

Review

The State of Research in Green Marketing: A Bibliometric Review from 2005 to 2022

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Abstract: Green products are composed of renewable resources and aim to minimize waste by maximizing resource efficiency. Some examples of green products are recycled paper, herbal products, and energy-saving bulbs, which are easily recycled and benefit the environment by reducing waste during manufacturing. Consumers and organizations are becoming more environmentally conscious. Consumer adoption of green products, environmental activism, and stringent regulations can significantly reduce environmental degradation. The main focus of this paper is to consolidate findings on green marketing through a bibliometric study of articles published from 2011 to 23 May 2022 and present the results in a meaningful manner. In this study, we used VOSviewer software to map crucial current trends. It was observed that the key words sustainable, ethical, green, ecological, and eco-friendly marketing have received considerable attention in green marketing during the last decade.

Keywords: green marketing; environment marketing; sustainability; green products; ethical marketing



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1. Introduction

Meeting human needs in an appropriate manner that does not negatively impact the environment: green marketing involves all marketing activities that accomplish this [1]. Marketing is not simply sales or advertisement. In addition, product idea generation, manufacturing, packaging, marketing, and distribution can involve various green activities. Consequently, the term refers to marketing any activity intended to minimize a product's harmful effects on the environment, such as product redesign, manufacturing, and integrated marketing communication campaigns [2]. Green marketing can also be referred to as sustainable or ecological marketing [3], eco-marketing [4], and environmental marketing [5,6]. Although sustainability is controversial, sustainable marketing is synonymous with green marketing. Companies and governments face political, technological, and economic constraints, making it difficult to interpret and implement green marketing meaningfully [7,8]. As green marketing is primarily concerned with the environment, environmental, social, and economic sustainability are integral to sustainable marketing. Innovative thinking in this field is driven by the needs of consumers, involves extensive use of the company's resources, and starts with consumers [9,10].

In a green market, consumers recognize that they are responsible for the environment, representing the responsibility of humans [11]. An increasing number of companies are taking green measures to cope with growing consumer concerns about the environmental impact of corporations. An organization's green marketing strategy becomes part of its overall strategy to better satisfy its clients, investors, regulators, and stakeholders [12]. Furthermore, green marketing can improve competitive advantage [13,14], customer satisfaction [15], and company performance [16]. A study by [17] showed that people prefer

to purchase environmentally friendly products in accordance with their awareness of environmental concerns.

2. Literature Review

Green marketing is worth investigating because of its relevance and the relative novelty of how businesses interact with natural environments [18]. Green marketing has grown significantly over the past two decades, and knowledge on green marketing across different continents and diverse topics has grown proportionally. According to Kotler [19], green marketers seek to change marketing practices, and at the foundation of green marketing (strategic and functional) lies the search for opportunities and decisions that can be harnessed by adopting green marketing practices. McDonagh and Prothero [20] carried out a literature review of articles published from 1998 to 2013. A review study by [21] categorized earlier literature reviews into thematic categories: green marketing functions, co-orientation, green marketing strategy, and consequences. These chapters summarized the literature on green marketing and key concepts and themes for future research. In [22], the author conducted a bibliometric study of Web of Science (WOS) articles published from 1977 to 2020, investigated with the primary objective of summarizing the current state of green marketing research and analyzing and presenting the results of the search after applying selected keywords.

Over the past few years, green marketing has received much attention from scholars worldwide [23], and as a result, various literature reviews on this topic have been published. For instance, Kar and Harichandan [24] focused on the Scopus and Web of Science databases comprising data from 1121 articles published between 1990 and 2021 in 462 journals. The results suggest that green marketing techniques, eco-tourism, and sustainable marketing techniques [25] are increasingly important. Despite the attention of scholars, a thorough bibliometric analysis of the green marketing literature still needs to be completed. The concept of bibliometric analysis can be defined as a statistical analysis of scientific articles, book chapters, or books [26] that have been published in the past and is a practical approach to gauge the impact of publications on the scientific community. Biometric research reviews can be used to visualize a topic's framework, identify emerging and current research topics, and summarize the most influential publications and academics.

As part of our bibliometric review process, we created mind maps to organize our literature review, mapped the study's structural area, and compiled a bibliography to provide a complete picture of the literature [27,28]. By analyzing the facts mentioned earlier, this bibliometric review attempts to draw attention to the numerous attributions related to "green marketing, sustainability, eco, and environmental marketing". Based on the bibliometric analysis of 1348 articles published between 2011 and 2022, this analysis provides the first factual and statistical insight into research trends concerning green marketing and eco-marketing of green products. Furthermore, based on citations and an article's impact, a review of the research on this topic is presented.

Moreover, a green marketing practitioner must comprehend the types of literature developed and how they have grown, focusing on essential authors, distribution of articles, high-profile journal articles, and prominent publication outlets. To accomplish this, in this paper, we will review peer-reviewed journal articles published in SCOPUS from 2011 to 2022 with the keywords "Green marketing" OR "eco* marketing" OR "sustainable marketing" OR "Enviro* Marketing" OR "Ethical marketing" to analyze the published literature related to green marketing; group articles by dominant themes; determine how it has evolved; and determine which publication outlets, articles, and authors have impacted the field based on citations and number of pieces. This contribution complements earlier literature reviews that emphasized a context-specific approach and contributes to providing an explicit understanding of developments in green marketing literature.

This study aims to address five research objectives (ROs).

These are as follows:

RO1: To develop a research profile of the selected studies in terms of journals, countries, and data analysis techniques.

RO2: To synthesize key trends and uncover additional aspects.

RO3: To appraise the research methods used by extant studies in terms of design and theories to identify open gaps.

RO4: To assess the findings and inferences of the selected studies to provide better insights.

RO5: To highlight areas of concern and opportunities for marketers, policymakers, and potential service providers.

3. Research Methodology

3.1. Method

In this study, we used bibliometric statistical methods to identify, better understand, and evaluate recent patterns, techniques, findings, and improvements in green marketing research [29]. Bibliometrics is a statistical method that helps provide a transparent vision to better understand publication trends in research papers, articles, and documents [30].

3.2. Data Selection

Numerous databases are available for indexing and abstraction. Databases can be classified into two different categories: multidisciplinary databases, including Scopus and Web of Science, and subject-specific databases, such as MEDLINE, PubMed, AGRICOLA, and ERIC [31]. Our study used data from SCOPUS, which abstracts scientific databases, provides accurate indexing, and contains high-quality articles [32]. There might be a possibility that Google Scholar may show a difference in the number of citations. Google Scholar is a search engine and hence has much broader coverage than Scopus, including theses, conference papers, reviews, books, book chapters, letters, data papers, and even unpublished materials. Since Scopus does not index these types of content, they do not contribute to the number of citations; therefore, when compared with Google Scholar, the number of citations for articles indexed in Scopus will always be lower. This difference does not influence the finding's credibility.

We covered both qualitative and quantitative aspects in our study [33]. During the data retrieval process, some papers were missed from other subject-specific databases, as the Scopus database might have used synonyms in such cases and returned identical records.

3.3. Search Query

We conducted a study using the Scopus database for the following search terms: "Green marketing" OR "eco* marketing" OR "sustainable marketing" OR "Enviro* Marketing" OR "Ethical marketing" as shown in Figure 1. The search query for the collection was performed on 23 May 2022, at Symbiosis International University, Pune.

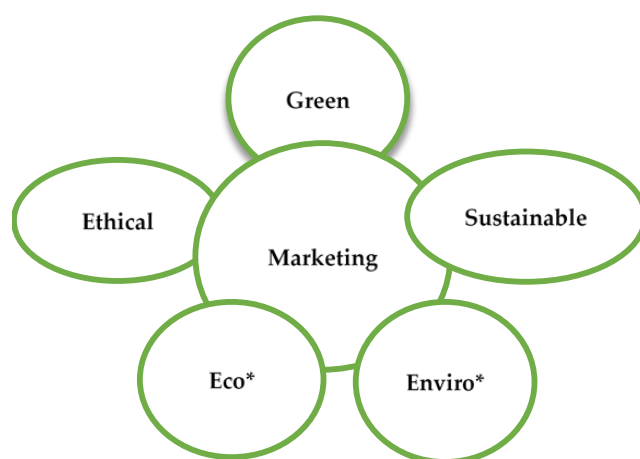


Figure 1. Conceptualization of keywords.

3.4. Inclusion and Exclusion Criteria

A systematic review should adhere to the standard requirements outlined in PRISMA [34]. According to the PRISMA guidelines, publications must be screened successively but are treated equally after the first screening step. We considered publications from 2011 to 23 May 2022, from a total of records that were extracted from the Scopus database against the keywords. A three-step process was used to review the identified papers.

- Identifying, eliminating, and correcting duplicate records [35].
- Analyzing the articles according to inclusion and exclusion criteria.
- Reading and checking the content based on title, abstract, and keyword criteria.

We excluded publications from conference proceedings, book chapters, and publications in languages other than English.

We evaluated the selected studies against a set of quality evaluations (QE) [36]. Quality scores must be considered to obtain relevant and unbiased results [37]. This study used different quality evaluation questions to calculate the quality evaluation scores, as suggested by [38] (see Figure 2). The set of quality evaluation scores used to evaluate the selected studies is aligned with the current systematic literature review. Two independent authors undertook the study selection process to ensure robustness and the selection of an unbiased sample. The selection was based on studies achieving at least 4.5 QEs out of a total of 868 studies considered for further synthesis after evaluating the quality scores of all identified studies.

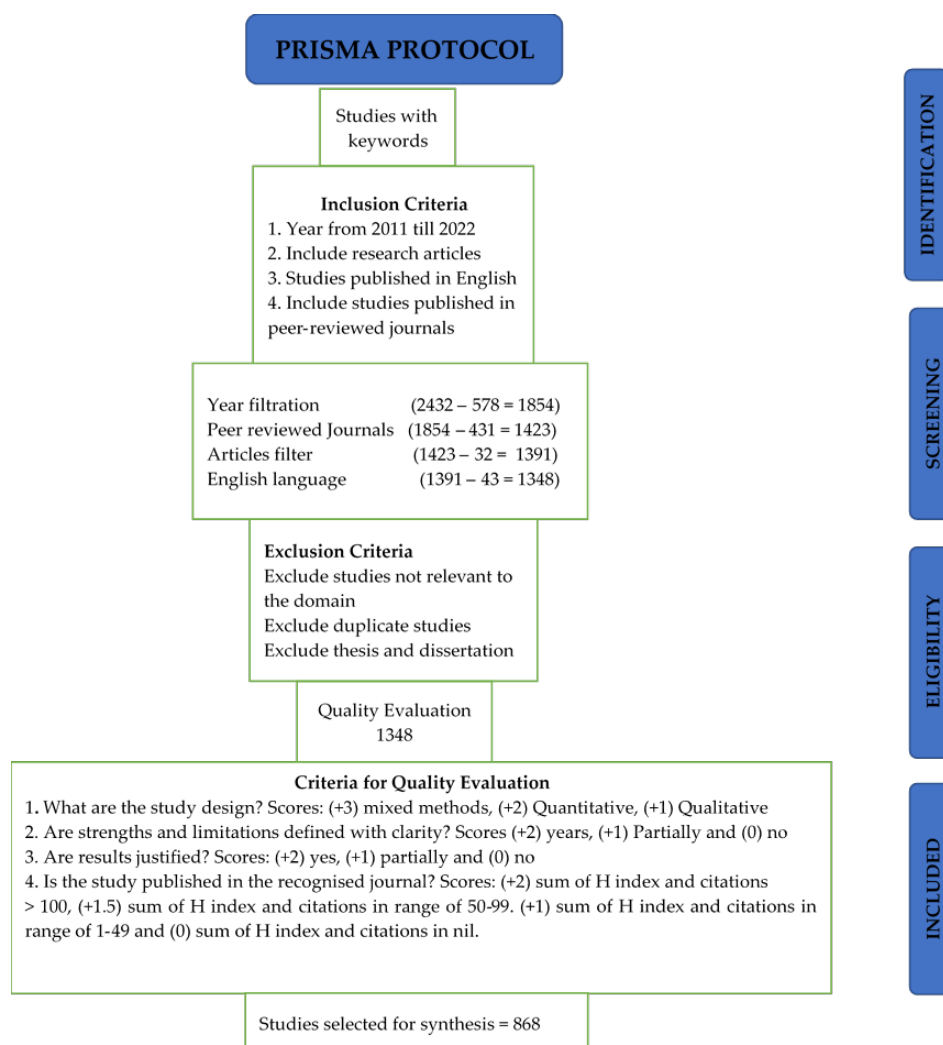


Figure 2. Study selection-criteria.

3.5. Bibliometric Analysis

This section shows the bibliometric analysis result of green marketing literature published from 2011 to May 2022. For bibliometric analysis, several software packages are commonly used, including CiteSpace, RStudio (bibliometrics package), BibExcel, VOSviewer, Gephi, and Histcite [39]. We used VOSviewer to conduct this study for various purposes. VOSviewer [40] was used to illustrate the clusters and cross-disciplinary mapping of the field so that readers across different fields could more easily understand our findings. Furthermore, cluster analysis facilitates the identification and characterization of samples into smaller groups for more straightforward analysis [41].

Through the Scopus database, it is observed that the history of studies based on sustainable product-related areas stretches back more than 50 years. Although researchers have been working on the topic since 1964, there has been an increase in the number of studies related to the topic since 2006 [42].

4. Results: Systematic Analysis of the Research Field

The impact of research can be gauged from the level of citations it has received [43]. The 868 relevant research works related to sustainable marketing since 2011 have seen a remarkable growth in the number of citations. As can be seen in Figure 3, the collection of relevant works produced a total of 38 citations in 2011, whereas in 2021, it was 7956 citations, representing a growth rate of more than 200%. Since 2011, the average number of citations per paper, determined by dividing the total number of citations by the total number of publications, is 45.

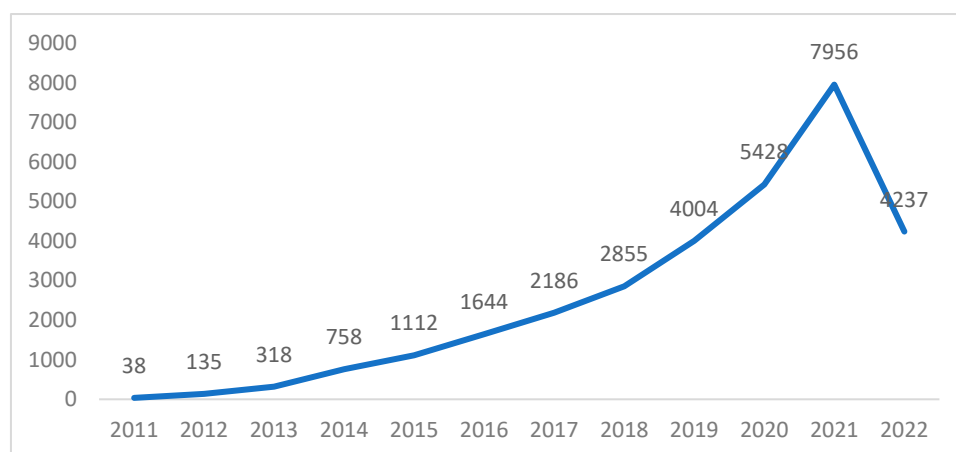


Figure 3. Citations by year.

To analyze the progress of a research area, the number of published articles related to that topic must be considered [44]. Figure 4 indicates an increase in publications since 2011. The growth is almost stable until 2018. Three waves are observed on Figure 4. The first wave achieved its peak in 2013 with 67 publications; the next wave peaked in 2016 with 75 publications. However, there was a tsunami in research publications (147 documents) in 2020. The trend continued in 2021 with 142 relevant documents being published.

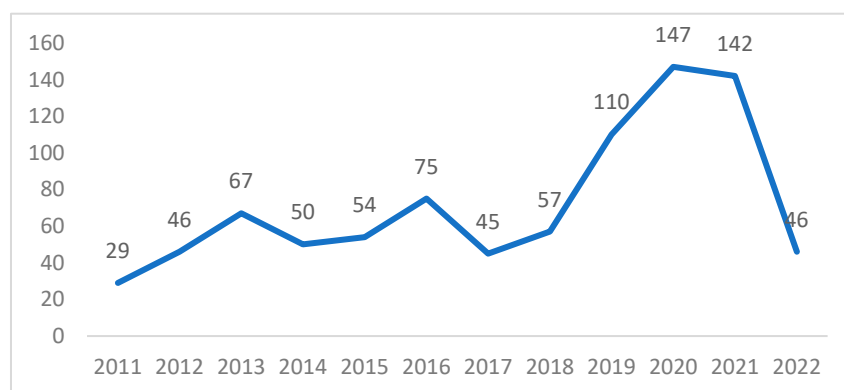


Figure 4. Articles by year.

4.1. Prominent Topics

The elements and terminologies involved in research are crucial to understanding it. There are numerous keywords used related to green, ethical, and sustainable marketing. A key objective of this study is to identify the keywords and then check for keywords associated with the concept. Keywords associated with authors and indices are included in this list. The author's keywords represent the contents of their manuscript. Journals suggest controlled index keywords that capture the topic's essence and are chosen by authors.

Knowledge of terminologies frequently used in a research field helps researchers better understand that particular field. Figure 5 below displays the keywords repetitively used by researchers in the area of green marketing. The clusters in the figure suggest the multidimensionality of green/sustainable marketing. The "green clusters" signify the keywords related to green marketing. The clusters suggest several researchers have used phrases linked to green marketing, such as environmental marketing, sustainability marketing, digital marketing, and international marketing. Similarly, several keywords were linked to other clusters, such as green products, environment, ethical marketing, corporate social responsibility, and green economy. These phrases have been widely used by researchers worldwide, representing the multidimensionality of green marketing.

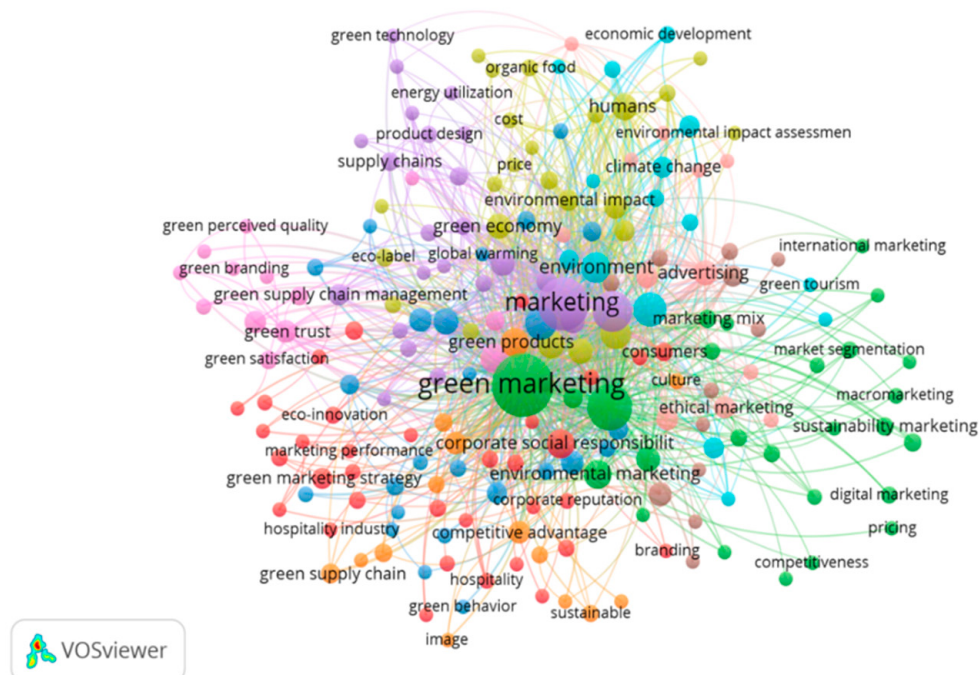


Figure 5. Network visualization map of keywords.

4.2. Prominent Articles

There were only 25 articles with more than 50 citations out of 868 documents with a maximum of 15 links. An interrelated cluster of articles is shown in Figure 6, which suggests that the research domain was in the development phase. Table 1 depicts the most cited articles. This section discusses the authors' productivity in terms of citations. The table contains the top 15 research works in terms of citations. Similar to the findings of [40], the present study supports Lotka's law; that is, the research works published comprise smaller teams. The top five authors in terms of citations are [45] Paul and Ashwin (2016) [46], Delmas and Burbano (2011), Peloza and Shang (2011), [47] Hartmann and Apaolaza-Ibáñez (2012), and [48] Chen and Chang (2012), with 691, 584, 524, 484, and 470 citations, respectively. An interesting finding regarding the top five authors in terms of citations per year suggests that Paul and Ashwin (2016), Hong and Guo (2019), Delmas and Burbano (2011), Romieu et al. (2017), and Hartmann and Apaolaza-Ibáñez (2012) have 115, 86, 53, 52, and 48 citations per year, respectively.

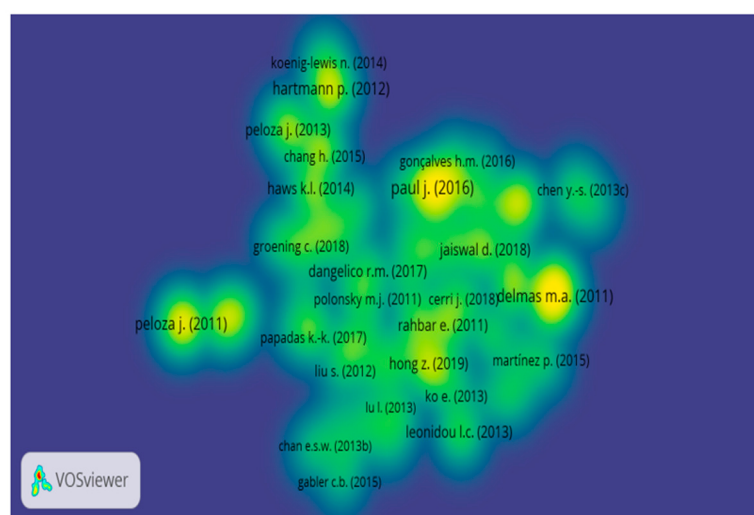


Figure 6. Density visualization map of article on keywords.

Table 1. Top 15 most cited documents.

No.	Paper Name	Journal	Author	Year	Total
1	Predicting green product consumption using theory of planned behavior and reasoned action	Journal of Retailing and Consumer Studies	Justin Paul Modi Ashwin	2016	691
2	The drivers of green washing	California Management Review	Delmas Magali A. Burbano Vanessa Cuere	2011	584
3	How can corporate social responsibility activities create value for stakeholders? A systematic review	Journal of the Academy of Marketing Sciences	Peloza, John Shang, Jingzhi	2011	524
4	Consumer attitude and purchase intention towards green energy brands: The roles of psychological benefits and environmental concern	Journal of Business Research	Hartmann Patrick, Apaolazaibanez Vanessa	2012	484

Table 1. Cont.

No.	Paper Name	Journal	Author	Year	Total
5	Enhance green purchase intention: The roles of green perceived value, green perceived risk and green trust	Management Decisions	Chen, Yu-Shan Chang, Ching-Hsun	2012	470
6	Green marketing strategies: An examination of stakeholders and the opportunities they present	Journal of the Academy of Marketing Science	Cronin Jr, J. Joseph Smith, Jeffery S. Gleim	2011	365
7	Green wash and Green Trust: The Mediation effects of green consumer confusion and green perceived risk	Journal of Business Ethics	Chen, Yu-Shan Chang, Ching-Hsum	2013	318
8	Seeing the world through GREEN—tinted glasses: green consumption values and responses to environmentally friendly products	Journal of Consumer Psychology	Haws, Kelly L. Winterich, Karen Page Naylor	2014	314
9	Re- examining green purchase behavior and the green consumer profile: new evidences	Management Decision	Akehurst, Gary Afonso, Carolina Gonclaves	2012	264
10	Energy Balance and obesity: what are the main drivers?	Cancer Causes and Control	Romieu, Isabelle Dossus, Laure	2017	260
11	Green product supply chain contracts considering environmental responsibilities	Omega	Hong, Zhaofu Guo, Xiaolong	2019	258
12	Environmentally responsible behavior in ecotourism: Antecedents and implications	Tourism Management	Chiu, Yen-Ting Helena Lee, Wan-I chen, Tsung-Hsiung	2014	244
13	Anticipated emotion in consumers intentions to select eco-friendly restaurants: Augmenting the theory of planned behavior	International Journal of Hospitality Management	Kim, Yong Joong Njite, David Hancer, Murat	2013	226
14	Investigation of green marketing tools effect on consumers purchase behavior	Business Strategy Series	Rahbar, Elham Wahid, Nabsiah, Abdul	2011	224
15	The service resolution and the transformation of marketing science	Marketing Science	Rust, Roland T. Huang, Ming-Hui	2014	219

Recent publications have seen a large number of citations of their work. According to literature review articles included in this study, except for Chamorro et al. 2009, [49], all dealt with marketing and sustainability issues from a macro perspective. Furthermore, articles in the category of specialized literature reviews investigating green marketing from a micro perspective covered a more extended period of articles in their review [50].

4.3. Prominent Authors

As is evident from Figure 7, in the blue cluster, one of the most prominent authors is Chen Y.S. from the National Taipei University of Taiwan, with 9 documents and 1199 citations. His most collaborative works are with Chang C.H., from the same institute. In the purple cluster, Leonidou C.N. is the new leading author with 8 articles and 846 citations.

Other prominent researchers are Wang Y., with 6 documents and 327 citations, and Testa F., with 5 documents and 273 citations. Several authors have published 4 papers, but Paul J. in the red cluster has emerged as the most cited author, with 826 citations from 4 documents. Following them, there are several authors with 3 documents: Zhang in the blue cluster and Kim in the red cluster are among the top-cited authors with 262 and 261 citations, respectively.

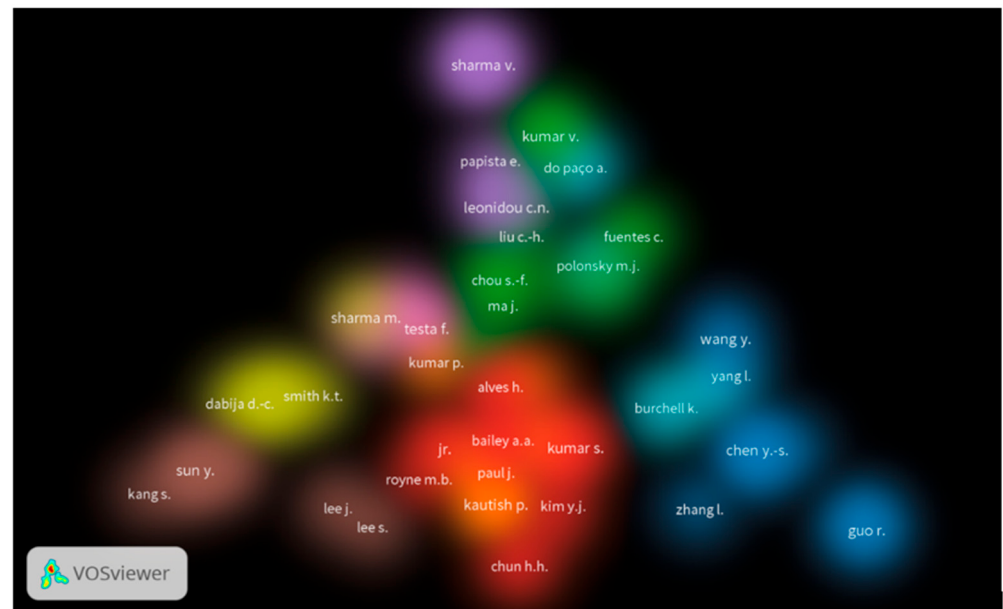


Figure 7. Density visualization clusters of prominent authors (minimum 3 documents) with more than 50 citations over the years.

4.4. Top 15 Influential Countries in Green Marketing Research (2011–2022)

The graph in Figure 8 shows highly productive countries in terms of research works published between 2011 and April 2022. We considered the top 15 countries regarding research work productivity concerning green marketing. The top three countries (United States, India, and China) have published more than 120 documents in the past years, and the top five productive countries have produced more than 75 documents during the study period. The high growth of research in a developing country such as India (187) and the low productivity of countries such as Germany and Canada, with 29 publications each, are exciting findings.

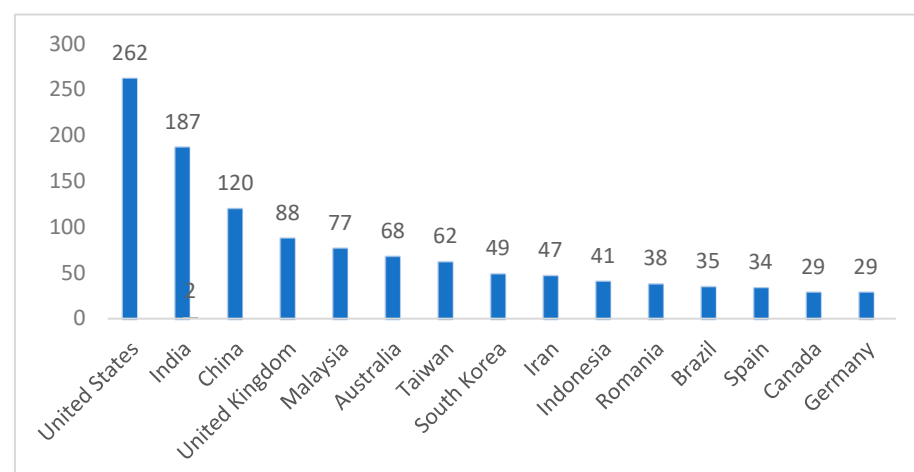


Figure 8. Top 15 Influential countries in Green Marketing Research (2011–2022).

4.5. Top 15 High-Research-Producing Institutions

Figure 9 shows the top 15 research institutes. These 15 institutes produced 151 publications (22%) out of the 681 publications considered in the study. All the institutes produced seven or more publications, with the Bucharest University of Economic Studies, Romania, having the greatest number of publications [21] and University Kebangsaan Malaysia and University Sains Malaysia having seven publications at the bottom of the top 15 productive institutes around the world. One of the interesting findings that the graph suggests is that 9 among the 15 institutes are from Asia and only 3 institutes are from the West.

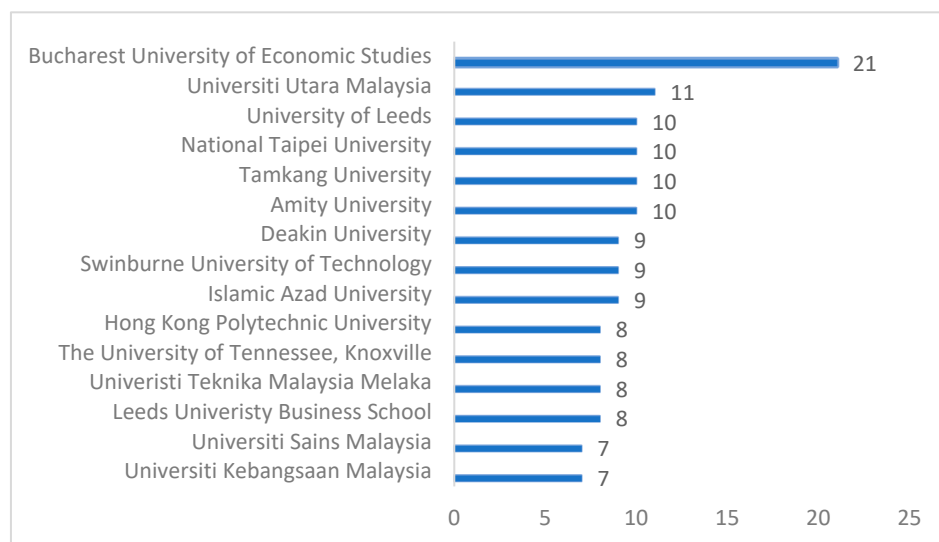


Figure 9. Top 15 High-Research Producing Institutions.

4.6. Documents by Subject Areas

Figure 10 shows a pie chart that reflects the research publications by subject areas. The pie chart comprises the top five research domains related to green marketing. The chart suggests that most of the research works (i.e., approximately 30%) published in green marketing during the study period relate to the business, management, and finance domains. Around 16% of the research works concern the domain of social sciences, but it is interesting to find out that 27% of the published work on green marketing is from other domains.

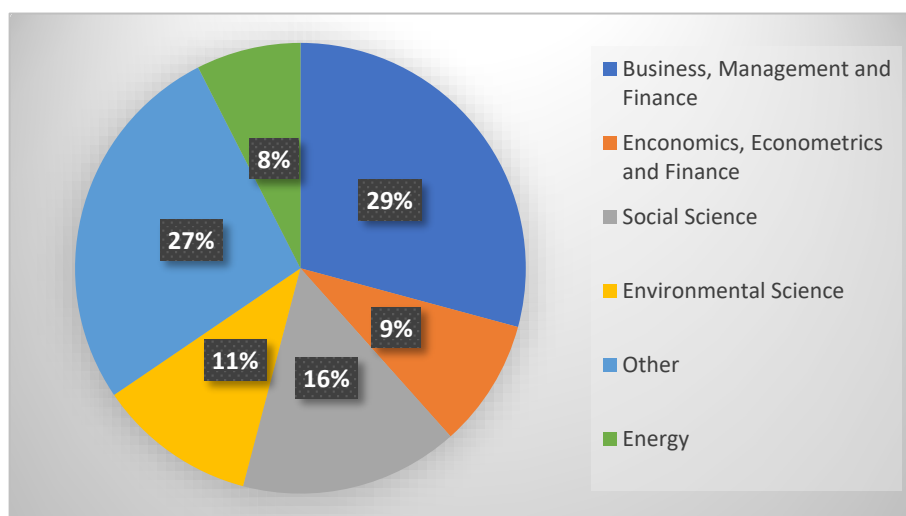


Figure 10. Documents by Subject areas.

5. Discussion

Green marketing and sustainable consumption are crucial prerequisites for the Sustainable Development Goals (SDGs) [51]. Governments seek to reduce the ecological damage caused by environmentally inappropriate industrial manufacturing processes through taxation and regulation. It is crucial to promote ethical and sustainable consumption to mitigate negative environmental consequences and create markets for green products [52]. Since green marketing and sustainability have become increasingly focused on social aspects, researchers have placed more emphasis on the marketing process, thereby driving green and ecological marketing [53]. Environmental concerns are becoming increasingly important to consumers of products, as are production processes, such as the disposal of raw and waste materials. Therefore, regulations and efforts related to green marketing are expanding to include processes, products, goods, and services [54].

As awareness of environmental concerns has intensified in governments, the public, and companies over the last few decades, management research and environmental marketing have experienced exceptional growth [55]. Despite this, they have been criticized for being highly diverse, non-programmatic, and fragmented, making it difficult to obtain an overall picture of trends in the field. This study attempts to evaluate existing research in the field by systematically identifying, consolidating, and evaluating it. It therefore serves as a reference point for both stimulating and guiding future research, helping the discipline to gain theoretical and practical advances.

Figure 11 shows journals that have been publishing research related to green marketing. The number of publications from the top 15 most influential journals portrayed in Figure 11 is given in Table 2. The journals in green blocks are the *Journal of Cleaner Production*, *Mediterranean Journal of Social Sciences*, *Environmental Engineering and Science*, and *The Amfiteatru Journal*, with 42, 8, 5, and 10 documents, respectively. Journals such as *Quality-Access to Success* with 14 documents, *Sustainability* with 94 documents, *Journal of Critical Reviews* with 5 documents, and *Journal of Business Research* with 26 documents published in green marketing have been portrayed in purple blocks. The yellow, red, and brown blocks comprise 1 journal each, with the *Journal of Marketing Management* with 14 documents, the *Journal of Environment Development and Sustainability* with 8 documents, and the *International Journal of Consumer Behavior* with 12 documents, respectively. The journals in the orange blocks are *Corporate Social Responsibility*, *Journal of Sustainable Tourism*, and *International Journal of Contemporary Hospitality Management*, with five, six, and ten documents, respectively. The blue blocks indicate three other prominent journals that publish research papers in green marketing: *Indian Journal of Marketing* with nine published documents, *European Journal of Social Sciences* with five documents, and *International Journal of Applied Earth Observation and Geoinformation* with eight documents published in green marketing.

Table 2. Ranking of journals with maximum published articles.

Ranking	Sources	Documents	Publisher	Country
1	Sustainability	94	MDPI	Switzerland
2	Journal of Cleaner Production	42	Elsevier	The Netherlands
3	Journal of Business Research	26	Elsevier	The Netherlands
4	Marketing Intelligence and Planning	16	Emerald	UK
5	Journal of Business Ethics	15	Springer	The Netherlands
6	Journal of Strategic Marketing	15	Taylor and Francis	UK
7	Journal of Marketing Management	14	Taylor and Francis	UK

Table 2. Cont.

Ranking	Sources	Documents	Publisher	Country
8	Quality Access to Success	14	SRAC	Romania
9	Industrial Marketing Management	13	Elsevier	The Netherlands
10	International Journal of Consumer Studies	12	Wiley	UK
11	Business strategy and the environment	11	Wiley	UK
12	Amfiteatru Economics	10	Bucharest University of Economic Studies	Romania
13	International Journal of Contemporary Hospitality Management	10	Emerald	UK
14	Journal of consumer marketing	10	Emerald	UK
15	Journal of macro marketing	10	Sage Publication	United States

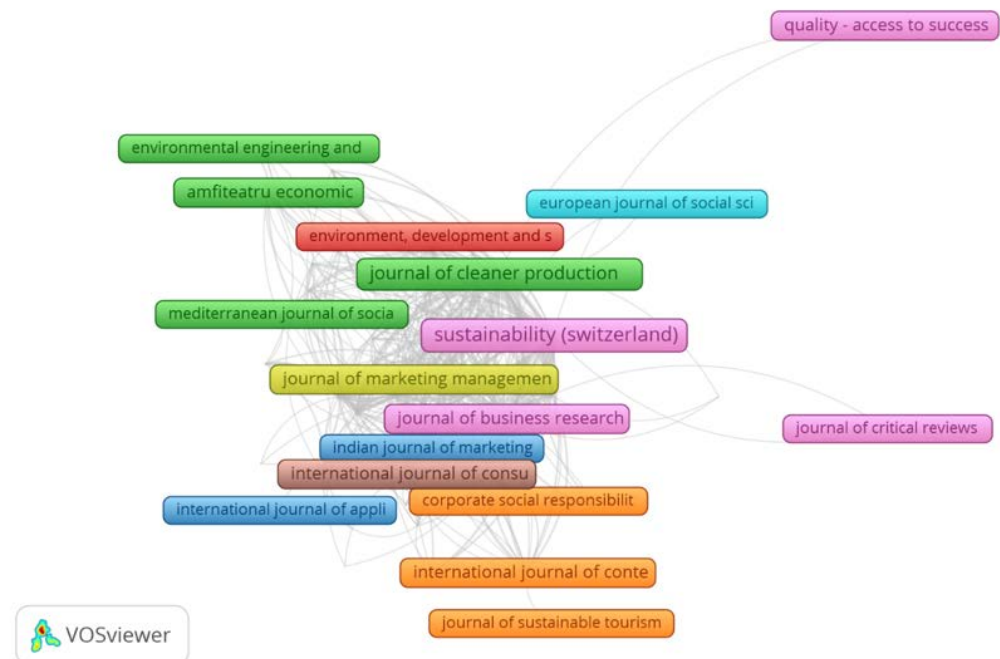


Figure 11. Network visualization of journal active.

The next step was to examine prominent journals (sources) in the field of “green marketing and sustainable marketing” and “ethical marketing”. To accomplish this, we used VOSviewer to couple the bibliographic sources.

Out of the 868 research works considered for this study, the top 15 journals contained 312 (35%) of all the publications, as shown in Table 2. It can be observed that *Sustainability* (MDPI) has published 94 documents, the *Journal of Cleaner Production* has published 42 studies, and the *Journal of Business Research* has published 26 research papers since 2011. The top publishers who have continuously supported research publications based on green marketing are MDPI, Elsevier, Emerald, Springer, Routledge, and Wiley. These findings are consistent with those of Saleem et al., 2021 and Bhardwaj et al., 2020.

6. Implications and Future Research

The research presented here has contributed significantly to the field of green marketing, by analyzing 868 published articles in peer-reviewed journals from Scopus to identify the key role players and most influential key words (topics). As evidenced by the results from studying relevant peer-reviewed English publications from 2011 to 2022, there has been gradual progress in academic interest in this area.

We want to suggest some research prospects based on the present study's findings and our review and make recommendations for the future. The data visualizations in this study show that green marketing researchers can drive and participate in design strategies on the themes that are currently being developed in the green marketing area [56]. Educating students on environmental values and handling the relationship between humans and nature correctly is one way policymakers can encourage green marketing, sustainability, and the consumption of environmentally friendly products. Managers can use this perspective to develop green marketing strategies that reduce consumers' price sensitivity. Eco-friendly products are well known to consumers, but they are not concerned about green marketing. Their interest increases when they become aware that green marketing covers eco-friendly products.

Five significant predictions and trends from this report pertain to green marketing research trends and future insights: low-carbon economies, green consumerism, green-washing, and eco-innovation research in emerging and developing economies [57].

7. Conclusions

This study focuses on an overview of the research published on green marketing. Developing and developed countries must conduct green marketing research to promote sustainable consumption [58]. However, no bibliometric analysis has been performed from 2011 to 2022 for the Scopus database with the keywords mentioned above that summarize and provide a comprehensive analysis of the literature's advances. The study's data visualization illustrates that green marketing researchers can contribute to design strategies focused on topics that are currently being developed in the green marketing area [59]. Moreover, we have also determined the most influential authors, published papers, and journals within this area to identify research gaps and insights that could lead to discoveries.

For future research, there is potential for several avenues to be explored. These include focusing on narrower topics, such as consumer green attitudes, green marketing mix, green consumerism, green satisfaction, etc. From a business-to-business or business-to-consumer perspective, the 4Ps (product, price, place, promotion) of green marketing can be examined using more comprehensive demographic and psychographic variables and comparing green consumerism among developed and developing countries.

Similarly, based on the results, we can assume and suggest that journals such as *Sustainability Switzerland*, *Journal of Business Research*, *Journal of Cleaner Production*, *Marketing Intelligence and Planning*, *Journal of Business Ethics*, and *Journal of Strategic Marketing* are possible outlets for scholarly work in green marketing.

The research presented here has significantly contributed to the body of knowledge on green marketing. By analyzing 2432 published articles in peer-reviewed journals from Scopus, the green marketing research area has gained new insights.

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