"GREEN MARKETING AND SUSTAINABILITY" – LOOKING INTO THE PAST THROUGH BIBLIOMETRIC ANALYSIS

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Abstract - Green marketing is a crucial element in the field of business to attain the objective of sustainability for environmental protection. The study aims to understand the research trend in the domain of green marketing and sustainability. The current study is based on bibliometric analysis. A total of 360 research documents were extracted from the Scopus database from year 1996 to April 2023, to do the analysis. Data was analysed using RStudio and VOS viewer. The current study evaluates the data on publication trend, author's contribution, journals contribution. Further the study also evaluates the co-citation analysis and five clusters were identified. The study provides a comprehensive view on the literature published in field of green marketing and sustainability.

Keywords - Marketing, Green Marketing, Sustainability, Environmental Sustainability

I. INTRODUCTION

Environment sustainability is a buzzword in present scenario. It made its path to agenda of policy designers after first United Nations conference held in 1972 at Stockholm on human environment[1]. The word sustainability as a corporate discipline came into limelight afterwards an advent of sustainable development notion in 1987 which accentuated on human development as well as environment protection, as per world commission report on environment and development [2]. In early 2000s, sustainability-oriented firms transferred there emphasize from clean technologies to produce eco-friendly green products [3]. Consequently, green market industry have been emphasizing on developing potential ecological techniques like green marketing along with green product developmentwhich are beneficial approaches that are utilised viathe organizations too.[4]Revealed that green marketing is also termed as ecological marketing and highlighted that green marketing is an approach which focus on environmental safety concerns and integrate firm's affairs which comprise of green advertising, green packaging and modification production process. These strategies can be useful for society as well as individuals and simultaneously drive about environmental protection for sustainability development. The concept of being environmentally friendly or green wills have an impact on all aspects of the business, from product development through customer use and ultimate disposal [5]. Green marketing concept gain its importance in late 1980s and early 1990s, putting more emphasizes on both positive and negative effect of marketing affairs on environmental collapse, pollution level and decline of non-energy resources. Green marketing is an approach that encourages the preservation of environment in order to benefit the society and consumers [6]. Green promotion is inextricably linked to society. The entire marketing campaigns are effectively utilised for societal awareness and while doing the same every aspect of the buyer is taken into account. This thought was about how to improve the study areas for environment [7]. Consumers are now more concerned about the environment, thus look for environmentally friendly products and services from responsible businesses organisations. Many organisations and businesses are now aware of the same and understand its importance in order to achieve long-term sustainability [8]. Green marketing has gained a lot of importance in today's market and has become a key concept in developing as well as developed countries. It is now seen as a critical approach to accelerate the sustainable development [9]. As a result of a remarkable growth in global environmental consciousness over the previous decade, the concept of green marketing has become a byword. Consumers and businesses are becoming more aware of the importance of environmental protection, as evidenced by their behaviour in terms of product selection and business operations [10]. In today's industry, green marketing has taken on new meanings. Green denotes purity in terms of quality, fairness in pricing, and worth in business operations. Green marketing focuses on selling environmentally sustainable items to meet customers' requirements and desires. It uses advanced product modification techniques, dynamic product procedures, long-term sustainability and a variety of promotional methods etc. According to [11], green marketing is centred on the creation of high-quality products that can satisfy customers' needs and wants while also performing well in terms of price, performance, and convenience. In a study conducted by [12] to understand Pakistani consumers' attitudes and intentions to buy green products, the researchers discovered that while consumers in Pakistan have a favourable outlook on green products and are motivated to buy them, they are hesitant because of their high costs and subpar quality compared to traditional products. According to [13]

creating green products would help us choose the optimal course of action. Businesses have improved environmental sustainability and reduced environmental harm by taking proactive measures, which has helped them become more profitable. The lack of consumer awareness of what "green" genuinely means, which is still the main topic of our study, is one of the challenges faced by green marketers. [14] Claim that in order to catch consumers' attention, most businesses utilise green advertising with messages that are free of pollution. This can increase consumers' knowledge of the brands and environmental concerns. In fact, companies can improve their corporate eco-centric image, which influences how customers view the company. [15] Emphasised that green customers would quit using any harmful products that could harm their health, involve animal abuse, or have an adverse impact on the environment during use, disposal, or production. Many marketers may decide to use marketing gimmicks to engage consumers in social causes that encourage them to switch from conventional items to eco-friendly products in order to raise the consumers' awareness of environmental problems [16]. The country's economy urgently needs to move towards sustainable development. Although it delivers the top technologies, top-notch services, and high-quality goods that satisfy consumer needs.to assist sustainability to industry.The researcher has only come across a very small number of studies that directly address consumers' readiness for greener components of industry and its overall impact on sustainable growth, but this is an area that requires real action. A significant gap exists between consumer demand fulfilments by the industry, particularly that which is concerned with the greener aspects, and the sustainable growth of the nation. This gap is what the researcher wishes to explore and gain insight into.

II. RESEARCH METHODOLOGY

The present study makes use of bibliometric analysis to track the evolution of green marketing and sustainability in the field of "business, management and accounting". Bibliometric technique has been primarily used in in library science however it has emerged as one of the prominent methodologies in field of social science to conduct literature review [17]. The popularity of this technique is the result of easily availability of advanced bibliometric softwares like R-studio, VOSviewer and Gephi. Another main reason of its popularity is easy access and availability of bibliometric data through database like Web of Science and Scopus.

The methodology in bibliometric analysis involves quantification of data that helps researchers to further appraise the published research in the field under study. Further the use of bibliometric technique also helps researchers to avoid any kind of subjective biasness while conducting the literature review [18]. We also use this technique in our paper to provide insights related to leading articles, journals, and scientific production and mapping. To conduct the same, we explored Scopus database using keywords "Green Marketing AND Sustainability" for initial search. The initial search in the field of title, abstract and keyword resulted into 991 documents. Further on the basis of inclusion and exclusion criteria related to area of study, document language and type, articles were selected for final analysis (see figure 1). The timeframe of the research publication was from 1996 to April 2023. The study was confined to journal articles published in"business, management and accounting" domain only in English language. After imposing the inclusion criteria finally 360 articles were included for the analysis. Data was extracted from Scopus database in CSV format and analysis was done using two softwares Vosviewer [19] and R studio biblioshiny package [20] (See figure 1). The key information related to topic green marketing and sustainability has been shown in table 1. The information highlights on the basis of bibliometric analysis that the first articles on this topic were published in 1996 in Scopus database. Further observation shows that 934 authors are working on this research area whereas author's collaboration is only 2.85 per document. The paper structure comprises of two phases, in the primary one key information is there with publication trends which is followed by second phase which includes top articles, journals and co-citation analysis. Further, the paper is concluded with study limitations and possible future directions.

Description	Results
Time-interval	1996:2023
Sources (Journals, Books, etc.)	189
Total Documents (articles only)	360
Annual Growth Rate %	8.7
Document Average Age	6.02
Average citations per doc	45.4
References	22329
DOCUMENT CONTENTS	
Keywords Plus (ID)	563
Author's Keywords (DE)	1144
AUTHORS	
Authors	934
Authors of single-authored docs	47
AUTHORS COLLABORATION	
Single-authored docs	51
Co-Authors per Doc	2.85
International co-authorships %	22.5

Table 1: Key Information

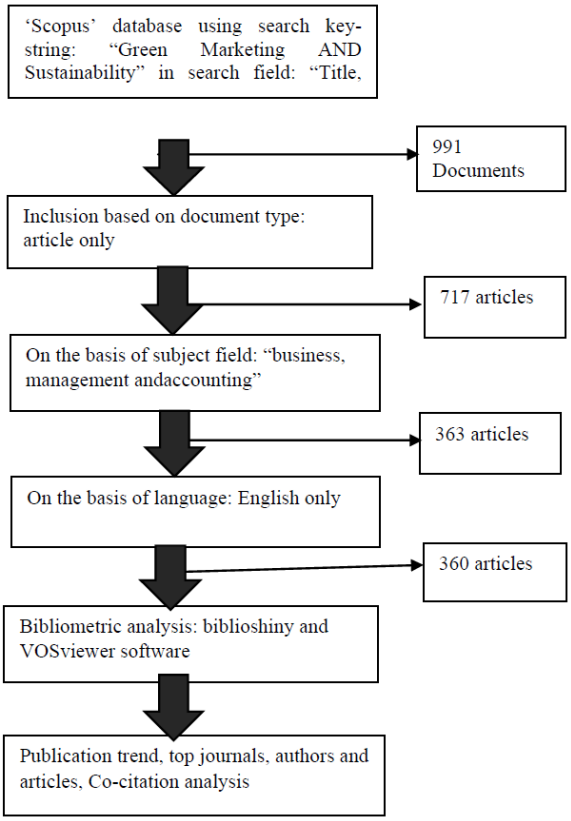
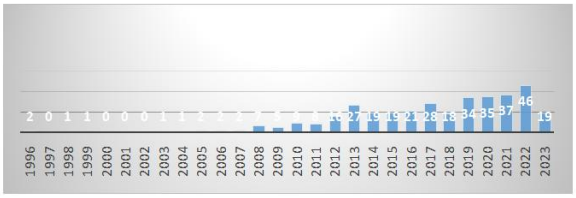


Figure 1: Flowchart of bibliometric analysis

Source: Authors Compilation based on RStudio Results

III. DISCUSSIONS AND FINDINGS

Scientific Production



Source: Authors Compilation

The above figure shows the movement of publication trend or number of articles published on yearly basis. The trend is displaying that number of articles published before 2011 were very less after that the number is keep on rising and there is an exponential growth in the number from 2018 which shows the importance of adoption of green marketing practices to promote sustainability

Citation Analysis

The table given below highlighted that the most impactful leading article is, "Predicting green product consumption using theory of planned behaviour and reasoned action' written by Paul.J published in Journal of Retailing and Consumer Services with citations 914 is followed by an article of Dangelico RM, "Mainstreaming Green Product Innovation: Why and How Companies Integrate Environmental Sustainability" with citations 692 published in Journal of Business Ethics. The third most significant article is, "The Sustainability Liability: Potential Negative Effects of Ethicality on Product Preference" by Luchis MG published in Journal of Marketing with 609 citations. Further in the list articles on number 4th and 5th have 400 plus citations whereas on number 6th and 7th have 300 plus citations and rest of the articles have 200 plus citations which shows the significance of these articles as well as the domain with which these articles are associated i.e. Green marketing and sustainable development.

Citation Analysis

Article	Author	Year	Journal	Total Citations	TC per Year	Normalized TC
"Predicting green product consumption using theory of planned behaviour and reasoned action"	PAUL J	2016	Journal of Retailing and Consumer Services	914	114.25	10.88
"Mainstreaming Green Product Innovation: Why and How Companies Integrate Environmental Sustainability"	DANGELICO RM	2010	Journal of Business Ethics	692	49.43	3.33
"The Sustainability Liability: Potential Negative Effects of Ethicality on Product Preference"	LUCHS MG	2010	Journal of Marketing	609	43.50	2.93
"Seeing the world through GREEN-tinted glasses: Green consumption values and responses to environmentally friendly products"	HAWS KL	2001	Journal of Consumer Psychology	406	40.60	6.25

"Green marketing: legend, myth, farce or prophecy"	PEATTIE K	2005	Qualitative Market Research: An International Journal	404	21.26	1.44
"Green product supply chain contracts considering environmental responsibilities"	HONG Z	2019	Omega	371	74.20	7.53
"An agenda for 'Green' information technology and systems research"	JENKIN TA	2011	Information and Organization	324	24.92	2.25
"Is Eco-Friendly Unmanly? The Green-Feminine Stereotype and Its Effect on Sustainable Consumption"	BROUGHAR	2016	Journal of Consumer Research	282	35.25	3.36
"Greening" the marketing mix: do firms do it and does it pay off?"	LEONIDOUCN	2013	Journal of the Academy of Marketing Science	248	22.55	3.47
"Good and Guilt-Free: The Role of Self-Accountability in Influencing Preferences for Products with Ethical Attributes"	PELOZA J	2013	Journal of Marketing	236	21.45	3.31

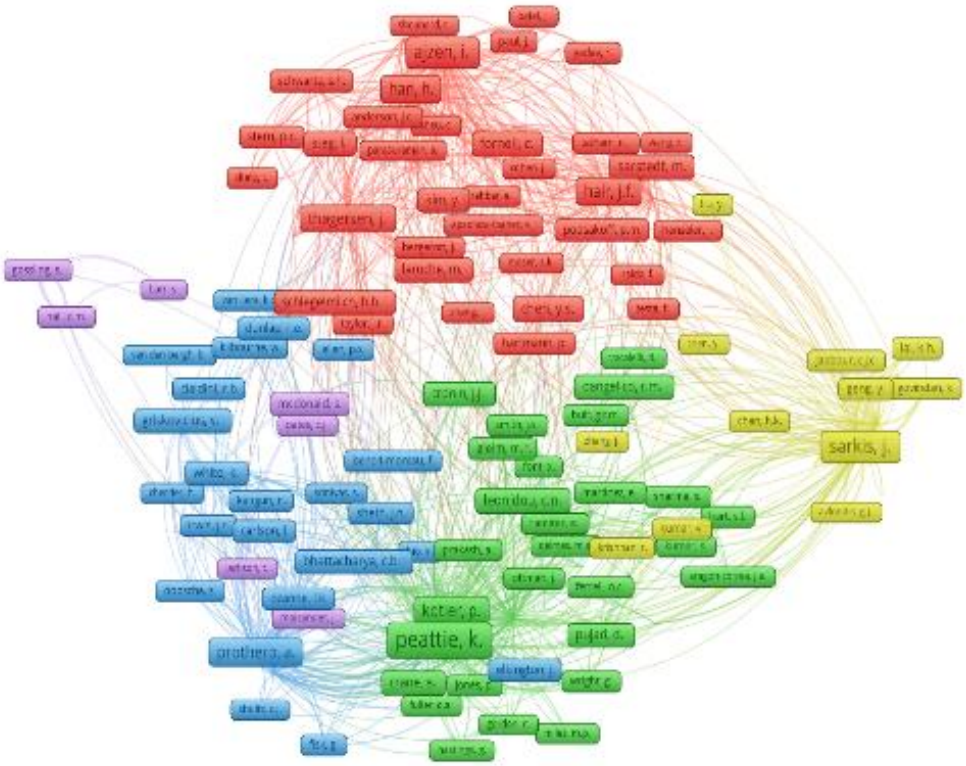
Most Productive Journal

Element	H index	g_index	m_index	TC	NP	PY_start
"JOURNAL OF CLEANER PRODUCTION"	16	23	0.842	1387	23	2005
"BUSINESS STRATEGY AND THE ENVIRONMENT"	9	10	0.5	554	10	2006
"INDUSTRIAL MARKETING MANAGEMENT"	8	9	0.571	901	9	2010
"JOURNAL OF MARKETING MANAGEMENT"	6	7	0.5	578	7	2012
"JOURNAL OF STRATEGIC MARKETING"	6	6	0.24	317	6	1999
"JOURNAL OF BUSINESS ETHICS"	5	5	0.357	1058	5	2010
"JOURNAL OF BUSINESS RESEARCH"	5	7	0.385	413	7	2011
"JOURNAL OF CONSUMER MARKETING"	5	7	0.357	156	7	2010
"JOURNAL OF SUSTAINABLE TOURISM"	5	6	0.179	252	6	1996
"INTERNATIONAL JOURNAL OF CONSUMER STUDIES"	4	4	0.308	183	4	2011
"INTERNATIONAL JOURNAL OF CONTEMPORARY HOSPITALITY MANAGEMENT"	4	4	0.444	365	4	2015
"JOURNAL OF MARKETING	4	4	0.286	993	4	2010
JOURNAL OF VACATION MARKETING"	4	4	0.143	123	4	1996
"CORPORATE SOCIAL RESPONSIBILITY AND ENVIRONMENTAL MANAGEMENT"	3	3	0.25	79	3	2012
"EUROPEAN JOURNAL OF MARKETING"	3	3	0.143	222	3	2003

The top 10 journals with their h index, g index and m index value along with total citations of that journal till date is shown in the above table. The most prominent journal in this field is "Journal of cleaner production" with maximum number of total citationsi.e. 1357 as well as maximum h, g and m index value i.e. 16, 23 and 0.842 respectively, followed by "Journal of Business Ethics" with 1058 total citations after that in sequence "Industrial marketing Management" with 901 total citations. Although the total citations of the journal "Business Strategy and Environment" is 554 but the value of h index, g index and m index are second highest i.e. 9, 10 and 0.5 respectively in the list of top journals.

Co-Citation

Co-citation analysis is used to comprehend the similarity between documents under research in terms of journals, authors or references. This similarity is based on the assumption that two documents are cited together only when their content is related [18]. In this paper we have used, author-based co-citation analysis. The criteria set were that an author should have minimum citation of twenty. Based on this criterion only 214 authors meet the threshold out of 25999 authors. A co-citation network is formed with help of VOSviewer software. The network visualization shows that the area under study can be classified into five main clusters. Cluster 1 highlighted in red colour has 79 items, followed by cluster 2 in green colour having 52 items. Cluster 3 in blue colour has 46 items, whereas cluster 4 and 5 in colour yellow and purple has respectively 24 items and 13 items. These five clusters reveal the key areas in the field of green marketing and sustainability, such as, cluster 1 articles mainly focused on incorporation of theory of planned behaviour in relation to sustainable consumption behaviour, for example: [21]. Articles in cluster 2 mainly focuses on manufacturing eco-friendly products, it includes use of biodegradable material and renewable source of energy in production process and products that are easy to dispose. The articles here highlight that innovation in terms of products and their production should be in line with consumer's values and sustainability, for example: [22], [23]. Cluster 3 discuss about the sustainable consumption behaviour. It includes consumer concern over environmental and sustainability issues leading to mindful consumption behaviour. Articles in this cluster also discuss about the role of government and corporates to achieve sustainable development, for example: [24]. Articles in cluster 4 discuss aboutintegration of sustainability issue in the entire management of an organization specifically production and operation management. The papers in this cluster mainly focus on integration of sustainability in the supply chain management operations for example: [25]. In cluster 5, articles discuss about the consumer behaviour and their attitude on sustainable consumption, for example: [26]. These articles also highlights that there is a gap between consumers attitude towards sustainability and their actual behaviour leading to dilemma in consumer decision making for example: flyers dilemma of green consumers.



IV. CONCLUSION

In order to provide a thorough assessment of the literature on the topic under study bibliometric methodologies were used. We first established our research goal and conducted all of the analyses in line with it to learn more about the top journals and proceedings, authors, highly influential works, yearly scientific output, and the development of the subject. Based on the study above, it is determined that green marketing is an important component of contemporary enterprises because it aids in practises, but also help society as a whole to move increasing customer knowledge of environmental issues and motivates them to make more sustainable decisions. Companies can not only lessen their own environmental impact by promoting eco-friendly products and towards sustainability. Green marketing encourages consumers to make more eco-friendly decisions that could help reduce waste, pollution, and other negative effects on the environment, which in turn encourages businesses to embrace more sustainable business practises. There are some shortcomings in this study, which are listed here. Since only the Scopus database was used for research, it's possible that some pertinent studies that come inside the purview of our study were missed. Future literature surveys could benefit from a more complete investigation by doing a more methodical literature search and looking at article metadata in greater detail.Despite these drawbacks, this study represents the first attempt to provide a summary of the existing research on using green marketing techniques for sustainable development. It will help academics get a broad sense of the current state of this research subject.

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