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Greenwashing: An Integrated Thematic and Content Analysis of Literature through Scientometrics Methods

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Abstract

Academic studies and business practices are paying more and more attention to the topic of "greenwashing," or the organizations' false marketing of their environmental sustainability initiatives. To obtain insight into the current state of knowledge, this article offers a thorough investigation that combines topic and content analysis of the greenwashing literature. The study begins with bibliometric analysis to examine patterns of publication, collaboration networks, and citation trends and later uses scientometrics to explore collaboration networks. Then thematic analysis is employed to identify key themes and concepts prevalent in the literature. In the third stage, content analysis has been done by examining five clusters formed by thematic analysis using SciMAT. The integrated approach of thematic and content analysis provides a comprehensive overview of the current state of knowledge on greenwashing, identifying research gaps and emerging trends. It sheds light on the most influential authors, journals, and institutions in the field and examines the evolution of research over time. The findings of this study contribute to the understanding of greenwashing by offering a structured and systematic analysis of the existing literature. The insights gained can guide future research directions, inform policymakers and practitioners, and help develop effective strategies to mitigate greenwashing practices.

Keywords*:* Greenwashing, thematic analysis, content analysis, bibliometric methods, literature review, sustainability communication.
JEL Classifications: Q01, Q56, M14

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1. Introduction

Concerns over the phenomenon known as "greenwashing" have grown in recent years, which refers to deceiving stakeholders and customers about a company's environmental effects (Lyon & Montgomery, 2015). Consumer interest in buying ecologically friendly goods and services has increased as the urgency of environmental challenges like climate change, pollution, and resource depletion has increased. To satisfy customer demand and gain a competitive edge, this has prompted many businesses to implement green marketing and sustainability programs et al., 2023)However, not all businesses use ecologically friendly practices. Some businesses engage in "greenwashing," which involves adopting deceptive marketing strategies to suggest that their goods or services are environmentally beneficial when they are not. This practice has the potential to damage the environment by misleading customers into taking actions that are not genuinely good for the environment et al., 2023)

As a result, academicians, decision-makers, and business experts are all concerned about greenwashing. Identification of the many types of "greenwashing," comprehension of its causes, and development of mitigation techniques have been the main focuses of this field of study (Ates, 2023).

In recent years, there has been a rising understanding among consumers, companies, and governments that greenwashing is a serious problem. The ecological effect of the possessions they purchase and the trades they sustain is a growing concern for consumers. As a result, there is a growing interest in sustainability, and many businesses are adopting eco-friendly practices and positioning themselves as green. However, not all businesses uphold their promises honestly, and some participate in actions that harm the environment, such as the use of unsustainable materials, excessive product packaging, or the use of false labeling (Marcatajo, 2023).

This study employs the Scopus database, one of the major academic databases that over 60% larger than the Web of Science, to gather bibliographic data on publications for the bibliometric studies indicated above (Comerio & Strozzi, 2019).

Additionally, previous studies have shown that the Scopus database's citations correspond with expert opinion more strongly than those in Google Scholar and Web of Science (Li et al., 2010).

Greenwashing may have serious negative effects, such as eroding customer confidence, encouraging skepticism toward environmental claims, and perhaps sabotaging sincere sustainability initiatives. As a result, academics from a variety of fields, including marketing, environmental science, and corporate social responsibility, have turned it into a significant topic of research.

Several types of greenwashing have been discovered in the literature that have already been published, including statements that are ambiguous and impossible to verify, irrelevant, and claims that are at odds with the company's real practices. Researchers have also looked at the motives for greenwashing, including the aim to profit from public interest in sustainability without making significant adjustments to company practices. Additionally, initiatives to reduce greenwashing have been developed, including certification programme implementation, increased transparency, and consumer awareness (De-La-Cruz-Diaz et al., 2023).

Despite the expanding corpus of studies on greenwashing, there are still a lot of questions that need to be answered. Research is essential, for instance, to better understand the efficacy of the present countermeasures against "greenwashing," as well as the elements that influence how consumers react to green marketing promises. Further

investigation is required to determine how greenwashing affects the environment and society as a whole, as well as how it influences public opinion and governmental responses (Morales-Rios et al., 2023).

By undertaking a bibliometric analysis of the greenwashing research landscape, this work adds to the body of literature. The author intends to offer a thorough assessment of the state of knowledge on greenwashing and provide guidance for future study by mapping the important sources, documents, emerging trends, and contributors in this area (Shao et al., 2023).

The authors have done did thematic analysis by using Biblioshiny to find key themes and patterns in the literature. This aids in giving a general picture of the research environment, pointing out gaps in the literature, and highlighting potential topics for further study.

For each theme, the author did a thematic analysis and content analysis to provide a detailed and organized evaluation of the current literature on a particular issue. Thematic and content analysis, which provides a structured and rigorous method for analyzing qualitative data, helps ensure that the review is thorough, objective, and instructive. (Opferkuch et al., 2023).

Understanding the history of knowledge and its current state, creating a thematic map, and identifying potential future study topics are the goals of this work. To do this, the authors have analyzed the currently existing content through a triple lens of bibliometric analysis, thematic analysis, and content analysis, wherein all the clusters formed are thoroughly examined. In light of this, the resulting research inquiries are determined for this investigation.

RQ1. Which writers, sources, and nations have had the biggest impact in the field of "greenwashing"?

RQ2. What is the thematic development of the study in the field of "greenwashing"?

RQ3: What is the content analysis of the study in the field of "greenwashing"?

RQ4: What is the future scope of study in the field of research undertaken?

This paper provides a summary of the state of this research today and its tendencies. The relevance of the subject of "greenwashing" and the focus on creating sustainable growth by society and institutions make the findings of this study particularly pertinent.

Due to its original methodology of doing both theme and content analysis from 1996 to 2023, the study described in the paper "Greenwashing: An Integrated Thematic and Content Analysis of Literature through Bibliometric Methods" is very novel. This comprehensive analysis is a key differentiating factor that sets this study apart from existing research in the field.

2. Methodology

Through the synthesis of knowledge structures, the study uses a novel three-stage sequential technique to comprehend knowledge evolution and identify patterns. The intellectual organization and thematic development of the field are shown by the bibliometric examination. The thematic literature evaluation aids in determining potential future research topics and offers insights into the development of knowledge within each area. The study comprises performance analysis and science mapping as part of the bibliometric analysis. The scientific mapping carried out via a blend of knowledge structures aids in understanding the theme evolution and the present state of research. Performance analysis exposes key aspects of the study area in terms of sources, authors,

and documents. It also provides information on potential future study areas (Silva et al., 2022)

Finding pertinent materials aligned with the research's purpose is the first and most important phase in any bibliometric investigation. To do this, the study's search strategy and document selection procedure covered the years 1996 through 2023. Although there are few early records and the previous 10 years have seen substantial progress in the subject, choosing the longer time frame makes sense to avoid losing any crucial research.

2.1 Inclusion Criteria

Articles that directly address the themes of "greenwashing," "Environmental whitewashing," "Sustainable deception," or "Green sheen" in their titles, abstracts, or keywords are included in this research. Research from the domains of business, sociology, environmental science, economics, engineering, energy, agriculture, earth sciences, biotechnology, or chemical engineering is also included in the study. Additionally, only works written in English are taken into account.

The search string used is TITLE-ABS-KEY (("greenwashing" OR "Environmental whitewashing" OR "Sustainable deception" OR "Green sheen")) AND (LIMIT-TO (SUBJAREA , "BUSI") OR LIMIT-TO (SUBJAREA , "SOCI") OR LIMIT-TO (SUBJAREA , "ENVI") OR LIMIT-TO (SUBJAREA , "ECON") OR LIMIT-TO (SUBJAREA , "ENGI") OR LIMIT-TO (SUBJAREA , "ENER") OR LIMIT-TO (SUBJAREA , "AGRI") OR LIMIT-TO (SUBJAREA , "EART") OR LIMIT-TO (SUBJAREA , "BIOC") OR LIMIT-TO (SUBJAREA , "CENG") AND (LIMIT-TO (LANGUAGE , "English"))

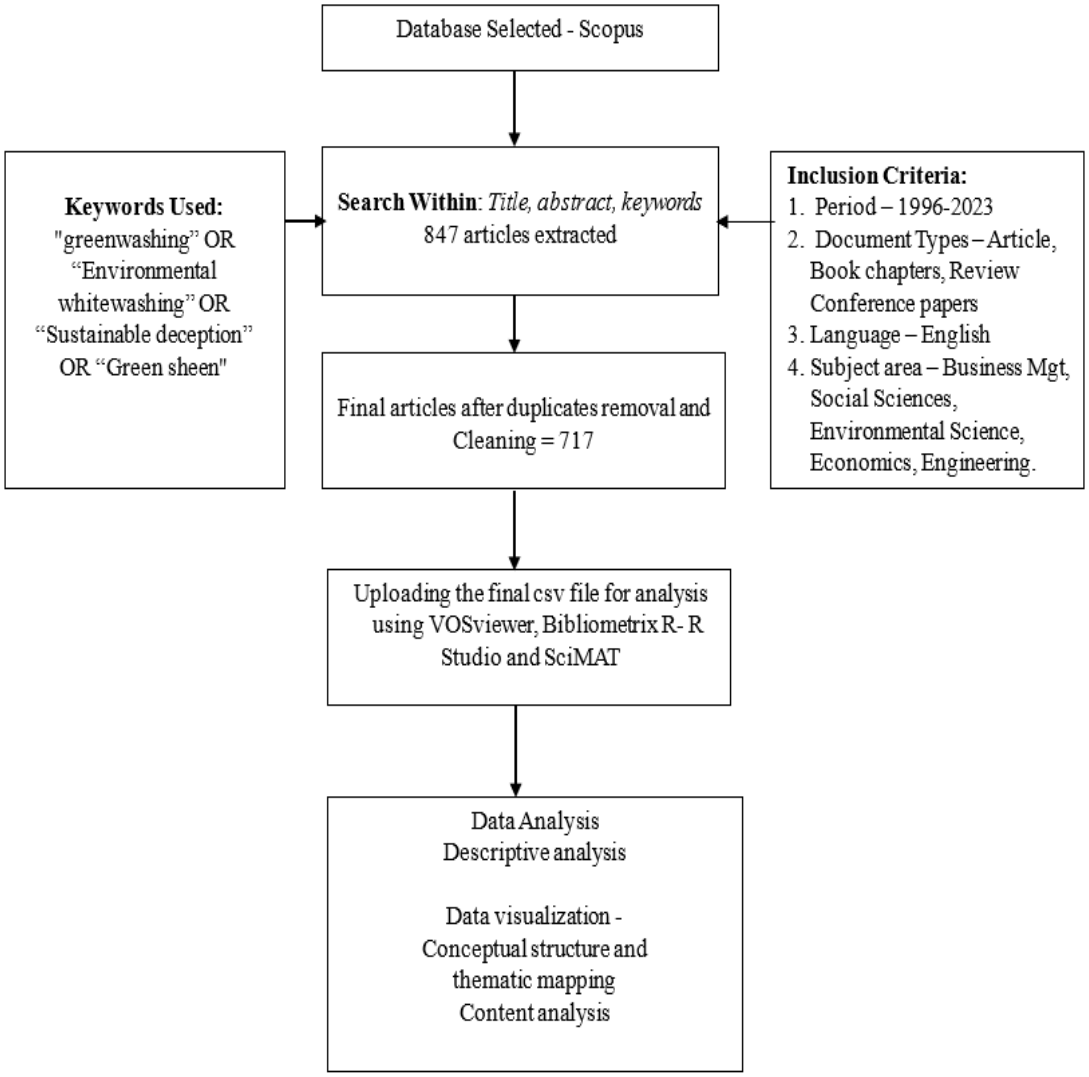
The methodologies used in this study's data analysis and document selection search strategies are shown in Figure 1. The Scopus database is used in the study. The most often used indexing database for bibliometric investigations is Scopus, a popular abstract and citation database. The authors have used Biblioshiny, VOSviewer, and SciMAT, which combines a variety of approaches and is now the most developed software tool, to conduct performance analysis, tailed by network analysis, to comprehend the information structure of the area. As a result of the review process, papers published in journals, conferences, and book chapters are more dependable sources of information that reflect both certified expertise and comprehensive knowledge (Niñerola et al., 2021).

3. Results and Discussion

3.1 Descriptive Analysis

The authors have shownshows descriptive analysis of trends in scientific production, most pertinent documents, journals, authors, institutions, and countries in the field of greenwashing to respond to RQ1, “Which are the most influential documents, authors, sources, institutions, and countries in the field of greenwashing?”

Figure 1: Research Methodology



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3.1.1 Main Information

The authors have presented descriptive analysis of trends in scientific production, the most pertinent documents, journals, authors, institutions, and nations to respond to RQ1, "Which writers, sources, organizations, and nations have had the biggest impact in the field of greenwashing?"

Figure 2: Main Information.

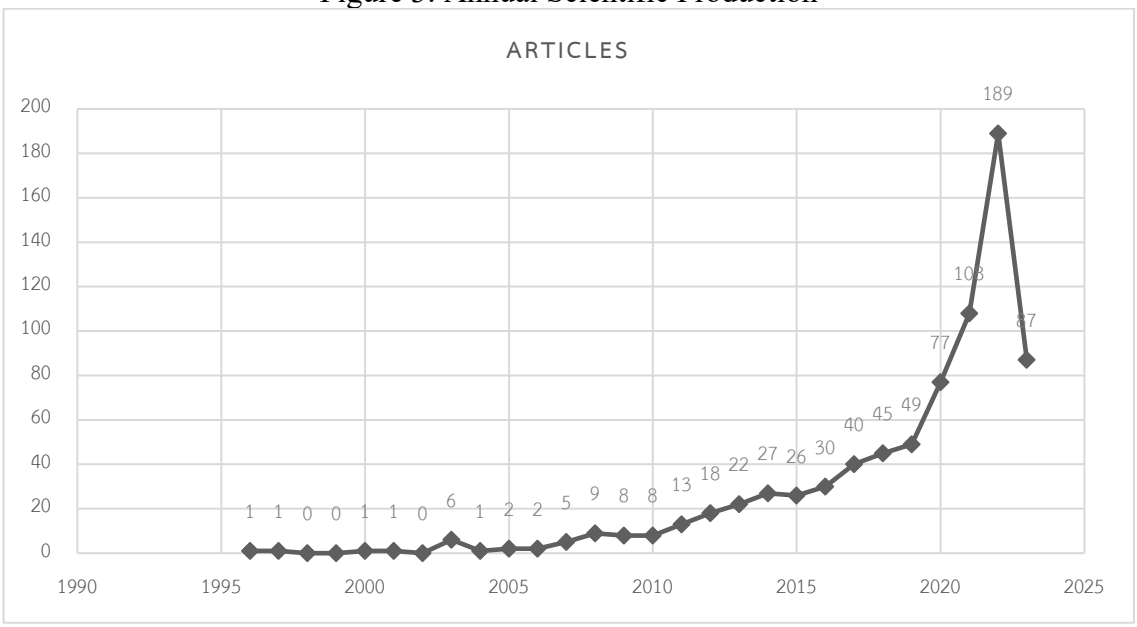
Source: Author Created using the Biblioshiny software

Figure 2 gives important details about the dataset that was utilized in the investigation. The 1996–2023 time period covered ensures a thorough examination of developments throughout time. The dataset had 481 sources, including journals, books, and other publications, demonstrating a varied and interdisciplinary approach to information collection. With 776 documents available, there is a significant quantity of information for study, allowing for an in-depth investigation of the issue. The 17.99% yearly growth rate shows a consistent rise in the number of papers, showing the subject's persistent interest and importance. The collection mostly comprises recent publications, as indicated by the relatively low average age of the documents (4.21), ensuring the inclusion of current and pertinent information. The collection mostly comprises recent publications, as evidenced by the relatively young average age of the documents (4.21), which guarantees the inclusion of current and pertinent information. The average number of citations per text is 21.33, indicating a high degree of scholarly attention and acknowledgment. The collection also includes 49,920 references, demonstrating a careful commitment to defending the assertions and claims made in the papers. Overall, these results show the scope, depth, and importance of the dataset, laying solid groundwork for the research and guaranteeing a thorough investigation of the issue at hand.

3.1.2 Annual Scientific Production

Figure 3 shows the graph plotted for the number of papers that were published each year between 1996 and 2023. According to the statistics, there have been peaks and valleys in the number of papers published over time, with some years seeing little to no growth and others seeing a large increase. From 1996 to 2000, the dataset reveals a comparatively constant publishing rate of one or two publications each year. However, from 2003 onward, there was a sharp rise in the quantity of papers published, and this trend is expected to continue until the year 2021. The number of papers published nearly tripled between 2020 and 2022, which was the period of greatest growth. The information shows how the subject has grown more popular over time, as seen by the rise of publications.

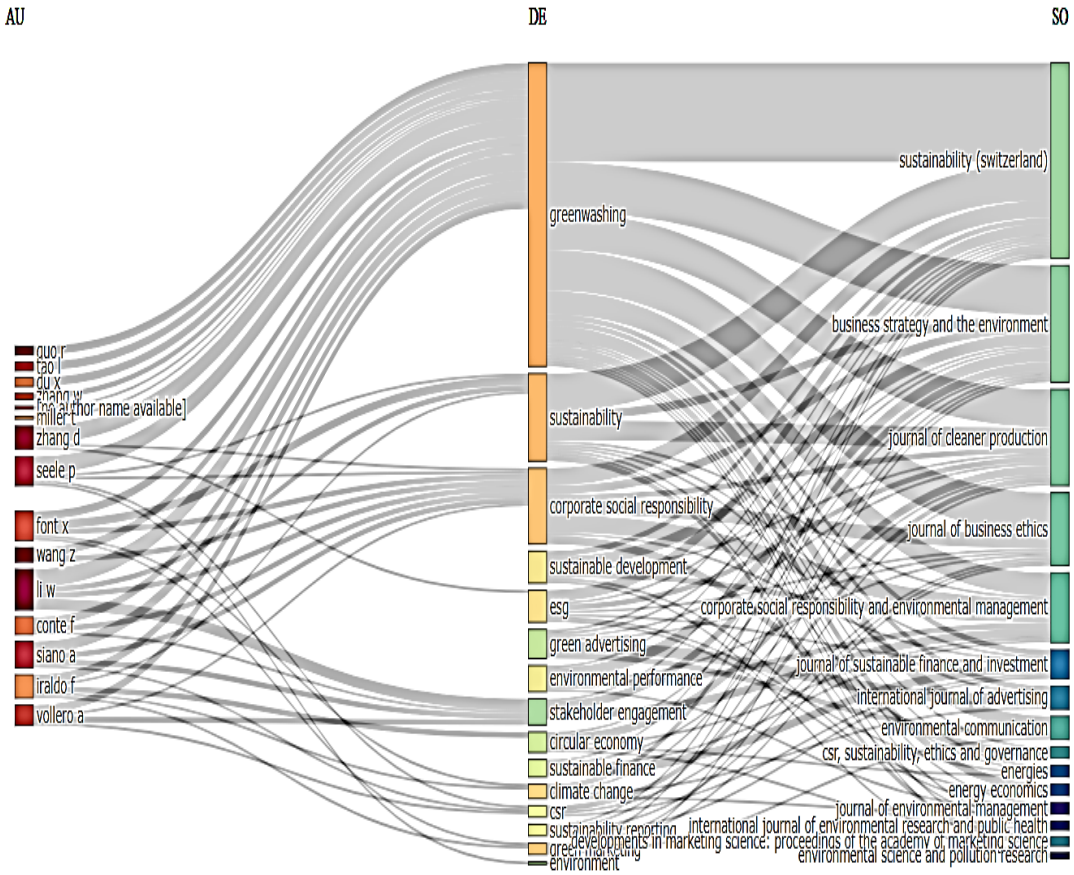
Figure 3: Annual Scientific Production



Source: Author Created using the Biblioshiny software

3.1.3 Three Field Plot

Figure 4: Three Plot Field: Left (Authors), Middle (Keywords), and Right (Sources)



Source: Author Created using the Biblioshiny software

Figure 4 illustrates the three-field plot, which enables researchers to visualize these three bibliometric variables in a single visual representation to evaluate the relationships among authors, references, and keywords in a given study area. Making it simpler to find notable authors, relevant references, and prospective research ideas, can provide crucial insights into the evolution of the field and current research trends. The three-field plot is a valuable tool for bibliometric analysis in fields of study including science and technology, the social sciences, and the humanities (Acedo & Casillas, 2005; Eduardsen & Marinova, 2020).

3.1.4 Most Influential Sources

Figure 5 lists the journals that have published the most papers and are thus the most influential. With 46 articles, "Sustainability (Switzerland)" is the top journal, followed by "Business Strategy and the Environment" and "Journal of Cleaner Production" with 27 articles apiece. Other noteworthy publications are "Corporate Social Responsibility and Environmental Management" with 15 articles, and "Journal of Business Ethics" with 24 articles.

Figure: 5 Most Influential Sources based on Articles Published.

Source: Author Created using the Biblioshiny software

3.1.5 Most Influential Authors

Table 1 below lists authors along with the documents, citations, and overall link strength that relate to each author. Each row shows a different author and their associated data. For instance, Zhang Y. (S.No 1) has a total link strength of 10 and 4 documents, 14 citations, and 14 citations. Li W. (S.No 2) has a similar profile, with 4 documents, 26 citations, and a total link strength of 17. There are 4 papers, 42 citations, and a total link strength of 26 for Wang G. (S.No 3). Despite having 4 papers and 68 citations, Miller T.

(S.No 4) has a total link strength of zero, which denotes that there is no meaningful relationship or impact.

Table 1: Most Influential Authors

S.No	author	documents	citations	total link strength
1	Zhang Y.	4	14	10
2	Li W.	4	26	17
3	Wang G.	4	42	26
4	Miller T.	4	68	0
5	Zhang D.	7	76	3
6	Zhang W.	4	103	17
7	Guo R.	6	105	10
8	Tao L.	6	105	10
9	Du X.	4	219	29
10	Seele P.	6	230	34
11	Conte F.	4	244	21
12	Siano A.	6	281	23
13	Vollero A.	6	282	37
14	Iraldo F.	4	293	21
15	Testa F.	4	351	31

Source: Author Created using the Biblioshiny software

3.1.6 Most Prolific Documents

Table 1 lists authors along with the documents, citations, and overall link strength that relate to each author. The most influential document is Zhang Y. (S. No 1) has a total link strength of 10 and 4 documents, 14 citations, and 14 citations. Li W. (S. No 2) stood second, with 4 documents, 26 citations, and a total link strength of 17. There are 4 papers, 42 citations, and a total link strength of 26 for Wang G. (S. No 3) hence is third in the list.

The first row's pattern is shown by the LC/GC ratio, which is 22.48%. Local citations are normalized to 4.04, and global citations to 3.73. The third row has a citation count of 90 local and 678 worldwide for a 2003 Journal of Business Ethics article by Laufer WS. The LC/GC ratio is 13.27%, which indicates that there are more global citations than local citations. Local citations are normalized to 5.81, and global citations to 4.53.

These indicators offer a perception of the effect and scope, both locally and worldwide, of each author's published work. The normalized citations offer a measure of relative impact in comparison to other writers in the area, while the LC/GC ratio provides an indication of the balance between local and global citations.

Based on the number of citations, the accompanying table lists the most pertinent nations. The number of citations demonstrates the importance and influence of each nation's research output within the academic world. The overall link strength statistic, which measures the strength and volume of links or references to the research output from other academic publications, is also included in Table 2.

The United States leads the group of nations included in terms of both the total number of papers (189) and citations (6675). The research output from the United States has attracted great attention and impact in the academic scene, with a strong overall link strength of 1356. The second-place finisher is the United Kingdom, with 91 papers and 1975 citations. In second place with 89 papers and 1310 citations is China.

Table 2: Most Relevant Documents

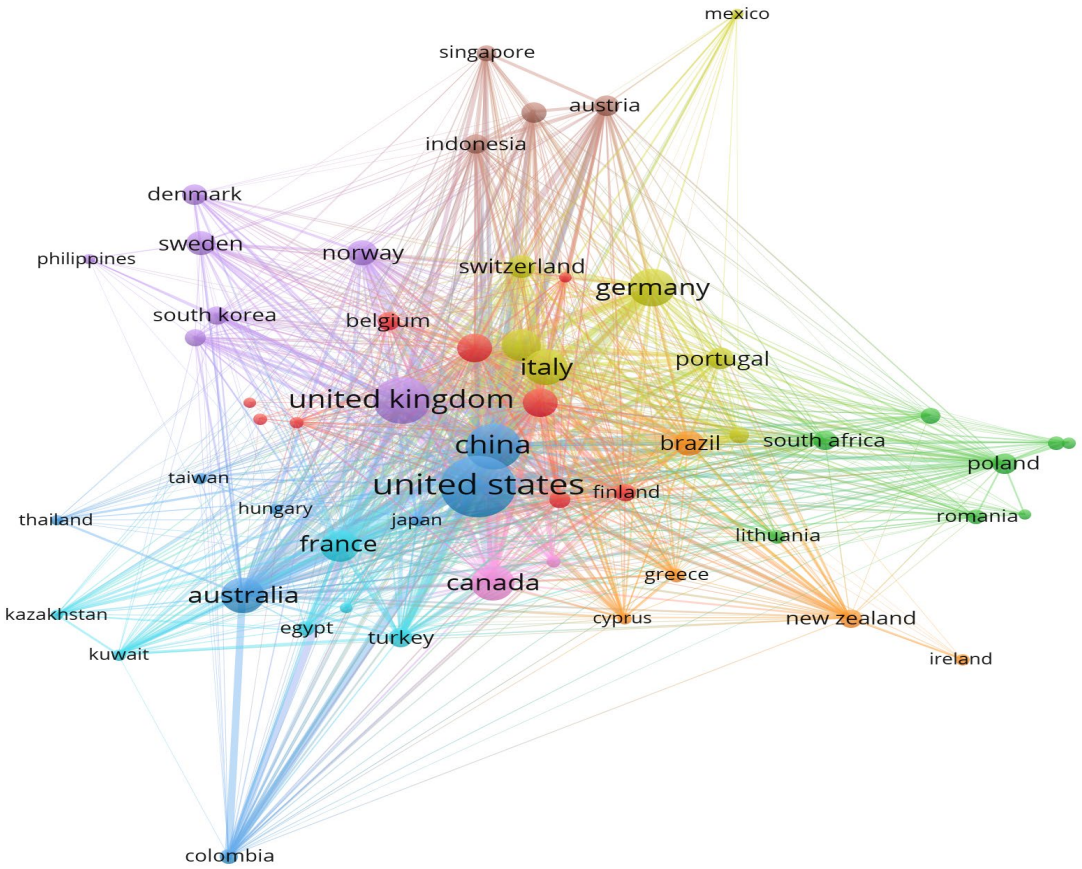
S.No	Document	Year	Local Citations	Global Citations	LC/GC Ratio (%)	Normalized Local Citations	Normalized Global Citations
1	DELMAS MA, 2011, CALIF MANAGE REV	2011	175	773	22.64	6.10	5.59
2	LYON TP, 2011, J ECON MANAGE STRATEG	2011	116	516	22.48	4.04	3.73
3	LAUFER WS, 2003, J BUS ETHICS	2003	90	678	13.27	5.81	4.53
4	PARGUEL B, 2011, J BUS ETHICS	2011	79	382	20.68	2.75	2.76
5	NYILASY G, 2014, J BUS ETHICS	2014	68	265	25.66	10.43	6.32
6	MARQUIS C, 2016, ORGAN SCI	2016	63	286	22.03	16.43	7.19
7	RAMUS CA, 2005, BUS SOC	2005	63	316	19.94	1.77	1.44
8	DU X, 2015, J BUS ETHICS	2015	59	138	42.75	6.14	3.39
9	PARGUEL B, 2015, INT J ADVERT	2015	52	109	47.71	5.41	2.68
10	ZHANG L, 2018, J CLEAN PROD	2018	47	179	26.26	8.23	5.38
11	SEELE P, 2017, BUS STRATEGY ENVIRON	2017	47	149	31.54	8.32	3.66
12	DE FREITAS NETTO SV, 2020, ENV SCI EUR	2020	46	126	36.51	11.81	6.35
13	BERRONE P, 2017, J BUS ETHICS	2017	41	148	27.70	7.26	3.64
14	SIANO A, 2017, J BUS RES	2017	41	197	20.81	7.26	4.84
15	SCHMUCK D, 2018, J ADVERT	2018	39	140	27.86	6.83	4.21

Source: Author Generated

3.1.7 Collaboration Network Among Top Contributing Countries

Based on the extracted (Cobo et al., 2012)data, the collaboration network between the top contributing nations displays fascinating patterns. With a large number of papers (189) and a strong link strength (49148), the United States appears as a major participant with significant international cooperation. With a greater overall link strength (50614), China stands out despite having fewer documents (89), suggesting robust worldwide research partnerships. The United Kingdom exhibits substantial network cooperation, showing meaningful collaborations and knowledge exchange, with 91 documents and 33630 overall link strength. With nations like the United States, China, and the United Kingdom actively participating in cooperative efforts to improve knowledge and innovation, these findings demonstrate the international aspect of scientific research.

Figure 6: Collaboration Network Among Top Contributing Countries



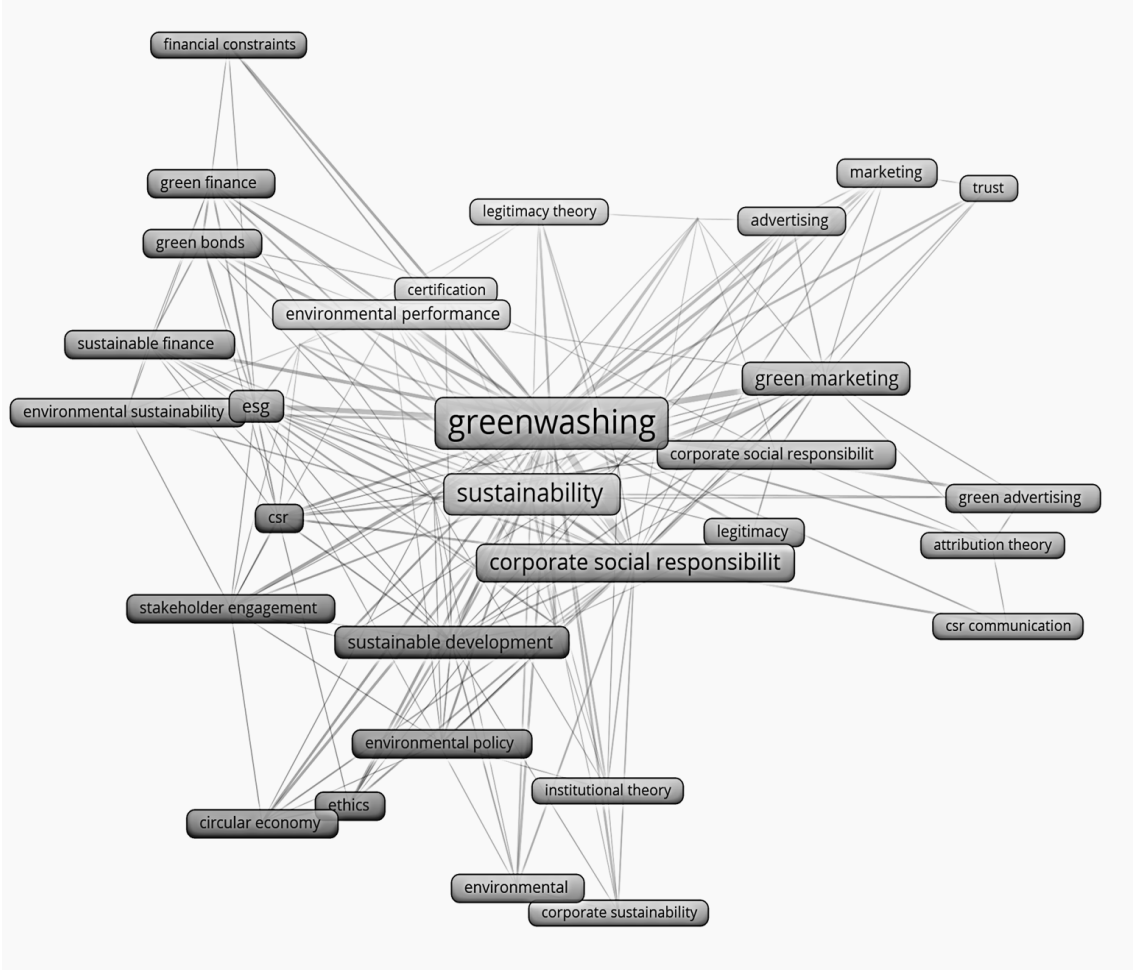
Source: Author Created using the VOSviewer software

3.2 Conceptual Structure

Examined the conceptual framework of the field using the most popular terms, keyword co-occurrence, and study of thematic assessment regarding research in the domain of greenwashing to respond to RQ2, "What is the theme evolution of the study in the field of greenwashing?"

Figure 7 illustrates the number of occurrences and the overall link strength connected with each term, providing information on the co-occurrence of keywords in a certain context. Greenwashing with 322 instances and a total link strength of 491 points, sustainability with 114 instances and a total link strength of 212, and corporate social responsibility (CSR) with 86 instances and a total link strength of 167 are the top three terms on the list. The diagram was made by VOSviewer and the criteria set was five for keywords to occur. Out of 2226 keywords, 67 meet the threshold.

Figure 7: Keywords Co-occurrence Network



Source: Author Created using the VOSviewer software

Thematic Analysis Providing details of each cluster formed

Table 3 was formed by doing thematic analysis using the software SciMAT (Montero-Navarro et al., 2021) which resulted in the formation of seven clusters. A total of 353 articles were divided into seven clusters, and five clusters were included in the study. The criteria set is that each cluster must have at least ten documents, which the last two clusters fail to meet. Out of 339, the five clusters included represent 339, which is more than 96% of the total. The five clusters that are formed are as follows:

1. Sustainable development
2. Corporate Social Responsibility
3. Climate Change
4. Biodegradable Plastics
5. Consumer behaviour

Table: 3 Thematic Analysis Providing Details of Each Clusters Formed

Theme	Keywords	No. of Documents	h-index	Top 10 papers
SUSTAINABLE-DEVELOPMENT	circular-economy, commerce, economic and social effects, empirical-studies, environmental-economics, environmental-management, environmental-technology, finance, green-economy, green-innovation, greenwashing, innovation, internet of things, life cycle, packaging, performance, planning, product design, strategic planning, subsidy system, supply-chain-management, supply-chains, sustainability, sustainable development.	208	35	1.(Marquis et al., 2016) 2.(Wang & Sarkis, 2017) 3.(Font et al., 2012) 4.(Zhang et al., 2018) 5.(Rahman et al., 2015) 6. (Seele & Gatti, 2017) 7.(Berrone et al., 2017) 8.(de Freitas Netto et al., 2020) 9.(DeFries et al., 2017) 10.(Rausch & Kopplin, 2021)
CORPORATE-SOCIAL-RESPONSIBILITY	business, communication, corporate governance, corporate-social-performance, corporate-social-responsibilities-(CSR), corporate-social-responsibility, corporate-sustainability, CSR, csr-communication, environmental, environmental-policy, ethics, firm-value, global-reporting-initiative, governance-approach, green-marketing, guideline, legitimacy-theory, marketing, perception, research-work, social, stakeholder, strategic-approach	72	25	1.(Delmas & Burbano, 2011) 2.(Mahoney et al., 2013) 3.(Marquis et al., 2016) 4.(Wang & Sarkis, 2017) 5.(Font et al., 2012) 6.(Seele & Gatti, 2017) 7.(Wang et al., 2018) 8.(de Freitas Netto et al., 2020) 9.(Pope & Wæraas, 2016) 10.(de Vries et al., 2015)
CLIMATE CHANGE	carbon, carbon emission, carbon footprint, climate change, emission control, energy transition, energy use, environment, environmental-justice, environmental-sustainability, ESG, fossil fuels, greenhouse gas, greenhouse gas emissions, risk-assessment	36	10	1.(Philp et al., 2013) 2.(Stephenson et al., 2012) 3.(Johnsson et al., 2020) 4.(Bigger & Neimark, 2017) 5.(Satola et al., 2021) 6.(Garland et al., 2013) 7.(Bryant et al., 2020) 8.(Taebi & Safari, 2017) 9.(Vikström, 2020) 10.(Mateo-Márquez et al., 2022)
BIODEGRADABLE-PLASTICS	biodegradability, biodegradable-plastics,	11	8	1.(Philp et al., 2013)

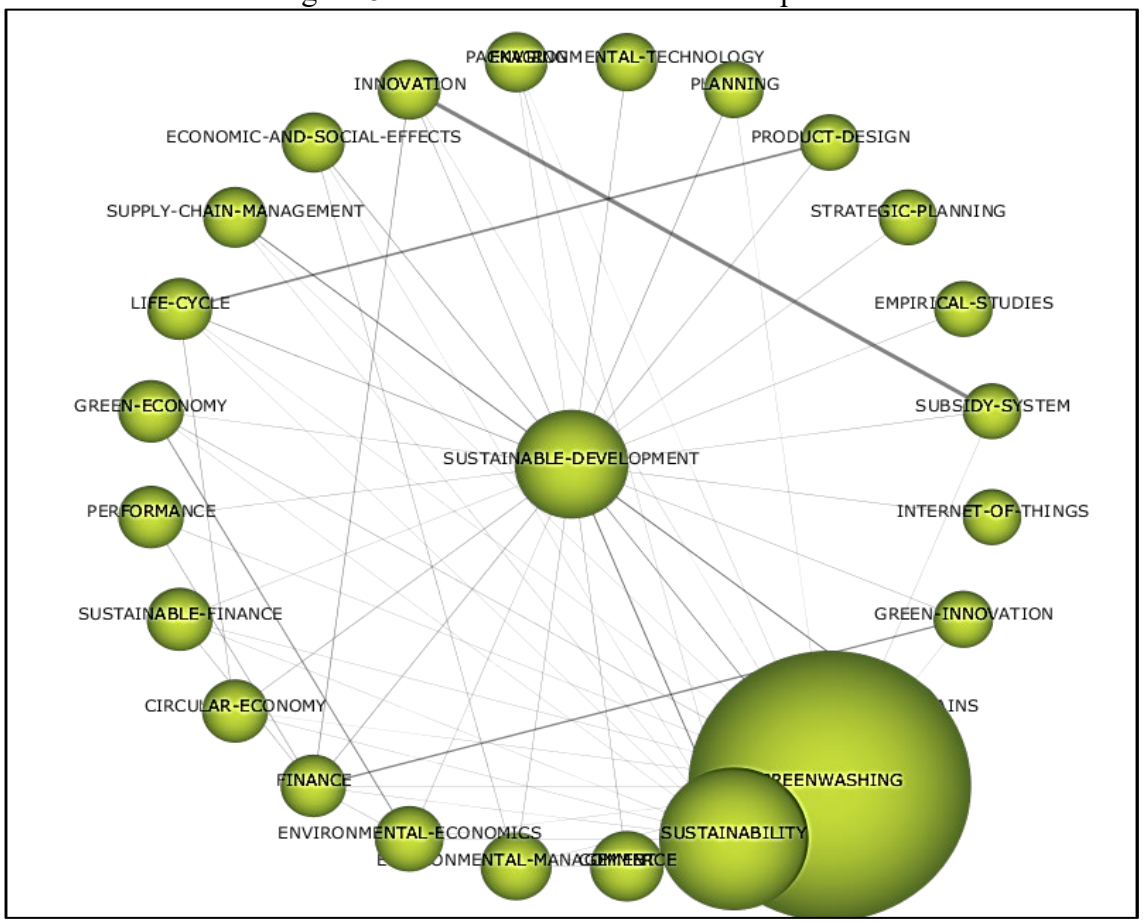
Theme	Keywords	No. of Documents	h-index	Top 10 papers
	biodegradable polymers, environmental, plastic, plastic pollution, plastic products, plastics-industry, plastic-waste, polymer			2.(M. Nazareth et al., 2019) 3.(Nandakumar et al., 2021) 4.(Viera et al., 2020) 5.(Zhu & Wang, 2020) 6.(Goel et al., 2021) 7.(Mehta et al., 2021) 8.(Molloy et al., 2022) 9.(M. C. Nazarethet al., 2022) 10.(Chitaka, 2021)
CONSUMER-BEHAVIOR	competition, consumer, consumer-attitude, consumer-behavior, consumption-behavior, legitimacy, trust	12	3	1.(Sirieix et al., 2013) 2.(Kim et al., 2019) 3.(Steffen & Doppler, 2018) 4.(Ktisti et al., 2022) 5.(Szilagyi et al., 2022) 6.(Guo et al., 2014) 7.(de Sio et al., 2022) 8.(Guo et al., 2014) 9.(Courtat et al., 2023) 10.(Lu, Sheng, Zhou, Shen, & Fang, 2022)

Source: Author Generated

4. Thematic Literature Review by doing Content Analysis of each cluster

An approach to organizing and synthesizing existing literature on a particular subject or research issue is known as a theme literature review (George & Nair, 2022). A thematic review concentrates on finding and analyzing common themes or patterns in the chosen literature, as opposed to a typical literature review, which offers a thorough overview of all pertinent works. In this context, the authors have divided the data into five groups or clusters and then examined the top 10 publications inside each cluster based on their citations (to answer research question 3).

Figure 8: Cluster 1: Sustainable Development



Source: Author Created using the SciMAT software

4.1 Cluster 1: Sustainable Development

The cluster analysis investigates the connections between circular economy, green economy, environmental economics, sustainable finance, green innovation, and greenwashing. The term "greenwashing" describes organizations making false or exaggerated claims about their environmental sustainability practices, goods, or services. Consumer trust is eroded by this phenomenon, and sincere environmental initiatives are hampered. The review explores the numerous facets of "greenwashing" and its effects on sustainability while looking at the relevant economic issues. A framework for evaluating the advantages and disadvantages of greenwashing and its effects on society and the environment is provided by environmental economics. As a potential remedy, sustainable finance emphasizes investments in green projects and provides support for businesses that are dedicated to sustainability. The linear "take-make-dispose" approach is challenged by the circular economy, which emphasizes waste reduction, resource reuse, and sustainable production and consumption. The assessment also emphasizes how crucial it is to create a green economy that supports innovative ideas and sustainable practices in all sectors of society. By developing new technology, procedures, and goods with minimal environmental effects, green innovation is essential to advancing sustainable development. The review aims to offer insights into the difficulties and opportunities associated with greenwashing and to suggest strategies for promoting true sustainability practices and fostering a more environmentally aware and responsible society by critically analyzing the connections and interactions between these key elements.

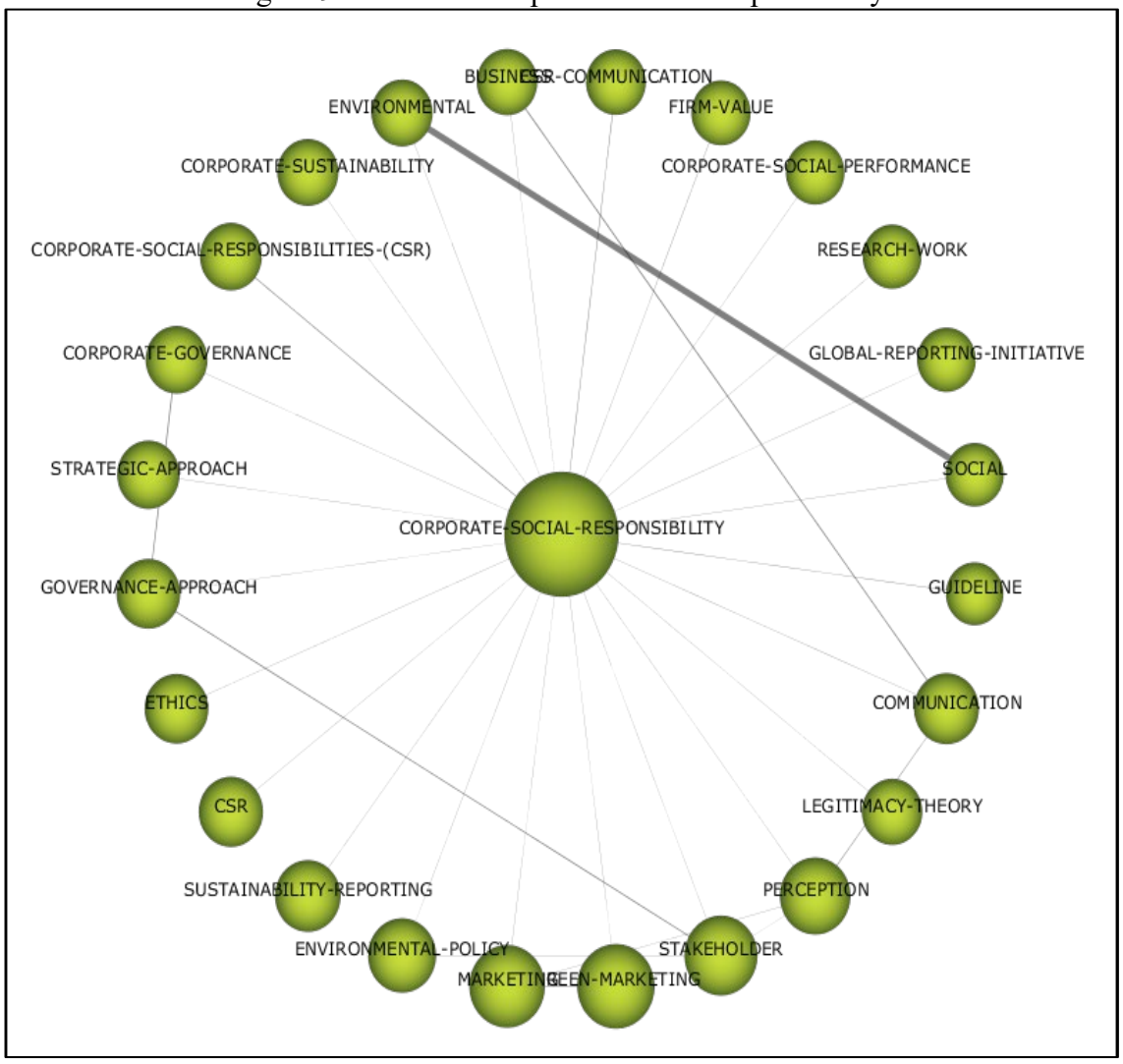
Application and potential benefit - Businesses and economies can prosper in the area of sustainable development by adopting circular economy ideas, reducing waste, and maximizing resource utilization. Investments in environmentally friendly projects and technology, which drive the transition to a green economy, not only improve environmental well-being but also promote innovation and economic progress. Organizations can make well-informed decisions that strike a balance between economic viability and ecological sustainability by utilizing environmental economics. Integrating sustainable finance helps businesses that are genuinely devoted to having a positive influence on the environment by balancing profitability with ethical behavior. Industries can lead significant change, win customer trust, and establish themselves as genuine contributors to a sustainable future by championing green innovation and avoiding greenwashing.

4.2 Cluster 2: Corporate Social Responsibility

Corporate social responsibility (CSR), corporate social performance (CSP), global reporting initiatives (GRI), stakeholder engagement, green marketing, environmental policy, and governance approaches were the focus of this cluster, which yielded important insights into the relationship between business and sustainability. The evaluation has looked at how businesses incorporate social and environmental concerns into their operations and decision-making processes, looking at the many CSR and CSP elements. It emphasizes the requirement to investigate how global reporting initiatives, like GRI, support accountability and openness in corporate sustainability reporting. The evaluation also considered how crucial stakeholder involvement is in determining CSR strategies and results, as well as how green marketing is used to inform customers about sustainable practices and goods. The purpose of organizations implementing CSR governance structures is to accomplish social and environmental results and build legitimacy within their corporate community, according to "content analysis of cluster 2" research. CSR governance can be implemented symbolically or rigorously, with the latter producing better CSR results through resource allocation and structural adjustments. By preserving social legitimacy, these excellent CSR results lead to improved business environments and higher financial returns. On the other side, the application of symbolic CSR governance may result in a legitimacy gap and lower financial returns. Without effectively producing positive CSR results, businesses that engage in window-dressing CSR governance do not do better financially. Companies can only gain from CSR by "walking the talk" and solving challenges related to it.

Application and potential benefit - Businesses and economies can prosper in the area of sustainable development by adopting circular economy ideas, reducing waste, and maximizing resource utilization. Investments in environmentally friendly projects and technology, which drive the transition to a green economy, not only improve environmental well-being but also promote innovation and economic progress. Organizations can make well-informed decisions that strike a balance between economic viability and ecological sustainability by utilizing environmental economics. Integrating sustainable finance helps businesses that are genuinely devoted to having a positive influence on the environment by balancing profitability with ethical behavior. Industries can lead significant change, win customer trust, and establish themselves as genuine contributors to a sustainable future by championing green innovation and avoiding greenwashing.

Figure 9: Cluster 2: Corporate Social Responsibility



Source: Author Created using the SciMAT software

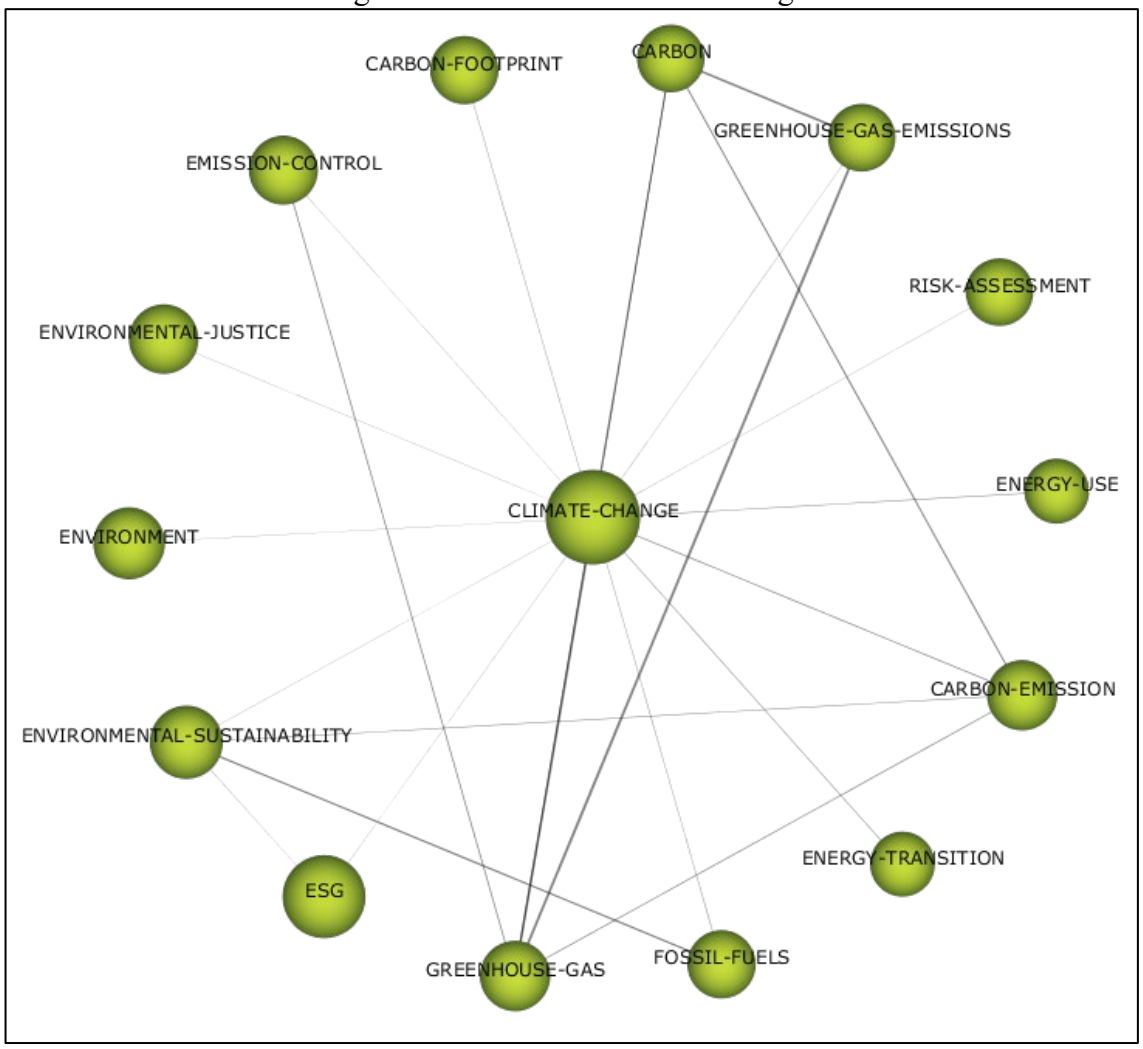
4.3 Cluster 3: Climate Change

The third cluster analysis (Figure 10) demonstrates the pressing need for environmental sustainability and climate change mitigation. To comprehend how human activities affect the climate, it is essential to understand carbon emissions, carbon footprints, and greenhouse gas emissions. It is necessary to switch to cleaner and more sustainable energy sources since excessive fossil fuel use and energy consumption greatly contribute to these emissions. A comprehensive strategy that includes risk assessment, energy transition, and emission control is needed to combat climate change. To reduce the atmospheric release of greenhouse gases, emissions must be controlled. The carbon footprint connected to energy usage can be lessened by implementing emission control measures and adopting sustainable practices, such as energy-efficient devices and renewable energy sources. Furthermore, attaining environmental sustainability necessitates a larger viewpoint that takes social responsibility and environmental justice into account. With an equal distribution of resources and opportunities for everyone, environmental sustainability seeks to conserve and preserve the environment. It requires being aware of how society, the environment, and the economy are intertwined and actively trying to achieve a balance that is advantageous to both the current and the next generation. For enterprises and organizations to promote sustainability, ESG factors—which include corporate governance, social impact, and environmental sustainability—

are essential. By identifying and minimizing possible threats like sea level rise and extreme weather, risk assessment helps address climate change by promoting adaptation, resilience, and the protection of vulnerable people.

Application and potential benefit - Consolidated efforts on many fronts are required to address the urgency of climate change. Global warming can be slowed down by reducing carbon emissions using innovative technologies and sustainable energy sources. Thorough risk analysis empowers companies to foresee and respond to climate-related difficulties, ensuring resilience and defending vulnerable communities. Environmental justice themes are included in measures to promote equity and inclusivity. Additionally, including Environmental, Social, and Governance (ESG) elements is crucial for businesses looking to align their practices with sustainability, increasing corporate accountability and resilience against disruptions brought on by the climate.

Figure 10: Cluster 3: Climate Change



Source: Author Created using the SciMAT software

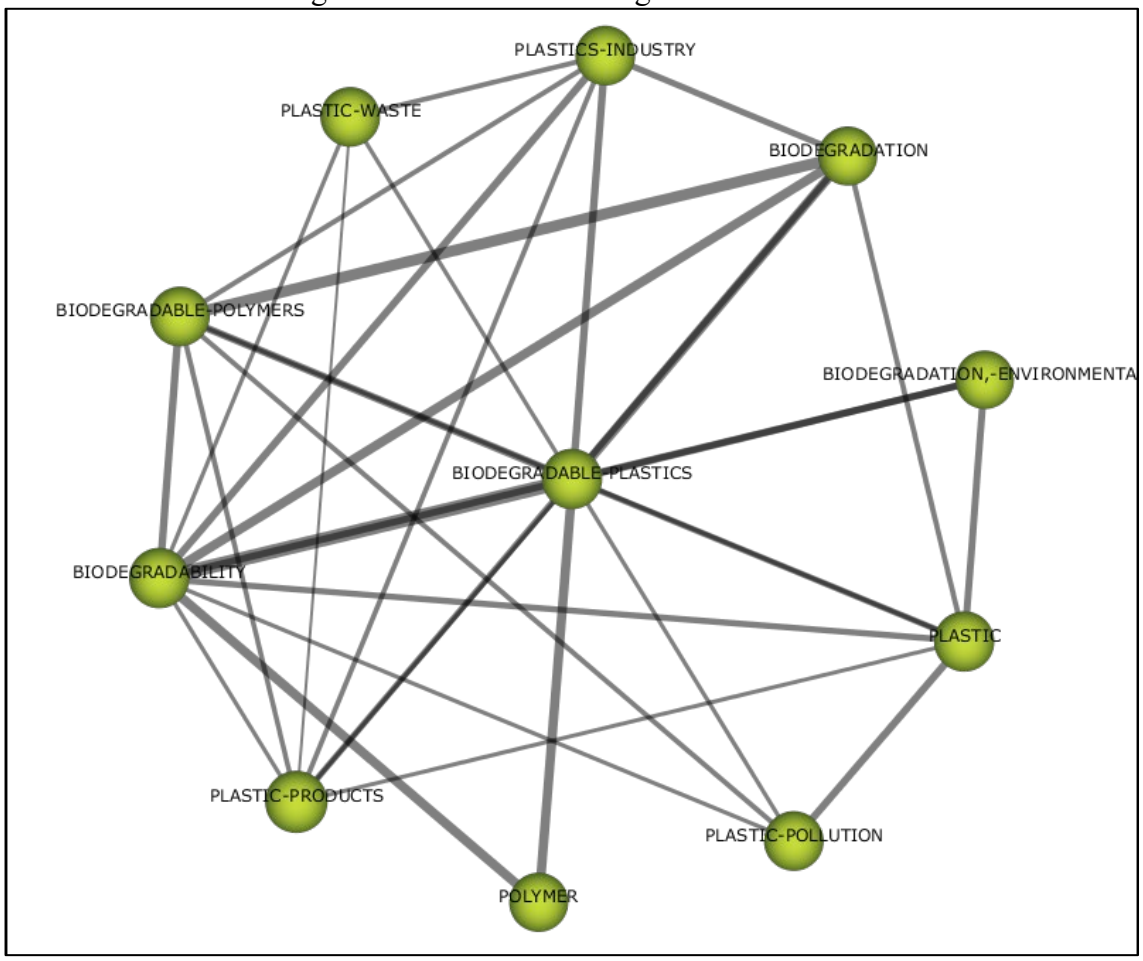
4.4 Cluster 4: Biodegradable plastics

This cluster focuses on solving the urgent environmental problems brought on by pollution and plastic waste. The creation and usage of biodegradable plastics and polymers is a key component in the exploration of sustainable solutions. The subject highlights the demand for novel strategies within the plastics sector to lessen plastic pollution, cut down on plastic waste, and encourage environmental preservation. The

creation of biodegradable plastics, the use of environmentally friendly materials, efficient waste management techniques, and sustainable practices in the plastics sector are some of the theme's key facets. This theme intends to inspire debates and efforts aimed at attaining a cleaner and more sustainable future by addressing themes relating to biodegradability, plastic goods, polymer technology, and the environmental effects of plastics.

Application and potential benefits - Sustainable practices and the use of biodegradable polymers are essential to the fight against plastic pollution. Businesses can greatly minimize plastic waste and its damaging effects on ecosystems by investing in the development of biodegradable polymers. Utilizing eco-friendly products and effective waste management techniques lessens the influence on the environment, encouraging a cleaner and healthier earth. With the development of fresh, environmentally friendly plastic substitutes, advances in polymer technology portend a future with less reliance on conventional, non-biodegradable plastics.

Figure 11: Cluster 4: Biodegradable Plastics



Source: Author Created using the SciMAT software

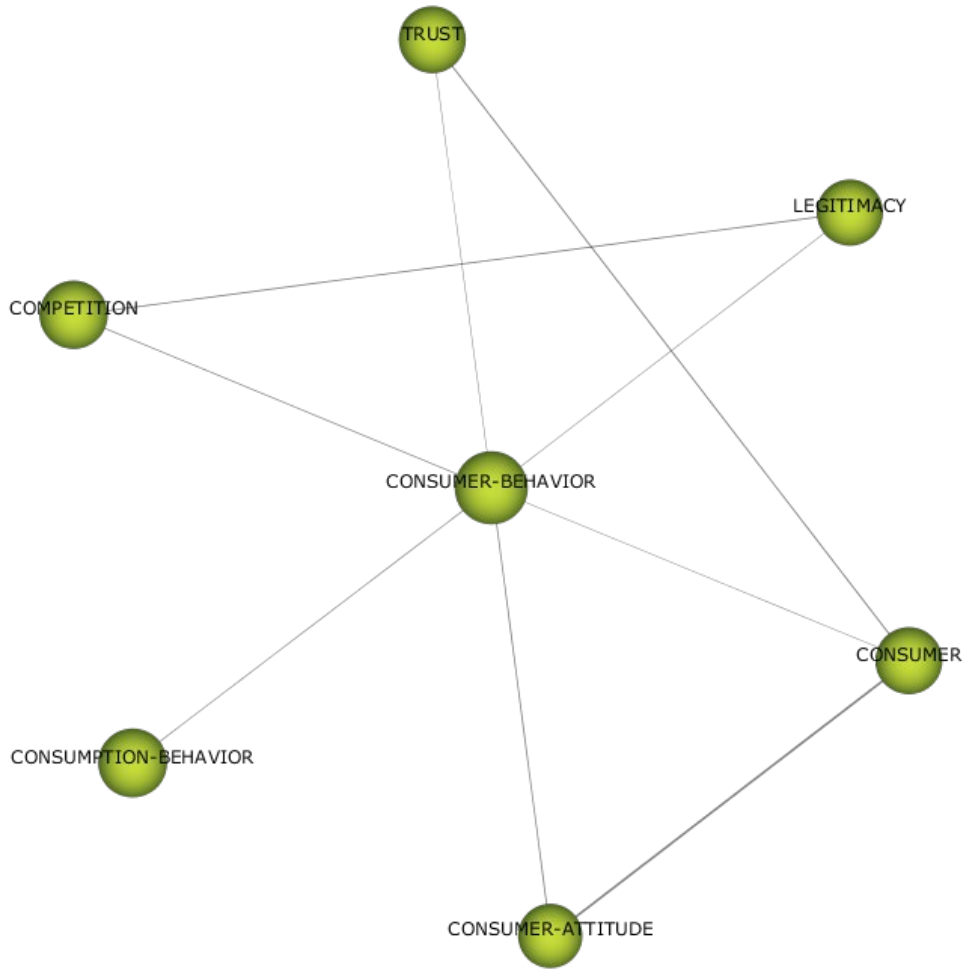
4.5 Cluster 5: Consumer Behaviour

Building customer trust and influencing sustainable purchasing habits in a cutthroat market are central to this cluster. It emphasizes how the attitudes and behaviors of customers towards goods and services interact. The subject focuses on enabling customers to feel trusted and legitimate so they may make decisions that are in line with environmental objectives. Understanding consumer attitudes and behaviors, looking into what influences consumer decision-making, and looking at tactics to encourage

responsible consumption are key elements of the theme. It emphasizes the necessity for companies and organizations to prioritize openness, moral behavior, and environmentally friendly solutions to win customers' confidence. The more people become aware of a company's greenwashing tactics, the less likely they are to purchase associated products. This motivates companies to implement considerable environmental initiatives and to take a straightforward approach devoid of embellishment or dishonesty. Businesses must balance the risks to their development and brand success, as well as the possible harm to their reputation and the consumer market, before deciding whether to participate in greenwashing once more.

Application and potential benefit - The connection between consumer behavior and sustainability emphasizes how crucial it is to foster trust and promote ethical decision-making. Genuine commitment and open communication increase consumer trust and encourage the use of environmentally friendly products. Understanding customer attitudes and giving information that is consistent with their beliefs are key components of strategies to promote sustainable purchase habits. Businesses that steer clear of "greenwashing" and concentrate on worthwhile efforts benefit from devoted customers and a favorable view of their brands. Businesses can build long-lasting trust and contribute to a more ethical consumer culture by adopting ethical behavior and ecologically friendly practices.

Figure 12: Cluster 5: Consumer Behaviour.



Source: Author Created using the SciMAT software

5. Conclusion

The authors have conducted a thematic literature assessment, content analysis, and bibliometric analysis on the subject of greenwashing. The paper presented a comprehensive understanding of the subject and came up with themes for future research directions by employing a hybrid technique that combines bibliometric analysis with a thematic literature evaluation.

This study broadens the body of information on greenwashing in several ways. To discover the main study topics, authors first use bibliometric analysis, then employ a distinctive two-stage sequential technique, followed by a thematic literature review. Such a strategy aids in both the depth and breadth of the field's coverage. By carefully examining the conceptual and intellectual frameworks of the area, the research also synthesizes knowledge structures. Third, the study identifies and gives a descriptive evaluation of the most pertinent publications as well as a thematic literature review of the primary themes; it serves as a resource for academics working on this subject. Fourth, given the rapid industrialization and globalization of today's world, the study offers options for further research. Five clusters that address various aspects of sustainability and environmental responsibility make up the study's thematic analysis. In Cluster 1, sustainable development is the main topic, and it is explored in depth along with sustainable finance and green innovation. It draws attention to the idea of "greenwashing," in which businesses exaggerate their environmental impact while undermining consumer confidence and impeding sincere sustainability initiatives. The focus of Cluster 2 is corporate social responsibility (CSR), with a focus on green marketing, CSR governance, and stakeholder engagement as ways to match business practices with environmental concerns. Climate change is addressed in Cluster 3, which emphasizes the necessity of switching to cleaner energy sources, emission regulation, and environmental justice. In Cluster 4, the emphasis is shifted to biodegradable plastics as a reaction to plastic pollution, and the plastics industry's production processes and sustainable practices are examined. Finally, Cluster 5 looks at how people behave as consumers, highlighting the need for openness, moral behavior, and sincere environmental initiatives to promote consumer trust and responsible purchasing. These clusters, as a whole, offer light on interrelated topics that are essential for promoting a sustainable and environmentally conscious future.

6. Future Research Direction

The article "Greenwashing: An Integrated Thematic and Content Analysis of Literature through Bibliometric Methods" offers a thorough analysis of the body of knowledge on the topic. Several potential future research paths might be investigated in light of the study's findings. (Answering research question 4)

First, more research might concentrate on figuring out the causes and purposes of greenwashing behaviors. Understanding the fundamental causes of greenwashing can offer important insights into the practice and aid in the creation of potent preventative and mitigating interventions. Second, studies might examine how greenwashing affects consumer behavior and choice-making. The creation of solutions and educational campaigns that enable customers to make knowledgeable and sustainable decisions might benefit from examining how greenwashing affects consumer perceptions, trust, and purchase decisions. Third, it is critical to investigate how well present laws and policies

are working to stop greenwashing. Policymakers and regulatory organizations can improve current frameworks or create new regulations to prevent greenwashing more effectively by evaluating the regulatory environment and identifying possible gaps. Future studies might also look at how technology, such as artificial intelligence and machine learning, can be used to identify and stop greenwashing. Utilizing cutting-edge technologies to examine greenwashing claims and spot trends can help create automated tools and systems that aid in the identification and avoidance of false environmental claims. In addition, there is growing interest in examining how social media and digital platforms affect greenwashing. To oppose disinformation and advance openness in sustainability communication, it is important to understand how greenwashing techniques are used and spread online.

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