibliometrix R, the highly recommended visualization tool (Donthu et al., 2021), was utilized for data analysis (performance and science mapping). Finally, the report – this paper – was created.

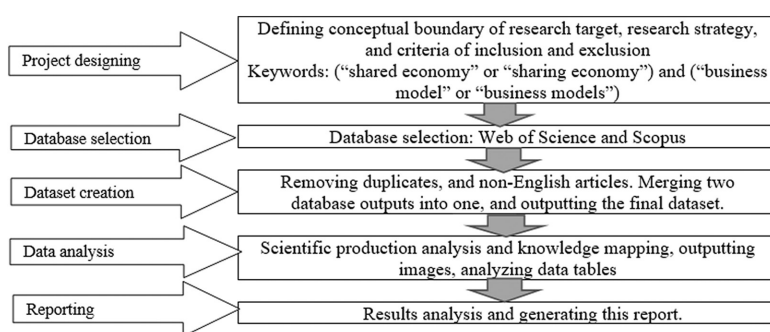


Figure 1. Research process.

### 3.2. Data retrieve, analysis, and visualization

The database query was performed with the two most popular academic document repositories, WoS and Scopus. WoS Core Collection is the world's leading citation database. It contains records of articles from the highest-impact journals worldwide, including open-access journals, conference proceedings, and books. For this research, the inclusion criterion is English journal articles indexed by the 'Social Science Citation Index' or 'Social Science Citation Index Expanded'. Coverage of some titles dates back to 1,900. Elsevier's Scopus is the largest database of abstracts and citations in peer-reviewed literature, whether from scientific journals, books, or conference papers (Duan, 2023). The database queries were conducted on March 17, 2023. Only duplicated articles were removed in Endnote.

The search strings used were 'TITLE-ABS-KEY (( "shared economy" OR "sharing economy") AND ("business model" OR "business models")) AND (LIMIT-TO (DOCTYPE, "ar")) AND (LIMIT-TO ( LANGUAGE, "English")) AND (LIMIT-TO (SRCTYPE, "j"))' for Scopus, and '( "shared economy" OR "sharing economy") AND ("business model" OR "business models")' Document type = articles, Language = English, Web of Science Index = 'Social Science Citation Index' or 'Social Science Citation Index Expanded' for WoS.

To holistically analyze the dataset, the Bibliometrix software in R-package was utilized for a major part of data analysis and visualization. Metadata (mainly keywords) and their interconnections were classified into themes in four categories: motor themes, peripheral themes, emerging, or declining themes, and basic and transversal themes. Similar studies have been employed for some sharing economy themes other than business models, such as the entire sharing economy as a field (Silva and Moreira, 2022), co-working space in the sharing economy (Beregal-Mirabent, 2021), and the sharing economy from a sustainable development perspective (Pu et al., 2021).

This research accessed bibliometrics for two time-slices: 2014–2019 and 2020–2023. The bibliometrics included scientific productions and citations, publishers, and their impacts, thematic evolution, and maps. SEBM research has been divided into two time slices due to the rapid growth between 2014 and 2019 (from 2 in 2014 to 80 in 2019), as well as the flat growth between 2020 and 2023 (111, 110, and 112 for 2020, 2021, and 2022, please refer to the

scientific production and citation section). Following this, the time slices are defined as those occurring before COVID-19 and those occurring during COVID-19. The visualization features were used to illustrate both the knowledge networks and conceptual development. Some indicators used in the study are as follows: total citations-the number of citations received; h-index-the productivity and influence; m-index-the distribution of citations index in addition to influence and productivity; and g-index-the volume per year in the mentioned indicators.

### 3.3. Metric measures and descriptions

Performance analysis explores the contributions of research elements to a given field. Myriad measures for field production analysis exist, the most important of which are the quantity of publications, measuring productivity, and citations per annual or per research constituent to measure the impact and influence. Other measures such as citation per publication and h-index combine both citations and publications to measure the performance of research constituents. Performance metrics (Table 1) are designed to measure the performance of sources and yearly productivity. They are grouped into two categories: publication-related and citation-related.

Due to the multi-disciplinary feature of the SEBM study, this study also conducts a source analysis to identify the most influential journals in the SEBM field. The analysis includes the most relevant sources, the most highly cited sources, and the most locally cited sources. Table 2 lists the relevant metric measures and their calculation methods.

Knowledge mapping explores the relationships between research constituents. The analysis in this study pertains to the structural connections among research constituents. Knowledge maps including thematic evolution and strategy map analyses through author keywords, are instrumental in presenting the conceptual and intellectual structure of the research area (Snyder, 2019; Donthu et al., 2020). Network metrics are used to examine the relative importance of research components such as keywords or a group of keywords. These metrics are understood to enrich the conversation of research subjects in bibliometric studies, and thus represent a legitimate method for improving bibliometric assessments. In this study, several network metrics were applied for thematic classification – degree of centrality, closeness and betweenness centrality, and PageRank – and for most-cited publications, document/journal impact (Table 3).

**Table 1.** Metrics for performance analysis (adapted from Donthu et al., 2020)

| Metric  | Description   | Metric                                | Description   |
|---|---|---------------------------------------|---|
| <i>Publication-related metrics</i>                |   | <i>Citation-related metrics</i>       |   |
| Keywords Plus                                     | A metric provided by the bibliophilic package based on words or phrases that frequently appear in the titles of an article's references and author keywords | Number of cited publications (NCP)    | Number of publications of research constituent that are cited                                   |
| Author keywords                                   | Chosen by authors to best reflect the content of articles   | Citations per cited publication (CCP) | TC for NCP  |
| Annual Growth Rate %                              | Compound annual growth rate of articles published   | Citable years (CY)                    | Today's year – year of publication  |
| Total publications (TP)                           | Total publication of research constituent   | Total citations (TC)                  | Total citations of research constituent   |
| Number of contributing authors (NCA)              | Total number of authors contributing to publications of research constituent  | Average citations (AC)                | Average citations (e.g., per publication, per year, per period) of research constituent         |
| Sole-authored publications (SA)                   | Total number of sole-authored publications by research constituent  | Global citation (GC)                  | Number of citations in a paper  |
| Co-authored publications (CA)                     | Total number of co-authored publications by research constituent  | The local citation (LC)               | Number of citations in a paper in a reference list to other papers within the collected dataset |
| Number of active years of publication (NAY)       | Number of years that research constituent records a publication   | <i>h</i> -index ( <i>h</i> )          | <i>h</i> number of publications cited at least <i>h</i> times (i.e., measure of influence)      |
| Productivity per active year of publication (PAY) | $TP \div NAY$   | <i>m</i> -index                       | <i>m</i> number displays <i>h</i> -index per year since the first publication                   |
|   |   | <i>g</i> -index ( <i>g</i> )          | <i>g</i> number of publications receiving at least $g^2$ citations (i.e., measure of impact)    |

## 4. Results and discussion

### 4.1. Dataset description

The database searches resulted in 412 and 404 records from WoS and Scopus, respectively. After removing 255 duplicates, 561 entries were left for the final dataset from 287 sources. The total number of authors within the dataset was 1,352 (Table 4). As the earliest SEBM research articles found on WoS and Scopus were published in 2014, the dataset time frame for this study was from 2014 to 2023 (March). The database search results can be said to confirm that the year 2014 marked the beginning of SEBM research. The first thing the author noticed about the dataset (Table 4) is that a large number of sources (287) have published articles relating to SEBMs.

With an annual growth rate of 29.15%, it can be stated that SEBM as a research area has been growing rapidly over the last 10 years. The document's

average age (from the date of being published to March 2023) is 2.96 years which indicates that the articles in the dataset can represent extant literature well. The table also shows that there are 1,644 author keywords detected in the database and 1,043 Keywords Plus calculated from citations. Considering the number of total publications (TP) of 561 along with the number of author keywords and Keywords Plus, it is clear indicator that a large amount of co-occurrence exists, which is a meaningful result regarding SEBM knowledge, one which can be built upon through bibliometric analysis (Donthu et al., 2021). These com keywords were central elements in this study for the analysis of thematic evolution and knowledge mapping. The rate of international co-authorships is 26.92%, indicating a high collaboration rate among scholars from different countries in comparison with other scientometric studies in the sharing economy field (Silva and Moreira, 2022).

**Table 2.** Measures for publication sources (Author's elaboration)

| Technique                  | Usage  | Unit of analysis | Requirements   |
|----------------------------|--|------------------|--|
| Most relevant sources      | To analyze the number of articles published by related sources to identify the <i>most relevant sources</i> in a research field    | Articles         | Titles and journal names                                 |
| High impactful sources     | To analyze the <i>relationships</i> among sources by identifying the <i>most influential source</i> in a research field            | Articles         | Titles, the number of global citations, and journals     |
| Most locally cited sources | To analyze the number of articles published by related sources to identify the <i>most relevant sources</i> in the data collection | Articles         | Titles, the number of local citations, and journals      |
| Citation analysis          | To analyze the <i>relationships</i> among publications by identifying the <i>most influential publications</i> in a research field | Articles         | Author name, citations title, journals, DOI, References  |
| Source dynamic             | The yearly changes in the number of publications   | Articles         | Journal names and number of articles published each year |

**Table 3.** Terms and descriptions for theme metrics

| Terms                      | Description  | References                               |
|----------------------------|--|--|
| Degree of centrality       | Refers to the number of relational ties a research constituent has in a network  | Donthu et al. (2021)                     |
| Degree of density          | Refers to the internal strength of the network   | Chen et al. (2019)                       |
| Callon's centrality        | Measures the degree of interaction among networks  | Chen et al. (2019)                       |
| Callon's density           | Measures the internal strength of a network  | Chen et al. (2019)                       |
| PageRank                   | Refers to a measure of both popularity and prestige. PageRank was introduced to prioritize articles when a keyword search is performed in a search engine  | Xu et al. (2018)                         |
| Document or journal impact | Is measured by citation counts, field-weighted citation impact, field citation ratio, and relative citation ratio. The impact factor of a journal is calculated by dividing the number of current year citations to the source items published in that journal during the previous 2 years | Sharma et al. (2018)<br>Clarivate (2023) |

#### 4.2. Scientific production and citations

In [Table 5](#), it can be seen that the volume of publications has increased exponentially over the past 10 years. The earliest articles in the SEBM area were published in 2014, indicating that SEBM research began in 2014. Only two articles were published in 2014, four in 2015, and 12 in 2016. A total of 18 articles were published during the first 3 years of the SEBM research period. For the first 6 years, the number of publications experienced an exponential increase from 2 in 2014 to 80 in 2019. Between 2020 and 2022, the period of COVID-19, the number of publications plateaued (blue line in [Figure 2](#)). With 112 publications, productivity peaked in 2022, representing 19.96% of total publications of the data collection. Since the dataset was established on 17

March 2023, the number for 2023 only covers 2 months and 17 days.

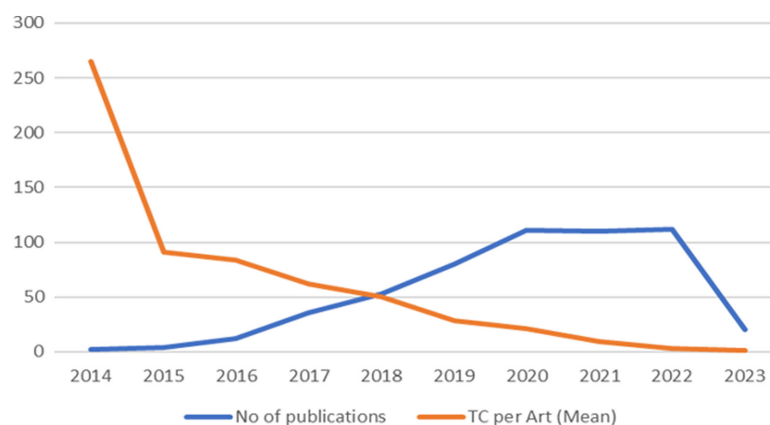
Publication growth indicates the literature development in a research area (Snyder, 2019; Kraus et al., 2021). Based on the curve of the total number of publications in [Figure 2](#), and numbers in [Table 5](#), this study conceptualized the development of the SEBM area into two phases. The first phase is the period between 2014 and 2019, in which the number of publications grew between 51% and 300%. The second phase is the period between 2020 and 2023, in which the growth of publications is flat. The first phase is clearly a fast-growing-initiation phase, which combines the field's emergence and development; the second is a transitional phase which signals a change as a result of external conditions. It was determined

**Table 4.** Description of the collected dataset (Established March 17, 2023)

| Description                     | Results   | Description                    | Results |
|---------------------------------|-----------|--------------------------------|---------|
| Main information about data     |           | Authors collaboration          |         |
| Timespan                        | 2014:2023 | Single-authored docs           | 77      |
| Sources (Journals, Books, etc.) | 287       | Co-authors per doc             | 2.95    |
| Documents                       | 561       | International co-authorships % | 26.92   |
| Annual Growth Rate %            | 29.15     | Document types                 |         |
| Document Average Age            | 2.96      | Article                        | 536     |
| Average citations per doc       | 22.97     | Article; book chapter          | 1       |
| References                      | 29,259    | Article; early access          | 21      |
| Document contents               |           | Article; proceedings paper     | 3       |
| Keywords Plus (ID)              | 1,043     |                                |         |
| Author's Keywords (DE)          | 1,644     |                                |         |
| AUTHORS                         |           |                                |         |
| Authors                         | 1,352     |                                |         |
| Authors of single-authored docs | 72        |                                |         |

**Table 5.** Yearly publication, total citations per article, and total citation per year

| Year             | No of publications | TC per art (mean) | TC per year (mean) | Citable years |
|------------------|--------------------|-------------------|--------------------|---------------|
| 2014             | 2                  | 265.00            | 29.44              | 9             |
| 2015             | 4                  | 91.25             | 11.41              | 8             |
| 2016             | 12                 | 83.33             | 11.90              | 7             |
| 2017             | 36                 | 62.28             | 10.38              | 6             |
| 2018             | 53                 | 50.13             | 10.03              | 5             |
| 2019             | 80                 | 28.50             | 7.13               | 4             |
| 2020             | 111                | 21.31             | 7.10               | 3             |
| 2021             | 110                | 9.78              | 4.89               | 2             |
| 2022             | 112                | 2.69              | 2.69               | 1             |
| 2023 to 17 March | 20                 | 1.55              | 0                  | 0             |

**Figure 2.** Yearly publications, yearly total citations (mean). [Colour figure can be viewed at [wileyonlinelibrary.com](https://onlinelibrary.wiley.com)]

that the first phase be the period before COVID-19 and the second during COVID-19 to reflect the pandemic and its effects on SEBM research as well as to encourage further exploration of such effects. Even

though it is not possible to assume that COVID-19 has affected the publication growth for the last 3 years (2020, 2021, and 2022), it is a fact that the number of articles published is not significantly low.



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During the study period (2014–2023), the average annual number of citations increased significantly, with cumulative high peaks (256.00 as the average value) for early publications in 2014. Figure 2 illustrates that the total number of citations per year (29.44 for 2014) is higher than that for research papers published after 2015 (11.41), thus demonstrating the importance and contribution early publications have made to the SEBM area. However, citation statistics are a lagging indicator of the importance and contribution to SEBM research made by publications in a specific year. Low citation numbers for the most recent publication may not reflect the actual contribution, due to the lag.

### 4.3. Analysis of sources

#### 4.3.1. Most relevant sources by the number of publications

Figure 3 highlights the top 15 journals for SEBM research articles. The top five sources are *Sustainability* (54), *Journal of Cleaner Production* (33), *Journal of Business Research* (16), *Technological Forecasting and Social Change* (14), and *International Journal of Hospitality Management* (10). A total of 187 articles appear across the top 15 journals, representing 33.33% of the 561 articles in the dataset. This implies that these journals are major contributors affecting analysis results of this study and the SEBM area.

#### 4.3.2. High impactful sources

While the most relevant sources measure the total number of articles published in each journal, Table 6 lists the top 15 highest impactful sources – measured by h-index, g-index, and m-index. Ranked differently

to the most relevant sources, the five highest impactful journals are the *Journal of Cleaner Production* (h-index=21, total citations=1,328), *Sustainability* (14, 575), *Technological Forecasting and Social Change* (10, 534), *Journal of Business Research* (9, 315) and *International Journal of Hospitality Management* (7, 938), and all five journals started publishing relevant articles between 2016 and 2018.

In total, these top 15 most impactful journals published 179 articles, representing 31.9% of articles in the dataset. The total citation number of these 15 journals (6,164) represents 47.8% of the total citations of the entire dataset, considering the average citation number for each article (22.97) and the total citation numbers for the entire dataset (12,886). From this result, it can be inferred that these 15 journals are major contributors to and key impactful sources for SEBM research.

#### 4.3.3. Most locally cited sources

Figure 4 shows the top 15 most locally cited sources within the dataset of this study. Local citations measure how many times an article included in a dataset has been cited by the articles also included in the dataset. A cited source is a journal/book/conference proceeding series/etc. included in at least one of the reference lists (bibliographies) of the dataset. This research detects 14,306 locally cited articles. The *Journal of Cleaner Production* stands out in 1st position with 1,252 local citations, in 2nd position is the *Journal of Business Research* with 632 citations and *Technology Forecasting and Social Change* is in 3rd position with 553 citations. In other words, the results show that within the study's dataset, the *Journal of Cleaner Production* represents the greatest contribution

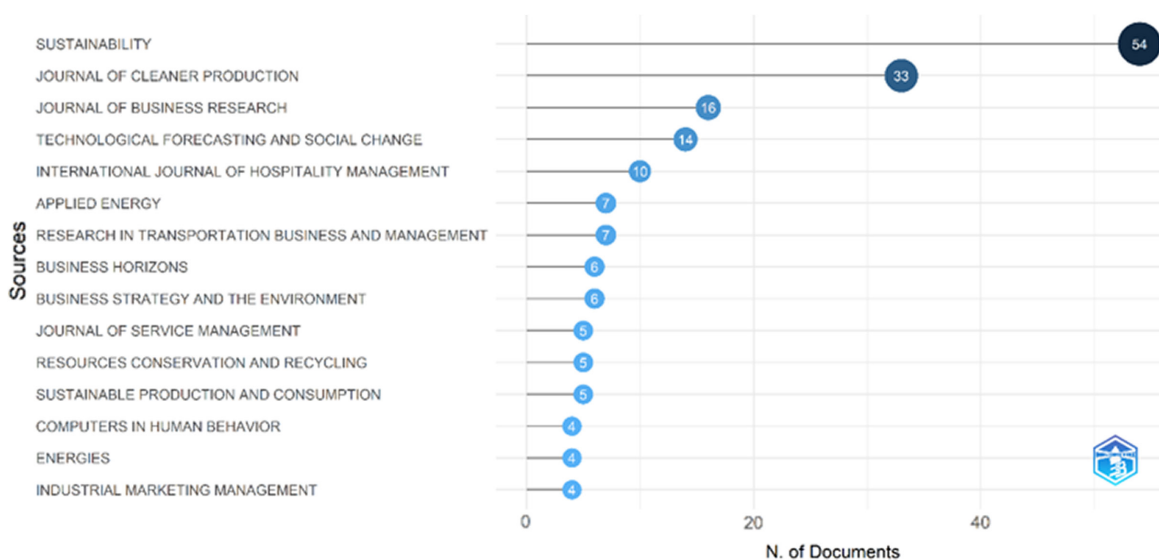
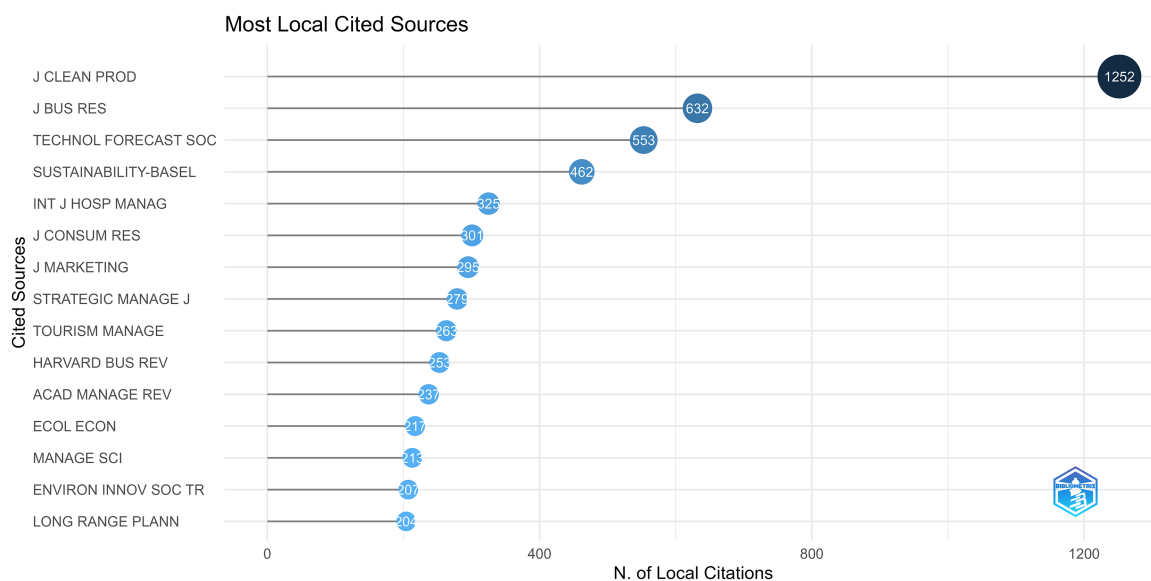


Figure 3. Top 15 most relevant sources. [Colour figure can be viewed at [wileyonlinelibrary.com](https://onlinelibrary.wiley.com)]

**Table 6.** Top 15 impactful SEBM sources

| Element   | h-index | g-index | m-index | TC           | NP         | PY_start |
|---|---------|---------|---------|--------------|------------|----------|
| <i>Journal of Cleaner Production</i>                      | 21      | 33      | 3       | 1,328        | 33         | 2017     |
| <i>Sustainability</i>                                     | 14      | 21      | 2       | 575          | 54         | 2017     |
| <i>Technological Forecasting and Social Change</i>        | 10      | 14      | 1.429   | 537          | 14         | 2017     |
| <i>Journal of Business Research</i>                       | 9       | 16      | 1.5     | 315          | 16         | 2018     |
| <i>International Journal of Hospitality Management</i>    | 7       | 10      | 0.875   | 938          | 10         | 2016     |
| <i>Business Horizons</i>                                  | 6       | 6       | 0.75    | 546          | 6          | 2016     |
| <i>Applied Energy</i>                                     | 5       | 7       | 0.714   | 269          | 7          | 2017     |
| <i>Business Strategy and the Environment</i>              | 5       | 6       |         | 72           | 6          |          |
| <i>Resources Conservation and Recycling</i>               | 5       | 5       | 1       | 240          | 5          | 2019     |
| <i>Computers in Human Behavior</i>                        | 4       | 4       | 0.444   | 454          | 4          | 2015     |
| <i>Industrial Marketing Management</i>                    | 4       | 4       | 0.667   | 232          | 4          | 2018     |
| <i>International Journal of Production Economics</i>      | 4       | 4       | 1       | 169          | 4          | 2020     |
| <i>Journal of Service Management</i>                      | 4       | 5       |         | 256          | 5          |          |
| <i>Research in Transportation Business and Management</i> | 4       | 5       | 1.333   | 28           | 7          | 2021     |
| <i>Sustainability (Switzerland)</i>                       | 4       | 4       | 0.667   | 182          | 4          | 2018     |
| <b>Total</b>  |         |         |         | <b>6,164</b> | <b>179</b> |          |



**Figure 4.** Top 15 most locally cited sources. [Colour figure can be viewed at [wileyonlinelibrary.com](https://onlinelibrary.wiley.com)]

to SEBM research. In total, these 15 most locally cited journals were cited 5,693 times, representing 39.79% of articles in the dataset. This indicates that these top-cited journals are vital contributors to the SEBM area.

#### 4.3.4. Source dynamics

Source dynamics shown in Table 7 refers to the number of articles published by the top 10 journals in the SEBM area from 2014 to 2023. The majority of these journals have consistently increased the publication of relevant articles. *Sustainability* and the

*Journal of Cleaner Production* are the top two journals, with SEBM articles being published every year since 2017.

#### 4.4. Analyses of area evolution and thematic map

First, this section provides a diagram of the thematic evolution of SEBM research; then, it illustrates research themes in the strategy map without considering the COVID-19, or the phases of the area

**Table 7.** Source dynamics

| Year   | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
|--|------|------|------|------|------|------|------|------|------|------|
| <i>Sustainability</i>  | 0    | 0    | 0    | 1    | 8    | 11   | 9    | 14   | 10   | 1    |
| <i>Journal of Cleaner Production</i>                                 | 0    | 0    | 0    | 1    | 6    | 8    | 10   | 6    | 2    | 0    |
| <i>Journal of Business Research</i>                                  | 0    | 0    | 0    | 0    | 1    | 0    | 3    | 3    | 7    | 2    |
| <i>Technological Forecasting and Social Change</i>                   | 0    | 0    | 0    | 2    | 2    | 2    | 2    | 2    | 2    | 2    |
| <i>International Journal of Hospitality Management</i>               | 0    | 0    | 1    | 0    | 2    | 1    | 2    | 1    | 3    | 0    |
| <i>Applied Energy</i>  | 0    | 0    | 0    | 2    | 0    | 0    | 1    | 3    | 1    | 0    |
| <i>Research in Transportation Business and Management</i>            | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 3    | 4    | 0    |
| <i>Business Horizons</i>   | 0    | 0    | 1    | 4    | 0    | 0    | 0    | 0    | 1    | 0    |
| <i>Business Strategy and the Environment</i>                         | 0    | 0    | 0    | 0    | 0    | 0    | 4    | 0    | 1    | 0    |
| <i>Journal of Service Management</i>                                 | 0    | 0    | 0    | 0    | 1    | 1    | 2    | 0    | 0    | 0    |
| <i>Resources Conservation and Recycling</i>                          | 0    | 0    | 0    | 0    | 0    | 1    | 4    | 0    | 0    | 0    |
| <i>Sustainable Production and Consumption</i>                        | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 4    | 1    | 0    |
| <i>Computers in Human Behavior</i>                                   | 0    | 1    | 0    | 0    | 0    | 1    | 2    | 0    | 0    | 0    |
| <i>Energies</i>  | 0    | 0    | 0    | 0    | 0    | 2    | 0    | 0    | 1    | 1    |
| <i>Industrial Marketing Management</i>                               | 0    | 0    | 0    | 0    | 1    | 1    | 0    | 2    | 0    | 0    |
| <i>International Journal of Innovation and Technology Management</i> | 0    | 0    | 0    | 0    | 0    | 1    | 2    | 1    | 0    | 0    |
| <i>International Journal of Production Economics</i>                 | 0    | 0    | 0    | 0    | 0    | 0    | 3    | 1    | 0    | 0    |
| <i>Sustainability (Switzerland)</i>                                  | 0    | 0    | 0    | 0    | 2    | 0    | 1    | 1    | 0    | 0    |

development introduced in the section of ‘scientific production and citations’. After that, having split the dataset into two time slices – before (2014–2019) and during COVID-19 pandemic (2020–2023) – the paper presents comparison studies conducted on thematic changes in the SEBM area.

#### 4.4.1. Thematic evolution in two time slices: 2014–2019 and 2020–2023

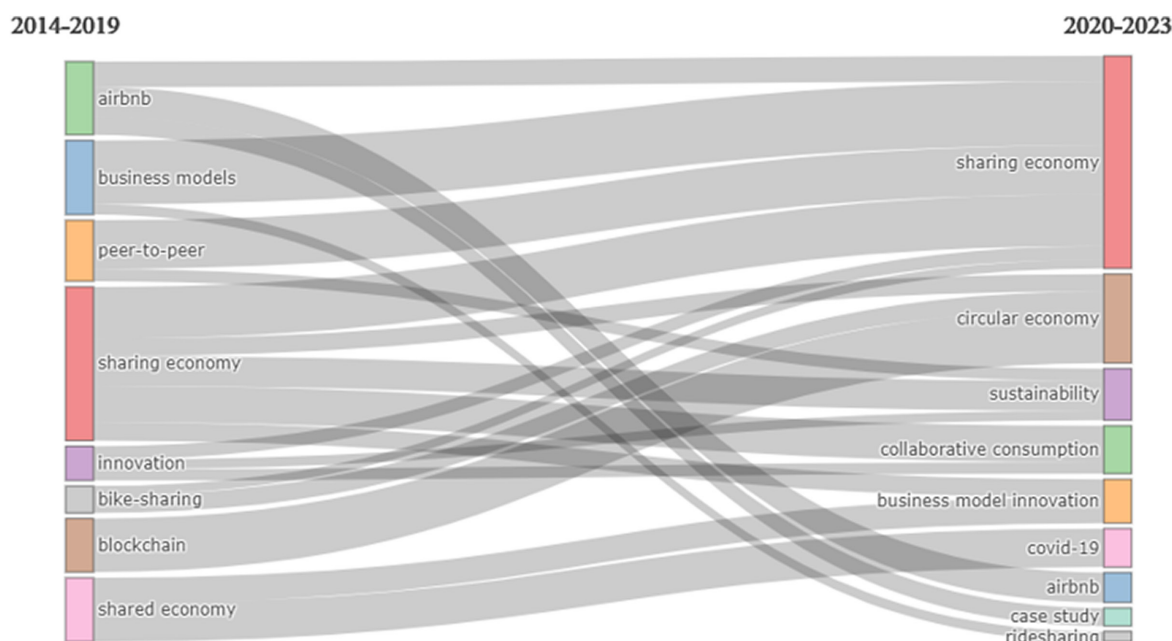
Figure 5 shows the evolution of the research themes, cluster, or topics across two time slices (2014–2019 and 2020–2023). It is clear that core themes remained despite the evolution and diversification of the research themes over time. The clusters of ‘sharing economy’, ‘business model innovation’, ‘Airbnb’, and ‘business models’ remained the four top research themes throughout the entire period of this SEBM study.

Although the focus of the figure is on the evolution of critical topics, core development between the two time slices can be observed. The ‘blockchain’ cluster evolved to being part of ‘circular economy’. The ‘Airbnb’ topic split into three clusters: ‘sharing economy’, ‘Airbnb’, and ‘case study’. The cluster of ‘bike-sharing’ merged into ‘sharing economy’ and ‘circular economy’. It is worth noticing that the ‘business models’ cluster in the 2014–2019 period

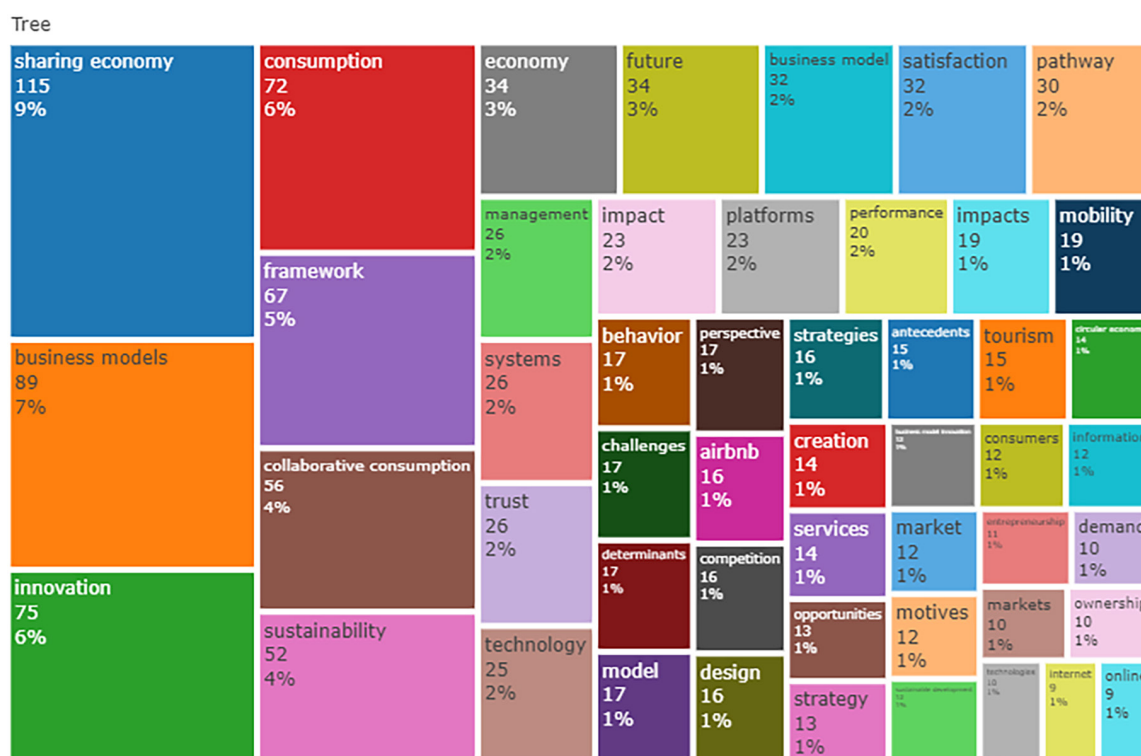
helped to grow a two new clusters, including ‘sharing economy’ and ‘ridingshare’.

From the perspective of new clusters in the period 2020–2023, the ‘sustainability’ cluster is a combined evolution of ‘peer-to-peer’, ‘sharing economy’, and ‘innovation’. The ‘circular economy’ cluster originated from the ‘blockchain’, ‘bikesharing’, and ‘sharing economy’ clusters. The cluster of ‘COVID-19’ is strongly related to the clusters of ‘sharing economy’. In summary, Figure 5 represents the overall evolution of topics and core development between two time slices. Some clusters have been split and merged with others between the two time slices. Some new clusters, such as ‘circular economy’, and ‘sustainability’ developed from a few research themes of 2014–2019 time slice. It is worth noticing that ‘COVID-19’ became a new research theme in the time slice of 2020–2023. This theme developed from within the broader theme of ‘shared economy’.

To understand the most relevant author keywords in the SEBM area, this study analyzed 50 author keywords by word-tree (Figure 6). It can be seen that preferred author keywords included sharing economy (appeared 115 times), business models (89), innovation (75), consumption (72), framework (67), collaborative consumption (56), sustainability (52), economy (34), and future (34). This word



**Figure 5.** Thematic evolution by author keywords before and during the COVID-19 pandemic. [Colour figure can be viewed at [wileyonlinelibrary.com](http://wileyonlinelibrary.com)]



**Figure 6.** Word-tree between 2014 and 2023 (top 50 author keywords). [Colour figure can be viewed at [wileyonlinelibrary.com](http://wileyonlinelibrary.com)]

tree represents the scientific conversations that were most likely to be had about SEBMs, and it shows how each keyword hierarchy linked back to the SEBM area.

Figure 6 also shows that the main author keywords related to SEBM research also included satisfaction (32), pathway (30), management (26), systems (26), trust (26), technology (25), impact (23), platforms

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(23), performance (20), impacts (19), and mobility (19). It is noteworthy that terms such as behavior (17), challenges (17), determinants (17), model (17), perspective (17), airbnb (16), competition (16), design (16), strategies (16), antecedents (15), tourism (15), and circular economy (14) were also commonly chosen by authors. It can be seen that these keywords and those discussed in the previous paragraph were well established and have a hierarchical relationship in the SEBM area.

#### 4.4.2. Thematic map without considering COVID-19 disruption

Between 2014 and 2023, ten research themes, covering the entire dataset of this SEBM study, were detected (Figure 7). These are,

- Three clusters classified as niche themes – ‘sharing platform, social value, conceptual model’, ‘aggregator, distribution systems, peer-to-peer transactions’, and ‘innovative economy, multi-level governance, sharing tourism’.
- Two clusters for the motor theme – ‘circular economy, blockchain, China’, and ‘Airbnb, business model innovation, disruptive innovation’.
- Three clusters of basic themes – ‘sharing economy, collaborative consumption, trust’, ‘business models, innovation, COVID-19’, and ‘business model, digital platforms, value creation’.

- Two clusters are classified as emerging or declining themes – ‘sustainability, value co-creation, car sharing’, and ‘sustainable development, uber, case study’.

For convenience in terms of identifying SEBM conversations, each cluster is given a simple label (Table 8) using the most frequently appearing author keywords in the cluster. The 10 labels are sharing economy, business model, sustainability, Airbnb, business models, circular economy, sustainable development, sharing platform, aggregator, and innovative economy. Since these labels are the key conversations of each cluster, they represent the most critical subjects in SEBM research. The size of spheres represents the number of author keywords/subjects within a cluster.

Clusters in Figure 7 were determined based on centrality (X-axis) and density (Y-axis) (refer to Table 3 in methodology section). Centrality measures the degree of relevance of a theme to other themes, whereas density measures the level of agglomeration within the theme (Zhai et al., 2022). The nature of the four quadrants’ characteristics can be applied to categorize these 10 clusters. Position in the upper-left quadrant (niche themes), aggregator, innovative economy, and sharing platform are well-developed, standalone themes that insignificantly influence the other themes (López-Robles et al., 2019). These

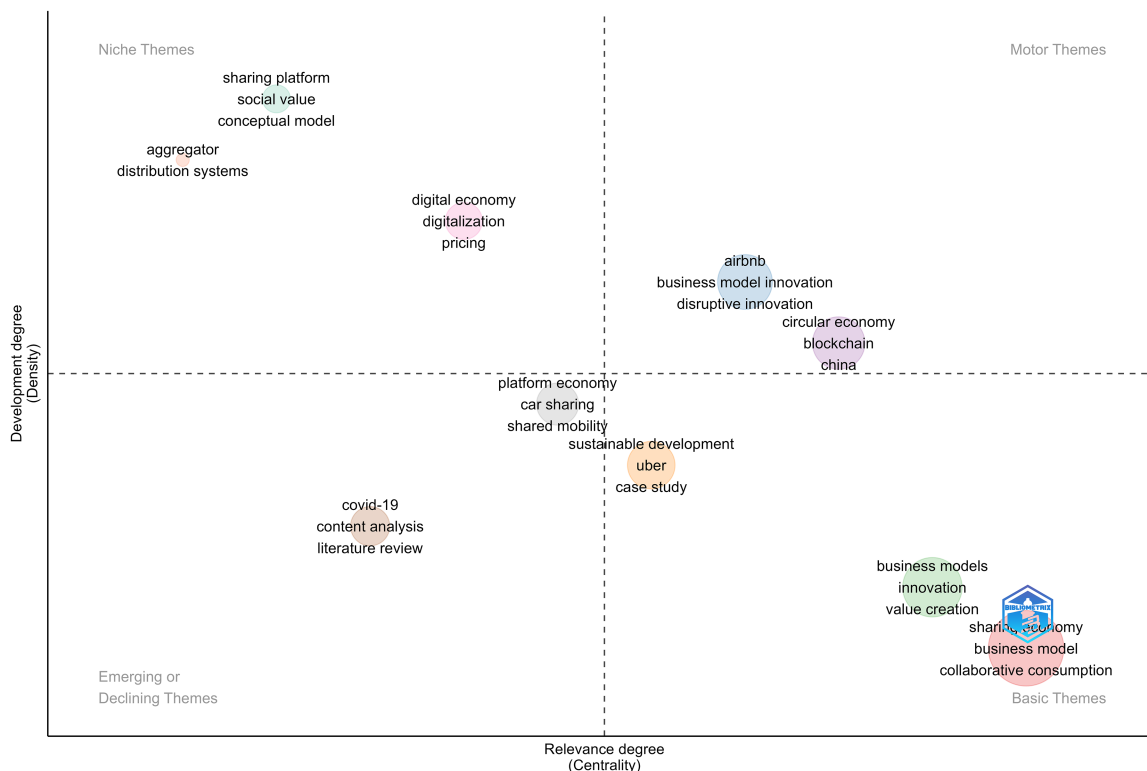


Figure 7. Thematic map by author keywords (2014–2023). [Colour figure can be viewed at [wileyonlinelibrary.com](https://onlinelibrary.wiley.com)]

**Table 8.** Cluster characteristics of the thematic map (2014–2023)

| No. | Label                   | Frequency | Callon centrality | Callon density | Rank centrality | Rank density |
|-----|-------------------------|-----------|-------------------|----------------|-----------------|--------------|
| 1   | Sharing Economy         | 680       | 3.517             | 47.771         | 10.00           | 3.00         |
| 2   | Business Models         | 183       | 2.173             | 46.940         | 8.00            | 2.00         |
| 3   | Airbnb                  | 165       | 1.749             | 63.254         | 6.00            | 7.00         |
| 4   | Business Model          | 159       | 1.816             | 50.049         | 7.00            | 4.00         |
| 5   | Sustainability          | 115       | 1.469             | 51.274         | 5.00            | 5.00         |
| 6   | Circular Economy        | 103       | 2.656             | 56.405         | 9.00            | 6.00         |
| 7   | Sustainable Development | 75        | 1.156             | 46.160         | 4.00            | 1.00         |
| 8   | Sharing Platform        | 14        | 0.361             | 87.963         | 3.00            | 8.00         |
| 9   | Aggregator              | 8         | 0.000             | 125.000        | 1.50            | 10.00        |
| 10  | Innovative Economy      | 6         | 0.000             | 100.000        | 1.50            | 9.00         |

three clusters have a marginal role in developing the SEBM area. The two clusters located in the upper-right quadrant (motor themes) – Airbnb and circular economy – are both well-developed themes and important for the literature development of the SEBMs.

Positioned in the lower-right quadrant (basic and transversal themes), business model, business models, and sharing economy are three clusters that are important for the SEBM area but not well developed. The purpose of having business model and business models as two separate clusters is to keep original data as it is, although these two can be combined into one. The two clusters – sustainability and sustainable development – positioned in the lower-left quadrant (emerging or declining themes) are weakly developed and marginal (López-Robles et al., 2019). Since the frequency of use of the keywords sustainability and sustainable development grew between 2014 and 2022 (1, 1, 1, 2, 7, 9, 11, 8, 4; and 0, 0, 0, 1, 1, 2, 8, 2, 4), these two themes are treated as emerging research trends. Again, these two clusters are not merged to maintain loyalty to the original dataset. Clusters with the potential to be merged are holistically analyzed in the section on emerging thematic trends and future research directions.

Table 9 shows the keywords within each cluster and their frequency; for example, digital economy, digitalization, pricing, value capture, value proposition, and open innovation are classified as one cluster (business model) since they intellectually appear together in related articles simultaneously. This means that authors commonly study these keywords together. Therefore, it is worth further investigating the causal relationship among them. The theme of interplay relationships among keywords in each cluster is further discussed in the future research directions section of this paper.

#### 4.4.3. Thematic map for before-COVID-19 time slice

Considering the articles between 2014 and 2019 as an individual datasets and applying the same procedure used in the previous subsection, Figure 8 illustrates the nine research themes detected for this period. These are classified as follows:

- Two niche themes – ‘innovative economy, multi-level governance, sharing tourism’, and ‘platforms, digital economy, tourism’.
- Three motor themes – ‘bike-sharing, business model canvas, car-sharing’, ‘crowdsourcing, value co-creation, firm performance’, and ‘business models, innovation, value creation’.
- Two basic themes – ‘sharing economy, collaborative consumption, business model’, and ‘Airbnb, disruptive innovation, sustainable development’.
- Two emerging themes – ‘blockchain, shared economy, distributed ledger technology’, and ‘business model innovation, value proposition, institutional theory’.

Table 8 describes each cluster in terms of measures of centrality and ranking, density, and ranking, and keyword frequency within each cluster. Based on Table 8 and Figure 8, the ‘sharing economy’ (label) cluster has the most significant keyword frequency (680), highest centrality (3.517, ranked 10), and middle-level density (47.771, ranked 3). Such measures imply this cluster is the most relevant to other clusters and in the lower-middle level of the agglomeration in comparison with other clusters. Representing relationships among business models, digital platforms, value creation, and more, the ‘business models’ cluster has the second most keyword frequency (183), third highest centrality (2.173, ranked 8), and low density (46.940, ranked 2). These measures indicate that the cluster has strong relevance with other clusters and high

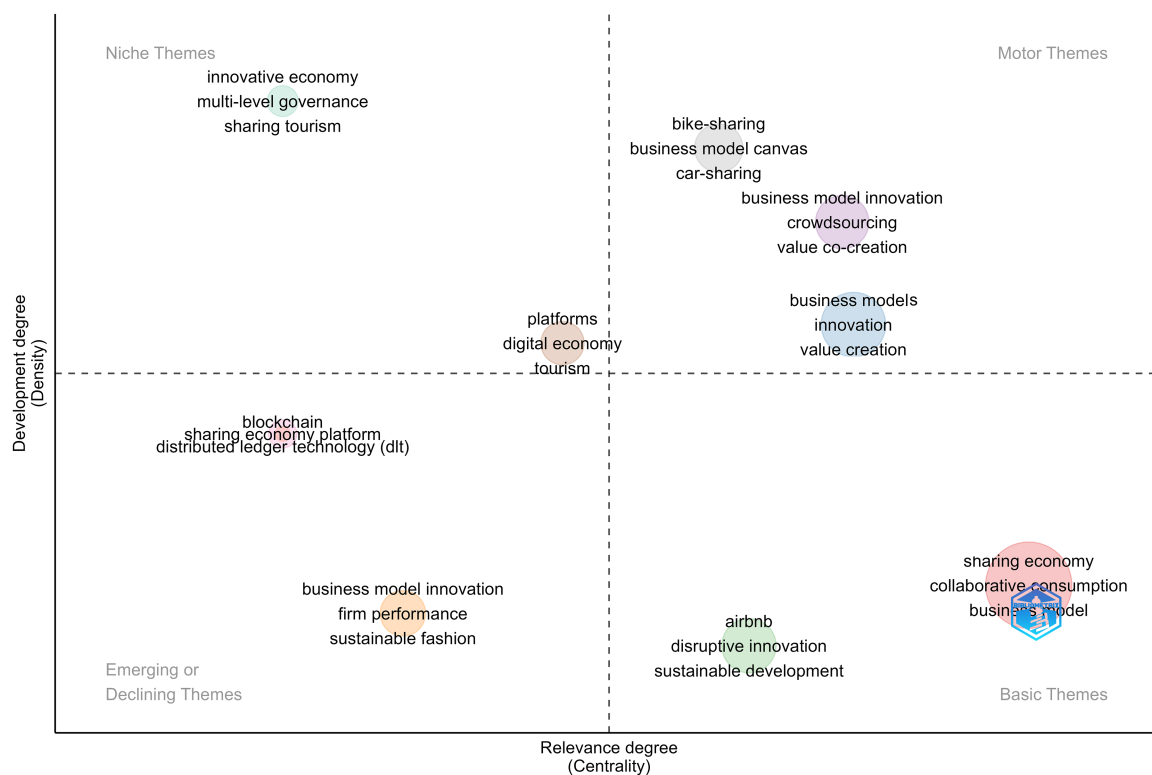
**Table 9.** Keywords within each cluster

| No. | Cluster label   | Keywords (times appeared within the cluster)  |
|-----|-----------------|---|
| 1   | Sharing Economy | Sharing Economy (342), Collaborative Consumption (54), Trust (16), Sustainable Business Models (14), Collaborative Economy (13), Peer-To-Peer (13), Access-Based Consumption (10), Digital Platform (10), Carsharing (9), Gig Economy (9), Ridesharing (9), Content Analysis (7), Business Model Design (6), Car-Sharing (6), Loyalty (6), Platform Economy (6), Sustainable Consumption (6), Digital Transformation (5), Legitimacy (5), Access-Based Services (4), Cluster Analysis (4), Consumer Behavior (4), Risk Management (4), Sharing (4), Systematic Literature Review (4), Business-To-Consumer (3), Conjoint Analysis (3), Crowd Logistics (3), Crowdshipping (3), Digital Innovation (3), Institutional Theory (3), Internationalization (3), Motivation (3), P2p Platforms (3), Policy (3), Product Service Systems (3), Quality (3), Remanufacturing (3), Rental (3), Ride-Sharing (3), Service Innovation (3), Access Economy (2), Brazil (2), Business Ethics (2), City Logistics (2), Co-Citation Analysis (2), Collaborative Fashion Consumption (2), Collaborative Platforms (2), Emerging Economies (2), Emerging Markets (2), Energy Transition (2), Food Sharing (2), Fsqca (2), Lateral Exchange Markets (2), Laundromat (2), Millennials (2), Network Effects (2), New Business Model (2), New Materialism (2), Peer-To-Peer Economy (2), Peer-To-Peer Markets (2), Perceived Value (2), Performance (2), Product-Service Systems (2), Purchase Intention (2), Quality Service (2), Self-Brand Connection (2), Service (2), Service Management (2), Servitization (2), Sharing Business Models (2), Sharing Cities (2) |
| 2   | Business Model  | Business Model (59), Digital Platforms (12), Value Creation (11), Digital Economy (6), Digitalization (5), Pricing (5), Value Capture (5), Value Proposition (5), Open Innovation (4), Energy Storage (2), Internet (3), Pricing Strategy (3), Resource Management (3), Ride-Hailing Platform (3), Smes (3), Sustainable Fashion (3), Typology (3), Digital Revolution (2), Dynamic Performance Management (2), Dynamic Pricing (2), Electricity Market (2), Energy Policy (2), Fashion Rental (2), Free-Floating Bike-Sharing Platform (2), Game Theory (2), Marketplaces (2), Revenue Model (2), Shared Energy Storage (2), Smart Tourism (2)   |
| 3   | Sustainability  | Sustainability (45), Value Co-Creation (9), Car Sharing (5), Crowdsourcing (5), Shared Mobility (5), Sustainable Development Goals (5), System Dynamics (5), Bike Sharing (3), Sdgs (3), Sharing Economy Platform (3), Supply Chain Management (3), Transportation (3), Urban Transport (3), Access <i>Versus</i> Ownership (2), Customer Value (2), Electric Vehicles (2), Firm Performance (2), Government Regulation (2), Ict (2), Outsourcing (2), Service Quality (2), Sharing Economy (2)   |
| 4   | Airbnb          | Airbnb (39), Business Model Innovation (24), Disruptive Innovation (9), Peer-To-Peer Accommodation (8), Tourism (7), Sustainable Business Model (6), Digital Entrepreneurship (4), Accommodation Sharing (3), Framing (3), Informal Economy (3), Online Platform (3), Social Innovation (3), Sustainable Tourism (3), Business Environment (2), Business Models For Sustainability (2), Carbon Footprint (2), Competitive Strategy (2), Consumer Behaviour (2), Consumption Patterns (2), Digital Technology (2), Dockless Bike-Sharing (2), Gentrification (2), Home Sharing (2), Hospitality (2), Hotels (2), Human Capital (2), Internet Of Things (Iot) (2), Life Cycle Assessment (2), London (2), Media Discourse (2), Multi-Sided Platform (2), Peer-To-Peer Business (2), Platform Capitalism (2), Sentiment Analysis (2), Sharing Accommodation (2), Short-Term Rental (2)   |
| 5   | Business Models | Business Models (39), Innovation (15), COVID-19 (8), Platform (7), Platforms (7), Shared Economy (7), Strategy (6), Governance (6), Literature Review (6), Bibliometrics (5), Disruption (5), Entrepreneurship (5), Regulation (5), Social Media Analytics (5), Community (4), Ecosystem (4), Pandemic (4), Competition (3), Design (3), Ecosystems (3), Markets (3), Resilience (3), Social Media (3), Stakeholders (3), Citation Analysis (2), City (2), Co-Working (2), Collaboration (2), Convergence (2), Cooperation (2), Emerging Market (2), Engagement (2), Institutional Change (2), Scenarios (2), Services (2), Smart Cities (2)  |

(Continues)

**Table 9.** (Continued)

| No. | Cluster label           | Keywords (times appeared within the cluster)   |
|-----|-------------------------|--|
| 6   | Circular Economy        | Circular Economy (26), Blockchain (9), China (8), 0 (5), Big Data (4), Industry 4 (4), Product-Service System (4), Urban Mobility (4), Bike-Sharing (3), Business Model Canvas (3), Collaborative Governance (3), Distributed Ledger Technology (Dlt) (3), Industry 4.0 (3), Shanghai (3), Supply Chain (3), Artificial Intelligence (2), Barriers (2), Circular Business Model (2), Dematel (2), Dynamic Capabilities (2), Green Economy (2), Green Growth (2), Internet Of Things (2), Mobility As A Service (2) |
| 7   | Sustainable Development | Sustainable Development (21), Uber (12), Case Study (9), Corporate Social Responsibility (4), Stakeholder Theory (4), Case Studies (3), Investment (3), Online Platforms (3), Sharing Economy Business Model (3), Taxi (3), Business Model Transformation (2), Economy (2), Germany (2), Infrastructure (2), Platform Urbanism (2)   |
| 8   | Sharing Platform        | Sharing Platform (3), Social Value (3), Conceptual Model (2), Consumer Perceived Value (2), Economic Value (2), Emotional Value (2)  |
| 9   | Aggregator              | Aggregator (2), Distribution Systems (2), Peer-To-Peer Transactions (2), Pv Generation (2)   |
| 10  | Innovative Economy      | Innovative Economy (2), Multi-Level Governance (2), Sharing Tourism (2)  |



**Figure 8.** Thematic map of author keywords before COVID-19 pandemic. [Colour figure can be viewed at [wileyonlinelibrary.com](https://onlinelibrary.wiley.com)]

agglomeration in comparison with other clusters. These two clusters and the ‘business models, innovation, COVID-19’ cluster are strongly related to other themes in the table, but they have a low level of agglomeration.

Further, the ‘innovative economy’ cluster contains the smallest frequency (6), lowest centrality (0.000,

ranked 1), and second highest density (100.00, ranked 9); thus, it has the lowest relevance to other clusters and the lowest agglomeration within the cluster in comparison to others. The ‘aggregator’ and ‘sharing platform’ clusters share similar characteristics of reasonable frequency (8 and 14), high density (125.00 and 87.963), and low centrality (0.000 and



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0.361). They are well-developed research themes but have a low level of relevance to other topics in the SEBM area.

Following this line of analysis, 'Airbnb' and 'circular economy' are well-developed themes and have strong relevance to other topics in the SEBM area. On the other hand, 'sustainability' and 'sustainable development' are themes that require further development and generate strong relationships with other topics in the SEBM area. These results have strong implications for future research directions, which are discussed in the next section.

Themes can also be divided by average density and centrality lines (dot lines in Figure 8). Based on their density and relevance degree (higher or lower than average density), both motor themes and basic themes (upper right and lower right quadrants of Figure 8, respectively) are considered to be those that benefit the development and consolidation of specific knowledge fields. On the other hand, niche themes and emerging themes are considered as having potential to develop interconnections with other themes to benefit the research area. Meantime, the motor and niche themes are research topics that are well-developed, and emerging and basic themes are considered to have potential to develop their internal strength to become well-developed themes.

Following these rules, Table 10 (with cluster labels) shows that sharing economy, business models, Airbnb, crowdsourcing, and business model innovation are five clusters that played a key role in SEBM area development and consolidation before COVID-19. On the other hand, the five clusters of bike-sharing, platforms, blockchain, innovative economy, sharing economy platform (labels in Table 10) are predicted as themes that have potential to grow their ties with the SEBM area. From a theme development perspective, innovative economy, bike-sharing, crowdsourcing, platforms, and

business models are five clusters shown to be well-developed. On the other hand, the clusters of sharing economy, blockchain, sharing economy platform, business model innovation, Airbnb do not have well-developed internal strength but do have potential to develop external ties with other clusters, so they have played a less important role in the development of the SEBM area.

Table 10 shows the 'sharing economy' (label) cluster has the most significant frequency, highest centrality (2.669, ranked 10) and fifth highest density (50.184), indicating that this cluster is the most relevant to other clusters and reasonably well-developed inside the cluster. It implies that the 'sharing economy, collaborative consumption, business model' research theme is the most critical research topic across the entire SEBM area. On the other end, the 'sharing economy platform' cluster contains the smallest frequency (2 in Table 10), lowest centrality (0.000, ranked 1), and lower than medium-level density (50.00, ranked 3.5). This cluster, therefore, has the lowest relevance to other clusters and a reasonable agglomeration within the cluster. The implication is that this research topic is the least relevant to the SEBM area before COVID-19.

Table 11 lists all keywords and their frequency of occurrence in each cluster for the time slice before COVID-19. The table lists all relevant conversations within each cluster or research topic. The most common keywords with sharing economy cluster (total 31 keywords) include collaborative consumption, business model, sustainability, circular economy, collaborative economy, peer-to-peer, and trust. These keywords represent the most interacting conversations being researched together. In the same way, some closely interacting conversations in the business models cluster are innovation, value creation, uber, carsharing, ridesharing, design, governance, and strategy. Conversations researched together with

**Table 10.** Cluster characteristics of the thematic map (before the COVID-19 pandemic)

| No | Cluster label             | Keywords frequency | Callon centrality | Callon density | Rank centrality | Rank density |
|----|---------------------------|--------------------|-------------------|----------------|-----------------|--------------|
| 1  | Sharing Economy           | 277                | 2.669             | 50.184         | 10              | 5            |
| 2  | Business Models           | 64                 | 1.734             | 52.057         | 9               | 6            |
| 3  | Airbnb                    | 30                 | 0.589             | 38.869         | 8               | 1            |
| 4  | Crowdsourcing             | 17                 | 0.583             | 79.167         | 7               | 8            |
| 5  | Business Model Innovation | 16                 | 0.251             | 42.593         | 4               | 2            |
| 6  | Bike-Sharing              | 16                 | 0.500             | 93.750         | 6               | 9            |
| 7  | Platforms                 | 14                 | 0.361             | 56.667         | 5               | 7            |
| 8  | Blockchain                | 10                 | 0.167             | 50.000         | 3               | 3.5          |
| 9  | Innovative Economy        | 6                  | 0.000             | 100.000        | 1.5             | 10           |
| 10 | Sharing Economy Platform  | 2                  | 0.000             | 50.000         | 1.5             | 3.5          |

**Table 11.** Keywords and frequency in clusters before COVID-19

| No. | Cluster label             | Keywords and frequency   |
|-----|---------------------------|--|
| 1   | Sharing Economy           | Sharing Economy (122), Collaborative Consumption (26), Business Model (22), Sustainability (21), Circular Economy (9), Collaborative Economy (8), Peer-To-Peer (6), Trust (6), Content Analysis (5), Sustainable Business Models (5), Access-Based Consumption (4), Sustainable Consumption (4), Digital Platforms (3), Access Economy (2), Access Versus Ownership (2), Business-To-Consumer (2), Business Model Design (2), Car Sharing (2), Collaborative Platforms (2), Consumer Behavior (2), Crowd Logistics (2), Digital Transformation (2), Gig Economy (2), Literature Review (2), P2p Platforms (2), Platform Economy (2), Sharing (2), Sharing Business Models (2), Smart Tourism (2), Systematic Literature Review (2), Typology (2) |
| 2   | Business Models           | Business Models (17), Innovation (8), Value Creation (6), Uber (5), Carsharing (4), Ridesharing (4), Design (3), Governance (3), Strategy (2), Collaboration (2), Community (2), Disruption (2), Regulation (2), Resilience (2), Taxi (2)  |
| 3   | Airbnb                    | Airbnb (14), Disruptive Innovation (5), Sustainable Development (4), Case Study (3), Home Sharing (2), SMEs (2)  |
| 4   | Crowdsourcing             | Crowdsourcing (4), Value Co-Creation (3), Firm Performance (2), Outsourcing (2), Supply Chain Management (2), Transportation (2), Two-Sided Market (2)   |
| 5   | Business Model Innovation | Business Model Innovation (9), Value Proposition (3), Institutional Theory (2), Sustainable Fashion (2)  |
| 6   | Bike-Sharing              | Bike-Sharing (2), Business Model Canvas (2), Car-Sharing (2), China (2), Collaborative Governance (2), Ride-Sharing (2), Sustainable Consumption And Production (2), Urban Mobility (2)  |
| 7   | Platforms                 | Platforms (4), Digital Economy (3), Tourism (3), Internet (2), Marketplaces (2)  |
| 8   | Blockchain                | Blockchain (3), Shared Economy (3), Distributed Ledger Technology (2), Emerging Market (2)   |
| 9   | Innovative Economy        | Innovative Economy (2), Multi-Level Governance (2), Sharing Tourism (2)  |
| 10  | Sharing Economy Platform  | Sharing Economy Platform (2)   |

Airbnb include disruptive innovation, sustainable development, case study, home sharing, and SMEs. The table shows all clusters and their closely related keywords.

#### 4.4.4. Thematic map for during COVID-19 time slice

By applying an identical procedure for analyzing the COVID-19 thematic map as that for without considering COVID-19 disruption, Figure 9 illustrates that 12 clusters were detected:

- Three clusters classified as niche themes – ‘aggregator, distribution systems, peer-to-peer transactions’, ‘pricing, resource management, dynamic pricing’, and ‘Airbnb, peer-to-peer accommodation, tourism’.
- Three clusters for the motor theme – ‘business model innovation, sustainable business model, strategy’, ‘circular economy, China, innovation’, and ‘sustainability, value co-creation, blockchain’.
- Three clusters belong to basic themes – ‘sharing economy, business model, collaborative consumption’, ‘business models, COVID-19,

bibliometrics’, and ‘peer-to-peer, carsharing, shared mobility’.

- Three clusters of emerging themes – ‘ridesharing, system dynamics, case study’, ‘sustainable development, sustainable business models, pricing strategy’, and ‘self-brand connection’.

Table 12 shows the ‘sharing economy’ cluster has the most significant frequency (438), highest centrality (3.65, ranked 12), and a low-level density (47.938, ranked 2). These measures indicate that this cluster is the most relevant to other clusters and has a low level of agglomeration in comparison with other clusters. The results indicate the substantial contribution the cluster has made to the SEBM area. At the other end, the ‘self-brand connection’ cluster contains the smallest frequency (2), lowest centrality (0.000, ranked 2), and low-level density (50.000, ranked 4). This cluster, therefore, has the lowest relevance to other clusters and the lowest agglomeration within the cluster. The results also indicate the significant potential of the ‘self-brand connection’ cluster.

Figure 9 also shows that sharing economy, sustainability, circular economy, business models,

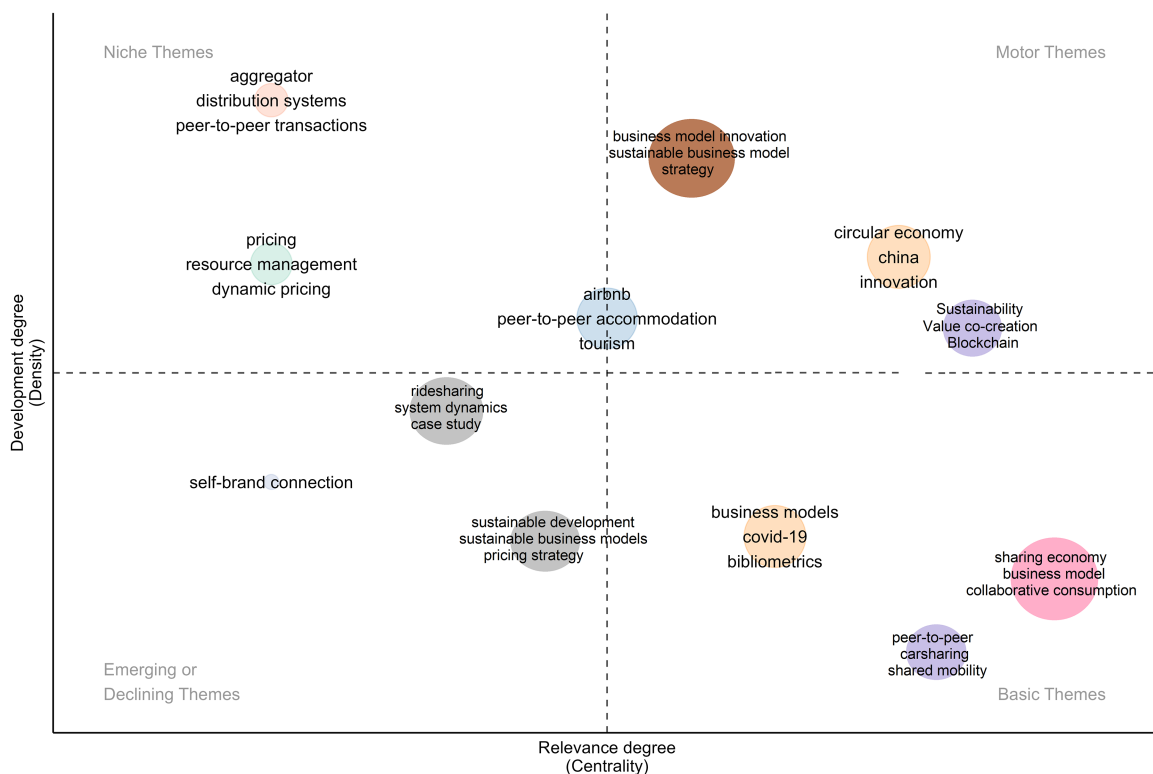


Figure 9. Thematic map by author keywords during COVID-19. [Colour figure can be viewed at [wileyonlinelibrary.com](https://onlinelibrary.wiley.com)]

Table 12. Cluster characteristics of the thematic map during the COVID-19 pandemic

| No. | Cluster                   | Frequency | Callon centrality | Callon density | Rank centrality | Rank density |
|-----|---------------------------|-----------|-------------------|----------------|-----------------|--------------|
| 1   | Sharing Economy           | 438       | 3.653             | 47.938         | 12              | 2            |
| 2   | Sustainability            | 97        | 1.753             | 64.598         | 11              | 8            |
| 3   | Business Models           | 69        | 1.166             | 49.147         | 9               | 3            |
| 4   | Circular Economy          | 65        | 1.684             | 65.201         | 10              | 9            |
| 5   | Airbnb                    | 60        | 0.556             | 63.568         | 5               | 7            |
| 6   | Ridesharing               | 44        | 0.196             | 57.170         | 4               | 6            |
| 7   | Sustainable Development   | 42        | 0.634             | 54.000         | 6               | 5            |
| 8   | Business Model Innovation | 34        | 0.638             | 89.500         | 7               | 11           |
| 9   | Peer-To-Peer              | 16        | 0.711             | 39.306         | 8               | 1            |
| 10  | Pricing                   | 15        | 0.000             | 65.278         | 2               | 10           |
| 11  | Aggregator                | 8         | 0.000             | 125.000        | 2               | 12           |
| 12  | Self-Brand Connection     | 2         | 0.000             | 50.000         | 2               | 4            |

peer-to-peer, and business model innovation (labels in Table 12) are six clusters that have played a key role in SEBM area development. In contrast, six clusters on the upper and lower-left quadrants – sustainable development, Airbnb, ridesharing, pricing, aggregator, and self-brand connection – are themes that have potential to develop their ties with the SEBM area. From a density perspective,

aggregator, business model innovation, pricing, circular economy, sustainability, and Airbnb (labels in Table 12) are six clusters that are independently well-developed. In contrast, clusters of ridesharing, sustainable development, self-brand connection, business models, sharing economy, and peer-to-peer all have potential to develop their internal strength.

**Table 13.** Keywords and frequency in clusters during COVID-19

| No. | Cluster_Label             | Keyword and frequency   |
|-----|---------------------------|---|
| 1   | Sharing Economy           | Sharing Economy (210), Business Model (37), Collaborative Consumption (26), Digital Platform (9), Digital Platforms (9), Trust (9), Gig Economy (7), Uber (7), Platform (6), Access-Based Consumption (5), Business Model Design (4), Car-Sharing (4), Cluster Analysis (4), Digital Entrepreneurship (4), Digitalization (4), Entrepreneurship (4), Legitimacy (4), Social Media Analytics (4), Value Capture (4), Value Creation (4), Access-Based Services (3), Crowdfunding (3), Digital Economy (3), Digital Transformation (3), Ecosystem (3), Motivation (3), Online Platforms (3), Collaborative Fashion Consumption (2), Community (2), Competition (2), Consumer Behavior (2), Cooperation (2), Corporate Social Responsibility (2), Digital Innovation (2), Economy (2), Fashion Rental (2), Food Sharing (2), Germany (2), Infrastructure (2), Internationalization (2), Lateral Exchange Markets (2), New Business Model (2), Perceived Value (2), Performance (2), Platform Urbanism (2), Quality Service (2), Service Innovation (2), Social Media (2), Sustainable Value Creation (2), Systematic Literature Review (2), Unicorn (2), Utaut2 (2), Value Proposition (2) |
| 2   | Sustainability            | Sustainability (23), Value Co-Creation (6), Blockchain (5), Collaborative Economy (5), Loyalty (5), Platform Economy (4), Sustainable Development Goals (4), Accommodation Sharing (3), Regulation (3), Sharing Platform (3), Stakeholders (3), Urban Transport (3), Car Sharing (2), City (2), Consumer Perceived Value (2), Customer Value (2), Framing (2), Gentrification (2), Ict (2), Industry 4.0 (2), Quality (2), Sdgs (2), Service Quality (2), Social Capital Theory (2), Social Value (2), Supply Chain (2), Sustainable Transition (2)   |
| 3   | Business Models           | Business Models (21), COVID-19 (8), Bibliometrics (4), Literature Review (4), Pandemic (4), Risk Management (4), Shared Economy (4), Disruption (3), Ecosystems (3), Governance (3), Platforms (3), Citation Analysis (2), Co-Working (2), Convergence (2), Servitization (2)   |
| 4   | Circular Economy          | Circular Economy (15), Sustainable Development (15), Sustainable Business Models (9), Pricing Strategy (6), Big Data (4), Industry 4 (4), Product-Service System (4), Markets (3), Artificial Intelligence (2), Circular Business Model (2), Green Economy (2), Green Growth (2), Internet Of Things (2), Scenarios (2), Sustainable Consumption (2), Uberization (2), Urban Mobility (2)   |
| 5   | Airbnb                    | Airbnb (24), Peer-To-Peer Accommodation (7), Tourism (4), Sustainable Tourism (3), Content Analysis (2), Digital Technology (2), Hospitality (2), London (2), Multi-Sided Platform (2), Platform Capitalism (2), Sharing Accommodation (2), Social Innovation (2), Systematic Review (2)  |
| 6   | Ridesharing               | Ridesharing (5), System Dynamics (5), Case Study (4), Disruptive Innovation (3), Informal Economy (3), Open Innovation (3), Ride-Hailing Platform (3), Barriers (2), Bike Sharing (2), Brazil (2), Conceptual Model (2), Dematel (2), Dynamic Performance Management (2), Emerging Markets (2), Government Regulation (2), Uber China (2)   |
| 7   | Sustainable Development   | Sustainable Development (15), Sustainable Business Models (9), Pricing Strategy (3), Rental (3), Business Model Transformation (2), Conjoint Analysis (2), Free-Floating Bike-Sharing Platform (2), Product Service Systems (2), Purchase Intention (2), Remanufacturing (2)  |
| 8   | Business Model Innovation | Business Model Innovation (15), Sustainable Business Model (5), Strategy (4), Business Environment (2), Dockless Bike-Sharing (2), Internet Of Things (Iot) (2), Stakeholder Theory (2), Sustainable Value Proposition (2)  |
| 9   | Peer-To-Peer              | Peer-To-Peer (6), Carsharing (5), Shared Mobility (3), Policy (2)   |
| 10  | Pricing                   | Pricing (4), Resource Management (3), Dynamic Pricing (2), Energy Policy (2), Game Theory (2), Shared Energy Storage (2)  |
| 11  | Aggregator                | Aggregator (2), Distribution Systems (2), Peer-To-Peer Transactions (2), Pv Generation (2)  |
| 12  | Self-Brand Connection     | Self-Brand Connection (2)   |

Following Donthu et al.'s (2021) explanation that the important themes, which are not well-developed for a research field, are positioned in the basic quadrant. It can be stated, then, that the clusters of

business models, peer-to-peer, and sharing economy are not in full bloom yet, while the clusters of self-brand connection, sustainable development, and ridesharing are emerging topics in the SEBM area

that require internal strength development within the topics and interconnection development with other topics in SEBM area.

Table 13 lists all keywords and their frequency of occurrence in each cluster for the during COVID-19 time slice. The table lists all relevant conversations (keywords) within each topic (cluster). The most commonly used keywords within the sharing economy cluster (total 53 keywords) include business model, collaborative consumption, digital platform, digital platforms, trust, gig economy, uber, platform, access-based consumption, business model design, car-sharing, and more. These keywords are the most interconnected research conversations. In addition, some closely interconnected conversations in the sustainability cluster are sustainability, value co-creation, blockchain, collaborative economy, loyalty, platform economy, sustainable development goals, accommodation sharing, and regulation. Conversations that are being researched together with the circular economy cluster include circular economy, sustainable development, sustainable business models, pricing strategy, big data, industry 4, product-service systems and markets.

## 5. Emerging thematic trends and future research directions

This section answers the final two research questions – What are the emerging trends in SEBM research? and What are the future directions for SEBM research? All the thematic evolution and mapping results, that is, those considering with and without the before and during COVID time slices, are synthesized to further explore emerging trends and identify future research directions. The discussion in this section comprehensively summarizes the figures and tables appearing in the results section.

### 5.1. Thematic evolution and emerging trends

Several thematic trends were revealed by thematic evolution and mapping for the entire period of research and the before and during COVID-19 time periods. All detected themes were classified into four groups: (1) themes are both well-developed important for the conceptual and intellectual structure of SEBM research, (2) themes have well-developed internal ties but have potential to expand external ties with the SEBM area, and have played a marginal role in the development of SEBM research so far, (3) themes are both weakly developed and marginal, and

(4) themes are important for the SEBM area, with well-developed external ties with other themes but are not well-developed. This section focuses on synthesizing thematic evolution and emerging trends unearthed in the previous section and exploring development strategies for these essential themes to advance the SEBM area.

#### 5.1.1. Thematic evolution

The thematic mapping analysis for the entire period of the dataset, that is, without considering the COVID-19 disruption, showed that both well-developed and important themes for the construction of the SEBM area are ‘circular economy, blockchain, China’ and ‘Airbnb, business model innovation’ and ‘disruptive innovation’ (see Figure 7 and the analysis). Themes that played a strong role in area development but require further internal tie development are ‘sharing economy, collaborative consumption, trust’, ‘business models, innovation, COVID-19’, and ‘business model, digital platforms, value creation’. Themes weakly developed and playing a marginal role are ‘sustainability, value co-creation, car sharing’, and ‘sustainable development, uber, case study’. Themes that are well-developed and playing a marginal role are ‘sharing platform, social value, conceptual model’, ‘aggregator, distribution systems, peer-to-peer transactions’, and ‘innovative economy, multi-level governance, sharing tourism’.

Analyzing Figure 7 together with Figure 8 (before COVID-19) and 9 (during COVID-19), it is observed that Figure 7 results are strongly determined by Figure 9 results and less determined by those for Figure 8. For example, themes of ‘aggregator, distribution systems, peer-to-peer transactions’, ‘circular economy, blockchain, China’, and ‘business models, innovation, COVID-19’ only show up in strategy maps for the during COVID-19 time slice (Figures 7 and 9). Therefore, it can be concluded that the research themes that are currently predominant in SEBM literature were established after 2020 (transition phase of Figure 2).

Another SEBM evolution example is the conversation about sustainability or sustainable development. Before COVID-19, there was only one sustainable development conversation, with ‘Airbnb, disruptive innovation, sustainable development’ as a basic theme. In contrast, during COVID-19, there were three research themes led by sustainability, including ‘sustainable development, sustainable business models, pricing strategy’ as an emerging theme, ‘sustainability, value co-creation, blockchain’, and ‘business model innovation, sustainable business model, strategy’ as two motor themes. Without considering COVID-19, two research topics concerning sustainability are

emerging themes: ‘sustainability, value-co-creation, car sharing’, and ‘sustainable development, Uber, case study’. Considering the entire dataset, these examples, first, demonstrate that research themes related to sustainability and sustainable development were generated during the COVID-19 period. Furthermore, it indicates that the conversation of sustainability has evolved into various research themes in the last few years. Instead, before COVID-19, that is, in the fast-growing-initial phase, sustainability was pretty much studied as a standalone theme.

### 5.1.2. Emerging trends

Considering the period of during COVID-19 (2020 to March 2023), which is identified in this study as the transitional phase of SEBM literature, the thematic map analysis showed three emerging research trends. They are ‘ridesharing, system dynamics, case study’, ‘sustainable development, sustainable business models, pricing strategy’, and ‘self-brand connection’. The first was strongly related to the optimization of dynamic SEBM systems in six dimensions, including conversations of innovation (disruptive, open innovation), business type (informal economy), platforms (ride-hailing platform, bike sharing), ecosystem (barriers, government regulation, emerging markets, China, Brazil), research method (conceptual model, DEMATEL, and dynamic performance management).

The second trend was split from original topic of ‘Airbnb, disruptive innovation, sustainable development’, and ‘business model innovation, value proposition, institutional theory’ before COVID-19. As an emerging theme, current conversations are strongly related to sustainability (sustainable development, sustainable business models, business model transformation, strategy), production, and platform (product service systems, rental, remanufacturing, bike-sharing platform), customer behaviors (purchase intention). Some latest publications support this sustainability-oriented trends. They believe that theoretically and empirically understanding and recognizing (un)sustainable business models, determinants, and impact of (un)sustainable business models are main research targets at the moment (Bocken and Short, 2021; Csutora et al., 2022). Meantime, future research should focus on social effects, environmental impacts, and economic possessions (Cocquyt et al., 2020; Gao and Li, 2020; Csutora et al., 2022).

Self-brand connection is the third emerging research trend, one that appeared early during the COVID-19 period. Aiming to understand how brand loyalty is associated with self-brand connection through brand experience should be the focus of the trend. Through brand experience, a self-brand connection should be

associated with the measure of how well a brand is incorporated into the self-concept of the consumer. Consequently, consumer-brand relationships are of varying intensities. Current conversations include perceived corporate social responsibility and customer behaviors (Jeon et al., 2020).

Without separating the SEBM literature into the two phases of fast-growing-initiation and transitional, the entire dataset points to two emerging research themes: ‘sustainability, value co-creation, car sharing’, and ‘sustainable development, Uber, case study’. These two themes can be combined into a future research direction of the sustainable SEBM development. The trend is supported by the finding from this other type of analysis in the second paragraph of this subsection.

Three research trends detected for the time slice of during COVID-19 are worth further study since their origins cannot be linked to themes for the before COVID-19 time slice. They are ‘aggregator, distribution systems, peer-to-peer transaction’, ‘circular economy, China, innovation’, and ‘business models, COVID-19, bibliometrics’. The first trend is mainly related to energy industry (Trabucchi et al., 2019), and it has potential to be extended to other industries (Qin et al., 2022). The second is strongly related to knowledge of green growth (circular business model, green economy, green growth, sustainable consumption), new technologies (big data, industry 4, product-service system, artificial intelligence, internet of things), and ecosystem (China, innovation, markets, scenarios, uberization, urban mobility). The third trend is about SEBM research method from a COVID-19 perspective and points to a direction of the bibliometric analysis approach. The trend implies that the popularity of the application of bibliometric analysis in SEBMs indicates that the area is not matured and requires further studies from interdisciplinary perspective. COVID-19 effects on SEBMs are forecasted as a future research direction in the next section.

In addition to these emerging trends, many detected conversations (frequently used keywords) can be considered as future research subjects. They are ‘consumer adoption-repurchase intention’, a one-author theme about peer-to-peer platforms (Wirtz et al., 2019); ‘legitimacy-mechanisms-power’, a new theme regarding the fairness and positive and negative effects of the sharing economy (Pies et al., 2020; Chuah et al., 2022); ‘tourism-accommodation-collaborative economy’, an updated theme with the upgraded concept of collaborative economy (de-Miguel-Molina et al., 2021); ‘collaborative consumption-business model-trust’, an existing theme; ‘innovation-consumption-framework’, an existing theme; ‘sharing

economy-business models-systems', an existing theme; and 'big data-sales-digital platforms', a new theme focusing on sustainable organizational development (Cui et al., 2021; Yuan et al., 2022). It can be seen that there are differences between the entire dataset results and the COVID-19-focused results. Three new clusters, 'legitimacy-mechanisms-power', 'tourism-accommodation-collaborative economy', and 'big data-sales-digital platforms' have been established.

## 5.2. Future research directions in a holistic view

Without considering the COVID-19 effect, the entire dataset analysis revealed two emerging themes: 'sustainability, value co-creation, car-sharing', and 'sustainable development, Uber, and case study'. This indicates that sustainable development in SEBM research is an emerging trend. Screening keywords in Table 8, there two themes are broadly related to every aspect of SEBMs from transport to regulation, from hospitality to social responsibility, from online platform to peer-to-peer transaction. Therefore, sustainability, as a research subject, will be central to all SEBM studies in the future.

During the COVID-19 pandemic, the thematic analysis uncovered three emerging themes: 'aggregator, distribution system, peer-to-peer transaction', 'circular economy, China, innovation', and 'self-brand connection'. In general, the first theme signals that future research should consider new optimal SEBMs for socioeconomic development with social acceptance considerations since aggregators involve a change of ownership as Trabucchi et al. (2019) indicated. The second theme is closely studied with both environmental goals of sustainable development and climate changing. This theme has gained great attention recently and will attract more interest. The third emerging theme indicates that the relationship among SEBMs, enterprise, and consumer behavioral changes results in varied intensity levels of consumer-brand relationships. The SEBM ecosystem and their influencing factors in relation to this theme are a research direction.

'Collaborative consumption', which occurred 26 times in both the before and during COVID-19 time slices, has been and will continue to be an important direction, since it has close links with consumption, tourism, opportunities, antecedents, model, impact, Airbnb, online, trust, behavior, consumer, and information (see Figures 6–9). This theme has economic, social, and sustainability characteristics: reducing customer expenses, providing social benefits, and being environmentally friendly (three bottom line theory). More importantly, collaborative

consumption blurs the link between e-commerce and social media frameworks and SEBMs. Furthermore, not only is the *Sustainability Journal* the most relevant journal, but also 370 (66%) articles within the dataset emphasized the importance of sustainability from either business development, business model, or environmental perspectives. It is clear that SEBMs have been examined conceptually and empirically based on sustainability and this thematic conversation will continue (Figures 3, 5–9).

Sustainability as a keyword occurred 21 times in research themes associated with the 'sharing economy' cluster for the before COVID-19 time slice. In addition, the keyword sustainable development occurred four times in the Airbnb cluster. In contrast, both sustainability and sustainable development evolved into individual research themes in the during COVID-19 time slice. New sustainable development-related keywords appeared during COVID-19; these included sustainable consumption, sustainable tourism, sustainable business model, sustainable value proposition, sustainable value creation, and sustainable development goals. In contrast to this, sustainable consumption was the only keyword found in research themes for the before COVID-19 time slice. All this evidence highlights the strengthened relationship between SEBMs and sustainability and that sustainable development is an assured future direction. Subjects with this direction should cover consumption, tourism, value proposition, and creation.

Finally, the effects of COVID-19 have changed the ecosystem for the sharing economy as well as people's behavior (Akan and Tepeler, 2022); hence, the ramifications of COVID-19 for the sharing economy in a post-COVID-19 era need to be examined. COVID-19 was detected as a standalone conversation (Figure 5), and it was also recognized as a leading keyword in the business models theme (Figure 9) for the during COVID-19 time slice. Although the end of COVID-19 is in sight, the effects will not disappear overnight. How would SEBMs be able to attain competitive advantage in the post-COVID era? What are the modeling strategies to keep existing and creating new value: partnership or confrontation, nurturing or destructive, open or closed innovation and empathetic or uncaring?

## 6. Conclusion

The sharing economy is growing in terms of the number of enterprises as well as wealth creation and job generation. Consequently, today, it is one of the key drivers in fostering economic development. The current economic crisis caused by COVID-19

can promote the concept and practice of the sharing economy due to increased frugality within some consumer segments (Kraus et al., 2019, 2020). Therefore, synthesizing current scientific production, detecting thematic research trends, and forecasting the future research agenda will help to enhance current SEBM studies. It will also help to develop sustainable business models that might become necessary in a post-COVID-19 socioeconomic environment. This paper presented a descriptive, predictive, and prescriptive study of SEBMs through bibliometric analysis, which has been defined as quantitative research on research and the science of science (Donthu et al., 2021). This timely study was designed to capture the research theme shift for the period of before and during COVID-19 in the SEBM area through the use of bibliometric indicators as well as content review.

The purpose of this study was to explore the extant literature on SEBMs and systematically provide a holistic and precise portrayal of research in the area. To this end, 561 articles on the SEBM area were analyzed in eight steps: (1) scientific production, (2) sources, (3) thematic evolution, (4) thematic map for entire dataset (2014–2023), (5) thematic map for before COVID-19 (2014–2019), (6) thematic map for during COVID-19 (2020–2023), (7) analysis of emerging trends, and (8) forecast of future research directions. The results fully answered the eight research questions designed for the study.

Since the database searches did not return any SEBM-orientated articles from the years prior to 2014 even though the search query did not have a year limitation, the study concluded that SEBM research began in 2014. This paper conceptualized the development of the SEBM area into two phases: the fast-growing-initiation phase and the transitional phase. In the first phase, the number of publications grew between 51% and 300% between 2014 and 2018; in phase two, between 2020 and 2023, there were the same number of publications for each year.

Several research themes were detected through thematic evolution and strategy map analysis in three scenarios: the entire dataset without period consideration and before COVID-19 (2014–2019) and during COVID-19 (2020–2023). To conceptually summarize, the current themes in SEBM studies are (1) industry-oriented research such as transportation, tourism, accommodation, energy, and others, (2) sustainability-oriented studies, including social, environmental, and economic perspectives, (3) sustainable organizational development concerning social acceptance, trust, legitimacy, and satisfaction, (4) new technology-oriented and innovation-focused studies such as blockchain, big data, social media, and e-platforms, (5) country-,

region-, and culture-oriented studies, particularly for emerging countries, and (6) effects of entrepreneurial ecosystem factors on SEBM development, including government, law, finance, and social norms. These themes further confirm that SEBM studies need to be comprehensively conducted from multi- and interdisciplinary perspectives.

To synthesize the results of the research agenda analysis, further studies should be conducted to consider (1) the driving forces or determinants of SEBM development from developed and emerging economy perspectives, (2) the effects of country- or region-entrepreneurial ecosystem on SEBM development (incl. social effects) in addition to the company-focused business ecosystem, (3) systematic studies from SEBM deployment to the long-term effects on sustainable socioeconomic and environmental development, (4) collaborative consumption, since it blurs the link between e-commerce and social media framework and SEBMs, and (5) competition among SEBMs and between private and public practices.

This research contributes to the sharing economy literature by identifying and developing a more comprehensive view of SEBM studies while encouraging new research directions. Studies on the sharing economy should anticipate multiple research contexts, given that SEBMs is a complex phenomenon that requires the involvement of various parties (Kraus et al., 2021). The bibliometric analysis allowed for the formation of a foundation that represents the most comprehensive normality research possible on SEBMs, providing a research shortcut on themes and publications most prevalent over time and space.

New knowledge from this study benefits not only the scholastic sphere but has important implications for policymaking and practice. The uncovered driving forces and mechanisms of sustainable SEBM development are believed to have major implications for the SEBMs subject. In particular, the discovery of the significant role played by country-, region- and city-specific, and culture-oriented SEBMs provides clear paths for policymakers and practitioners to deploy localized business models. Furthermore, the results have significant implications for SEBM development practices, uncovering the existing interrelations between context and internal operations, particularly when internationalizing; therefore, based on this bibliometric analysis, practitioners will be able to develop a risk minimization framework beforehand.

This study faced limitations. By its nature, a bibliometric study focuses on the accumulated scientific production of a given theme or field within a given period. As the results showed, in the SEBM field, the



period is very recent (2014–2023). Thus, the field can be understood as still in the emerging phase; that is, its foundations have not been entirely established. Another limitation is that some studies may have been omitted from this research due to the inclusion and exclusion criteria established by the authors.

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## Conflict of interest statement

There are no conflicts of interest to disclose.

## Ethics statement

Not applicable.

## Data availability statement

The datasets generated during and/or analyzed during the current study are available by email request: [cduan@myune.edu.au](mailto:cduan@myune.edu.au).

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