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CO-CREATION DYNAMICS: A BIBLIOMETRIC EXPLORATION IN MANAGEMENT AND SOCIAL SCIENCES

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Abstract:

The study employs bibliometric techniques to review the growth of co-creation research from 2014 to 2024, using a dataset of 571 academic publications from Scopus. This study indicates that it has a wide-reaching and diverse industry with a robust year-on-year growth rate of 21.48%, representing the building interest in this area. Noteworthy results were 39.79 citations per document, on average (impactful results), along with 993 Keywords Plus (a sign of thematic diversity) and 2036 Author Keywords (instead a sign of thematic diversity). This systematic literature review utilized the PRISMA framework, which allows for an organized selection process that guarantees that the final dataset is relevant and high quality. The two chief approaches Quantitative Analysis and Network Analysis were used to visualize trends in the research, to identify leading scholars and institutions, to analyse co-authorship and keyword co-occurrence networks. Although the number of publications increases there are fewer average citations per article minimum evidence of saturation and/or transitions in the research question or questions addressed. Such a trend highlights the necessity of improving visibility and the selection of topics to maximise future impact. Broadly, these insights inform the findings of co-creation research and the implications of findings of future studies.

Keywords: Co-Creation, Value Co-Creation, Bibliometric Analysis, Management Research, Publication Trends, Research Impact, Network Analysis, Customer Engagement, Sustainability, Stakeholder Collaboration, Bradford's Law

1. Introduction

Co-creation is a key concept in areas like management, marketing, and governance. It has grown from being mainly about service production to a broader idea that includes collaboration and decision-making in governance (Ansell C., 2021) . Co-creation involves organizations and stakeholders working together to create value and find innovative solutions (Ansell C., 2021; Roser et al., 2014) . This approach shifts away from traditional power structures by encouraging consumer freedom and creativity while also benefiting businesses (Zwick et al., 2008).

Co-creation is the process of interactive collaboration within dynamic system environments, facilitated by interactive platforms, involving active participation and structured coordination (Ramaswamy & Ozcan, 2018) .

The co-creation framework in management and social sciences emphasizes collaborative processes that engage multiple stakeholders to address complex challenges. This approach is particularly relevant in contexts such as sustainability, public policy, and service design, where diverse perspectives and expertise are essential for innovative solutions. (Roser et al., 2014) highlights how the importance of motives and incentives in co-creation depends on the innovation stage, suggesting that different strategies work best at different phases, and calls for further research to refine and validate a comprehensive co-creation framework. The following rudiments will outline the key aspects of co-creation frameworks derived from recent research.

Co-Creation in Sustainability : A framework for co-creative communication in sustainability research highlights the need for tailored definitions of sustainability across disciplines, utilizing AI methodologies to enhance understanding and application (Lin & Wang, 2024).This framework facilitates the integration of diverse stakeholder insights, promoting effective collaboration in achieving the Sustainable Development Goals.

Addressing Wicked Problems: The co-creation framework for future mobility services illustrates how citizen engagement can align various stakeholders' interests, addressing the complexities of wicked problems (Roser et al., 2014). Themes such as Resilience, Opportunity, and Community are crucial for fostering collaborative environments that support innovative mobility solutions.

Public Value and Governance : A theoretical framework for co-creation in public policy integrates multiple theoretical perspectives to enhance the understanding of collaborative governance and public value creation (Moradi et al., 2024). This synthesis aids in identifying drivers and barriers to effective co-creation, ultimately improving service delivery and democratic legitimacy.

Consumer-Centric Co-Creation: The co-creation model in tourism emphasizes the importance of interactive communication between consumers and service providers, focusing on experience-oriented engagement (Leino et al., 2024). This model outlines the inputs,

outputs, and instruments involved in the co-creation process, providing a holistic view of consumer interactions.

Strategic Management of Co-Creation : The Co-Creation Design Framework serves as a strategic tool for organizations to identify co-creative opportunities, although it initially focused on product development (Zhang et al., 2024). Recent adaptations expand its applicability to social innovation and service design, enhancing its relevance across various contexts.

While co-creation frameworks offer significant benefits in fostering collaboration and innovation, challenges remain in effectively engaging all stakeholders and aligning their diverse interests. Future research should continue to explore these dynamics to enhance the practical application of co-creation in various fields. (Arnould & Helkkula, 2024) emphasizes the need for a paradigm shift in marketing to incorporate co-creation beyond profit-driven strategies. It emphasizes how the growth-focused nature of existing sustainable marketing strategies prevents them from addressing climate change and biodiversity loss. Rather, the study suggests a neo-animist view of co-creation, supporting the sharing of resources through reciprocal trade, gifting, and aggressive relationship. Co-creation can promote sustainable value development while honouring non-human actors by including these ideas. To expand and improve these alternative co-creation methods, more study is required. The elements of cocreation process are entity specific and hence it is very much need to understand the cocreation model.

Co-creation is a collaborative process where multiple stakeholders, including firms, customers, and other participants, actively contribute to value creation. Various models have been proposed to understand and enhance co-creation practices across different domains. The table below presents key co-creation models, their descriptions, and references. These models highlight different aspects such as communication, participation, stakeholder interactions, and value exchange, providing a structured approach to studying co-creation in business and management.

Cocreation Model	Description	Reference
DART Model	emphasizes communication, accessibility, risk assessment, and transparency as the four main tenets of co-creation.	(Prahalad & Ramaswamy, 2004)
SPIRAL Model	A cyclic approach where co-creation evolves through continuous Sharing, Participation, Ideation, Reflection, and Learning.	(Ind & Coates, 2013)

Co-Creation Matrix	Categorizes co-creation based on involvement levels (low to high) and control (firm vs. customer-driven).	(Ranjan & Read, 2016)
3P Model	Highlights the importance of Partnerships, Platforms, and Processes in enabling co-creation.	(Galvagno & Dalli, 2014)
Actor-to-Actor (A2A) Model	Views co-creation as a networked interaction where all stakeholders actively contribute to value creation.	(Vargo & Lusch, 2016)
Value Co-Creation Model	Outlines co-creation as a common process between firms and consumers, creating value beyond traditional exchanges.	(Grönroos & Voima, 2013)

Table 1: Cocreation Models

This table presents different co-creation models, their descriptions, and key references. The models include the DART Model, SPIRAL Model, Co-Creation Matrix, 3P Model, Actor-to-Actor (A2A) Model, and Value Co-Creation Model. Each model highlights various aspects of co-creation, such as communication, stakeholder involvement, partnerships, and value creation. References are provided for each model, citing influential authors in the field of co-creation research.

Co-creation in clinical research involves collaboration between experts and stakeholders to generate knowledge that aligns with community needs and enhances research impact (Greenhalgh T et al., 2016). This approach is increasingly used in healthcare and prosthetics research (Danaher et al., 2024). Successful co-creation requires a broad perspective, treating research as a creative process focused on human experience, and emphasizing relationships (Greenhalgh T et al., 2016). However, it faces challenges such as requiring significant time and resources (Chen et al., 2024). Since there are no standardized measures to assess co-creation quality, researchers are developing practical tools that involve diverse partners in the evaluation process (Jian Wang, Bart Thijs, 2015). These efforts aim to promote inclusive and adaptive research, leading to sustainable societal impacts (Greenhalgh T et al., 2016; Zhang et al., 2024). Co-creation in education means students and institutions working together to improve learning. This method encourages students to take part in shaping their education, creating benefits for both students and institutions (Sonia J. Ferns et al., 2022). Co-creation in anthropology means researchers and communities working together to create knowledge. In software development, studies show that when security experts collaborate with developers, they improve secure coding practices through hands-on learning (Palombo et al., 2020).

The idea of co-creation is applied across various fields, such as science communication and museum studies, where it brings both opportunities and challenges (Latuapon et al., 2023). In sustainability research, co-creation is viewed as a way to inspire new perspectives and alternative approaches to understanding the world (Zhang et al., 2024). As the concept becomes more widely used, it is important to address specific challenges and explore its impacts on business and society (C.K. Prahalad, 2002). Studying co-creation requires integrating different theoretical perspectives to better understand its processes, drivers, barriers, and outcomes (Zwick et al., 2008).

2. Review of the Literature:

2.1 Co-creation in Social Sciences

Co-creation in sociology means working together with different people to create value and bring new ideas. It is based on trust, openness, equality, and mutual exchange (Karsten E. Zegwaard & Pretti, 2023). This process depends on the knowledge, dedication, and values of the participants, as well as the support from society (José Muller, 2024). Co-creation can be understood through three aspects: creating a shared space, shaping situations, and building relationships. It involves activities like creating meaning, influencing behaviour, and developing value (Zalin Balci-Gouriye, 2020). In public services, co-creation helps make services better and more efficient by allowing citizens to take part in planning and delivering them (Taco Brandsen et al., 2018). The success of this approach can be measured by how much value it adds to society (Taco Brandsen et al., 2018). In education, when students are involved in designing courses and learning materials, they become more engaged and develop better learning habits (Sonia J. Ferns et al., 2022). It helps in bringing new ideas into teaching, especially in entrepreneurship education, where it boosts creativity and value creation among students (Lin & Wang, 2024). In design anthropology, co-creation encourages a fresh look at how people, technology, business, and design interact in today's digital world These examples show that co-creation helps make anthropology more inclusive and adaptable across different fields.(Palombo et al., 2020). Research shows that co-creation improves academic performance, student satisfaction, and engagement in learning (Meguro, 2024). To make co-creation work, teachers need to act as guides, and students must take a more active role in learning. This teamwork approach aims to improve education by combining student feedback, ideas, and skills with institutional support (Svoboda, 2022).

Overall, co-creation is a useful method that can be applied in many areas, from public services to education.

2.2 Bibliometric analysis in Co-creation

Value co-creation is an important idea in many fields, including business, tourism, and small and medium enterprises (SMEs). Research shows that it plays a key role in customer service, brand value, and service marketing (Victor Saha et al., 2020). In tourism, co-creation happens through collaboration between different people, with technology helping to improve experiences (Marco Tregua et al., 1994). Since co-

creation is used in different ways across various fields, it is sometimes difficult to find relevant studies and future research directions (Eichholz Jonas et al., 2023). Overall, research shows that value co-creation is an evolving concept that is becoming more important in many areas.

Bibliometric analysis is a useful method for studying research trends and impact in different fields. It provides an objective way to evaluate scientific literature and reduces researcher bias (Zupic Ivan & Cater Tomaz, 2015). This method has been used to study value co-creation, highlighting important themes like customer service, brand value, and service marketing (Victor Saha et al., 2020). Techniques such as citation analysis, co-citation analysis, and keyword analysis help identify key authors, important journals, and emerging trends in areas like management, business, and information systems (Eichholz Jonas et al., 2023). The use of bibliometric studies has increased significantly, especially in fields outside Information and Library Science, with multidisciplinary studies having the highest impact (O'Neill et al., 2023). However, challenges still exist, such as the lack of common understanding of key concepts and difficulty in selecting relevant studies from the large volume of available literature (Eichholz Jonas et al., 2023).

Based on the above evidences, it is evident that academics should further explore the concept of co-creation in management and social sciences, as it remains a relatively new area of study. This research aims to assess the current state of knowledge by analysing global literature through a bibliometric approach, considering various characteristics, and providing guidance for future researchers in this field. The retrospective evaluation of scientific output is expected to support the planning of future studies and enhance their quality. Additionally, the study's findings will contribute to the advancement of academic knowledge by identifying and evaluating key publications and emerging trends in co-creation within management and social sciences.

3. Methodology

3.1 Purpose of the research

Scientific research on co-creation has significantly increased in the fast few years. Assessing and synthesizing publications in the emerging field of co-creation is essential for evaluating scientific progress. Bibliometric analysis, which examines research productivity, citation impact, collaborative networks, and conceptual linkages, offers valuable insights. This study aims to explore research trends, bibliometric indicators, and the evolution of co-creation in management and social sciences. The findings will reveal key trends, relationships between publications, and provide direction for future research by identifying gaps and minimizing redundancy, thereby promoting originality in the field. This study aims to address the following questions:

i. Which journals publish the most research on co-creation, and who are the most significant authors?
ii. What are the co-authorship relationships amongst researchers, taking into account their nation and institution?
iii. What trends show up in the use of keywords and co-citations in co-creation studies?

3.2 Bibliometric analysis

This study used the bibliometric analysis method to examine over publications on "Cocreation" in the Scopus database. Bibliometrics is widely used in many different fields, including psychology and management sciences. It is a method in which mathematical and statistical methods are used to measure and analyse scientific publications obtained from the journals listed in the Scopus database. In this method, publications related to a certain or subject are classified according to the countries, institutions, research groups or authors, and a wide variety of analysis techniques are used, including citation-based and performance-based analyses (T Talan & M Demirbilek, 2022).

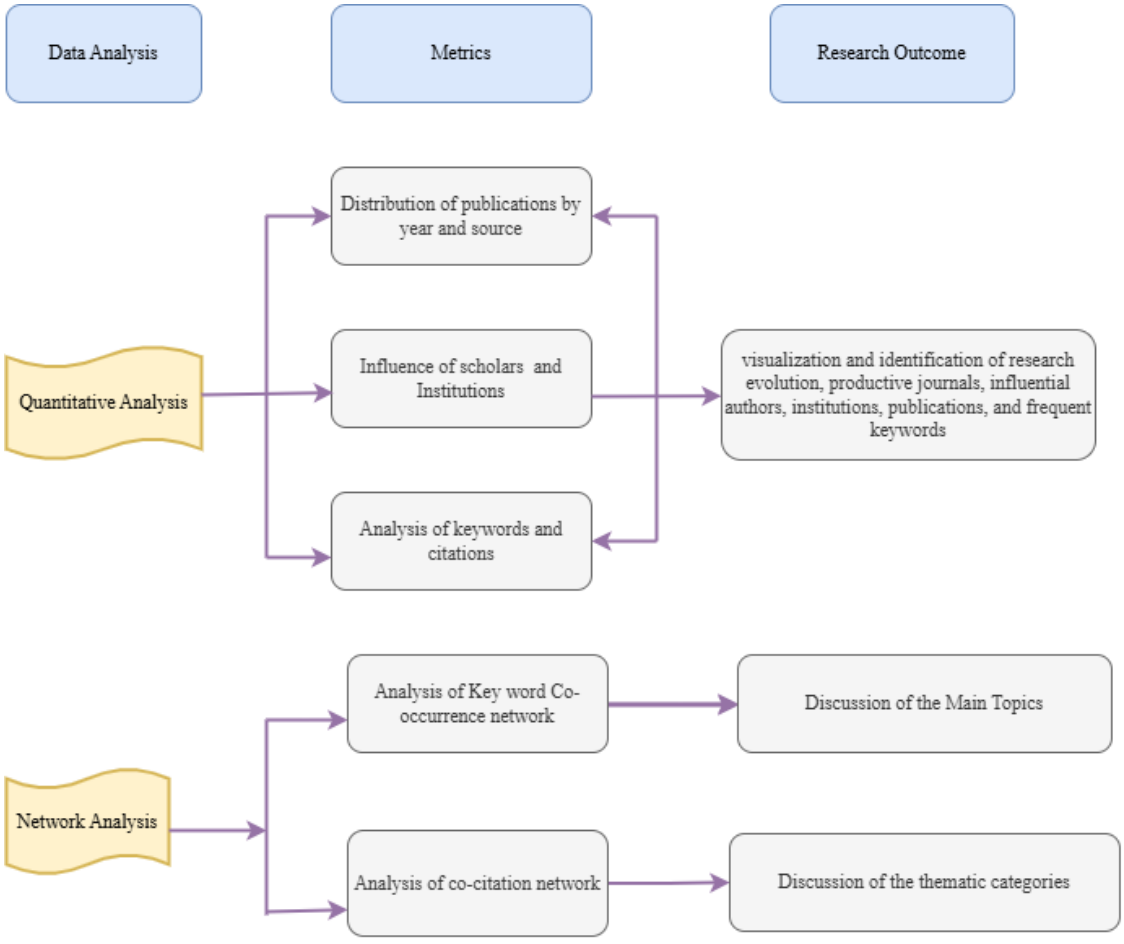

Fig.1. Analysis Approach

This figure illustrates the analysis approach used in the study, categorizing it into Quantitative Analysis and Network Analysis. Quantitative Analysis includes the distribution of publications by year and source, influence of scholars and institutions, and analysis of keywords and citations, leading to research visualization. Network Analysis involves keyword co-occurrence and co-citation network analysis, resulting in discussions on main topics and thematic categories. The framework highlights the relationship between data analysis, metrics, and research outcomes.

The Fig.1. presents a structured framework for analysing bibliometric data through **Quantitative Analysis** and **Network Analysis**, leading to meaningful research outcomes.

I. **Quantitative Analysis** focuses on three key metrics:

a) **Analysis of publications by year and source**: The distribution of publications by year and source helps to identify trends in research activity, assess the impact and popularity of different sources, and understand the evolving focus of research over time.

b) **Influence of scholars and institutions**: The influence of scholars and institutions refers to identifying key authors and organizations that have contributed significantly to a specific field, shaping research trends and driving the development of knowledge through high-impact publications and collaborations.

c) **Analysis of keywords and citations:** The analysis of keywords and citations helps to identify the main themes, trends, and areas of focus within a research field, while also assessing the impact and influence of specific studies based on their citation count.

d) **Bradford's Law of Scattering** is a principle used in bibliometrics to describe the distribution of articles or research publications within a given subject area. It was formulated by Samuel C. Bradford in 1934 and aims to illustrate how research is spread across various journals within a particular field. The law is typically used to identify core journals that are most significant in a specific field of study.

According to Bradford's Law, the distribution of publications will resemble the following pattern if journals in a topic area are ranked according to the quantity of papers they publish:

i. A small number of journals will account for the majority of the articles published (the "core" journals).
ii. A larger number of journals will publish fewer articles.
iii. An even larger number of journals will publish even fewer articles, forming a decreasing series.

Bradford’s Law suggests that in any research field, a small number of journals publish most of the studies, while many others contribute only a few. This pattern is divided into three zones:

- **Zone 1:** A few core journals that publish the majority of research papers.
- **Zone 2**: A larger set of journals that contribute fewer articles than the core journals.
- **Zone 3**: The largest set of journals, each of which publishes only a small number of articles related to the field.

e) **Lotka's law:** Alfred J. Lotka developed Lotka's Law in 1926 as a bibliometric principle that characterizes the frequency distribution of authors' scholarly publications. It states that the number of authors contributing **n** publications is inversely proportional to **n²** times the number of authors contributing only one publication. This means that as the number of publications per author increases, the number of such authors decreases significantly (Coile, 1977; Potter, 1981) . Lotka's law can be expressed mathematically as $A_n = \frac{A_1}{n^c}$, where A_n number of authors with n number of publications, A_1 is number of authors with single publication and c is typically 2 as proposed by Lotka.

These metrics help in visualizing **research evolution**, recognizing **highly productive journals**, and identifying **influential authors, institutions, and frequent keywords**.

II. **Network Analysis** is used to study relationships between research elements:

- **Keyword Co-occurrence Network Analysis** explores thematic structures by identifying commonly co-occurring keywords, leading to a **discussion of the main topics** in the research field.
- **Co-citation Network Analysis** examines the relationship between cited papers, enabling a **discussion of thematic categories** within the literature.

3.3 Identifying Keywords

The initial stage in bibliometric analysis is to identify the keywords utilized in the selection of research papers.

The design of the study as per the PRISMA framework illustrated in the Fig.2 outlines a systematic approach for selecting and filtering research articles from the **Scopus database** for bibliometric analysis on **cocreation** within the domains of **Business, Management, Accounting, and Social Sciences**. Initially, **1,520 articles** were identified based on a structured search query, applying filters for document type (articles only), publication stage (final publications), language (English), and subject areas. After a series of screening steps, including removing **non-relevant fields, book series, non-English papers, and in-press articles**, the final dataset was refined to **571 articles**. This structured approach ensures that the selected studies align with the research objectives, providing a comprehensive and high-quality dataset for bibliometric analysis.

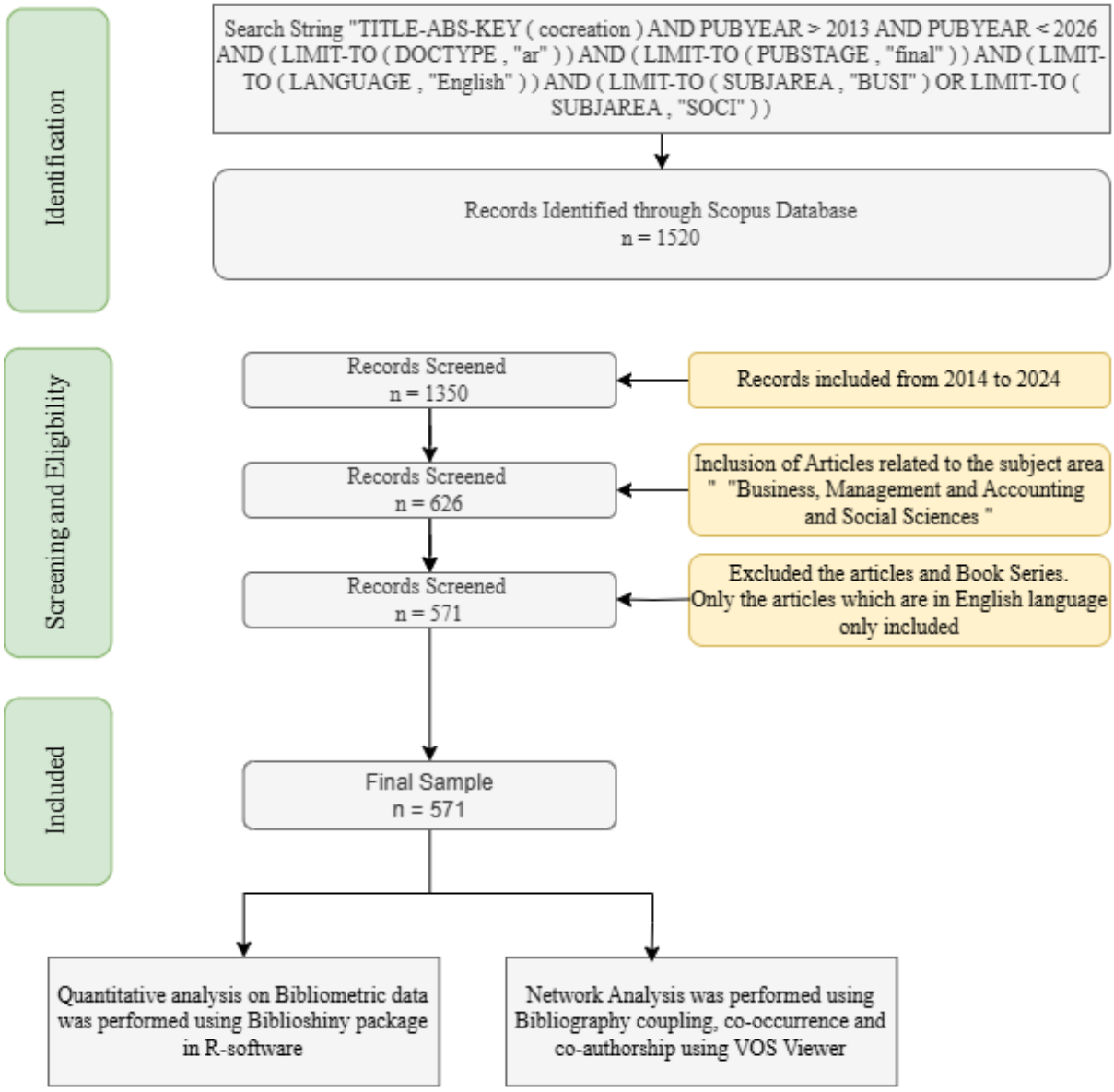

Fig.2. Design of Study

This figure represents the study design using the PRISMA framework for systematic literature selection. The process includes Identification, Screening, Eligibility, and Inclusion. An initial search in the Scopus database retrieved 1,520 records. After screening based on publication year (2014–2024), subject area (Business, Management, Accounting, and Social Sciences), and language (English), 571 articles were included in the final dataset. The study applies Quantitative Analysis using the Biblioshiny package in R and Network Analysis using VOSviewer for bibliographic coupling, co-occurrence, and co-authorship analysis.

4 Results of Bibliometric analysis

As indicated in fig.2, we divided the data analysis for this study into two stages: network analysis and quantitative analysis.

4.1. Summary of Bibliometric Data on Co-Creation Research (2014–2024)

A bibliometric examination of the state of cocreation research in the social sciences and management fields from 2014 to 2024 is shown in Table 2. It offers important information about the influence of citations, author contributions, collaboration patterns, and publishing trends.

MAIN INFORMATION ABOUT DATA	
Description	**Results**
Timespan	2014:2024
Sources (Journals, Books, etc)	291
Documents	571
Annual Growth Rate %	21.48
Document Average Age	4.47
Average citations per doc	39.79
References	37846
Keywords Plus (ID)	993
Author's Keywords (DE)	2036
Authors	1607
Authors of single-authored docs	65
AUTHORS COLLABORATION	
Single-authored docs	66
Co-Authors per Doc	3.15
International co-authorships %	33.1
article	571

Table.2. Main Information about the bibliometric data

A table titled **"Main Information About Data"** presents key bibliometric statistics for the timespan **2014-2024**.

This dataset gives a comprehensive picture of academic publications from 2014 to 2024, across 571 documents across 291 sources. The year-on-year growth rate of 21.48% clearly indicates a growing field and the results from the research. The first was published an average of 4.47 years ago, and each document receives an average of 39.79 citations, showing significant impact. It contains 37,846 references — this shows the breadth of the research network. Analysis of keywords reveals 993 Keywords Plus and 2,036 Author's Keywords, attesting to the thematic diversity of the research. A total of 33.1% of shared document is shared by people from different countries, and average co-authors per document equal 3.15. Most of the documents are articles, and 65 of them have a single author, showing that there is a mixture of individual and group research.

4.2 Year wise citation analysis

Citation analysis is the study of the frequency, patterns, and graphs of citations in research articles to evaluate the impact and influence of publications, authors, or journals (Garfield, 1972). Between 2014 and 31 December 2024, 1520 documents have been identified for the review on cocreation from the Scopus database. After having a series of screening steps, the final data set was refined to 571 publications. Table.3 presents a citation analysis of research publications from 2014 to 2024, highlighting citation impact trends, average citations per article, and yearly citation velocity.

Year	MeanTCperArt	N	MeanTCperYear	Citable Years	Total Citations	Yearly Citation Velocity
2014	127.08	13	10.59	12	1652.04	10.590
2015	183.38	29	16.67	11	5318.02	16.671
2016	141.32	28	14.13	10	3956.96	14.132
2017	80.63	35	8.96	9	2822.05	8.959
2018	43.45	38	5.43	8	1651.1	5.431
2019	57.02	43	8.15	7	2451.86	8.146
2020	31.35	55	5.23	6	1724.25	5.225
2021	13.4	62	2.68	5	830.8	2.680
2022	14.36	98	3.59	4	1407.28	3.590
2023	8.68	79	2.89	3	685.72	2.893
2024	2.42	91	1.21	2	220.22	1.210

Table 3: Year-wise Citation Metrics and Publication Trends

A table titled **"Year-wise Citation Metrics and Publication Trends"** presents annual citation trends from **2014 to 2024**. It includes metrics such as the number of articles published, total citations, mean citations per article, citation velocity, and citable years.

* MeanTCperArt (Mean Total Citation Per Article), MeanTCperYear (Mean Total citation per year), N (Total Citations) and Citable Years are extracted from the bibliographic data. Total Citation = MeanTCperArt * N
Yearly Citation Velocity = MeanTCperArt/Citable Years

The data in the Table 3 reveals that research impact peaked between 2014 and 2016, with the highest average citations per article and yearly citation velocity, particularly in 2015 (183.38 MeanTCperArt, 16.67 MeanTCperYear, and 5318.02 Total Citations). While the number of publications has steadily increased, reaching its highest in 2022 (98 articles) and 2024 (91 articles), the average citations per article have declined significantly over time. This suggests that while research output has expanded, individual article impact has diminished, possibly due to topic saturation or a shift in research focus. The total citation count and yearly citation velocity have declined in recent years, indicating that newer articles have yet to accumulate citations. Articles from 2023 and 2024 have the lowest citation impact, but this is expected as they have had less time to be cited. The trend highlights the need for enhanced visibility, open access publishing, and strategic research topics to maximize future citation impact.

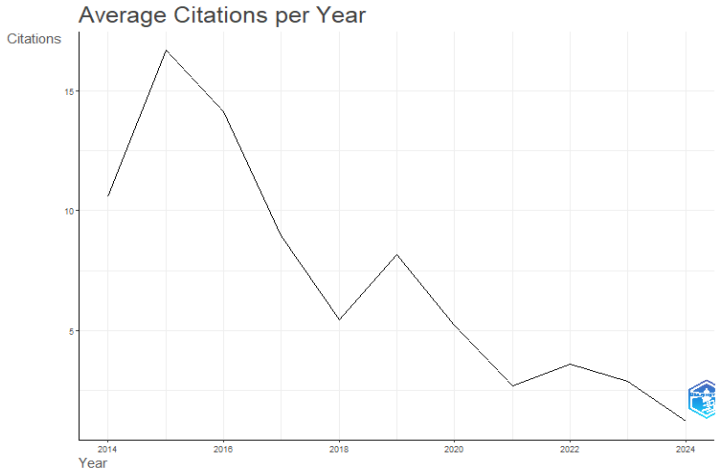

Fig.3. : Average Citations Per Year

A line graph titled **"Average Citations per Year"** illustrates the trend of average citations received annually from **2014 to 2024**. The **y-axis represents citations**, while the **x-axis represents years**.

The Fig.3 titled "Average Citations per Year" reveals a declining trend in citations from 2014 to 2024. Initially, there is a peak in average citations exceeding 15 in 2014, indicating strong interest in the published work. However, from 2015 onwards, there is a significant decrease, particularly sharp between 2015 and 2018, where citations drop below 10. This decline seems to stabilize around 5-10 citations from 2018 to 2021, indicating some sustained relevance, but a further decline occurs as we approach 2024, with average citations falling below 5. Overall, the data reflects a diminishing trend in interest and impact of the work over the decade, suggesting possible shifts in research focus or relevance within the field.

Recent studies have pointed to a concerning trend in scientific research, where the decline in disruptive and interdisciplinary work is evident, despite its potential for high impact. This decline may be reflective of the field's maturing stage, as indicated by the dataset's findings of fewer groundbreaking studies emerging. While interdisciplinary research has been associated with higher citation rates in some fields (Jian Wang, Bart Thijs, 2015) its impact may be delayed (Zhang et al., 2024) , which aligns with the observation of declining citation metrics. The relationship between interdisciplinarity and impact is complex, with factors such as variety, balance, and disparity influencing outcomes (Jian Wang, Bart Thijs, 2015). Over time, papers and patents have become less disruptive (Park et al., 2023), and the correlation between citation impact and disruption has shifted from positive to negative (Zeng et al., 2023). This trend is particularly pronounced in maturing fields (Collet et al., 2014), where the average document age of 4.47 years reflects a shift toward more incremental advancements rather than groundbreaking innovations. Stylized research, characterized by the innovative integration of diverse knowledge, continues to be undervalued in citation metrics despite its disruptive potential (Shu & Pan, 2023). These findings underscore the need for reforms in research evaluation and incentives to promote groundbreaking work, which could reignite the field's momentum and address the stagnation indicated by declining citation rates.

4.3 Journal Impact and Citation Analysis in Co-Creation Research

The visualization mentioned in the fig.4. presents the H-Index and total impact of various academic sources contributing to Cocreation with reference to management and social sciences.

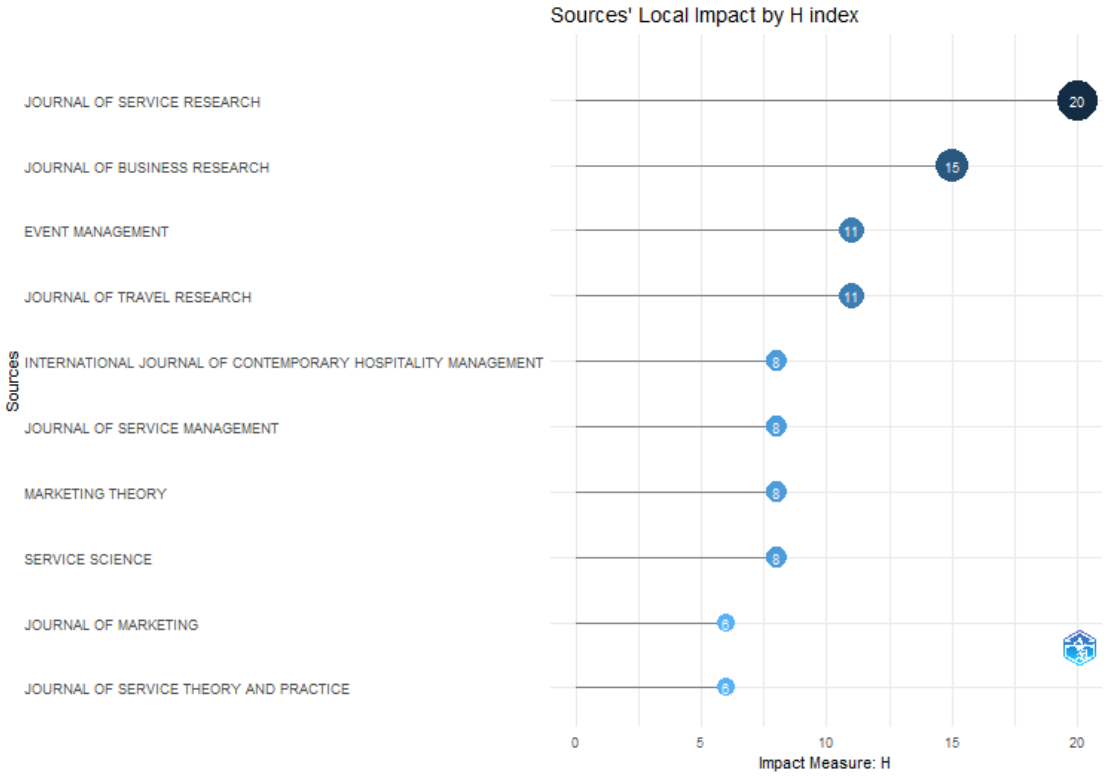

Fig.4: Sources Local Impact by H-index

A bubble chart titled "Sources' Overall Impact by H-Index" shows the H-Index impact of various academic journals. The y-axis lists journal names, and the x-axis represents their impact. Bubble size indicates H-Index values, with the largest bubble (H-Index = 20) showing the highest impact.

The H-Index is a key metric used to assess the influence and productivity of research journals by considering both the number of publications and their citation impact. The graph highlights the most influential sources in the field, providing insights into where impactful research is published. As shown in Fig.4 most journals have lower h-index values (8 or less), suggesting they exhibit lesser productivity and impact compared to the top journals. The clustering of many journals at this lower end suggests a distribution where only a few journals command high influence, while the majority maintain either moderate to low impacts. This visualization effectively illustrates the disparity in academic influence and productivity across different journals within the field, providing insights into areas of high impact and potential gaps in research visibility.

In summary, the graph suggests that while there was significant interest in the material prior to 2016, that interest has not only declined but remains low as we approach 2024, indicating a potential shift in research focus or relevance.

Source	h_index	g_index	m_index	TC	NP	PY_start	CPP	DC
JOURNAL OF SERVICE RESEARCH	20	24	1.67	3178	24	2014	132.42	1
JOURNAL OF BUSINESS RESEARCH	15	22	1.5	1006	22	2016	45.73	1

EVENT MANAGEMENT	11	18	1	359	33	2015	10.88	0.55
JOURNAL OF TRAVEL RESEARCH	11	12	1.1	822	12	2016	68.5	1
INTERNATIONAL JOURNAL OF CONTEMPORARY HOSPITALITY MANAGEMENT	8	8	1.14	313	8	2019	39.13	1
JOURNAL OF SERVICE MANAGEMENT	8	10	0.8	515	10	2016	51.5	1
MARKETING THEORY	8	8	0.67	685	8	2014	85.63	1
SERVICE SCIENCE	8	11	0.73	279	11	2015	25.36	1
JOURNAL OF MARKETING	6	6	0.86	460	6	2019	76.67	1
JOURNAL OF SERVICE THEORY AND PRACTICE	6	8	0.6	200	8	2016	25	1

Table 4: Sources Local Impact

This table presents key citation metrics (h-index, g-index, m-index), total citations, number of publications, and citation per paper for selected journals. The Journal of Service Research has the highest impact (h-index: 20, TC: 3178, CPP: 132.42), followed by the Journal of Business Research (h-index: 15, TC: 1006).

* TC=Total Citation, NP=Number of publications, PY_Start=Publication Year Start, CPP=Citations Per Publication, DC=Depth of Citation $\text{CPP} = \frac{\text{TC}}{\text{NP}}$, $\text{DC} = \frac{\text{g\_index}}{\text{NP}}$

An array of bibliometric indicators for distinct publications are included in Table 4, offering information about their influence and impact on academia. Citations per paper (CPP), h-index, g-index, and m-index are important measures used to evaluate these journals' success. The JOURNAL OF SERVICE RESEARCH, for example, has the greatest h-index (20) and g-index (24), indicating that it regularly releases articles with a high citation count. This journal has had a significant impact on academia since its launch in 2014, with 3,178 citations overall and an average of 132.42 citations per piece. On the other hand, despite their prominence, the JOURNAL OF BUSINESS RESEARCH and JOURNAL OF MARKETING have lower h-indexes and g-indices, suggesting a somewhat less regular citation pattern. The *EVENT MANAGEMENT* journal, with an h-index of 11 and a g-index of 18, shows more modest citation metrics, implying it may have a more specialized or niche audience. Newer journals like the *INTERNATIONAL JOURNAL OF CONTEMPORARY HOSPITALITY MANAGEMENT*, which began in 2019, have lower citation metrics as expected, given their shorter publication history. Additionally, the *citations per paper* metric further highlights that journals such as the *JOURNAL OF SERVICE RESEARCH* have a higher average citation impact compared to others. Overall, the table provides a comprehensive overview of the academic standing and citation performance of various journals, reflecting their contribution to research in fields like service management, hospitality, and marketing.

4.4: **Bradfords law analysis:**

This analysis helps identify the most influential journals in the field, aiding researchers and librarians in optimizing literature searches and journal selection.

Fig.5. illustrates Bradford's Law by showing that a few core journals contain the majority of scholarly articles in a given field, while many other journals contribute only a small number of articles, emphasizing the concentration of research in select sources.

Zone	Ranks Range	Number of articles	Percentage of Contribution
1	1 to 14	191	33.5%
2	15 to 103	192	33.6%
3	104 to 291	188	32.9%

Table 5 . Distribution of Articles as per Bradford's Law

This table presents the distribution of articles according to Bradford's Law, which divides sources into three zones based on their contribution.

The bibliometric analysis, based on the Scopus database, categorizes journals into three zones according to their influence and contribution to the field as shown in Table5. Zone 1 (Core Journals) consists of the top 14 ranked journals, which account for 191 articles (33.5%), indicating that a small number of highly influential journals contribute significantly to research dissemination. Zone 2 (Mid-Tier Journals) includes journals ranked **15 to 103**, publishing **192** articles (33.6%), representing a slightly higher share than Zone 1, but distributed across a larger number of journals. Zone 3 (Peripheral Journals) comprises journals ranked 104 to 291, contributing 188 articles (32.9%), showing that a large number of less influential journals publish a relatively smaller share of articles each. The results align with Bradford's Law, where a small core of journals (Zone 1) dominates research publication, followed by a broader set of mid-tier and low-impact journals. This distribution suggests that researchers aiming for high visibility and impact should target core journals in Zone 1, while mid-tier journals (Zone 2) also hold significant weight in scholarly communication.

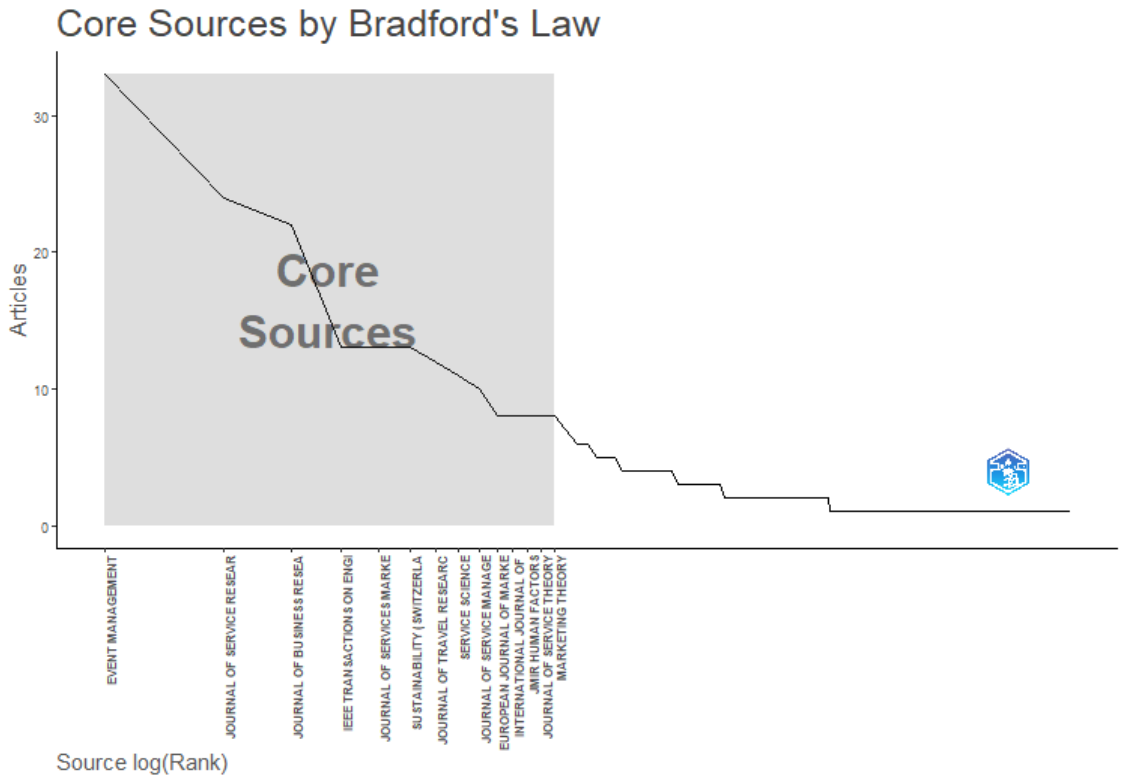

Fig.5. Core Sources as Bradford's law

This table illustrates the application of Bradford's Law, identifying core sources that contribute the highest number of publications in the field. The shaded region represents the most influential journals, such as the Journal of Service Research and the Journal of Business Research, which account for a significant portion of the literature. As the source rank increases, the number of published articles declines, demonstrating Bradford's Law in scholarly publication patterns.

4.5 Author Impact and Citation Analysis in Co-Creation Research

The fig.6 illustrates the total impact of various authors as measured by their H-index, showcasing the relationship between individual authors and their respective levels of scholarly influence, with higher H-index values indicating a greater impact in their fields of research.

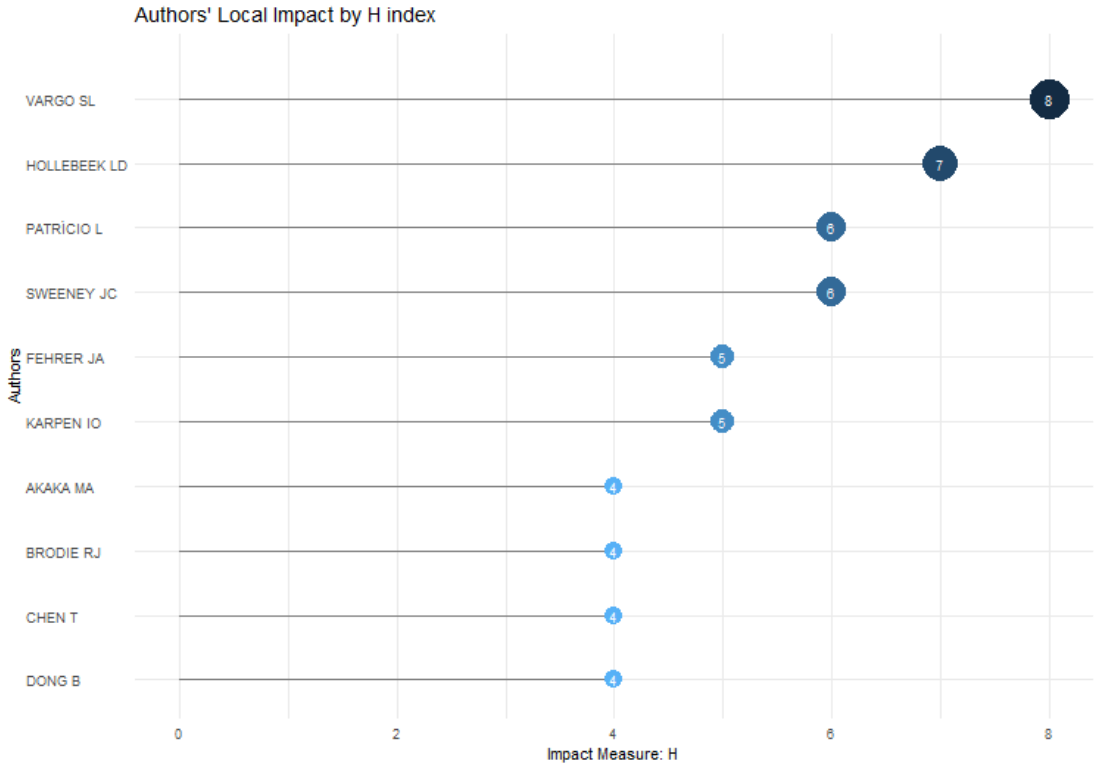

Fig.6 Author's local Impact by H index

This graph illustrates the local impact of authors based on their H-index. The x-axis represents the H-index as a measure of impact, while the y-axis lists the authors. The bubble size indicates relative impact. The distribution highlights the most influential researchers in the field based on citation impact.

The diagram presents a scatter plot illustrating various authors' scholarly impacts based on their h-index and the impact factor of their published work. The y-axis represents the authors' h-index, which reflects their productivity and citation influence, while the x-axis denotes the impact factor indicating average citations per article. Individual blue circles represent authors, with their sizes corresponding to their h-index values. The highest h-index in the plot is 8, indicating significant academic influence, while several authors cluster around lower h-index values of 4 to 5, suggesting varied impacts within the field. The majority of authors are concentrated on the left side of the x-axis, indicating that while some may have achieved notable citation counts, the average impact of their work is relatively low. Overall, the visualization highlights a disparity among authors, showcasing a few prominent contributors with higher influence while most exhibit modest performance in both metrics, thereby providing insights into key figures in the discipline and potential areas for future research or collaboration.

Author	h_index	g_index	m_index	TC	NP	PY_start	CPP	DC
VARGO SL	8	8	0.67	4505	8	2014	563.13	1
HOLLEBEEK LD	7	7	1.00	1208	7	2019	172.57	1
PATRÍCIO L	6	6	0.55	1459	6	2015	243.17	1
SWEENEY JC	6	6	0.55	451	6	2015	75.17	1

FEHRER JA	5	5	0.63	200	5	2018	40.00	1
KARPEN IO	5	5	0.45	303	5	2015	60.60	1
AKAKA MA	4	4	0.33	266	4	2014	66.50	1
BRODIE RJ	4	4	0.50	223	4	2018	55.75	1
CHEN T	4	4	0.44	798	4	2017	199.50	1
DONG B	4	4	0.36	290	4	2015	72.50	1

Table 6: Sources Local Impact

This table presents the bibliometric impact of leading authors based on citation performance. It includes the h-index, g-index, m-index, total citations (TC), number of publications (NP), year of first publication (PY_start), citations per paper (CPP), and domain category (DC). The table highlights variations in scholarly influence among key researchers in the field . Formula for $\mathrm{CPP} = \frac{\mathrm{TC}}{\mathrm{NP}}$, Formula for $\mathrm{DC} = \frac{\mathrm{g\_index}}{\mathrm{NP}}$.

Table 6, suggests that VARGO SL is the most influential researcher in this set, with the highest total citations. HOLLEBEEK LD and PATRÍCIO L have strong citation performance, with HOLLEBEEK LD demonstrating the fastest-growing influence (m-index = 1.0). Researchers like CHEN T have fewer publications but a high citation-per-publication ratio, indicating substantial impact in specific areas.

4.6 Author Productivity Analysis Based on Lotka's Law

Number of Articles	N. Authors	Freq	Expected Number of authors ($N\_exp = 1487/n^2$)	Deviation
1	1487	0.925326696	1487	No Deviation
2	79	0.049159925	371.75	Large Deviation
3	23	0.014312383	165.22	Large Deviation
4	11	0.006845053	92.94	Large Deviation
5	3	0.001866833	5948	Large Deviation
6	2	0.001244555	41.31	Large Deviation
7	1	0.000622278	30.37	Large Deviation
8	1	0.000622278	23.24	Large Deviation

Table 7: Author Productivity analysis as per Lotka's Law

This table presents the author productivity distribution based on Lotka's Law, which predicts an inverse square relationship between the number of articles and the number of authors. The data shows that 1,487 authors published only one article, while very few authored multiple papers. A significant deviation from Lotka's expected values is observed for most categories beyond one article, indicating variations from the theoretical distribution.

The majority of authors (1,487) have contributed only one publication, accounting for 92.53% of the total. This aligns with Lotka's Law, which states that most authors publish only once, and productivity decreases exponentially. Only 79 authors (4.92%) have published two papers. The number of authors further declines as the number of publications increases. For instance, only 3 authors (0.18%) have published five papers, and just 1 author (0.06%) has published seven or more. The overall trend follows Lotka's pattern, but the actual values are lower than expected for multiple publications. This suggests that while the distribution confirms Lotka's principle of declining frequency, it might not fit the exact $\frac{1}{n^2}$ rule perfectly,

possibly due to disciplinary variations, dataset limitations, or external factors affecting research productivity.

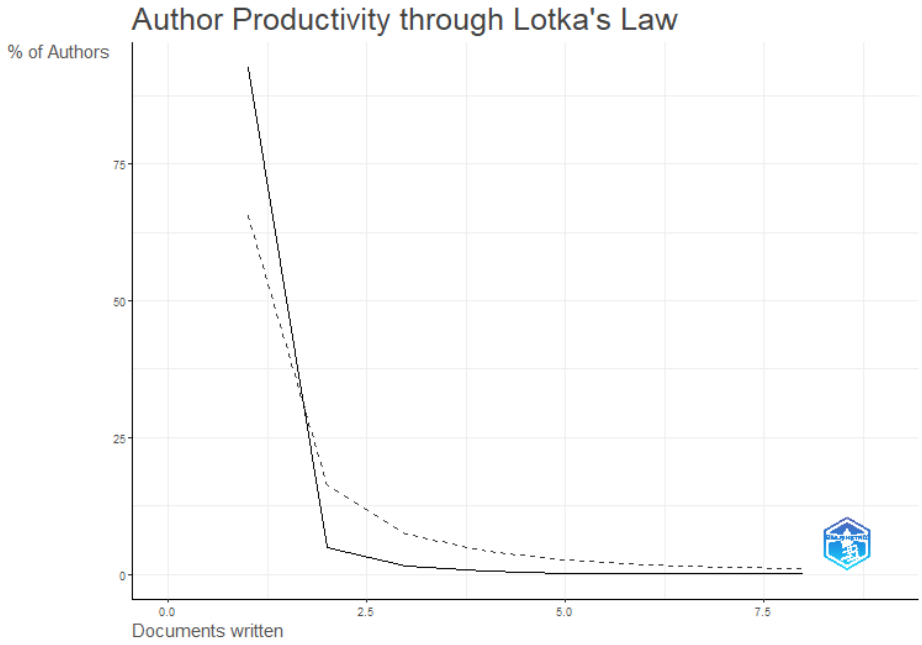

Fig.7. Authors Productivity

This figure illustrates author productivity following Lotka's Law, which predicts an inverse relationship between the number of publications and the number of contributing authors. The y-axis represents the percentage of authors, while the x-axis denotes the number of documents written. The steep decline in the curve indicates that most authors contribute only one or two papers, with very few publishing multiple articles, aligning with Lotka's Law of scientific productivity.

According to Lotka's Law, author productivity is represented in Fig. 7, which shows the distribution of writers by the quantity of documents they have authored. The number of publications per author is shown by the x-axis (Documents Written), while the y-axis (% of Authors) shows the percentage of authors. The slope drops sharply, indicating that most authors limit themselves to one paper and that very few publish multiple. The dotted line most likely depicts the expected distribution according to Lotka's Law, but the solid line shows the observed author productivity. The steep decline demonstrates that the number of contributing authors falls exponentially with the number of publications.

4.7 Most Influential Authors in Co-Creation Studies:

This graph (Fig.8) represents the most influential authors in the field of co-creation research based on the number of documents published. The bubble size indicates the relative publication count, highlighting the contributions of key scholars. The data offers insights into the leading contributors shaping the domain of co-creation in management and social sciences.

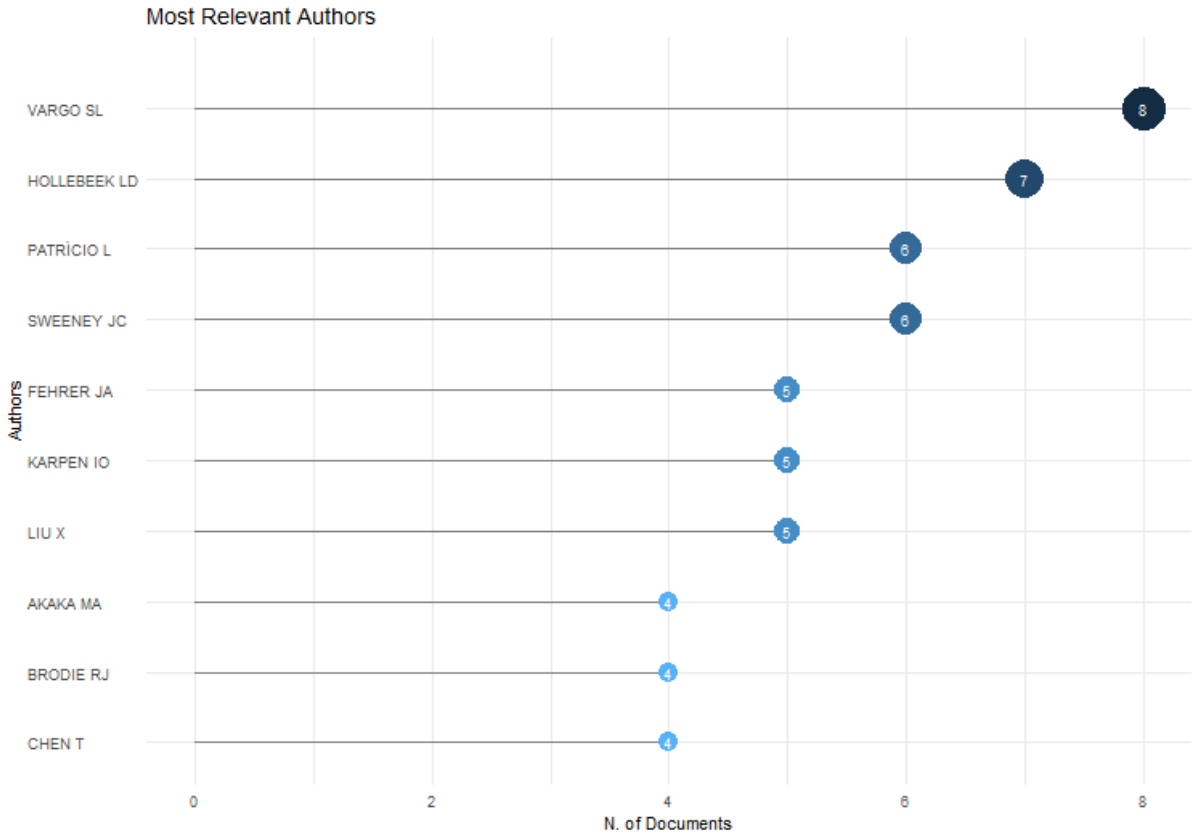

Fig .8. Most Relevant Authors and their Contributions

This figure presents the most relevant authors based on their contributions to the research field. The x-axis represents the number of documents published, while the y-axis lists the authors. The bubble size indicates the relative contribution, with Vargo SL having the highest number of publications (8), followed by Hollebeek LD (7) and Patrício L (6). The distribution highlights key contributors who have significantly shaped the research landscape.

The most pertinent authors are shown in the chart (Fig. 8) according to the quantity of documents they have authored. The number of documents is shown on the x-axis, while the authors are listed on the y-axis. With eight publications, the leading author, WOSCO SL, has the most, followed by other authors with four to seven documents. The distribution of research contributions by significant researchers in the subject is shown in the chart.

Based on the quantity of published articles and their fractionalized contributions, Table 8 lists the most significant writers in co-creation research. A more accurate indicator of the influence of individual research is the fractionalized count, which shows the weighted contribution of each author in co-authored papers.

Authors	Articles	Articles Fractionalized
VARGO SL	8	2.55952381
HOLLEBEEK LD	7	2.566666667
PATRÍCIO L	6	1.616666667
SWEENEY JC	6	1.916666667
FEHRER JA	5	1.583333333

KARPEN IO	5	1.366666667
LIU X	5	1.416666667
AKAKA MA	4	0.842857143
BRODIE RJ	4	1.2
CHEN T	4	1.2

Table 8: Top Contributing Authors in Co-Creation Research

This table presents the top contributing authors in co-creation research, ranked by the number of articles published and their fractionalized contributions. The "Articles" column represents total publications, while "Articles Fractionalized" accounts for co-authorship contributions. The data highlights key researchers shaping the field based on their publication impact.

The purpose of Fractionalized Articles is to adjust for co-authorship and provide a more accurate representation of an individual author's contribution to published research. Instead of counting each co-authored paper as a full article for all contributors, fractional counting divides the credit among all authors.

The table presents the most relevant authors based on their total number of articles and fractionalized article counts, which adjust for co-authorship. VARGO SL leads with 8 publications but has a fractionalized count of 2.56, indicating significant co-authorship. HOLLEBEEK LD follows with 7 articles and a slightly higher fractionalized value (2.57), suggesting a comparable contribution. Authors like PATRÍCIO L and SWEENEY JC (6 articles each) and FEHRER JA, KARPEN IO, and LIU X (5 articles each) show varying levels of individual contribution, reflecting different co-authorship patterns. AKAKA MA, BRODIE RJ, and CHEN T, with 4 publications each, have lower fractionalized values, indicating high levels of collaboration. Overall, while total article counts show research productivity, fractionalized values provide a clearer picture of each author's actual contribution.

4.8 Most Globally cited documents

The Fig.9 visualizes the most globally cited documents in co-creation research, highlighting their impact based on citation count. Each bubble represents a highly cited document, with its position indicating the total citations received. Larger bubbles correspond to higher citation numbers, showcasing the most influential works in the field.

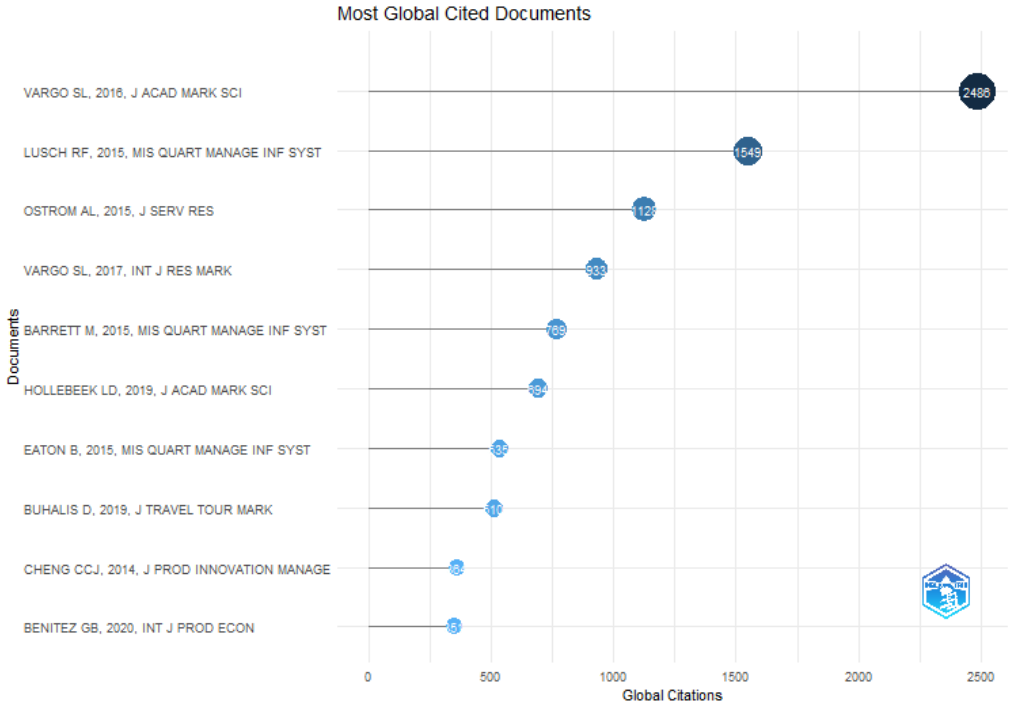

Fig.9. Most Globally Cited Documents in Co-Creation Research

This figure displays the most globally cited documents in co-creation research. The x-axis represents the number of global citations, while the y-axis lists the documents by author, year, and journal. The bubble size indicates the citation impact. The distribution highlights the most influential publications shaping the co-creation research landscape.

The graph represents the most globally cited documents, plotting their citation count against their relevance in academic research. The document with the highest citation count (2488) is significantly ahead of others, demonstrating its strong influence in the field. Other key documents exhibit a gradual decrease in citations, with notable papers receiving between 1549 and 600 citations. The distribution suggests that a few seminal works drive much of the academic discourse, while others, though still impactful, have comparatively lower citation counts.

The graph highlights the prominence of certain academic publications based on their global citation impact. A few key papers have amassed a significantly higher number of citations, indicating their foundational role in research. The trend follows a power-law distribution where a limited number of highly cited documents shape the field, while many others contribute at a lesser scale.

4.9: Most local cited documents

The diagram presents the most locally cited documents within the dataset, displaying their respective citation frequencies. Each point represents a document, with the x-axis indicating the number of local citations and the y-axis listing the document references. Larger points denote higher citation counts, emphasizing influential works in the field.

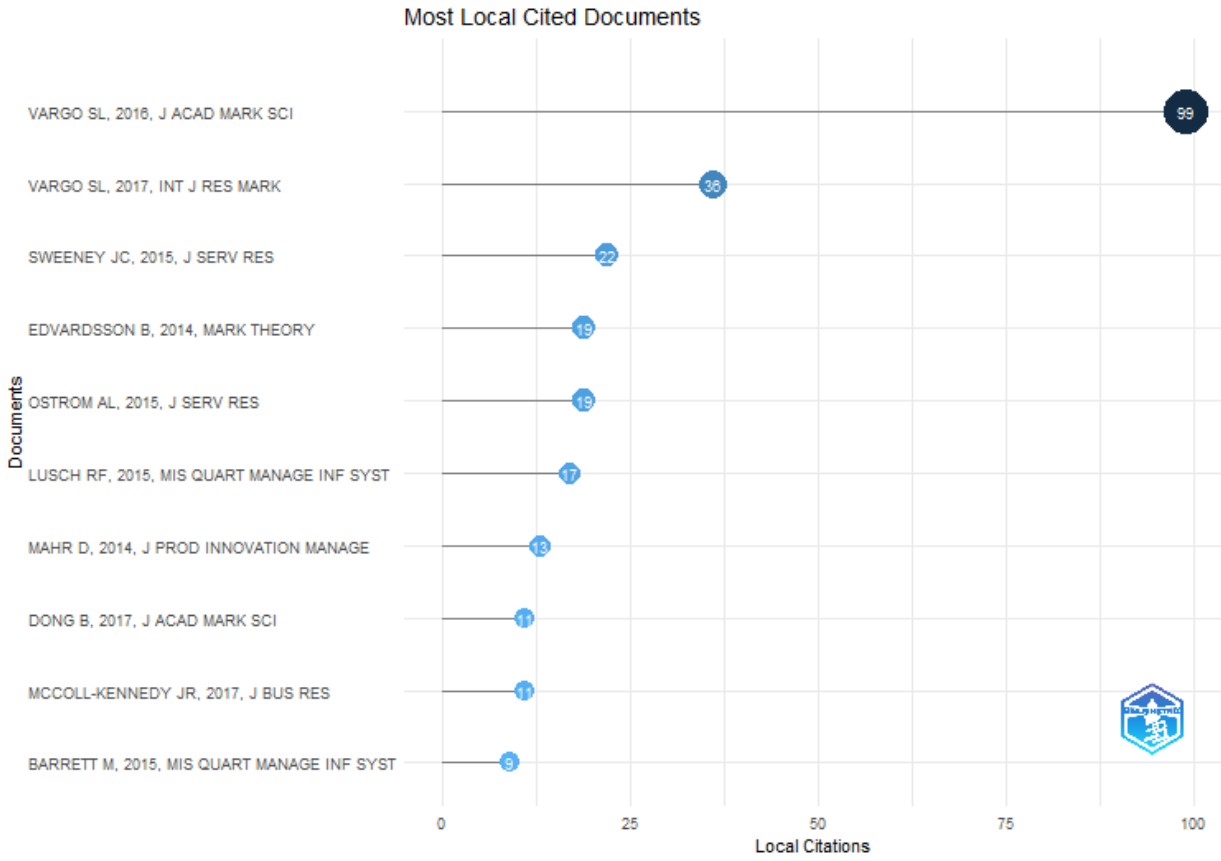

Fig.10. Most Locally Cited Documents

This figure displays the most locally cited documents in co-creation research. The x-axis represents the number of local citations, while the y-axis lists the documents by author, year, and journal. The bubble size indicates citation impact. The distribution highlights key documents that have significantly influenced the local research network.

The graph (Fig.10) represents the most locally cited documents, showing the number of times specific publications have been referenced within a localized research context. The highest locally cited document has 99 citations, significantly ahead of the others, indicating its strong influence within the particular research domain. Other key papers have citation counts ranging from 36 to 4, forming a downward trend. This distribution suggests that while a few papers are heavily referenced, most documents receive moderate to low citations, reinforcing their varying degrees of impact.

The data suggests that certain key publications play a crucial role in shaping local academic discourse. The highest cited document serves as a foundational reference within the specific research community, while others contribute at different levels of influence.

4.10 Keyword Co-Occurrence Analysis in Co-Creation Research

The co-occurrence links between keywords in co-creation research are depicted in this network visualization (Fig. 11). Clusters of similar topics are indicated by different colors, and the size of each node reflects the frequency of keyword occurrence. Major themes and

areas for future research in the topic are highlighted by the connections between nodes, which show how strongly they co-occur.

The co-occurrence diagram (Fig.11) visualizes various concepts related to bibliometric data, highlighting the interconnections among key themes within the field. The diagram is divided into distinct clusters, each representing related concepts. Notably, "co-creation" and "value co-creation" are central nodes that connect to multiple sub-themes, indicating their significance in the literature. The size of the nodes indicates the prevalence of the terms in the data set, with larger nodes denoting more frequently mentioned concepts.

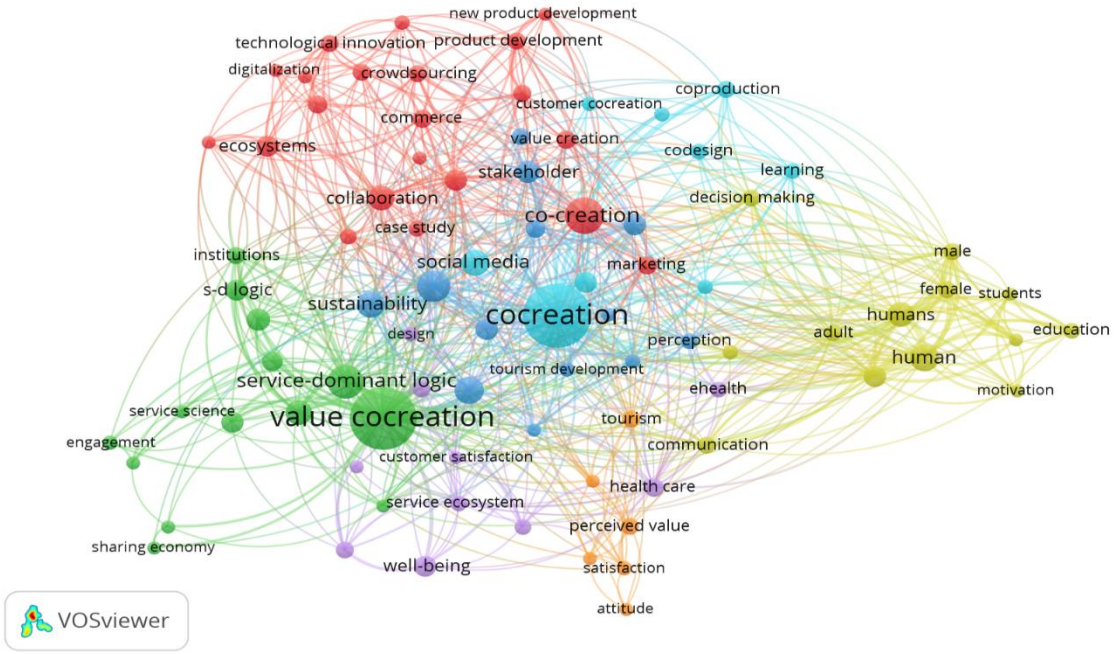

Fig.11. Keyword Co-Occurrence Network in Co-Creation Research

This figure presents the keyword co-occurrence network in co-creation research, generated using VOSviewer. Nodes represent keywords, with their size indicating frequency, and edges show co-occurrence relationships. The visualization highlights key research areas and connections within the co-creation domain.

Terms like "collaboration," "stakeholder," "customer co-creation," and "service-dominant logic" illustrate a focus on interactive and service-oriented approaches in research. This suggests a growing emphasis on collaborative processes and stakeholder involvement in value creation. The presence of terms such as "technological innovation," "product development," and "crowdsourcing" reflects the increasing intersection of technology with co-creation and service dynamics. This indicates that technological advancements are shaping practices in value creation and collaboration.

The cluster around "social media," "learning," "education," and related terms points to the role of social interactions and educational contexts in value co-creation. These concepts emphasize how knowledge sharing and participation are integral to developing collaborative frameworks. Some nodes address broader societal themes, such as "sustainability," "well-being," and "sharing economy." These reflect a holistic approach, suggesting that

contemporary research is also considering the socio-economic impacts of service practices and the importance of sustainability in co-creation contexts. The dense web of connections between nodes highlights the interdisciplinary nature of research in this area, indicating strong relationships between various themes. The links show that many concepts are interdependent, offering insights into how value is perceived and created across different sectors.

4.11 Author Keyword Co-Occurrence Analysis in Co-Creation Research:

The co-occurrence associations between author-provided keywords in co-creation research are depicted in the network visualization (Fig. 12). Based on their thematic similarity, keywords are classified into clusters; terms that are used frequently are indicated by larger nodes.

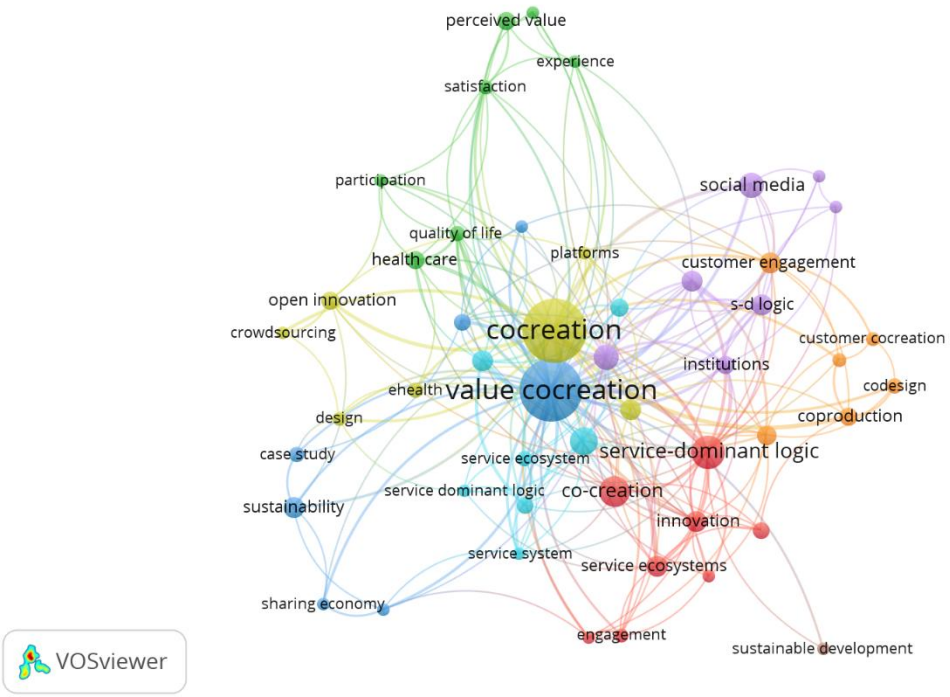

Fig.12. Author Keyword Co-Occurrence Network

This figure presents the author keyword co-occurrence network in co-creation research, generated using VOSviewer. Nodes represent author-assigned keywords, with their size indicating frequency, and edges showing co-occurrence relationships. Central terms such as "co-creation," "value co-creation," and "service-dominant logic" appear as dominant themes. Different colors represent thematic clusters, including sustainability, innovation, customer engagement, healthcare, and digital platforms. The visualization highlights key research focus areas and their interconnections within the field of co-creation.

The co-occurrence network diagram (Fig.12.) illustrates the relationships between author keywords in the context of co-creation and value co-creation. Here's a breakdown of its key components and their implications:

1. Central Concepts: The nodes "co-creation" and "value co-creation" are prominently at the centre of the diagram, indicating their importance in the literature. Their connections to various other keywords suggest that they serve as foundational concepts that bridge multiple themes in research.
2. Cluster Analysis: The diagram shows clusters of related keywords that can be grouped thematically:
    - Service and Innovation: Keywords like "service ecosystem," "service systems," "service-dominant logic," and "innovation" are frequently interconnected. This indicates a strong focus on how services are designed and delivered, emphasizing the role of innovation in value creation.
    - Customer Engagement and Participation: Terms such as "customer engagement," "customer co-creation," and "participation" highlight the importance of involving customers in the co-creation process. This suggests an evolving understanding of the consumer's role in service delivery.
    - Health and Well-Being: "Health care," "ehealth," and "quality of life" cluster together, reflecting a significant area of research focusing on how co-creation can enhance health outcomes and experiences.
3. Sustainability and Social Context: Keywords like "sustainability," "sharing economy," and "open innovation" represent a growing trend towards integrating sustainable practices into service and co-creation frameworks. This indicates an awareness of social and environmental impacts in the value creation process.
4. Interconnectedness: The extensive network of connections signifies that these themes are not isolated; rather, they are interrelated and often explored together in scholarly work. For instance, "crowdsourcing" could be linked with "social media" to illustrate modern approaches to gathering consumer insights and enhancing co-creation.
5. Consumer Experience: Keywords such as "satisfaction," "experience," and "perceived value" indicate that the study of consumer perceptions and experiences is integral to understanding co-creation. This suggests that literature in this area continues to focus on how services affect consumer outcomes.
6. Research Methodology: The presence of terms like "case study" indicates the application of empirical research methods to explore these concepts in specific contexts, which may provide deeper insights into practical applications in various sectors.

Overall, the diagram presents a rich tapestry of research themes around co-creation and value co-creation, illustrating how these concepts are interconnected

within service research. It underscores a holistic view that encompasses customer engagement, service design, sustainability, and the enhancement of consumer experience, suggesting that these areas will continue to be salient in future research agendas.

4.12 Bibliometric Coupling Analysis of Countries

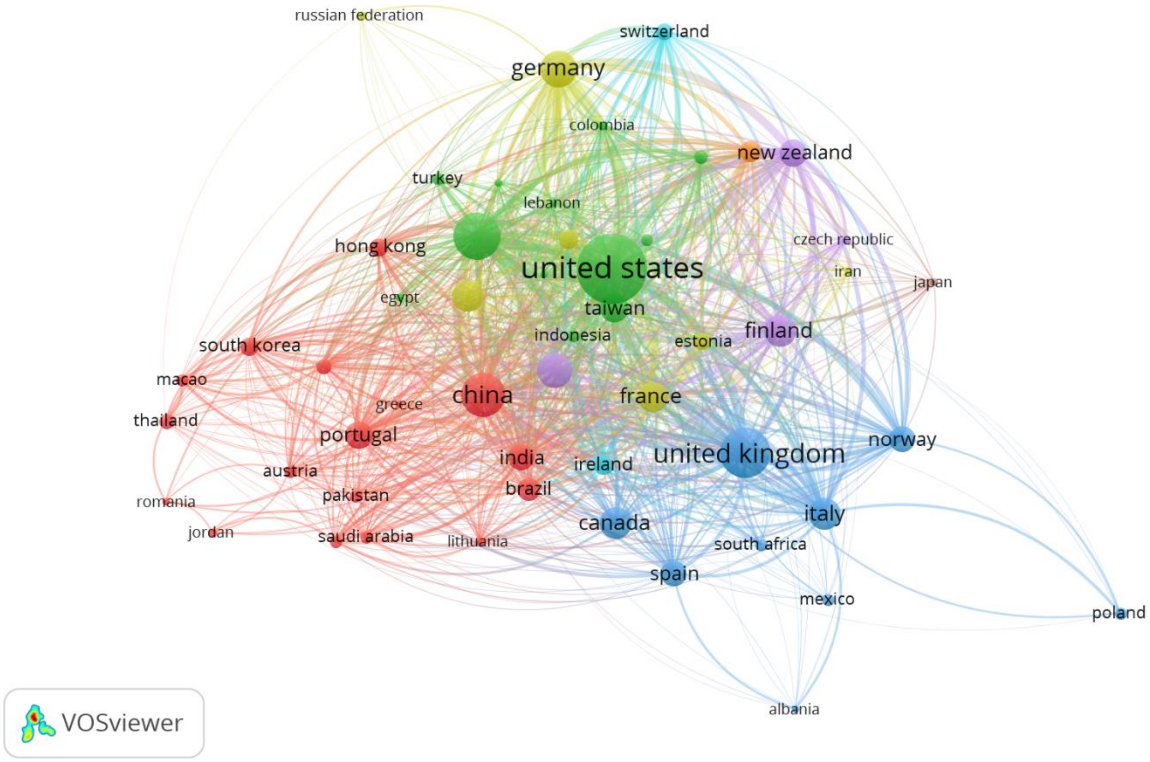

Fig.13. Bibliographic Coupling Network of Countries

This figure represents the bibliographic coupling network of countries in co-creation research, generated using VOSviewer. Nodes represent countries, with their size indicating the number of publications, and edges showing bibliographic linkages based on shared references. The visualization highlights global research collaborations and the interconnectedness of scholarly output across countries.

Based on common references in their papers, the bibliographic coupling network in Fig. 13. illustrates the research cooperation across various nations. While the thickness of the connecting lines (edges) shows the strength of research ties between countries, the size of the nodes represents a country's relative significance in terms of bibliographic coupling.

The United States, United Kingdom, China, and Germany emerge as the most influential countries with the largest node sizes, highlighting their significant impact on global research collaboration. Their strong connections with multiple nations indicate their central role in research networks, facilitating extensive academic and scientific partnerships worldwide. The network reveals distinct clusters, each represented by a different colour,

indicating regional or thematic research collaborations. The **red cluster**, comprising China, Portugal, India, Brazil, Saudi Arabia, and South Korea, suggests collaborations primarily in applied sciences or technology. The **blue cluster**, which includes the United Kingdom, Spain, Italy, Norway, Poland, and South Africa, signifies another strong regional or thematic research network. Meanwhile, the **green cluster**, consisting of the United States, Germany, Taiwan, France, and Indonesia, represents a research group with significant global reach, highlighting their extensive international collaborations.

Emerging research hubs such as India, Brazil, and Saudi Arabia are strengthening their global research presence, as indicated by their well-connected positions within their respective clusters. Poland and Mexico also exhibit expanding international research engagement, with connections extending across multiple clusters. These countries are increasingly contributing to global research networks, reflecting their growing influence in academic and scientific collaborations.

5 Discussion

The bibliometric analysis of co-creation in the social sciences and management from 2014 to 2024 offers important new information about the development, significance, and cooperative character of this field of study. As a significant issue in contemporary management and social science research, co-creation is receiving more and more scholarly attention, as evidenced by its 21.48% year-over-year growth rate. The high **average citation per document (39.79)** and **37,846 references** indicate that co-creation research is well-established, drawing on a diverse and extensive knowledge base.

From a thematic perspective, the presence of 993 Keywords Plus and 2,036 Author's Keywords reflects the broad interdisciplinary applications of co-creation. The concept extends beyond traditional business environments and finds relevance in marketing, innovation, service design, stakeholder engagement, and public policy**.** This diversity suggests that co-creation is not confined to a single discipline but serves as a strategic framework for fostering collaboration between organizations, customers, and society.

The bibliometric analysis also emphasizes the global research collaboration in co-creation**.** 33.1% of studies involve international co-authorship**, and the** average number of co-authors per document is 3.15**,** indicating a strong trend toward multi-authored, interdisciplinary research. This suggests that co-creation is a global phenomenon, with scholars from different regions contributing to its theoretical development and practical applications.

The analysis of publication types shows that most studies on co-creation are journal articles, reinforcing its academic rigor. However, the presence of 65 single-authored documents suggests that while collaborative research is dominant, individual scholars continue to make significant theoretical contributions to the field.

5.1 Theoretical Implications

The theoretical contributions of co-creation align with multiple well-established frameworks, expanding Service-Dominant Logic, Stakeholder Theory, Open Innovation, and Social Exchange Theory.

The data reveals that 33.1% of studies involve international collaboration, highlighting co-creation as a global research phenomenon that fosters shared value and participatory engagement. The presence of single-authored (65) and multi-authored papers (average co-authors: 3.15 per document) suggests a mix of individual theoretical contributions and collaborative empirical studies, reinforcing the idea that co-creation is both a conceptual and applied field.

The findings indicate that co-creation has moved beyond marketing and innovation management, integrating with digital transformation, sustainability, and behavioural sciences. The extensive knowledge network (37,846 references) shows the maturity of the research area, yet there remain unexplored avenues, such as quantifying co-creation impact on firm performance, long-term stakeholder relationships, and technology-driven participatory ecosystems. Future research should further investigate co-creative leadership models, cross-industry applications, and AI-driven co-creation frameworks to deepen its theoretical foundation.

5.2 Practical Implications of Co-Creation Research

The growing body of research on co-creation in management and social sciences has significant practical implications across industries, shaping how businesses, policymakers, and organizations engage stakeholders, innovate, and deliver value. The high citation impact (39.79 citations per document), increasing interdisciplinary focus (993 Keywords Plus, 2,036 Author's Keywords), and international collaborations (33.1%) underscore co-creation's relevance in real-world applications.

Firms leveraging co-creation strategies can develop more customer-centric products and services by integrating user insights early in the development process. Open innovation models that involve customers, suppliers, and partners in co-design and co-development lead to faster product iterations and higher market success.

The research reinforces the importance of co-creation in marketing and service industries, where customers actively participate in shaping brand experiences. Digital platforms, social media, and AI-driven engagement tools allow businesses to build interactive, personalized experiences, increasing customer loyalty. Co-creation is not limited to customers; it also applies to internal stakeholders, enabling employee-driven innovation and participatory decision-making. Organizations adopting co-creative leadership empower employees to contribute ideas, enhancing workplace engagement, motivation, and retention. Governments and public institutions can use co-creation models to involve citizens in policy-

making, urban planning, and social welfare programs. Participatory governance models that integrate diverse community voices lead to more effective and sustainable policy solutions.

Technology plays a key role in modern co-creation ecosystems, with AI, blockchain, and big data enabling real-time collaboration between organizations and users. Businesses can use AI-powered recommendation systems and virtual communities to enhance co-creation in product design, content generation, and problem-solving.

The research highlights co-creation's role in sustainable business models, where companies collaborate with stakeholders to develop eco-friendly, socially responsible innovations. Ethical co-creation ensures inclusive participation by marginalized communities, promoting fair business practices and long-term societal benefits.

5.3 Limitations and Future Research Directions

Despite the extensive research and growing academic interest in co-creation in management and social sciences, certain limitations persist, presenting opportunities for future exploration. The bibliometric analysis highlights a rapidly expanding field (21.48% annual growth rate) with 571 documents and 37,846 references, yet some critical gaps remain in theoretical development, empirical validation, and methodological approaches.

A) **Limitations of Co-Creation Research**

i) **Lack of Unified Theoretical Frameworks :**

a) While co-creation has been studied through various lenses (Service-Dominant Logic, Stakeholder Theory, Open Innovation), there is no universally accepted theoretical model that integrates its diverse applications across disciplines.
b) Future research should develop a comprehensive, interdisciplinary framework that connects co-creation with emerging concepts like behavioural economics, digital ecosystems, and sustainability.

ii) **Limited Quantitative and Longitudinal Studies**

a) Most co-creation research is qualitative or conceptual, with limited empirical validation on its long-term impact.
b) Future studies should employ longitudinal designs and quantitative models to measure the direct impact of co-creation on business performance, customer engagement, and policy effectiveness.

iii) **Regional and Industry Bias**

a) The bibliometric analysis indicates that research is dominated by certain regions and industries, particularly developed economies and service-oriented sectors.
b) More studies are needed in emerging economies and manufacturing, healthcare, and public sector organizations to explore context-specific co-creation models.

iv) **Technological and Digital Gaps**

a) While digital transformation is a major driver of co-creation, there is limited research on AI-driven and blockchain-based co-creation models.
b) Future research should examine how artificial intelligence, big data, and virtual collaboration platforms reshape co-creation dynamics and stakeholder interactions.

v) **Challenges in Measuring Co-Creation Outcomes**

a) The subjective nature of co-creation outcomes makes it difficult to establish standard metrics for success.
b) Future research should focus on developing quantifiable performance indicators to assess the effectiveness of co-creation across business, policy, and social impact domains.

B) **Future Research Directions**

i. **Integrating Co-Creation with Emerging Business Models**

- Exploring how co-creation aligns with platform economies, the gig economy, and decentralized organizations.
- Studying co-creation's role in shaping customer experience in digital marketplaces and the metaverse.

ii. **Advancing Methodologies in Co-Creation Research**

- Utilizing bibliometric techniques, social network analysis, and machine learning to map evolving trends in co-creation.
- Conducting experimental and simulation-based research to test co-creation's effectiveness in different industries.

iii. **Exploring Co-Creation's Role in Sustainable Development**

- Investigating how co-creation contributes to circular economies, renewable energy innovations, and social entrepreneurship.
- Assessing co-creation's impact on ethical business practices and stakeholder inclusion.

iv. **Understanding Consumer Psychology in Co-Creation**

- Studying the psychological and behavioural factors that drive individuals to participate in co-creation.
- Examining the role of trust, incentives, and perceived value in shaping co-creation engagement.

v. **Future of AI and Automation in Co-Creation**

- Investigating how AI-generated content, chatbots, and automated decision-making influence co-creation strategies.
- Exploring the ethical implications of AI-driven co-creation and human-machine collaboration.

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