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Research Article

Visualization of the Evolution of Green Marketing Literature: A Bibliometric Review

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Abstract: The integration of green marketing into corporate strategies represents a paradigmatic shift in responding to global sustainability issues while enhancing competitiveness and socio-ecological commitment. With the rapid growth of literature in this field, a systematic analysis is required to map its conceptual evolution and strategic directions. This study presents a bibliometric analysis of global research trends in green marketing, aiming to identify the intellectual structure, thematic evolution, and knowledge development over the period 2017-2024. Using the Scopus database and the Biblioshiny and VOSviewer tools, 275 peer-reviewed articles were examined through quantitative bibliometric mapping techniques. The analysis reveals an annual publication growth rate of 15.27%, with dominant themes such as "sustainability," "green marketing," and "sustainable development." Thematic mapping visualizations indicate a shift in research focus from product-related technical issues to strategic, social, and consumer behaviour dimensions. Five major thematic clusters were identified, reflecting interdisciplinary approaches encompassing digital marketing strategies, consumer behaviour, corporate social responsibility, supply chain management, and environmental ethics. These findings underscore the significance of integrating green marketing as a sustainable business strategy, not only to enhance corporate image but also to foster more environmentally responsible consumer behaviour. The study provides a conceptual foundation for future inquiries and strategic implications for business practices, affirming the role of green marketing as a catalyst for organizational transformation toward environmental and social sustainability.

Keywords: Bibliometric Analysis; Consumer Behaviour; Corporate Social Responsibility; Green Marketing; Sustainability

1. Introduction

Over the past decades, environmental degradation has escalated into one of the most pressing global challenges, manifesting not only in ecological disruption but also in severe implications for human health. A sharp increase in hazardous waste generation, particularly in urban centres, illustrates how unsustainable patterns of consumption and production have translated into tangible risks for society at large (Simbolon & Wiranata, 2021). Recognising these threats, international institutions have placed sustainability at the core of global development strategies. The United Nations, through the Sustainable Development Goals (SDGs), has explicitly called for the adoption of responsible consumption and production practices, with SDG 12 underscoring the urgent need to mitigate environmental strain and preserve resources for future generations (Ramaiah & Hussein, 2022).

Within this context, businesses face mounting pressure to align their operations with ecological imperatives while maintaining competitiveness in increasingly demanding markets. Green marketing has emerged as a response to this dual necessity: it is no longer viewed as a supplementary communication tool, but rather as a strategic imperative that integrates sustainability into the very foundations of business practice. Companies adopting such strategies aim not only to strengthen their legitimacy and corporate image but also to signal genuine commitment to environmental and social responsibility (Esmaelnezhad et al., 2023). In this

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sense, green marketing functions simultaneously as a mechanism of differentiation and as a driver of long-term competitiveness, reinforcing the role of businesses as agents of sustainable transformation (Semlali et al., 2024).

Despite its growing adoption, however, the capacity of green marketing to foster meaningful behavioural change remains only partially realised. Although consumers increasingly express interest in sustainability-oriented products, gaps in environmental literacy and scepticism toward eco-labelling often constrain the translation of awareness into purchasing behaviour (Babu et al., 2024; Huang et al., 2024). This persistent disjunction highlights the need for deeper academic inquiry: to understand not only the effectiveness of green marketing strategies in theory but also their evolving application in practice.

Scholarly attention to this field has expanded rapidly, yet the literature remains fragmented across themes ranging from consumer behaviour and corporate social responsibility to supply chain management and environmental ethics. While individual studies provide valuable insights, what is still lacking is a comprehensive and systematic mapping of the intellectual structure and thematic evolution of the discipline. Bibliometric analysis, by combining quantitative rigour with conceptual interpretation, offers an especially apt method for addressing this gap. It allows for the identification of dominant themes, the tracing of conceptual shifts, and the uncovering of strategic priorities that have shaped the development of the field over time.

Against this backdrop, the present study sets out to achieve four objectives: first, to map the body of green marketing literature published between 2017 and 2024; second, to identify prevailing research priorities and dominant themes; third, to analyse the conceptual evolution of the field in both academic and industrial contexts; and fourth, to explore the thematic clusters that constitute its intellectual structure. By employing bibliometric tools such as Biblioshiny and VOSviewer, this study seeks not only to capture the trajectory of green marketing as an academic discipline but also to illuminate its strategic relevance in advancing sustainability agendas at both corporate and societal levels.

2. Literature Review

Green marketing has increasingly been recognised as more than a communicative instrument; it is a strategic orientation that integrates ecological values into corporate practices while simultaneously cultivating consumer trust. In its most fundamental sense, it enables firms to convey the environmental value of their goods and services while reinforcing brand legitimacy and competitive standing (Esmaelnezhad et al., 2023; Khan & Ali, 2023). Rather than being confined to promotional rhetoric, green marketing is often positioned as a declaration of corporate commitment to sustainability. This dual role communicative and strategic has been emphasised in contemporary scholarship, underscoring its capacity both to signal ethical responsibility and to embed ecological principles within organisational decision-making (Semlali et al., 2024).

At the same time, research has shown that the integration of green innovation with marketing strategies provides small and medium-sized enterprises with tangible advantages in building long-term resilience. By combining cleaner production processes with ecological branding, firms are able not only to respond to the expectations of environmentally conscious consumers but also to consolidate their legitimacy in increasingly competitive markets (Babu et al., 2024). Yet this potential has not been fully realised. While consumers often express a preference for eco-friendly products, the actual translation of intention into behaviour remains uneven, hindered by limited environmental literacy and confusion surrounding sustainability-oriented communication (Babu et al., 2024; Huang et al., 2024). In particular, eco-labelling has produced mixed results. Although it can influence purchasing decisions, its effectiveness is curtailed when consumers struggle to interpret or trust the information provided. These limitations suggest that, despite its visibility, green marketing has not consistently generated the depth of behavioural change that is frequently assumed in normative debates.

Several theoretical frameworks have guided the development of green marketing scholarship. Among these, Ajzen's (1991) theory of planned behaviour (TPB) is the most widely cited. It explains consumer decision-making in terms of attitudes, social norms, and perceived behavioural control, and has become a cornerstone in analysing sustainability-oriented purchasing. The endurance of TPB in this field reflects the continuing need to understand how psychological and social determinants shape consumer behaviour in relation to ecological values. In addition, (Kotler, 2011) work on the reinvention of marketing in response to environmental crises provides an important strategic perspective, while Hair et al. (2010) advance

the methodological rigour of the field through multivariate analysis. Together, these contributions illustrate how theoretical insights and methodological tools converge to provide a robust foundation for the study of sustainable marketing. They also indicate that the literature has progressively evolved from descriptive accounts of corporate greening to more analytically precise investigations into the mechanisms that underpin consumer choice and organisational adaptation.

Empirical research has reinforced these theoretical perspectives by highlighting the pivotal role of sustainability, corporate social responsibility, and consumer behaviour in shaping the trajectory of green marketing (Leonidou et al., 2013; Papadas et al., 2017). These studies demonstrate that environmentally oriented strategies can foster both innovation and legitimacy, particularly when integrated within supply chain management and broader corporate governance. Nevertheless, the literature remains somewhat fragmented. Much of the existing scholarship addresses isolated dimensions such as consumer perception or CSR communication without fully consolidating them into a comprehensive conceptual framework. Another limitation stems from the geographical concentration of research. A substantial share of contributions originates from Western contexts, with relatively few studies addressing the dynamics of green marketing in emerging economies. This imbalance restricts the global relevance of the literature, especially given that sustainability challenges are often most pronounced in non-Western settings where rapid industrialisation and consumption growth exert considerable ecological pressures.

Taken together, these observations underscore the need for a systematic approach capable of consolidating and interpreting the field's diverse trajectories. Bibliometric analysis responds to this requirement by offering tools to map scientific productivity, trace co-citation patterns, and detect thematic evolution across time. Rather than replacing qualitative analysis, bibliometrics complements it by illuminating intellectual structures and uncovering overlooked gaps. It is precisely this potential for synthesis that renders a bibliometric study of green marketing both timely and necessary: it not only situates the field within a broader academic landscape but also highlights how its conceptual development intersects with global sustainability agendas.

3. Research Method

This study adopts a quantitative—descriptive approach underpinned by bibliometric analysis to chart the evolution of the green marketing literature within the context of sustainability. The dataset was drawn from the Scopus database, covering the period 2017–2024, and restricted exclusively to scholarly articles in the field of business. The search strategy was formulated with precision, employing the query: (TITLE-ABS-KEY (Green Marketing) AND TITLE-ABS-KEY (sustainability)) AND PUBYEAR > 2016 AND PUBYEAR < 2025 AND (LIMIT-TO (EXACTKEYWORD, ...)) AND (LIMIT-TO (SUBJAREA, "BUSI")) AND (LIMIT-TO (DOCTYPE, "ar")). The keyword set encompassed themes such as sustainability, green marketing, consumer behaviour, corporate social responsibility, green innovation, and other closely related topics.

The analysis was conducted using Bibliometrix to evaluate scientific productivity, keyword distribution, and thematic trends, complemented by VOSviewer to visualise conceptual networks, thematic clusters, co-citation patterns, and co-occurrence of terms. This complementary approach facilitated the systematic identification of the literature's evolutionary trends, thematic structures, and strategic research directions, thereby offering a robust empirical contribution to both the conceptual and practical advancement of sustainable marketing strategies.

To provide clarity on the methodological flow of the research, a document selection flowchart and the stages of the bibliometric analysis employed are presented in Figure 1.

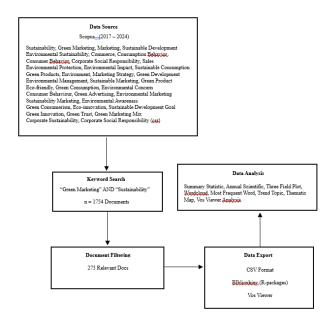


Figure 1. Research Methodology Flowchart

4. Results and Discussion Summary Statistics

This bibliometric analysis covers 2017 to 2024, and include 275 scholarly works drawn from 165 distinct sources, including both academic journals and books. Over this span, the annual growth rate of scientific output reached 15.27%, indicating a steady and sustained expansion in the field. On average, the documents analysed are 3.64 years old. Each work has received an average of 35.93 citations, while the cumulative number of references cited across the corpus amounts to 18,135.

From a content perspective, the dataset contains 534 Keywords Plus entries alongside 914 author-supplied keywords, underscoring both the depth and diversity of themes explored in the publications. In total, 785 authors contributed to the corpus, with 23 producing single-authored works. The average number of collaborators per publication is 2.99, and the rate of international collaboration stands at 28.36%. All documents in the dataset are categorised as peer-reviewed scientific articles (articles).

Summary Statistic			
Description	Results	AUTHORS	
MAIN INFORMATION ABOUT DATA		Authors	785
Timespan	2017:2024	Authors of single-authored docs	23
Sources (Journals, Books, etc)	165	AUTHORS COLLABORATION	
Documents	275	Single-authored docs	24
Annual Growth Rate %	15,27	Co-Authors per Doc	2,99
Document Average Age	3,64	International co-authorships %	28,36
Average citations per doc	35,93	DOCUMENT TYPES	
References	18135	article	275
DOCUMENT CONTENTS			
Keywords Plus (ID)	534		
Author's Keywords (DE)	914		

Figure 2. Summary Statistics

Source: Scopus database, processed with Biblioshiny (R-package)

The bibliometric analysis covering the period from 2017 to 2024 encompassing 275 scholarly articles authored by a total of 785 researchers reveals the considerable academic attention devoted to environmentally oriented marketing issues. Collaboration levels are notably high, with an average of nearly three authors contributing to each publication, and 28.36% of these works involving international co-authorship. Such figures highlight that environmental sustainability is far from being a matter of localised concern; rather, it has firmly established itself within the broader framework of global scholarly discourse. This observation strengthens the case that green marketing strategies carry not only conceptual significance in academic research but also exert a tangible influence on modern business practice.

The capacity of green marketing strategies to enhance environmental performance while reinforcing a company's competitive position has been evidenced by empirical research conducted by Ismail, Ahmad, and Jafar (2023). Their conclusions resonate with the prevailing trajectory observed within the bibliometric corpus, which points to the strategic importance of internal approaches to green marketing. Equally telling is the growing frequency of sustainability- and green strategy-related keywords 914 in total featured by authors in this field. This surge suggests that sustainability considerations are assuming an ever-greater role in shaping consumer behaviour. As public awareness expands, businesses face mounting pressure to embed sustainability principles into the very core of their operational processes, a pattern that is further substantiated by the empirical findings reported by Ismail et al. (2023)

Annual Scientific Production

The figure above portrays the evolution of annual scholarly output from 2017 to 2024. In 2017, the number of publications stood at roughly 27, yet this figure dropped considerably in 2018, reaching only about 15. From 2019 onwards, however, a steady upward trajectory became evident beginning once again with around 27 publications and rising incrementally each subsequent year, attaining approximately 32 by 2022. A pronounced increase was observed in 2023, when the volume exceeded 40 publications, before culminating in 2024 with more than 70 scholarly contributions, marking the highest level recorded within the period under review.

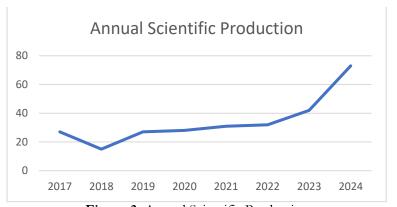


Figure 3. Annual Scientific Production

Source: Scopus database, processed with Biblioshiny (R-package)

Fluctuations in scientific output during the years 2017–2020 were most plausibly the outcome of shifting internal policies, episodes of institutional restructuring, and the recalibration of research strategies. The marked downturn in 2018 may reasonably be read as a transitional episode temporary in duration, yet significant in its implications for the research environment.

Between 2019 and 2022, the overall trajectory reveals a gradual, though steady, upward movement. This pattern is suggestive of a stabilising research ecosystem, underpinned by firmer institutional support and the gradual consolidation of cross-disciplinary collaborations. It is worth noting that the onset of the COVID-19 pandemic did not immediately translate into an upward spike in output. Even so, the digital transformation it precipitated proved decisive: by accelerating the adoption of technological platforms, it allowed the continuity of scientific productivity in the face of an unprecedented disruption. As highlighted in the work of Alkhatib et al. (2023), this transformation may be regarded as one of the most enduring legacies of the pandemic in reshaping the contours of modern scholarship.

The sharp rise beginning in 2023 and culminating in 2024 marks, by contrast, a phase of exponential growth. This development points to the cumulative effect of long-term investment, the readiness of research infrastructures, and the capacity of institutions to respond strategically to global challenges. It may also be interpreted as evidence of a successful transition towards a research system that is more adaptive, technologically embedded, and receptive to openness.

Taken together, the trajectory of scientific production across this period cannot be disentangled from its wider global and institutional contexts. More importantly, it illustrates a broader lesson: crises, though disruptive, can become catalysts for growth—provided they are met with foresight, resilience, and a strategic vision extending beyond the immediate horizon.

Three-Field Plot

The visualisation of the connections among the most influential references, leading authors, and key themes in the sustainable marketing literature points to a web of intellectual linkages that is at once intricate and carefully structured. Taken together, these three dimensions shape a scholarly ecosystem that strengthens itself over time, illustrating how theoretical foundations, individual contributions, and thematic orientations intersect in steering the direction and evolution of academic debate.

From the perspective of references (CR), (Ajzen, 1991) work on the Theory of Planned Behaviour stands out as the most central, marked by the highest number of outgoing connections. Its prominence makes clear that the theory has become a cornerstone for explaining consumer behaviour in relation to sustainability. Other influential contributions such as (Hair, 2010), with its emphasis on multivariate analysis, and (Kotler, 2011), who underlined the reinvention of marketing strategies in response to environmental challenges have likewise provided conceptual grounding for more recent studies.

When turning to the dimension of authors (AU), several names appear with particular visibility. Zhao X, Hafezi M, and Dangelico RM, for example, show strong connectivity with a range of core keywords. Their work demonstrates a consistent engagement with central themes such as sustainability, green marketing, and sustainable development, underscoring the steady role they have played in advancing this field.

The keyword analysis (KW_Merged) reinforces this picture. Terms such as sustainability, green marketing, and sustainable development remain dominant, pointing to the continued centrality of these three pillars in the marketing literature. At the same time, the emergence of related concepts green product, marketing strategy, and consumer behaviour—signals that the field is increasingly drawing on insights from multiple disciplines, suggesting a more integrated and comprehensive approach to sustainability.

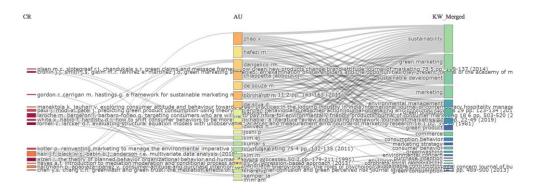


Figure 4. Three-Field Plot

Source: Scopus database, processed with Biblioshiny (R-package)

These findings reaffirm that the theory of planned behaviour remains the central framework for understanding how consumers respond to environmental issues, a point that was set out comprehensively in Ajzen's seminal work of 1991 (Ajzen, 1991). At the methodological level, the strength of this line of research is further reinforced by the use of advanced multivariate analytical techniques, as discussed by (Hair, 2010). At the same time, the strategic orientation towards sustainability has been sharpened over the years through the kind of integrated approach outlined by (Kotler, 2011).

Within this body of scholarship, a number of authors stand out as particularly influential. Among them, Zhao X, Hafezi M, and Dangelico RM have played a decisive role, especially in linking supply chain innovation with the principles of green marketing. The relevance of their work is clearly evident in the study by (Dangelico & Pujari, 2010), which demonstrates how eco-friendly innovation can provide a genuine source of competitive advantage.

The stability of the academic debate in this area is suggested by the dominance of key concepts such as sustainability, green marketing, and sustainable development. Yet the increasing appearance of additional notions most notably consumer behaviour and marketing strategy shows how the literature is attempting to embed sustainability as something intrinsic to the practice of contemporary marketing, rather than treating it as an external add-on.

Taken together, this paradigm lends further support to the argument that business strategies need to be repositioned in the direction of a green economy and greater resource efficiencyan agenda examined in depth by (Putri Mahadi et al., 2024). In this respect, marketing

no longer functions merely as a tool of communication. Instead, it is reimagined as a strategic vehicle, one that is capable of driving structural transformations towards forms of development that rest upon ecological as well as social values of sustainability.

Wordcloud

The findings of the word cloud analysis, obtained through a bibliometric approach, highlight the dominance of "sustainability" as the most salient keyword in scholarly work on green marketing. Its size and central placement suggest that the notion of sustainability has become the pivotal axis of academic discourse in this area.

Moreover, the terms "green marketing" and "sustainable development" stand out prominently, reflecting a consistent research orientation towards embedding environmental principles in marketing strategies, alongside a firm commitment to sustainable development. Other terms, including "marketing", "consumer behaviour", "corporate social responsibility", and "environmental sustainability", also hold significant positions, indicating the strong interconnectedness of marketing with ethical, social, and ecological dimensions.

The appearance of expressions such as "green products", "environmental management", and even critical notions like "greenwashing" further broadens the discursive spectrum, signalling an academic concern with both authentic and contested practices in the realm of sustainable marketing.



Figure 5. Wordcloud

Source: Scopus database, processed with Biblioshiny (R-package)

The prevalence of terms such as sustainability, green marketing, and consumer behaviour in bibliometric visualizations suggests that contemporary marketing is increasingly anchored in ecological imperatives and the principles of sustainable development. The conspicuous prominence of green marketing not only reflects a conceptual emphasis but also indicates growing attention to green innovation strategies aimed at fostering more responsible market behaviours.

Recent research demonstrates that the effectiveness of approaches such as Green Innovation and Marketing Strategies (GIMS) is highly dependent on the context of application, encompassing both the type of product and the psychological and social dynamics of the targeted consumers. Within this framework, environmentally-oriented product attributes, sustainable promotional strategies, and eco-labeling practices have been identified as pivotal factors shaping consumer preferences toward more environmentally friendly choices, as highlighted in the comprehensive study by (Huang et al., 2024).

Accordingly, this visualization does more than merely map key terminology within the literature; it underscores the significance of integrating strategic and ethical dimensions in sustainable marketing, demanding careful attention to context and precision in implementation.

Most Frequent Word

The bibliometric analysis, as depicted in the graph, reveals that the term "sustainability" holds a markedly dominant position within the terminological landscape of the related literature, with its occurrence notably exceeding 140 instances. This prevalence underscores its central role in academic discourse, reflecting both the breadth of its applicability and its enduring relevance across diverse research contexts.

Following closely is "green marketing," which appears over 100 times, with "marketing" in third place at over 60 occurrences. The prominence of these terms highlights the increasingly sophisticated engagement with green marketing within scholarly discussions. At a

slightly lower tier, terms such as "sustainable development" and "commerce" appear around the 50s, suggesting targeted yet meaningful attention from researchers.

Meanwhile, terms including "environmental sustainability," "consumer behaviour," "green products," "corporate social responsibility," and "environmental management" occur less frequently, each appearing fewer than 30 times. Despite their lower counts, these terms remain significant, reflecting important conceptual dimensions that continue to shape the broader conversation on sustainability.

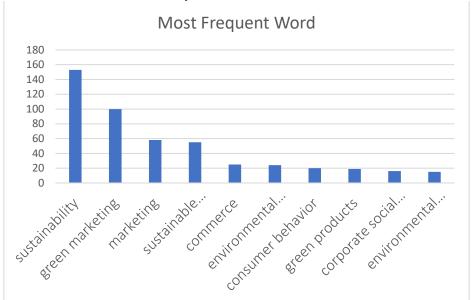


Figure 6. Most Frequent Word

Source: Scopus database, processed with Biblioshiny (R-package)

The bibliometric analysis shows that research on green marketing is still predominantly framed within strategic perspectives, with particular emphasis on terms such as sustainability, green marketing, and marketing. This suggests that marketing is increasingly being understood as a pivotal tool in advancing the shift towards more ecologically responsible patterns of consumption and production.

By contrast, the relatively limited presence of terms like consumer behaviour and corporate social responsibility indicates that the social and psychological dimensions of sustainability remain somewhat overlooked. In practice, disparities in consumer knowledge and behaviour unevenly distributed across regions and demographic groups continue to act as real barriers to the wider and more equitable diffusion of sustainability values, as illustrated in the recent study by (Judijanto et al., 2024).

The effectiveness of green marketing campaigns also appears far from uniform, varying considerably depending on the social context in which they are embedded. In many cases, it is precisely this context that determines whether such initiatives succeed or fail in prompting meaningful behavioural change. Taken together, these findings highlight the importance of examining the educational and sociocultural mechanisms through which public responses are shaped, a point underscored by (Judijanto et al., 2024).

Trend Topic

The temporal visualisation in the graph traces the evolving use of key terminologies in the green marketing and sustainability literature between 2017 and 2024. In the early phase, spanning 2017 to 2019, the emergence of terms such as "green product", "product design", and "environment" pointed to the establishment of a conceptual foundation rooted in the ecological and technical dimensions of sustainability. Although their frequency of occurrence remained limited, these topics suggest that the literature at this stage was largely structural in orientation and product-centred in focus.

A noticeable shift occurs in the intermediate phase, from 2020 to 2022. During this period, terms such as "sustainability", "green marketing", and "marketing" appear with the greatest intensity, as indicated by the larger bubble sizes. This pattern reflects a moment when sustainability discourse crystallised into the central narrative of marketing strategies, moving beyond its earlier role as a supplementary attribute.

In the most recent phase, from 2022 to 2024, scholarly attention has begun to pivot towards the behavioural and social dimensions of sustainability. Terms such as "consumer

behaviour", "social media", and "green purchase intention" gained prominence, marking a shift towards a more nuanced understanding of consumer perceptions and responses. At the same time, concepts such as "corporate social responsibility" and "greenwashing" entered the discussion, broadening the debate by introducing ethical considerations and questions of public legitimacy.

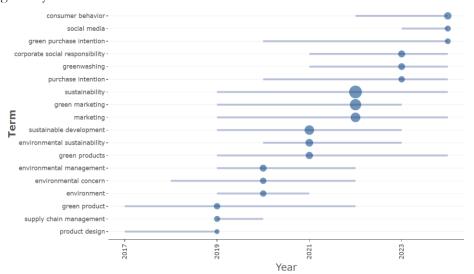


Figure 7. Trend Topic

Source: Scopus database, processed with Biblioshiny (R-package)

The analysis shows a clear shift in academic focus, moving away from purely technical concerns towards more strategic and social orientations in the study of sustainable marketing. Early discussions often revolved around themes such as green product and environment, reflecting attention to the ecological dimensions of products. Yet, in recent years, scholars have increasingly turned their attention to consumer behaviour, social media, and green marketing, signalling a stronger concern with public perception and the dynamics of communication.

This shift suggests that sustainability is no longer understood merely as a product attribute but as part of corporate identity and a strategic instrument that connects economic objectives with social and environmental values. In this sense, sustainable marketing has moved beyond a transactional focus, carrying with it a layer of social responsibility that now informs business communication practices.

As discussed in the literature, such an approach requires sustainability principles to serve as a normative framework for economic practice across the private sector, public policy, and regional institutions. This perspective, examined in depth by (Ahidin, 2019), positions sustainable marketing as a medium through which the creation of customer value can be aligned with broader social and ecological concerns.

Taken together, the patterns emerging from the bibliometric visualisation reinforce the idea that sustainability has developed into a multidimensional strategic discourse rooted in values, socially oriented, and shaped by ethical sensitivity.

Thematic Map

This thematic map outlines a distinctive conceptual configuration in the field of green marketing research, built around two key axes: centrality, which shows the degree of thematic relevance, and density, which indicates how far a theme has been developed. Themes such as green products, commerce, and sustainable development appear as the main gravitational centres in the motor themes quadrant, reflecting not only broad influence but also a relatively high level of conceptual maturity.

In contrast, themes like green marketing, consumer behaviour, and sustainability are placed within the basic themes category important, certainly, but not yet fully consolidated. This suggests that these areas still leave room for more detailed theoretical work. Niche themes such as the theory of planned behaviour reveal solid methodological grounding, although their connections to the wider debate remain somewhat limited. Meanwhile, themes that fall into the emerging or declining quadrant eco-labelling and fast fashion, for instance seem to remain in an unstable conceptual phase, which makes their future trajectory less predictable.

Altogether, these findings point to a scholarly landscape that is far from static. It is shaped, on the one hand, by dominant themes that are steadily becoming more strategic and, on the other hand, by peripheral issues that though less developed may open up interesting opportunities for new directions of research.

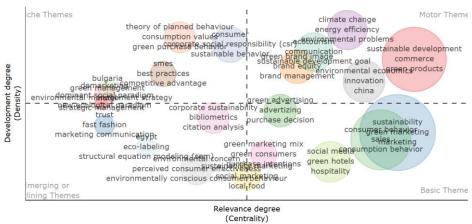


Figure 8. Thematic Map

Source: Scopus database, processed with Biblioshiny (R-package)

The findings presented in this thematic map indicate a shift in the epistemological basis of the sustainability discourse. Environmental issues, which were once discussed in isolation, are now more often analysed in connection with market dynamics and consumer behaviour. Themes such as green marketing, commerce, and sustainable development, located within the quadrant of motor themes, strongly suggest that sustainable marketing strategies have grown into something of a new epicentre in the literature both in terms of their relevance and the extent of the discussion they receive (Huang et al., 2024).

The presence of green marketing at the centre is telling. It shows that marketing practices which integrate ecological values are no longer just an ethical or moral stance, but have become systematic and even fairly practical strategies in business. In other words, environmentally oriented marketing is not only about polishing brand image; it also concerns the restructuring of economic value, carried out through ecologically responsible products and modes of communication (Huang et al., 2024). For that reason, green marketing responds to market demands while at the same time pushing companies towards a kind of ethical leadership in today's increasingly environmentally aware global market.

Yet the map also makes clear that there remains a conceptual gap between the main themes and other clusters that appear more on the margins eco-labelling, marketing communication, or even fast fashion which are shown in the quadrant of emerging or declining themes. This separation implies that certain aspects, especially those connected with everyday consumer practices and perceptions at the micro level, have not been given sufficient attention. And this is somewhat unfortunate, since such themes arguably hold substantial potential to enrich interdisciplinary approaches, particularly in bridging the social, economic, and cultural dimensions.

Looking forward, research should not only seek to deepen themes that are already well established, but also work to design a more comprehensive integration between technical matters and socio-economic considerations. This corresponds with the view that sustainability is not simply an environmental target but rather a collective project one that demands cooperation across different sectors and from different perspectives. In this way, academic work would not only bring greater theoretical clarity, but also, ideally, make a real contribution to sustainability practices that are transformative in character both within the university world and in the more concrete realities of contemporary markets (Huang et al., 2024).

Vos Viewer Analysis

The keyword network visualization generated through VOSviewer shows that green marketing emerges as the most central term in the literature, surrounded by other prominent keywords such as sustainable consumption, consumer behaviour, and environmental sustainability. From this mapping, five thematic clusters can be observed, each pointing to a different strand of research ranging from digital marketing strategies and consumer behaviour aspects, to corporate social responsibility, supply chain management, and also environmental ethics.

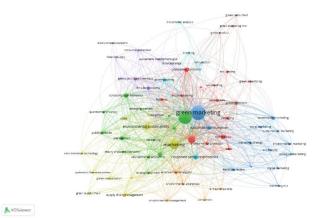


Figure 9. Vos Viewer Analysis Source: Scopus database, processed with VOSviewer.

This study shows that both environmental labelling and social nudges have considerable potential to influence consumers' food choices, even though they follow different mechanisms (De-loyde et al., 2025). In practice, social nudges tend to be simpler and easier to implement (De-loyde et al., 2025), whereas environmental labels provide consumers with more detailed and nuanced information (De-loyde et al., 2025), allowing them to make choices that reflect their values. Overall, while both approaches have been effective in encouraging more sustainable food choices, environmental labelling seems to perform slightly better (De-loyde et al., 2025) in the context of this experiment. That said, the challenges should not be overlooked. Many companies today use loosely regulated environmental labels as part of their marketing strategies, which can create confusion among consumers about how truly sustainable a product is (De-loyde et al., 2025). This situation clearly shows that transparency, along with proper regulation, is crucial to maintaining the credibility of sustainable marketing efforts.

5. Conclusions

This study has mapped the intellectual and thematic evolution of green marketing research over the period 2017–2024 using bibliometric analysis. By examining 275 peer-reviewed articles sourced from the Scopus database and visualised through Biblioshiny and VOSviewer, the analysis revealed a steady growth of 15.27% in annual publications, reflecting the increasing scholarly and practical significance of this field. The findings demonstrate that research on green marketing has gradually shifted from technical and product-oriented themes toward strategic, social, and behavioural dimensions. Five major thematic clusters were identified, encompassing consumer behaviour, corporate social responsibility, supply chain management, and communication strategies, underscoring the interdisciplinary nature of green marketing as both a research domain and a practical business approach.

The significance of these findings lies in their confirmation that green marketing has evolved into a central strategy for achieving environmental and social sustainability while enhancing competitiveness. The prevalence of concepts such as "sustainability," "green marketing," and "sustainable development" reflects the field's growing alignment with the United Nations Sustainable Development Goals. Beyond offering a conceptual framework, the study highlights the increasing role of green marketing in shaping consumer awareness, influencing purchasing behaviour, and positioning companies as socially and ecologically responsible actors in the marketplace.

In line with the research objectives, the study successfully identified dominant themes, traced the conceptual evolution of green marketing, and mapped the field's structural and strategic directions. The results affirm that sustainable marketing is no longer peripheral but is firmly integrated into contemporary business practices and academic discourse. In doing so, this research contributes to a deeper understanding of how marketing strategies can serve as drivers of sustainable transformation, bridging corporate objectives with wider socio-environmental imperatives.

Nevertheless, the study is not without limitations. The exclusive reliance on the Scopus database and English-language publications may have restricted the scope of representation, while the bibliometric approach, by nature, captures patterns of productivity and collaboration but does not fully reflect the theoretical depth of individual studies. To address these

gaps, future research should broaden its database coverage, extend the temporal scope to include earlier developments, and complement bibliometric techniques with qualitative methods such as content analysis or expert interviews. Moreover, incorporating non-Western and non-English scholarship would enrich the diversity of perspectives and provide more comprehensive insights into the global dynamics of green marketing.

In conclusion, the evolution of green marketing literature reveals its growing maturity as both an academic field and a strategic imperative for business. By embedding ecological and social values within marketing practices, organisations are not only advancing competitive advantage but also contributing to the broader global agenda of sustainability. Future inquiries that integrate multidisciplinary approaches, regional insights, and deeper theoretical engagement will further strengthen the capacity of green marketing to serve as a catalyst for meaningful environmental and social transformation.

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