

A BIBLIOMETRIC ANALYSIS OF GAUGING CORPORATE SUSTAINABILITY THROUGH THE TRIPLE BOTTOM LINE

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ABSTRACT

Purpose

The role of corporate sustainability in sustainable development (SD) is becoming a contentious issue in the scientific and business worlds. The co-themed research, on the other hand, is still very new and hasn't been thoroughly investigated. The knowledge map of corporate sustainability research utilising the triple bottom line approach is analysed and visualised using an in-depth bibliometric analysis using VoS Viewer software. The objective is to use bibliometric analysis to figure out the level of this academic literature in terms of the triple bottom line as a measure of corporate sustainability, as well as to identify and analyse its knowledge base. This interest stems from a number of issues, including the scarcity of productive resources; and the necessity to optimise processes not just in terms of economics, but also in terms of environmental and social considerations. The study of sustainability models has benefited from these features. As a corollary, the goal of this research is to conduct a bibliometric analysis of corporate sustainability. An examination of 376 publications listed in the Scopus database, published between 2000 and 2021, was conducted to this intent.

Design/Methodology/Approach

A bibliometric methodology that involves the use of quantitative tools for the analysis of bibliometric and bibliographic information is adopted. Unlike classic systematic literature reviews, a bibliometric review has facility to provide information over domains characterized by large amounts of bibliometric and bibliographic information. Specifically, we follow four-pronged procedure for bibliometric reviews: (1) defining the aims and scope for review; (2) choosing the techniques for analysis; (3) collecting the data for analysis; and (4) conducting the analysis and reporting the findings.

Findings

The research examines the development of the field over 20 years, which has witnessed a steep rise in related publications only for the past five years, indicating a late interest in the area compared to other sustainability topics. Social performance measures entered the discussion particularly late, whereas economic and environmental measurement almost exclusively dominated the field for the first few years.

Research Limitations/Implications: Since this is a quantitative analysis, qualitative aspects are not taken into account, which, when combined with the use of other data analysis computer tools, could result in somewhat different conclusions.

Paper Type: Literature review

Key words: Corporate Sustainability, Triple Bottom Line, Bibliometric, VoS viewer

I. INTRODUCTION

According to Brundtland Report, sustainable development is defined as development that meets the need of the present without compromising the ability of future generations to meet their own needs.(Ana Lúcia Moura Novais, 2012).Sustainability reporting analyses a country's, cities, communities, or organization's sustainability performance, as well as its social, economic, and environmental implications. The reporting unit can use sustainability reporting to track disclosures and hold itself accountable for its performance towards the goal of sustainable development.

Sustainability has been the subject of an intense debate in the academic literature. The concern on sustainability reflects the way managers run the companies, as well as the behaviour of worldwide societies towards sustainable practices or actions.(Ana Lúcia Moura Novais, 2012). This research adds to our understanding by providing in-depth insights into both the theoretical and practical aspects of corporate sustainability literature. More specifically, numerous ideas, such as sustainability, CSR, green production, green economy, green environmental, and sustainable production, have seen an increase in attention from diverse parties of stakeholders in recent years. However, there are still insufficient theoretical and practical frameworks for the above-mentioned words, whether separately or in combination, in the prior literature. As a result, the following key additions to the literature on sustainability are made: To begin with, this research aids in a better understanding of the potential significance of board diversity. The literature on board diversity has been criticised for being indecisive, and it has struggled to provide logical and obvious answers to the crucial question of whether types of board members lead to improved corporate sustainability performance. In the context of so-called gender discrimination and geographically adjacent cultures, we show evidence that board diversity will be significantly below the intended level. As a result, this evidence contributes to the theoretical framework in a valuable way. Furthermore, it highlights the current research areas that are important. The hunt for models to examine was discovered to be fruitless. Today, environmental, economic, and social performance are all very important.

Corporate sustainability

The term “sustainable development” was popularized by the release of the report Our Common Future in 1987 (WCED, 1987). While there has been much debate regarding the meaning of sustainable development(Gladwin et al., 1995), the definition provided in Our Common Future remains widely-cited: “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (WCED 1987). Despite the fact that sustainable development is a societal idea, it is increasingly being used as a corporate concept under the umbrella of "corporate sustainability.”(Steurer et al., 2005). Several scholars have questioned whether or not sustainable development relates to businesses. Sustainability is a systems level concept that does not coincide with corporate borders, and it is non-ergodic and hence lacks a clear end-state, according to key arguments against the concept of "corporate

sustainability." Nonetheless, an increasing number of businesses are putting forward efforts under the banner of corporate sustainability. There is no one-size-fits-all approach to defining corporate sustainability (IISD, 1992). One representative definition is "adopting business strategies and activities that meet the needs of the enterprise and its stakeholders today while protecting, sustaining, and enhancing the human and natural resources that will be needed in the future" (IISD, 1992). (Travaillé & Naro, 2017) offer a similar definition: "meeting the needs of the firm's direct and indirect stakeholders (such as shareholders, employees, clients, pressure groups, communities, etc.), without compromising its ability to meet future stakeholder needs as well." A third representative definition is provided by (WERRE., 2003), who explains that corporate sustainability refers to "demonstrating the inclusion of social and environmental concerns in business operations and in interactions with stakeholders" (WERRE., 2003) Many authors have noted that corporate sustainability is closely associated with corporate social responsibility (CSR). While many people today regard corporate sustainability and CSR to be synonyms (WERRE., 2003) and state that "they have converged to fairly similar notions in recent years", (Steurer et al., 2005) it's crucial to highlight that some contend that they are still conceptually distinct (Marrewijk, 2017). In any event, both corporate sustainability and CSR have shifted their attention to the economic, environmental, and social aspects of business success (Steurer et al., 2005). These three dimensions are commonly referred to as the "triple bottom line" (Elkington, 2006) Several theoretical frameworks have been used to explore the notion of corporate sustainability. Stakeholder theory (Fildes, 1988) is the most prominent of these theoretical frameworks. As (Freeman R. E., 1984) explains, stakeholder theory asserts that organizations have obligations to many individuals and groups who both affect and are affected by the organization. These include shareholders, customers, and employees, among others. (Donaldson, 1995) have argued the stakeholder theory is fundamentally normative, though it does also include descriptive and instrumental aspects. The influence of stakeholder theory on corporate sustainability is evident from the definitions of corporate sustainability provided above. Beyond stakeholder theory, a number of theoretical frameworks have been used to explore corporate sustainability. For example, (Bansal, 2005) argued that both resource-based (Barney, 1991) and institutional factors influence corporate sustainability. Although several authors have examined resource-based (see, for example, Hart, 1995) and institutional (see, for example, Jennings and Zandbergen, 1995) factors individually, (Bansal, 2005) is one of the few that has studied the two simultaneously. Legitimacy theory (Suchman, 1995). has also been cited in several papers on corporate sustainability. Legitimacy may be defined as "a generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs, and definitions" (Suchman, 1995). It is important to acknowledge that these theories are in many ways complementary rather than opposed. Building on those, and other, theoretical frameworks, a number of authors have explored corporate motivations for engaging in sustainability. There is a growing body of research on the business case for corporate sustainability (see, for example, (A.J, 2013). In-depth explorations of why corporations may behave in environmentally friendly (Bansal, 2005) and socially friendly (Campbell, 2007) ways have also been offered. Further insight into corporate views of sustainability is provided in a recent report by KPMG (2011). While research on motivations helps provide justification for corporate sustainability initiatives, many authors have shifted from debating whether or not corporate sustainability should be implemented to how it can be done in practice (Smith, 2003). For example, research has been conducted on sustainable supply chain management. (Muller

.A., 2015), codes of conduct for social responsibility, and standardized management systems among other areas. The impact of sustainability in our society is so profound that some authors call this phenomenon the sustainability revolution. From a managerial point of view, sustainability comprises the amount of sustainable practices implemented by companies as a response to new challenges and stakeholder pressures. These practices can be applied in several areas of the company, from corporate strategy to business processes. In fact, there is a debate between researchers who state that sustainable practices are only able to reduce costs or improve the company's environmental, social, and governance (ESG) ratings but are not able to build competitive advantage. On the other hand, there are those who defend companies that can integrate sustainability into their strategy and lead them to a better performance and a competitive advantage generation. A survey that analyzed the opinion of more than 1000 global executives has been published, the results of which state that 99% of the surveyed state that "sustainability issues are important to the future success of their businesses". Moreover, 94% of the executives consider they should link their company's purpose and role within society. The number of CEOs (chief executive officers) that hold that there is no link between sustainability and value generations represents a quarter of the surveyed and only 8% of them consider the lack of knowledge for moving forward to a more sustainable scenario a problem. Despite of these encouraging results, just 21% of global executives believe their companies are contributing to the UN Global Goals (Sustainable Development Goals) in a significant way. The scarcity of natural and environmental resources, as well as the rising demand for raw materials from global supply chains, has prompted countries to focus their efforts on developing sustainable policies. In this context, both public and private organisations are encouraged to rethink their procedures in order to improve their operations' environmental, economic, and social efficiency. Given the shortage of resources, sustainability takes centre stage, and it can even distinguish the rise of worldwide competitiveness (Matopoulos et al., 2015). The term "sustainability" derives from ecology and refers to a natural, regenerative system that retains its basic qualities over time to meet the needs of a specific population while continually replenishing itself. Though since sustainable development is concerned with progress that does not jeopardise future resources, it can be viewed from three inclination angle: (i) an environmentally friendly type of growth, (ii) a form of development that must be economically viable, and (iii) a type of development that must advocate for social responsibility. In 1994, John Elkington proposed a new theoretical framework called the Triple Bottom Line Theory, which was inspired by the tripartite nature of sustainable development (TBL or 3BL). This notion gained traction because it enabled the incorporation of sustainability principles into company operations (Elkington, 2001). TBL, according to Elkington (2001), can be viewed as an extension of the sustainable development concept because it includes factors such as social equality, economic foundations, and environmental responsibility. Elkington argued that the TBL construct is centred on three words: people, planet, and profit, to capture the essence of the concept. . The first organization to adopt this concept in its internal processes was the oil company Shell, in 1997 (Elkington.J, 1997). A significant global movement began in the early 2000s, putting pressure on businesses to focus their efforts on the Triple Bottom Line Theory's principle(Elkington, 2006). The mismatch between the expanding demand for natural resources and the scarcity of numerous of these raw materials, according to(Gimenez et al., 2012), explains this trend. This difficulty is exacerbated when one considers recent changes in the consumption profile of a segment of the population, who have begun to demand environmental certifications, cruelty-free products and/or services, such as opposing

unethical physical manufacturing procedures (Tang & Zhou, 2012). In light of the paucity of raw materials, it's more important than ever to look at the long-term viability of businesses. As a result, well-defined assessment models are critical to the effectiveness of organisational sustainability management activities. As a result, assessing an organization's performance in terms of the utilisation of productive resources is a topic that piques the interest of local governments, businesses, and society as a whole (Stubbs & Cocklin, 2008). Balancing the TBL in the direction of sustainability is a multifaceted and dynamic notion (Chabowski et al., 2011). (Carter & Rogers, 2008) attempted to address sustainability issues by taking into account economic, environmental, and social factors; however, some articles have pointed out that these proposed factors are insufficient to cover the entire concept of sustainability (Carter & Rogers, 2008). Despite the fact that the operations component has been extensively discussed over the last two decades, the TBL continues to ignore it. However, operational strategies can improve sustainability performance effectively and efficiently (Chabowski et al., 2011). Companies that are socially responsible strive to conduct more sustainable measures in order to ensure their long-term survival and, as a result, to deliver successful sustainability reports to stakeholders, which must include three pillars: economic, social, and environmental sustainability. By embracing the three-pillar presentation model, the Triple Bottom Line (TBL) contributes to business-level economic, environmental, and social performance. Although these pillars encompass activities, they are not always consistent; as a result, such a scenario exposes a gap in which strong environmental performance at the activity level might lead to poor or ambiguous social performance. (Porter, 2006) claimed that strict environmental regulations can spur innovation and technological upgrades, and that well-crafted regulatory rules oriented at outcomes can also motivate businesses to rethink their current technology. The majority of the existing articles focus on knowledge development and propose novel methods with descriptive and qualitative concentrations, while others analyse possible optimization parameters to achieve continuous improvement in sustainability (Peralta Álvarez et al., 2017)

Economic Aspect

During the early stages of TBL, few articles addressed the economic aspect of sustainability, but a trend emerged as more large corporations began to take sustainability measures in conjunction with economic performance more seriously. Firms that try to maximise their performance across all three components of the TBL outperform firms that try to achieve high levels of social and environmental performance without explicitly addressing economic success, according to (Carter & Rogers, 2008). As a result, rather than suggesting that firms identify and engage in social and environmental activities that will hopefully help, or at the very least not harm, economic performance, (Carter & Easton, 2011) pointed out that the TBL specifically guides managers to identify activities that improve economic performance and requires the avoidance of social and environmental activities that do not fall within this intersection. The amount of TBL publications relating to the economic element has gradually increased over the last three years, since previous articles overemphasised economic benefits while neglecting to address economic practises that particularly balance the aspects of the TBL toward sustainability (Tseng et al., 2020)

Environmental Aspect

The antecedents of environmental strategy integration as well as the performance outcomes of such initiatives (Baker & Sinkula, 2017) have been the focus of previous research on the

environmental dimension of sustainability. One example explored ecologically responsible business purchasing in light of the rising prominence of environmental concern in the marketplace (Drumwright, 2018). The existence of policy entrepreneurs, senior management backing, and the threat of regulation were all shown to be critical for successful implementation. The development of antecedents and consequences to environmental strategy integration was included to this study topic (Menon & Menon, 2018). Additional antecedents were investigated in environmental marketing to assess the influence of regulatory power, competitive intensity, and internal polity. Superior company performance and corporate reputation have also been cited as crucial results of environmental strategies. The continuing operationalization of environmental marketing strategy modelling was based on this. One study looked at the importance of external and internal environmental orientations, as well as corporate environmental strategy, and concluded that top management commitment is the most powerful driver of corporate environmentalism (Banerjee et al., 2018). Another study looked at the concepts of the resource-based view in the context of environmentalism and discovered that such an approach led to new product success and competitive advantage, but that environmentalism and performance were not mutually exclusive (Baker & Sinkula, 2017). As a result, the importance of the environmental dimension for future research in the sustainability literature is evident.

Social Aspect

CSR is one of the most popular subjects in sustainability study when it comes to the social dimension. It is a second capabilities-based resource from which the firm can draw (Chabowski et al., 2011). CSR has been studied in conjunction with cause-related marketing (Varadarajan & Menon, 2018), customer response (Brown & Dacin, 2018), and company performance (Varadarajan & Menon, 2018). Consumer choice, perception, and support (Ellen et al., 2017), as well as employee motivation (Drumwright, 2018), have all played crucial roles in the success of socially minded programmes. However, analysing the direct and moderating impacts of sustainability's influence on performance indicators (Carter & Easton, 2011) reveals a developing trend by linking the specific topic of CSR to corporate social performance (CSP). One strategy has been to look into the impact of consumer-based CSR organisations that "represent the organization's standing and actions in relation to its perceived societal responsibility" (De Bakker et al., 2005). Another perspective on the CSR performance relationship has stressed the moderating influence of brand competitiveness and perceived corporate motives (Ellen et al. 2006). Regardless of the approach, consumer views are clearly seen as critical to the success of socially-based sustainability programmes.

CSR is one of the most popular subjects in sustainability study when it comes to the social dimension. It is a second capabilities-based resource from which the firm can draw (Lichtenstein et al. 2004; Robin and Reidenbach 1987). CSR has been studied in conjunction with cause-related marketing (Varadarajan & Menon, 2018), customer response (Brown & Dacin, 2018) and company performance (Varadarajan & Menon, 2018). Consumer choice, perception, and support, as well as employee motivation (Drumwright, 2018), have all played crucial roles in the success of socially minded programmes.

Objectives

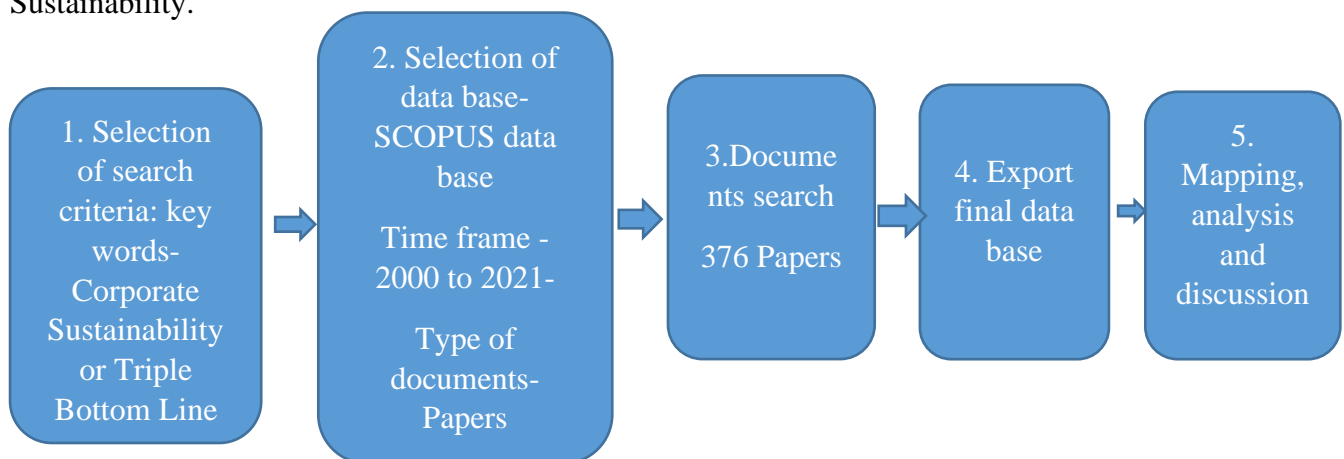
The objective of the article is to determine the degree of this academic literature in terms of the triple bottom line as a measure of corporate sustainability, as well as to identify and analyse its

knowledge base, using bibliometric analysis. A bibliometric survey of 376 papers published between 2000 and 2021 and indexed in the Scopus database was conducted to this intent.

1. Develop a descriptive study, showing the main sources of publication, authors, articles and countries that have publications on corporate sustainability
2. Present the evolution of academic production on this topic
3. Highlight the hot and cold areas of the academic debate about corporate sustainability
4. Establish a research agenda on the theme.

II. RESEARCH METHODOLOGY AND DATA STATISTICS

In the beginning, the research proceeded with random selection of certain keywords that includes “corporate sustainability”, “Triple Bottom Line”, “corporate social responsibility”, “supply chain management” and “sustainable development”. An exhaustive review of selected articles significantly contributes towards the existing body of literature. Systematic literature reviews are highly dependent on suitable selection of keywords. It is a stepwise process involving five stages, i.e. screen, assemble, organize, draft and finally, presentation of results. Similar process has been adopted in the present work to identify different themes based on selected keywords, followed by prediction of future scope of work with reference to Sustainability.



Systematic literature reviews are pursued by selecting one of the available databases. Most popular online databases include Scopus, Web of Science and Science Direct. For this research, team has selected Scopus database for present piece of work. In compared to other online databases like Web of Science, the plausibility of the highest number of articles published in journals (Emerald, Taylor & Francis, Wiley, Elsevier, and Springer) is a plausible argument. The majority of the articles offered are from diverse fields (business management and accounting, social sciences, etc.). The abstraction of articles from Scopus resulted in 683 articles towards each respective combination. This software may also analyse the network using many characteristics of the acquired data, such as authors, institutions, nations, keywords, categories, cited authors, cited references, and cited journals. The abstraction of articles from Scopus resulted in 683 articles towards each respective combination, i.e. corporate sustainability AND Triple Bottom Line (376 articles). This extraction covers published articles from 2000 to 2021 (until 1st February). Further, the research team focuses on the category of fully published articles and articles in press excluding book chapter, editorial and conference articles. A thorough article allocation based on selected keywords is supplied. For identified

papers, the contributing author(s), publication year, article source, article affiliation, and abstracts are all provided. The advantages of this bibliometric technique are as follows: Firstly, the findings will be based on quantitative statistical analysis and reliable dataset which generally consists large quantity of peer reviewed publications that can cover most regions and disciplines.

III. DATA ANALYSIS

3.1 Descriptive statistics

Descriptive statistics explains concentration of articles as yearly publication, journal-wise publication, affiliation-wise publication, top 10 countries, subject classification and top 20 funding sponsors based on information received from Scopus database related to corporate sustainability and its allied domains. Foremost description is about yearly publication of articles on corporate sustainability (refer to Figure 1). A huge contribution of articles are evidenced in the year 2020 (40 articles), followed by 2021 (27 articles; until 1st February 2022). Recorded figures denote wide interest of author(s) to research and contribute towards corporate sustainability.

3.2 Number of publications by year

From an academic point of view, research about the field of corporate sustainability has been increasing gradually since 1996 reaching the peak of 40 publications in 2020. Figure 1 Sustainability contains a visual diagram that shows the number of publications about sustainability retrieved from the academic database Scopus. To analyze the development trend of this academic field, the number of publications over years in Corporate Sustainability domain is summarized and shown in Figure 1. According to the data collected, it is observed that the first article in this field was published in 2000, and it is not until 2009 that the number of publications show a significant increasing trend. The rising trend also indicates such topics are getting attention from the academic field currently and for the upcoming years. This indicates the novelty of the research concerning CSR and Corporate Sustainability. The number of publications on 2020 is 40 which is significant more than the previous year. Therefore, this work tries to establish the relationship between the sustainable practices adopted by organizations and the results achieved. The analysis of this relationship has been performed under the frame of the theory building process. Specifically, it aims to analyze the literature about corporate sustainability in order to know the way that managers embrace environmental practices across their processes, business models, innovation orientation, and strategic planning. We have identified that academic literature on corporate sustainability can be classified in several research fields. The main feature that allows identification of each research field or body of knowledge is the scope of the publications. As was shown above, on one hand, some researchers analyse sustainable practices that only affect concrete business units or business processes. On the other hand, there are researchers that state the sustainable practices need to have a broader unit of analysis and should be handled as managerial issues. Therefore, these research fields offer different strategies and techniques for companies to embrace sustainability.

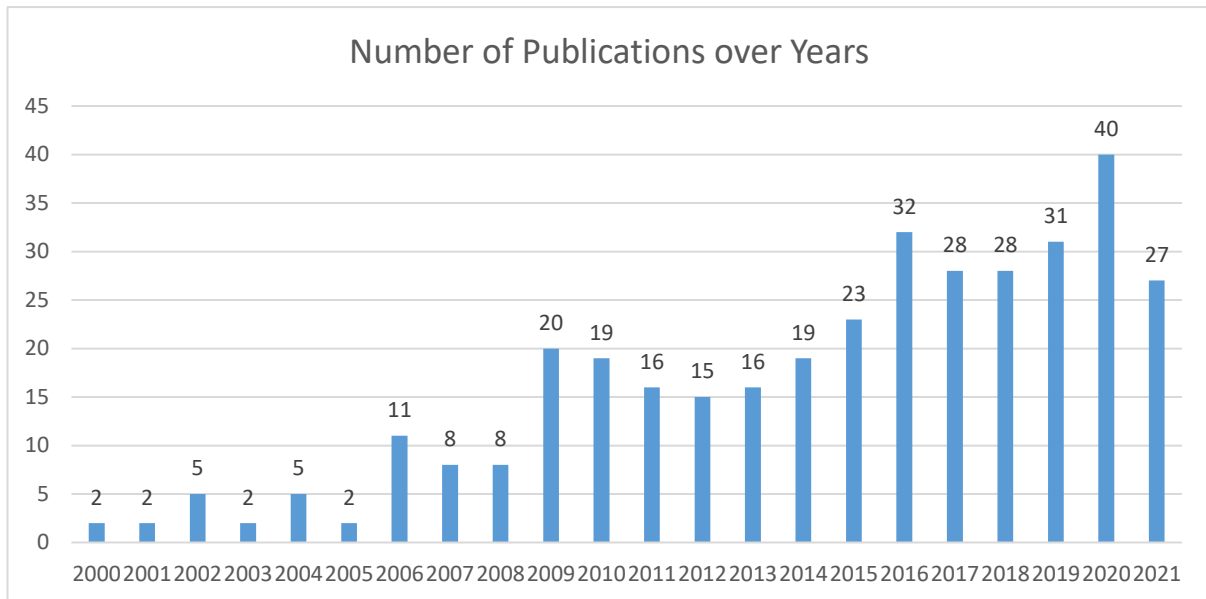


Figure.1: Evolution of Number of Articles between periods.

Source: author’s calculation

3.3 Top Authors, Institution, Country

The top authors, in Corporate Sustainability research in Marketing, along with their institutions and countries at time of authorship, are presented in Table 1. Based on number of citations, Milne m.j. emerges as the most impactful and influential author in Corporate Sustainability research in Marketing with 727 citations, followed by Govindan k with 662 citations. In terms of number-of-publication productivity, Svensson g. is the most productive author with 10 publications. Among institutions, based on collected citations, duquesne university, pittsburgh, pa, united states and university of sannio, benevento, italy , are the most influential institutions with 125 and 65 citations, respectively. Based on number of the publications, the Kristiania university college, oslo, norway is the most productive institution with 3 publications. Among countries, the United States has the most intellectual contributions in Corporate Sustainability research in Marketing (86 publications), with the highest number of citations (4620).

Table 1: Top Authors, Institution & country

author	TP	TC	Country	TP	TC	Institution	TP	TC
milne m.j.	2	727	united states	86	4620	duquesne university, pittsburgh, pa, united states	2	125
govindan k.	2	662	united kingdom	40	3026	university of sannio, benevento, italy	2	65
searcy c.	4	481	Canada	22	1702	university of seville, seville, spain	2	65
tate w.l.	2	479	Germany	20	1051	school of business and entrepreneurship, universidad del turabo, gurabo, puerto rico	2	62
carbo j.	2	402	new Zealand	8	846	kristiania university college, oslo, norway	3	44
tencati a.	2	382	Denmark	6	809	school of science and the environment, manchester metropolitan university, chester street, manchester, m1 5gd, united kingdom	2	33
elkington j.	2	313	France	7	806	vigo university, vigo, spain	2	29
svensson g.	10	284	Australia	28	766	school of business, university of ballarat, ballarat, australia	2	26
sarkis j.	2	259	Italy	13	742	institute of innovation and circular economy, asia university, taichung, taiwan	2	25
nikolaou i.e.	2	201	Netherlands	16	712	jönköping university, jönköping, sweden	2	15
ferro c.	5	185	Sweden	9	474	creative decisions ltd, auckland, new zealand	2	6
padin c.	6	185	switzerland	9	448	les roches international school of hotel management, crans montana, switzerland	3	3

Note(s): TC = total citations. TP = total publications. The research constituent (i.e., author, institution, country) appear according to total citations in this table

3.4 Top journals

The top journals that publish Corporate Sustainability in Marketing are presented in Table 2. In terms of citations, Journal of Business Ethics and Journal of Cleaner Production are the two most influential journals with 2036 and 2003 citations, respectively. However, in terms of publications, Journal of Cleaner Production and sustainability (switzerland) are the two most productive journals with 27 and 23 publications, respectively. The mapping of publication productivity against differing time periods indicates a recent rising trend of publication on the topic of this review. However, if we examine Table 2 focusing on top journals, we see that journal of Worldwide hospitality and tourism themes, relatively less active with publishing Corporate Sustainability articles, which has published 4 articles with 3 citations, and the Journal of world business and Organization and environment which has published a few but highly cited articles.

Table 2: Top journals of Corporate Sustainability

Journals	TP	TC
Journal of business ethics	15	2036
Journal of cleaner production	27	2003
Business strategy and the environment	14	927
Corporate social responsibility and environmental management	10	358
Journal of world business	3	350
Sustainability (switzerland)	23	289
Organization and environment	3	268
Corporate environmental strategy	5	206
International journal of production research	3	196
Tqm journal	3	149
Corporate governance (bingley)	7	90
Social responsibility journal	8	65

Journal of global responsibility	4	47
Public relations review	3	40
International journal of business governance and ethics	4	31
International journal of sustainable development and world ecology	3	27
Corporate ownership and control	4	24
African journal of hospitality, tourism and leisure	3	14
International journal of interdisciplinary social sciences	3	14
Worldwide hospitality and tourism themes	4	3

3.5 Top Articles

The top-cited publications on Corporate Sustainability in Marketing are presented in Table 3. *Govindan k. (2013)* is the most impactful and influential article with the highest number of citations in Scopus (614), followed by *Norman w. (2004)* and *Milne m.j. (2013)* with 504 and 491 citations. *Govindan k. (2013)* explores sustainable supply chain initiatives and examines the problem of identifying an effective model based on the Triple Bottom Line (TBL) approach (economic, environmental, and social aspects) for supplier selection operations in supply chains by presenting a fuzzy multi criteria approach. The study use triangular fuzzy numbers to express linguistic values of experts' subjective preferences. Qualitative performance evaluation is performed by using fuzzy numbers for finding criteria weights and then fuzzy TOPSIS (Technique for Order Preference by Similarity to Ideal Solution) is proposed for finding the ranking of suppliers. The proposed approach is illustrated by an example. Wayne Norman and Chris MacDonald critically examines the notion of “Triple Bottom Line” accounting. The study suggest that the Triple Bottom Line is an undesirable addition to contemporary discussions of corporate social responsibility, both conceptually and practically. Finally, they argue that the Triple Bottom Line paradigm cannot be saved simply by watering down its claims: the terminology is dangerously deceptive, and it may even serve as a cloak for companies to avoid truly effective social and environmental reporting and performance.

Table 3: Top Articles on Corporate Sustainability

Author(s)	Title	TC
govindan k. (2013)	A fuzzy multi criteria approach for measuring sustainability performance of a supplier based on triple bottom line approach	614
norman w. (2004)	Getting to the bottom of "Triple Bottom Line"	504
milne m.j. (2013)	W(h)ither Ecology? The Triple Bottom Line, the Global Reporting Initiative, and Corporate Sustainability Reporting	491
tate w.l. (2010)	Corporate social responsibility reports: A thematic analysis related to supply chain management	411
dao v. (2011)	From green to sustainability: Information Technology and an integrated sustainability framework	387
waddock s.a. (2002)	Responsibility: The new business imperative	356
klassen r.d. (2012)	Social issues in supply chains: Capabilities link responsibility, risk (opportunity), and performance	346
hahn t. (2015)	Tensions in Corporate Sustainability: Towards an Integrative Framework	343
roca l.c. (2012)	An analysis of indicators disclosed in corporate sustainability reports	328
perrini f. (2006)	Sustainability and stakeholder management: The need for new corporate performance evaluation and reporting systems	302
chabowski b.r. (2011)	The structure of sustainability research in marketing, 1958-2008: A basis for future research opportunities	259
milne m.j. (2009)	Words not actions! The ideological role of sustainable development reporting	236

hussain n. (2018)	Corporate Governance and Sustainability Performance: Analysis of Triple Bottom Line Performance	231
dyllick t. (2016)	Clarifying the Meaning of Sustainable Business: Introducing a Typology From Business-as-Usual to True Business Sustainability	229
schaltegger s. (2010)	Sustainability accounting for companies: Catchphrase or decision support for business leaders?	198
el akremi a. (2018)	How Do Employees Perceive Corporate Responsibility? Development and Validation of a Multidimensional Corporate Stakeholder Responsibility Scale	193
denison d. (2004)	Culture in Family-Owned Enterprises: Recognizing and Leveraging Unique Strengths	184
nikolaou i.e. (2013)	A reverse logistics social responsibility evaluation framework based on the triple bottom line approach	180
elkington j. (2006)	Governance for sustainability	177
dixon s.e.a. (2007)	Ecopreneurship - A new approach to managing the triple bottom line	174

Note(s): TC =Total Citations.

3.6: Co-occurrence Analysis (Key word Analysis)

For the total of 376 articles analysed on Corporate Sustainability and Triple Bottom Line in the period between 2000 and 2022, a total of 1659 keywords have been obtained. Corporate Social Responsibility, Sustainability, Triple Bottom Line are the most frequently used keywords in this area of research. In addition to this, Stake holders, Global Reporting Initiatives are also using by Researchers.

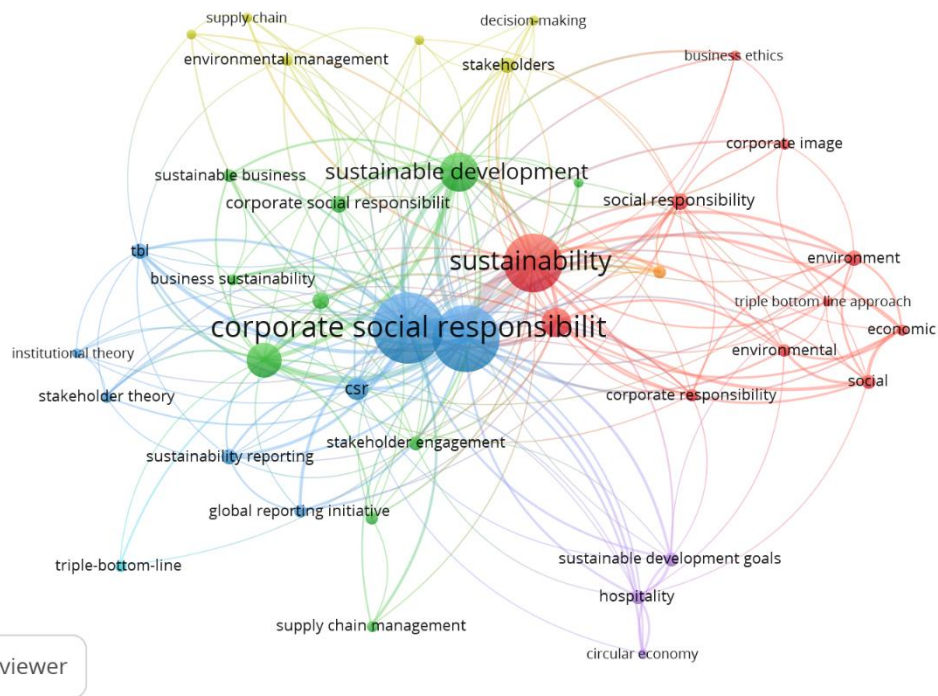


Figure 2: Co-occurrence Analysis (key word)

3.7: Cluster Analysis based on Bibliographic Coupling

Table 4: Thematic Clusters of Corporate Sustainability

Theme identified in each cluster	Major Author(s) in each cluster	Title of the study in	TC
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1. structure of sustainability, how employees perceive corporate responsibility and sustainability information disclosure	Chabowski (2011)	The structure of sustainability research in marketing, 1958-2008: a basis for future research opportunities.	259
	El akremi (2018)	How do employees perceive corporate responsibility?	193
	Galbreath (2009)	Development & validation of a multi-dimensional corporate stakeholder responsibility scale.	152
	Hartman (2007)	Building corporate social responsibility in to strategy	151
	Freeman (2011)	The communication of corporate social responsibility: United States & European union multinational corporations.	132
	Freeman (2011)	The meaning of corporate social responsibility :The vision of four nations	132
	Govindan.k (2013)	A fuzzy multi-criteria approach for measuring	614

		sustainability performance of a supplier based on triple bottom line approach.	
2. governance for sustainability, approaches for measuring sustainability and integrated sustainable frame work	Dao.v (2011)	From green to sustainability: information technology & an integrated sustainability frame work.	387
	Klassen.r.d (2012)	Social issues in supply chains: capabilities, link responsibility, risk (opportunity) & performance.	346
	Elkington (2006)	Governance for sustainability	177
	Hahn.t (2015)	Tensions in corporate sustainability: towards an integral frame work.	343
3. A new typology introduced			

from usual business to true business sustainability.	Dyllick.t (2016)	Clarifying the meaning of sustainable business: Introducing a typology from business as usual to the business strategy	229
	Dixon .s.e.a.(2007)	Ecopreneurship –a new approach to managing the triple bottom line.	174
	Isaksson .r (2009)	What does GRI-reporting tell us about Corporate Sustainability?	125
	Norman .w (2004)	Getting to the bottom of Triple Bottom Line.	504
4. CSR reporting , Global Reporting Initiative, Triple Bottom Line integration	Perrini .f (2006)	Sustainability &stake holder management: The need for new corporate performance evaluation &reporting system.	302
	Hedberg (2003)	The Global Reporting Initiatives &corporate	174

			sustainability reporting in Swedish companies.	145
		Jamali .d (2006)	Insights in to Triple Bottom Line integration from a learning organisation perspective.	
5. Rethinking standards from green to sustainability.	Milne. m. j (2013)		W(h)ither ecology? The Triple Bottom Line, Global Reporting Initiative & corporate sustainability reporting.	491
				236
	Milne .m. j (2009)		Words no actions! the ideological role of sustainable development reporting	121
		Font .x (2004)	Rethinking standards from green to sustainable.	
6. A strategic sustainability justification for		Roca l. c (2021)	An analysis of indicators disclosed in corporate sustainability reports.	328

organisational decisions.	Schaltegger.s (2010)	Sustainability accounting for companies: catch phrase or decision support for business leaders?	198
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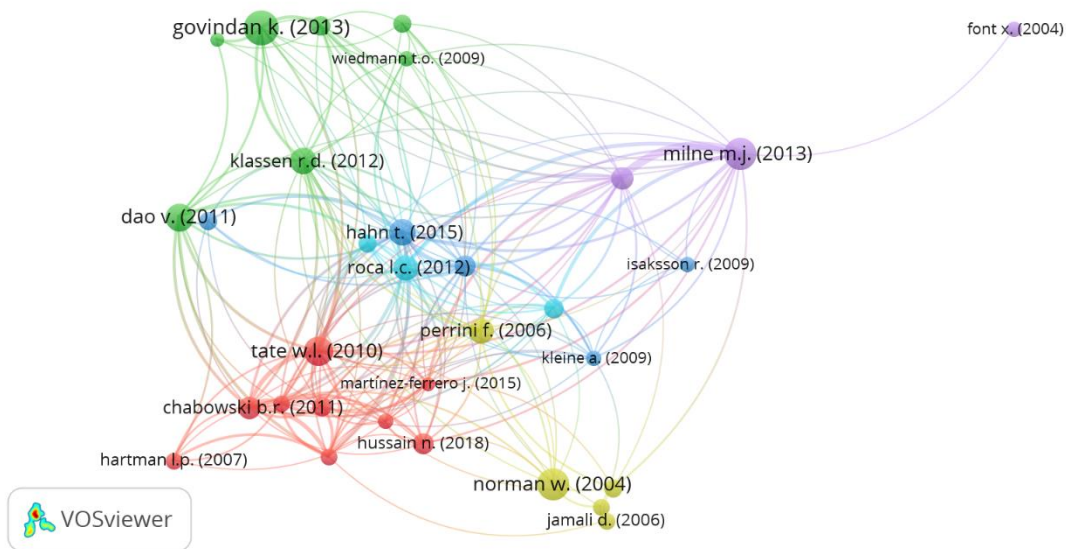


Figure: 3 showing clusters obtained from Bibliographic Coupling

Building on the knowledge foundation disclosed in the prior part, this study examines the body of knowledge related to Corporate Sustainability and Triple Bottom Line through bibliographic coupling. Unlike co-citation analysis, which takes into account cited articles and hence reflects seminal knowledge in the subject, this method focuses on highly cited publications. To convey the current state of knowledge in the topic,

bibliographic coupling relies on citing publications. Bibliographic coupling encompasses seminal, niche, and recent information in this way. As a result, it draws attention to works that, unsurprisingly, have gotten few citations and are thus likely to be neglected in co-citation analysis. Bibliographic coupling has become a standard technique in marketing research bibliometric reviews. The overview of the six thematic clusters that underpin the knowledge structure of Corporate Sustainability and Triple Bottom Line revealed through bibliographic coupling is presented in Table 6. The study revolves around stakeholder engagement, decision-making, stakeholder reactions, the structure of sustainability, how employees perceive corporate responsibility, the vision of nations, sustainability information disclosure, and how corporate sustainability reporting can be effectively built into firm strategy in Cluster 1. Cluster 2 relates to governance for sustainability, approaches for measuring sustainability performance based on Triple Bottom Line Approach, from green to sustainability, integrated sustainable frame work, assessing green supply chain practices, social responsibility evaluation frame work and benchmarking the sustainability performance of businesses. In Cluster 3, a new approach introduced to manage Triple Bottom Line and a new typology introduced from usual business to true business sustainability. cluster 4 relates to CSR reporting which includes Global Reporting Initiative, Triple Bottom Line integration ,insights to the bottom of TBL among which cybernetic sustainability reporting and communication is newly instigated .Cluster 5 includes studies about rethinking standards from green to sustainability and also ideological role of sustainable development reporting, Global Reporting Initiative, Corporate sustainability Reporting. Cluster 6 is a small cluster which includes methodology to strategic sustainability justification for organisational decisions.

IV. CONCLUSIONS AND DISCUSSIONS

The goal of this research was to give a comprehensive picture of corporate sustainability research related to the Triple Bottom Line in order to determine the knowledge map between these two issues. The objective of this research was to look at the evolution of research publications on corporate sustainability on a global scale between 2001 and 2020. A bibliometric study of 376 research publications in the Scopus database was conducted for this purpose. We primarily employed a bibliometric analytic approach to perform co-author analysis, co-country analysis, co-citation analysis of authors and papers, co-occurrence, and co-occurrence analysis. Connection of bibliographies the general study of the research demonstrates that the scientific community's interest is growing exponentially, as seen by the constant growth of papers, authors, and citations. In the last five years, we've seen a growth in the number of scientific journals, governments, and organisations interested in assessing the consequences of reaching the Sustainable Development Goals (SDG). Concerning the ramifications of this suggestion, as previously said, the constant expansion of articles, authors, countries, citations, and scientific journals has been demonstrated in recent decades as a result of the release of the Green Book and the ISO 26000 Standard. The 2030 Agenda and the Sustainable Development Goals (SDGs) may inspire practitioners and researchers to extend their perspectives when considering the implications of CSR and sustainability. Furthermore, the significance of the 17 SDGs should be

emphasised, implying the necessity of bolstering the global cooperation for sustainable development. Specifically, bibliometric analysis provides hints and develops relationships across clusters and important lines in the future in order to comprehend and analyse the suitability of a variety of multi-stakeholders who mobilise and share knowledge and skills. Finally, a detailed study of decision-making models aimed at measuring organizations' environmental, economic, and social performance is recommended as a research agenda. The positive aspects of classic DEA models, as well as their key theoretical shortcomings, should be considered.

Eventually, this work has some limitations that could serve as the foundation for future research. These limitations stem from the fact that it is a quantitative analysis, so qualitative aspects are not taken into account, which, combined with the use of other data analysis computer tools, could result in slightly different results. Similarly, the study focused solely on the publication of scientific articles from 2001 to 2020, ignoring other factors such as participation in Congresses, book publications, and book chapters, as well as a different time frame. Incorporating a wider range of study materials could result in different outcomes. Therefore, it is believed that this research area, as it is still in its early stages, needs a more solid theoretical foundation. This will allow the adoption of assertive models for the management of organizations in the future, thus contributing to the rational use of scarce resources.

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