Convergence between Sustainable Management and Green Marketing: A Bibliometric Analysis of Emerging Trends

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ABSTRACT

In our contemporary world, sustainable management has become an essential pillar of central strategy of a company, especially in the context of strict regulations on ESG. This paper investigates the intersection between sustainability management and green marketing strategies, exploring how internal responsibility policies influence market competitiveness. The research uses a bibliometric analysis of metadata extracted from the international database Web of Science covering the time interval between 2022 – March 2026. The visualisation and mapping of knowledge networks are carried out using the VOSviewer software, applying keyword co-occurrence analysis techniques and cluster density visualisation.

KEYWORDS: *Sustainability Management, Green Marketing, VOSviewer, ESG, Emerging Trends.*

JEL CLASSIFICATION: *M14, M31, Q56, O33*

1. INTRODUCTION

We are living in a time of radical transformation, where traditional barriers between organisational departments are disappearing. Today, in 2026, sustainable management is no longer simply a function of administrative control, and green marketing is no longer just a communication strategy. We are witnessing a necessary convergence: management ensures rigour and data (ESG, performance indicators), while marketing guarantees legitimacy and connects with the values of the modern consumer.

The main challenge facing modern companies is synchronisation. Without a solid foundation for sustainable management, marketing risks falling into the "greenwashing" trap. Conversely, without strategic "green marketing," management's real sustainability efforts remain invisible to the market. This article explores this intersection: how can companies leverage data, management, and innovation to create an authentic and effective corporate identity? To answer this question, a rigorous bibliometric analysis methodology was employed using VOSviewer software.

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2. RESEARCH METHODOLOGY

Data collection was carried out by querying the Web of Science platform using the following search string: "TITLE: ("sustainability management" OR "ESG" (Topic) OR "emerging trends" OR "environmental marketing" OR "green marketing" OR "innovation" OR "sustainable marketing "), time frame: 2022 – March 2026. Web of Science Categories: Business Finance or Environmental Sciences or Environment Studies or Management or Business. Document Types: Article or Review Article. Language English. Keyword co-occurrence network mapping and clustering analysis were performed using VOSviewer software (v. 1.6.20). From the total of 16,709 keywords identified in the analysed body of texts, a minimum threshold of at least 10 occurrences was established for a term to be included in the analysis. Following the application of this filter, 911 keywords that met the criterion were submitted for further analysis.

3. RESEARCH RESULTS

The structure of the research sample, comprising a total of 7,672 scientific papers indexed in Web of Science between 2022 and 2026 (March), is reflected in Figure 1. The distribution of these publications reveals distinct weights for the following categories: Business Finance, Environmental Studies, Environmental Sciences, Management, Business, Green Sustainable Science Technology, Economics, Engineering Environmental, Operations Research Management Science, and Ethics.

Figure 1. Distribution of scientific publications by subject areas in Web of Science
Source: data extracted from Web of Science

The distribution of publications in these categories confirms that the subject is not just a management niche, but a multidisciplinary and systemic phenomenon. The fact that we find articles in categories ranging from Finance to Engineering and Ethics demonstrates that sustainability management has become a "universal language".

Table 1 presents the integration of the terms as "financial performance," "firm performance," and "ESG performance" that appear together and shows that current research no longer sees

sustainability as a cost, but as a driver of profitability. The analysis suggests that companies that manage environmental and social factors well tend to be more efficient and attractive to investors.

Table 1. Frequency analysis of the first 30 keywords in a sample of 7,672 records

No.	Keyword	Occurrences	Total link strength	No.	Keyword	Occurrences	Total link strength
1	ESG	2488	16228	16	information	381	3316
2	Corporate social-responsibility	1535	12927	17	firm	388	3289
3	impact	1461	12427	18	innovation	435	3243
4	sustainability	1293	9457	19	ownership	349	3194
5	Financial performance	890	7776	20	Sustainable development	442	3139
6	disclosure	804	6952	21	cost	369	3128
7	ESG performance	1064	6396	22	investment	370	2962
8	management	742	6261	23	Firm value	311	2816
9	Corporate governance	607	4972	24	environmental	333	2633
10	Firm performance	507	4689	25	ESG disclosure	316	2502
11	CSR	520	4646	26	quality	286	2483
12	risk	520	4478	27	market	291	2441
13	responsibility	555	4436	28	Environmental performance	262	2383
14	Social responsibility	531	4233	29	corporate	306	2212
15	determinants	373	3416	30	legitimacy	228	2098

Source: own elaboration based on data from Web of Science

The predominant keywords consist of ESG, corporate social-responsibility, impact, sustainability, financial performance, disclosure, ESG performance, management, corporate governance, firm performance, CSR, risk, responsibility, and social responsibility. These speak of a major paradigm shift in modern management, moving from short-term profit maximisation to long-term sustainable value creation.

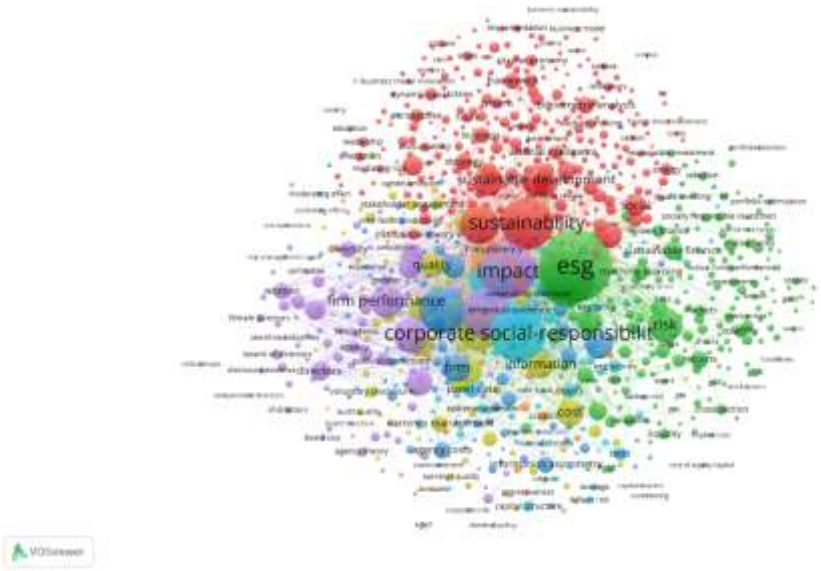

Figure 2. The structure of the keyword co-current network in the analysed sample
Source: own processing in VOSviewer v.1.6.20 based on data extracted from Web of Science

The results obtained from the keyword analysis were translated into a map to visualise the interconnections between the concepts of sustainable management and green marketing, identifying seven clusters. In Figure 2, these clusters are highlighted in red, green, blue, yellow, purple, light blue, and orange. It also deserves to be noted that a larger diameter of the circle indicates a higher frequency of mention of the corresponding concept as a keyword, together with the concept of sustainable management, in research articles indexed in the Web of Science database between 2022 and March 2026.

The red cluster has 283 items and the most important were sustainability, management, innovation, sustainable development, environmental, digital transformation, corporate sustainability, social, and climate change. The first cluster indicates that contemporary management has integrated sustainability and digital transformation into a single driving force, using innovation as the main tool to respond to climate and social challenges. (Ardia et al., 2022)

The following cluster, green with 197 items and the essential concepts ESG, performance, risk, market, sustainable finance, behaviour, machine learning, covid-19, investors, and returns, explain that if the first cluster tells 'why' to be sustainable (strategy), the second shows us 'how' to measure success and how technology (Machine Learning) helps manage uncertainty and risk in volatile markets. (Adams & Abhayawansa, 2021)

While the first two clusters talk about vision and market, the third cluster, the blue one, with 142 items and the most significant terms ESG performance, green innovation, firm, investment, corporate, social-responsibility, financial constraints and policy, shows us the importance of green innovation in the context of real financial constraints and an increasingly rigorous policy framework. (Wang et al., 2023)

The yellow cluster has 104 items, and the central words were disclosure, determinants, ESG disclosure, firm value, legitimacy, cost, information, quality, reputation, earnings management, and earnings. The fourth cluster warns us that sustainability management is

ineffective without quality communication. It is not enough to be green; companies must report this data in a legitimate way, avoiding earnings manipulation, to protect the reputation and increase the real value of the company. (Aydoğmuş et al., 2022)

The next cluster, purple, has 83 items, and the major were impact, governance, firm performance, corporate governance, ownership, environmental performance, diversity, gender diversity, directors, and ESG controversies. The fifth cluster shows that the success of green strategies depends on who is in control and who makes the decisions. Gender diversity and board structure are not just social issues, but determinants that can prevent ESG controversies and improve a company's environmental performance. (S. Chen et al., 2023; Eliwa et al., 2023)

The sixth cluster, light blue with 69 items and notable concepts corporate social-responsibility, financial performance, companies, panel-data, profitability, empirical-evidence, equity, risk-management, and capital structure, shows that the link between profitability and CSR is tested through panel data and empirical evidence, providing managers with the necessary arguments to integrate sustainability into the firm's capital structure. (Ginglinger & Moreau, 2023; Chen et al., 2022)

The orange cluster has 33 items and the most important were CSR, responsibility, corporate social responsibility, engagement, and costs. Cluster seven exemplifies that the long-term success of a company depends on the ability of managers to transform 'responsibility' into an effective investment, where implementation costs are balanced by active and authentic involvement in the social environment. (Patyal et al., 2022)

In order to deepen the temporal dynamics of the research, it is necessary to analyse the conceptual structure in distinct chronological stages. This allows us to classify the most important factors that determine the content of research on sustainable management and green marketing for the period 2022-March 2026. According to the chromatic scale in Figure 3, the colour gradient evolves from purple, indicating the concepts addressed in the initial period of the interval (2022), to yellow, signaling emerging themes and recent works (2026).

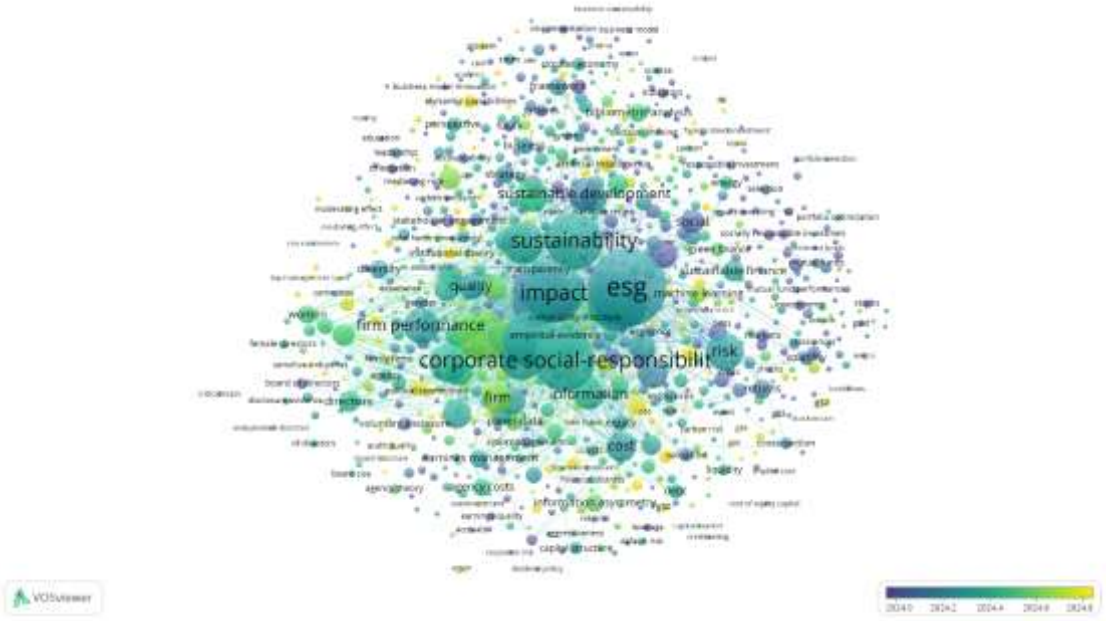

Figure 3. Contextual and temporal analysis of the literature on sustainable management and green marketing (2022 – March 2026)

Source: own processing in VOSviewer v.1.6.20 based on data extracted from Web of Science
The first period between 2024 and 2024.2, including terms such as social, environmental, companies, strategies, responsibility, covid-19, markets, investors, captures the moment when management integrated sustainability under the cyclical pressure of the pandemic. It is the stage when 'responsibility' became a strategic component to reassure markets and investors (Xu et al., 2023) .

In the second stage, 2024.2 – 2024.4, we can see concepts as sustainability, governance, corporate social-responsibility, firm performance, management, cost, ESG. The focus shifts from pandemic survival to creating solid governance structures and rigorous cost analysis. Sustainability becomes an indicator of company performance, not just an image element (Martínez-Peláez et al., 2023).

During 2024.4 – 2024.6, research focused on corporate governance, gender diversity, women, innovation, behaviour, ESG ratings, directors, financial constraints, legitimacy. This period marks the moment when sustainability becomes a matter of identity, leadership, and external recognition (Zhou et al., 2022; Elamer & Boulhaga, 2024).

During 2024.6 – 2024.8 research interest was changed towards ESG performance, firm, panel-data, digital transformation, internal control, green innovation, machine learning, big data. Through Big Data and Machine Learning, the company transforms ESG performance from a reporting obligation into an internal control asset and an evidence-based driver of green innovation (Liu et al., 2023; Wang et al., 2022; Zhang et al., 2023).

After 2024.8 management has integrated Artificial Intelligence not just for efficiency, but to navigate social controversies and climate risks. The modern company is a living organism, endowed with dynamic capabilities, which bases its legitimacy on informational transparency and on the direct contribution to a healthy living environment (Zhai et al., 2022; Wen et al., 2025).

Figure 4 presents the density visualisation map in sustainable management research. The terms with the highest density are those that appear most frequently and have the most connections, representing the foundations on which the entire field of sustainability management is based. This fact confirms the high academic interest and the scope of research in this field.

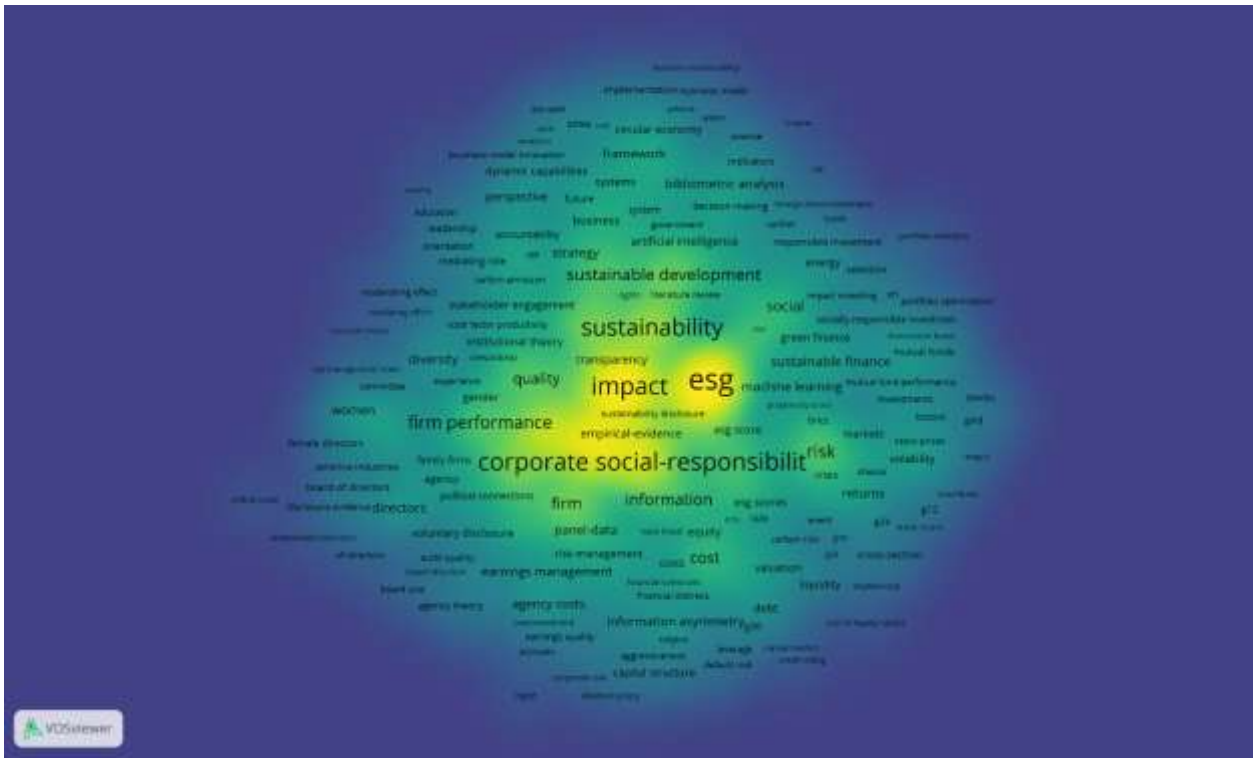

Figure 4. Identifying research cores in sustainable management through keyword density
Source: own processing in VOSviewer v.1.6.20 based on data extracted from Web of Science

According to the density map presented in Figure 4, a major concentration of literature is observed around thematic pillars such as impact, ESG, corporate social-responsibility, empirical-evidence, sustainability disclosure, sustainable development, firm performance, governance, responsibility, performance, firm performance, companies (Guandalini, 2022; Abdelbaky et al., 2024).

Density analysis confirms that the centre of gravity of contemporary management has shifted from isolated acts of charity to a systemic model of governance and information disclosure, the goal being to achieve a positive impact on the company's performance, validated by empirical evidence.

4. CONCLUSION

Bibliometric research reveals the transformation of the management paradigm from a reactive model to an adaptive and technological one. The evolution of terms has seen the shift from general social responsibility (CSR) and the reaction to the Covid-19 crisis, to a rigorous system of ESG Ratings and Information Transparency. Cluster analysis has shown that Corporate Governance and Gender Diversity are not just ethical issues but determining factors that reduce financial constraints and stimulate green innovation. The high density of terms such as “empirical evidence” and “panel data” confirms that sustainability management is now an evidence-based discipline, where ESG performance is directly correlated with company performance.

Based on the identified stages of evolution, the recommendations for modern management are:

- Implementation of Big Data and Machine Learning technologies to transform data collection into “Internal Control” in real time.

- Promoting diversity in boards of directors as a strategic mechanism for increasing legitimacy and technological innovation capacity.
- Developing organisational agility to navigate environmental controversies and proactively manage climate risk.
- Optimising engagement costs by directly correlating CSR projects with profitability and performance indicators.

In conclusion, the study demonstrates that in 2026, management can no longer be separated from sustainability and green marketing. We have moved from 'leading good' to 'leading smart', using technology and human diversity to ensure not only profit, but also a healthy living environment. Sustainability is today the new frontier of managerial efficiency.

Finally, VOSviewer allowed the visualisation of keyword co-occurrence networks, providing additional methodological rigor to the qualitative analysis.

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