

# Impact of Sustainable Techno-Marketing Strategies on MSME's Growth: A Bibliometric Analysis of Past Decade (2014-2024)

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**Abstract.** In a new era where the environment is a more significant concern and the market is more competitive, survival for MSMEs can be sustained through integrating sustainable practices with technological advancements. This paper carries out a holistic bibliometric analysis based on Scopus to investigate the changing scope of deceptive techno-marketing strategies for sustainability and their impact on MSME development in the last decade (2014-2024). By conducting a systematic literature review and analysis, this study identifies key themes, trends, and seminal work in the domain while showing how MSMEs can harvest sustainable practices with technological innovation and branding that must be helpful for their growth. The study focuses on dimensions like green marketing, digitalization, social media engagement and corporate social responsibility initiatives among MSMEs. It also analyzes the geographical distribution of research, mainstream perspectives and emerging gaps to provide pointers for future areas of investigation. This paper investigates the sustainable techno-marketing strategies for growing MSMEs. It collates extant knowledge and highlights areas for future research. It is essential reading for every policymaker, practitioner, and scholar. These lessons may prove beneficial in traversing what can often seem fast-paced and ever-evolving sustainable business practices through technological improvements.

**Keywords:** MSMEs, Sustainable techno-marketing strategies, Bibliometric analysis, Green marketing, Digitalization, Social media engagement, Sustainability, Technological innovations.

#### 1 Introduction

In today's business landscape, Micro, Small, and Medium Enterprises (MSMEs) face the imperative of integrating sustainable practices with advanced marketing technologies to foster growth and competitiveness. This paper undertakes a

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bibliometric analysis spanning the past decade (2014-2024) to investigate the role of sustainable techno-marketing strategies in driving MSME growth.

Supply chain management (SCM)-based strategies have been pivotal in enhancing core competencies and competitive advantages, particularly highlighted by Lee' [1] study on Korean manufacturing firms. Social media marketing (SMM) has proven transformative in emerging markets such as India, amplifying advertising capabilities and bolstering business sustainability [2]. Techno-marketing underscores the potential of digital tools to optimize operational efficiency.

Effective leadership is essential in the utilization of this technology and top management support has backed SMM tools for enhancing a high-performance operation utilizing sustainable business expansion [2]. Regional experiences for example in Africa illustrate the intersection between technology and market access; e.g. digital platforms for vaccine making [3]. Thus, techno-marketing strategies must factor in environmental considerations which can be observed through the sustainability and robustness of marketing practices employed by ventures such as Wayuu handicrafts, a commodity that benefits from marrying traditional best practices with modern technological tools [4].

The overview of this analysis makes it an attempt to assess the socio-economic implications of techno-marketing strategies in different geographical and sectoral contexts within MSME ecosystem. This paper gives an exhaustive discussion of the contemporary scenario and propositions how these strategies will evolve in terms of their roles within MSME operations. A bibliometric review that synthesizes the literature on sustainable techno-marketing of the last decade, it offers insights for stakeholders from academia and businesses to guide future research in contributing towards increased global resilience (sustainability) amongst MSMEs.

#### 2 Review of Literature

Different studies highlight specific dimension of sustainable growth and innovation in the changing landscape of business strategies and competitive dynamics for SMEs

This paper specifics the evolving use of social media by enterprise companies, SMEs to business development [5] shedding much gentler on-line-lamp marketing and its critical position in online advertising. Drawing on their customer behaviour and perception quantitative studies, they found that sustainable shopping can greatly boost an SMEs online presence when deploying the appropriate marketing techniques. Similarly, Tovma [6] discusses the integration of development and sustainability in assessing regional and local processes, focusing on the competitiveness of regions in Kazakhstan. The study underscores supply chain management as a crucial indicator of regional competitiveness.

Cheng J. H [7] underscore the significance of new technologies and product developments for the long-term competitiveness of SMEs. They introduce the "Technology Diamond Model (TDM)" and "Technology, Product, and Marketing" Strategy (TPM), offering a systematic approach for planning product and technology

developments aligned with market and customer requirements. The opportunities presented by social commerce, highlighting its low marketing costs and sales orientation while acknowledging challenges such as intense competition and the risk of obsolescence due to rapid internet and mobile technology growth [8].

Laila [9] focus on the intentions of SME owners in Malaysia and Indonesia to participate in waqf, using the theory of planned behavior. Their study finds that marketing competency significantly influences marketing innovation, which in turn predicts sustainable competitive advantage. Khattak [10] investigates the impact of digital platforms, innovation culture, and e-commerce marketing capabilities on the innovation performance of SMEs in Pakistan, highlighting the importance of self-motivated innovation and intellectual property (IP) assessment for business success.

Ahmed R. [11] explore guerrilla marketing techniques such as viral marketing, strange occurrences, street graphics, and memorable events, noting their positive influence on purchase decisions. Brand awareness mediates this influence, while technology moderates it, leading to a suggested modified model of guerrilla marketing for future researchers "Supply Chain Management" (SCM) strategies significantly influence the operational performance of SMEs in Korea, with organizational competencies playing a significant role [1]. Additionally, "Social Media Marketing" (SMM) tools significantly contribute to sustainable growth in emerging economies like India, with strong SME leadership support being crucial.

Hassan S.H. [12] examine "Social Customer Relationship Management" (s-CRM) performance in SMEs owned by Muslims, noting that information and communications technology (ICT) adoption directly and indirectly impacts s-CRM performance. The study emphasizes the importance of s-CRM in improving interactions with key stakeholders and promoting customer-centric practices. Finally, Nuseir M.T. [13] highlights the benefits of digital media adoption driven by the internet's rapid growth for SMEs in the UAE, while also noting challenges such as increased competition and pressure on prices and profit margins. The study calls for future research to explore digital media's impact in other regions and develop strategies to mitigate potential disadvantages.

### 3 Methodology

The bibliometric approach used in this article aims to construct a detailed and systematic analysis of all available points related to the studied subject by making use of comprehensive data collections over an extended period, thus providing an overall insight into research [14]. This is a novel approach opposed to traditional systematic literature reviews that analyzes the various themes using abundant bibliometric and textual data.

We performed a co-citation analysis, which is one of the most reliable bibliometric methods available for understanding how scientific publications relate to each other. This approach is useful to identify how close are the documents which get cited frequently together and thereby thematic progressions, trendlines across area of studies

being mapped out [15] [16]. Co-citation analysis can also recognize new research trends and helps to build a fundamental academic network on the subject.

To further assist our co-citation analysis, we carried out a keyword frequency based-co-occurrence study and illustrated the visual representation of its network diagram. This assists in finding thematic clusters -the key constituents of the subject under research- with an interpretation on term frequency to better comprehend theoretical relationships among working academics [17], [18]. By compiling the core vocabulary of her research, this methodology picks up on all its major components.

Search strategy A search was conducted in SCOPUS Core Collection considering the titles, abstracts and keywords between 2014-2024 to capture every publication on this subject. All our searches were restricted to English and hence ensured that only quality scientific articles made it through. The retrieval technique adhered to the "Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA)" flowchart [19], which comprehensively guides the selection of related studies. The dataset comprised 92 publications evaluating the effect on MSME growth related to sustainable techno-marketing methods after screening and deduplication.

We carefully cleaned the data to remove duplications, variations (in particular across author names and journal titles), most importantly trying to make sure that everything is correct. Subsequently, we used the R Bibliometrix package that is a famous tool for managing and displaying bibliographic data [20], [21]. The accompanying Biblioshiny application had an intuitive design that greatly facilitated the integrative analysis and data visualization.

Our study fills this gap by conducting a comprehensive evaluation of the effects sustainable techno-marketing strategies imposed on MSME growth over recent years, using advanced bibliometric methodologies. This approach allows for a comprehensive review of the academic literature in this field while providing an understanding of developments and trends in this area, the research Criteria is shown in the table 1 below.

Databases
Scopus
Digital, Online, Electronic, HRM, HRP, HR, Human
Resource, MSME, Small Business.

Search Within
Topic ("Title, Abstract and Keywords")

Document Type
Articles, Conference Papers, Book Chapters

Publication Year
2014-2024
Language
English

Table 1. Research Criteria.

Source: Created by Author.

The research criteria utilized for conducting a systematic search within the Scopus database. The search focuses on articles, conference papers, and book chapters published between 2014 and 2024. The keywords used include "Digital," "Online," "Electronic," "HRM," "HRP," "HR," "Human Resource," "MSME," and "Small Business," with the search limited to the topic, encompassing the "title, abstract, and

keywords" of documents. The language of the documents is restricted to English. These criteria ensure a comprehensive exploration of research literature related to digital and electronic human resource management in the context of MSMEs and small businesses.

#### 4 Results

#### 4.1 Descriptive Inferences

This report provides a 360 degree of business environment analysis and its impact from both short term and long-term marketers with the techno-growth strategies in MSMEs. Data from Biblioshiny illustrating the relationship between yearly scientific output and field mean number of citations. 2021 had the highest number of articles, and 2019 represented both the high-water mark for mean citations per article.

Table 2 and Figure 1(a) and 1(b) below present the growth of publications and references on impact of sustainable techno marketing strategies over MSME growth (2014-2024) the image the graph is scientific output (projects produced per year) versus average citations in that field.

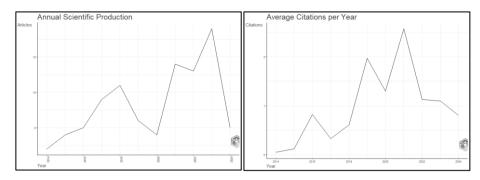
In the year 2021, there were a total of 14 papers appeared in budgeted journal volumes showed as being indicative for obvious peak in scientific activities. On the other end, 2019 displayed highest average citations per article (11.83) demonstrating high impact of articles published that year. This total dropped over time, as measured by the Citable Years metric a natural decline in impact since new research was published on related topics.

This extensive review indicates variation in trends of research output and impact over the given investigation endurance, highlighting an insight on transforming academic attention towards sustainable techno-marketing strategies for MSME growth.

Year	MeanTCperArt	N	MeanTCperYear	CitableYears
2014	0.5	2	0.05	11
2015	1.25	4	0.12	10
2016	7.4	5	0.82	9
2017	2.67	9	0.33	8
2018	4.27	11	0.61	7
2019	11.83	6	1.97	6
2020	6.5	4	1.3	5
2021	10.29	14	2.57	4
2022	3.38	13	1.13	3
2023	2.21	19	1.1	2
2024	0.8	5	0.8	1

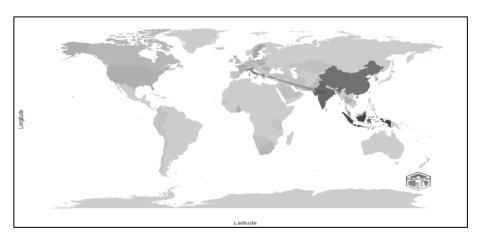
Table 2. Annual Scientific Production

Source: Created by Author using Biblioshiny.

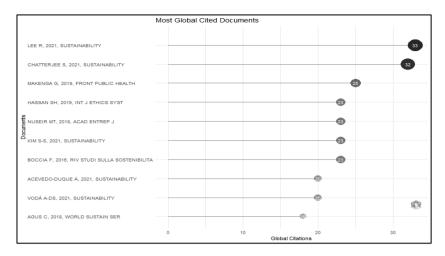


**Fig. 1. (a)**: Annual Scientific Production & **Fig. 1. (b)**: Annual average number of citations in impact of sustainable techno-marketing techniques on the growth of MSMEs. Source: Created by Author using Biblioshiny.

The nationwide collaboration map of a specific field shows the cooperation between countries across the globe as illustrated in figure 2 below. The map visualizes the amount of research publication per country in that field using a colour gradient. Color scale goes from light blue (less publication) to dark blue (higher productivity), In addition, thick pink line shows a good co-operation between India-Italy and thin Pink lines shows support of Indonesia-Malaysia.



**Fig. 2.** Map illustrating global collaboration in research on impact of sustainable technomarketing techniques on the growth of MSMEs. Source: Created by Author using Biblioshiny.



**Fig. 3.** Ranks the top 10 most cited articles on the impact of sustainable techno-marketing techniques on MSME growth. Source: Created by Author using Biblioshiny.

Figure 3 highlights the most globally cited papers on sustainability, emphasizing their significant impact in academia. Leading the list is Lee R's (2021) paper in "Sustainability" with 33 citations, followed closely by Chatterjee S's (2021) paper in the same journal with 32 citations. Makenga G's (2019) paper in "Front Public Health" has 25 citations, while Hassan SH (2019) in "Int J Ethics Syst," Nuseir MT (2018) in "Acad Entrep J," and Kim S-S (2021) in "Sustainability" each have 23 citations. Boccia F's (2016) paper in "Riv Studi Sulla Sostenibilita" also maintains relevance with 23 citations. Acevedo-Duque Á (2021) and Vodă A-DS (2021), both in "Sustainability," have 20 citations each, and Agus C's (2018) paper in "World Sustain Ser" has 18 citations. The recurring presence of "Sustainability" as the journal for many top-cited papers underscores its pivotal role in disseminating influential research in this field.

Authors Articles Fractionalized Articles 0.7 ANGGRAINI W CHENG J-H 2 1 KASEMSAP K 2 2 2 LIU S-F 1 SHARMA A 2 0.83333333 ZHANG D 2 0.36666667 ABBAN R 1 0.5 ABEBE GK 1 0.5 ACEVEDO-DUQUE Á 1 0.125 0.33333333 ADDO JF 1

Table 3. Most Relevant (Productive) Authors

Source: Created by Author using Biblioshiny.

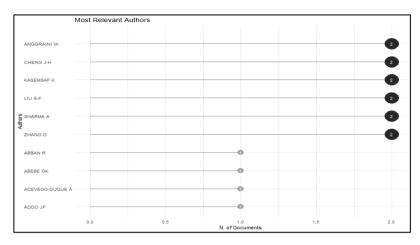


Fig. 4. the top 10 authors with the most publications on sustainable techno-marketing techniques and MSME growth. Source: Created by Author using Biblioshiny.

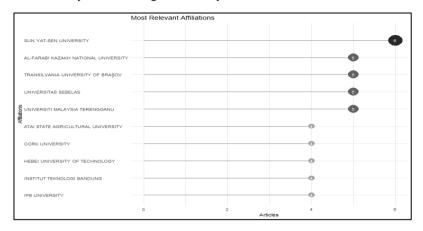
Table 3 and figure 4 lists the most relevant (productive) authors in terms of their contributions to the field. Each author has published multiple articles, and the "Articles Fractionalized" column represents their share of authorship in these publications, accounting for co-authorship. Anggraini W, Cheng J-H, Kasemsap K, Liu S-F, Sharma A, and Zhang D each have published 2 articles. Among them, Kasemsap K has a full fractionalized score of 2, indicating sole authorship or full contribution to both articles. Cheng J-H and Liu S-F both have a fractionalized score of 1, suggesting significant contributions to their articles. Sharma A has a fractionalized score of approximately 0.83, and Zhang D has the lowest at 0.37, indicating shared authorship with others. Additionally, Abban R, Abebe GK, Acevedo-Duque Á, and Addo JF have each published 1 article, with fractionalized scores reflecting partial authorship. Acevedo-Duque Á has the smallest fractionalized score of 0.125, implying substantial coauthorship.

Table 4. Most Productive (Relevant) Institutions

Affiliation	Articles
"SUN YAT-SEN UNIVERSITY"	6
"AL-FARABI KAZAKH NATIONAL UNIVERSITY"	5
"TRANSILVANIA UNIVERSITY OF BRAŞOV"	5
"UNIVERSITAS SEBELAS"	5
"UNIVERSITI MALAYSIA TERENGGANU"	5
"ATAI STATE AGRICULTURAL UNIVERSITY"	4
"CORK UNIVERSITY"	4
"HEBEI UNIVERSITY OF TECHNOLOGY"	4
"INSTITUT TEKNOLOGI BANDUNG"	4

## "IPB UNIVERSITY" 4

Source: Created by Author using Biblioshiny.



**Fig. 5.** Top 10 Institutes with the highest number of Articles on sustainable techno-marketing techniques on the growth of MSMEs. Source: Created by Author using Biblioshiny.

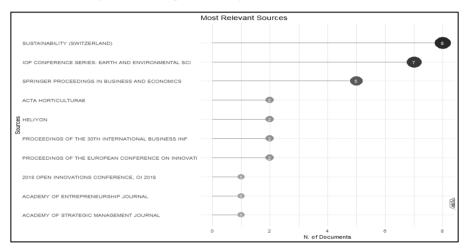
Table 4 and figure 5 showcases the universities that have published the highest number of articles on a particular subject. At the top of the list, "SUN YAT-SEN UNIVERSITY" leads with six articles, suggesting a strong research focus in this area. Following closely are "AL-FARABI KAZAKH NATIONAL UNIVERSITY," "TRANSILVANIA UNIVERSITY OF BRAŞOV," "UNIVERSITAS SEBELAS," and "UNIVERSITI MALAYSIA TERENGGANU," each contributing five articles. The table also highlights other significant contributors, including "ATAI STATE AGRICULTURAL UNIVERSITY, CORK UNIVERSITY," "HEBEI UNIVERSITY OF TECHNOLOGY," "INSTITUT TEKNOLOGI BANDUNG", and "IPB UNIVERSITY," all of which have published four articles each. This table effectively identifies the institutions that are most actively engaged in research in the relevant field, underlining their key roles in academic contributions and development.

**Table 5.** Top journals in the context of impact of sustainable techno-marketing techniques on the growth of MSMEs (Most Productive Journals).

	Article				
Sources					
"SUSTAINABILITY (SWITZERLAND)"					
"IOP CONFERENCE SERIES: EARTH AND ENVIRONMENTA	AL				
SCIENCE"	7				
"SPRINGER PROCEEDINGS IN BUSINESS AND ECONOMICS"					
"ACTA HORTICULTURAE"					
"HELIYON"	2				
"PROCEEDINGS OF THE 30TH INTERNATIONAL BUSINE	SS				
INFORMATION"	2				

"PROCEEDINGS	OF	THE	EUROPEAN	CONFERENCE	ON			
INNOVATION"						2		
"2018 OPEN INNOVATIONS CONFERENCE, OI 2018"						1		
"ACADEMY OF ENTREPRENEURSHIP JOURNAL"						1		
"ACADEMY OF STRATEGIC MANAGEMENT JOURNAL"								
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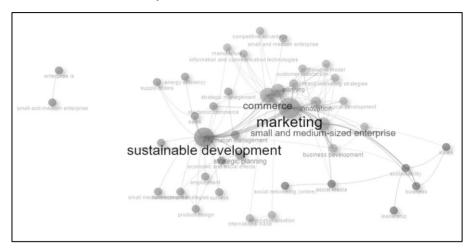
Source: Created by Author using Biblioshiny.



**Fig. 6.** Top 10 Journals with highest publications on sustainable techno-marketing techniques on the growth of MSMEs. Source: Created by Author using Biblioshiny.

Table 5 and figure 6 outlines the leading academic journals publishing research in the field of sustainable techno-marketing strategies aimed at enhancing the growth of micro, small, and medium enterprises (MSMEs). The journal "Sustainability (Switzerland)" emerges as the most prolific, with eight articles, indicating a significant focus on sustainability issues within the context of marketing and business growth. "IOP Conference Series: Earth and Environmental Science" follows with seven articles, underscoring its relevance to environmental aspects of business operations. "Springer Proceedings in Business and Economics" also features prominently, contributing five articles that blend business strategies with economic sustainability. Additionally, journals like "Acta Horticulturae," "Heliyon," and several proceedings from international business and innovation conferences each report a handful of articles, demonstrating a broad interest and diverse approach to integrating sustainability into business practices for the growth of MSMEs. This table highlights the academic platforms that are most active in disseminating research in this evolving field.

#### 4.2 Co-occurrence analysis:



**Fig. 7.** An examination of the co-occurrence of keywords in a network. Source: Created by Author using Biblioshiny.

In the co-occurrence analysis given in figure 7, categorizes relevant terms into five clusters, each reflecting distinct thematic focuses within the literature. Cluster 1 shown in red colour centers on "digital" and "social media's impact on sustainability and business," highlighted by the term "sustainability" which serves as a critical connector. Cluster 2 in blue colour delves into sustainable business practices, with "sustainable development" acting as a pivotal term linking various sustainability topics. Cluster 3 in green colour is concerned with marketing and enterprise growth, with terms like "marketing" and "commerce" playing central roles in discussions on competitive strategies and business development. Cluster 4 in violet colour appears more isolated, focusing on specific business studies terms that do not widely connect with other themes. Finally, Cluster 5 in light orange colour emphasizes international business, dealing specifically with "international trade" and "internationalisation," indicating a focus on global business dynamics. Each cluster thus encapsulates a unique facet of the research field, illustrating how different concepts interact and dominate discussions within specific contexts.

#### 5 Conclusion and limitations

This decade-long (2014–2024) bibliometric analysis sheds light on the probable possibilities and inclinations in sustainable techno-marketing strategies, influencing MSMEs growth. Based on our extensive literature review, it indicates that these sustainable techno-marketing practices have been emerging over time and being gradually adopted by MSMEs following various technological advancements as well as changing consumer preferences along with increasing environmental awareness.

The study confirms a positive relationship between sustainable techno-marketing strategies and growth of MSME. Key findings include:

- 1. The high growth of publications on sustainability techno-marketing in the context of MSME since 2018, demonstrating a burgeoning level of academic and practical concern for this issue.
- 2. Rollout of digital platforms, social media marketing and data analytics as potent tools for MSMEs working on budget-friendly yet environment friendly promotional campaigns.
- 3. The change from single large scale targeting to focused personalized marketing techniques empowered by Technology leading to better customer engagement and retention for MSMEs.
- 4. The increasing significance of green marketing and sustainability in forming brand identity & winning the share of mind with eco-friendly consumers.
- 5. Overview of Challenges: There are various problems that small and medium enterprises face like lack of resources, technical knowledge base, cost for initial implementation.

However, this study has limitations. It relies on data from specific databases, potentially missing relevant literature. Search parameters and keyword biases may overlook studies published outside the designated period or in non-English languages. The analysis focuses mainly on quantitative metrics like publication numbers and citation rates, neglecting qualitative aspects of sustainable techno-marketing's impact on MSME growth. Future research should employ comprehensive search strategies, integrate qualitative methods, and explore emerging trends in sustainable technomarketing's influence on MSME growth that this study did not address.

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