

Article

# Analyzing knowledge management practices for sustainable business: a bibliometric approach

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**Abstract:** This research delves into the intersection between knowledge management and sustainability, addressing the growing interest in this area. A comprehensive bibliometric review is conducted, analyzing 1100 peer-reviewed journal articles published between 1995 and 2023. The study explores various research constituents and uncovers underlying themes that shape the field. The findings reveal diverse foundational and thematic clusters, such as informed sustainability practice and ecological knowledge, which drive knowledge creation and innovation. These clusters intersect, highlighting the multifaceted role of knowledge management in advancing sustainability. The study concludes by proposing a new theoretical framework to encapsulate current understanding and guide further exploration, emphasizing the need for continued innovation to tackle the complex sustainability challenges organizations and society face.

**Keywords:** Knowledge Management; Sustainable Business Practices; Bibliometric Analysis; Emerging Trends; Sustainability in Business;

**Classification-JEL:** X00; P02; N45

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## INTRODUCTION

Incorporating environmental, social, and economic factors into business practices is crucial for ensuring long-term viability while minimizing adverse effects on society and the environment. The concept of sustainable business emerged in response to growing concerns about environmental degradation and social inequalities resulting from traditional business practices (Jenei & Kiss, 2019).

Sustainable business has the potential to drive innovation, bolster brand reputation, attract investors, and mitigate the risks associated with climate change and limited resources, leading to various governments and organizations enacting laws and initiatives to foster sustainable business practices. Scholars and practitioners have proposed the sustainable business model, emphasizing the triple bottom line framework, which addresses economic, social, and environmental aspects (Beske, Land & Seuring, 2014).

Knowledge management plays a vital role in sustainable business by facilitating the sharing and integrating information, expertise, and best practices across organizational functions. Effective knowledge management enables companies to learn from past experiences, anticipate future challenges, and continuously improve towards sustainability goals (Vrabcová, Urbancová & Petříček, 2022). Organizations can leverage internal expertise, capture tacit knowledge, and facilitate collaboration by managing knowledge effectively, leading to sustainable competitive advantages (Del Corso, Kephaliacos & Plumecocq, 2015). The relationship between management and sustainable business is interwoven, with knowledge management playing an increasingly significant role in driving sustainability initiatives and facilitating organizational learning. A comprehensive review of knowledge management practices for sustainable business highlights their intertwined nature and evolving significance in addressing contemporary business challenges (Roxas & Chadee, 2016).

Table 1 contains a review about the impact of knowledge management practices on sustainable business that is evidenced by the growing number of relevant publications in scientific journals from 1995 to 2023. Most literature centers on theoretical frameworks and concepts, with few empirical studies. Furthermore, a proposed framework aims to seamlessly integrate corporate sustainability into strategic management, considering internal and external drivers and facilitators and barriers to integration.

In Figure 1, we can observe a conceptual representation of Knowledge Management Systems (KMS) as a process model focusing on three distinct sustainability domains: Environmental preservation, social accountability, and economic viability. As mentioned before, harmoniously integrated business practices at every level, resulting in a sustainable equilibrium within the triad, strategic competitive advantage, and enhanced corporate performance.

## METHODOLOGY

The study used Scopus database, as it is widely recognized as one of the most used databases in literary research. The choice to use the Scopus database was motivated by its extensive and comprehensive content coverage, as noted by Pranckutė (2021). Scopus is particularly noteworthy for its separate author, series, and institution profiles, which enhance its practicality and ease of use. Additionally, the indicators used by Scopus are comparable or even superior to those provided by other databases like Web of Science, with the added benefit of being less susceptible to manipulation. It is worth noting that Scopus offers unrestricted access to author and source details and various metrics.

The open-access software package VOSviewer (1.6.20) provides unlimited analysis capabilities for bibliometric mapping and visualization of data downloaded from Scopus and used for systematic analysis. The Visualization of Similarities (VOS) algorithm allows the visualization of direct and indirect relationships between elements and the proximity of entities in the network map.

The chosen methodology for article selection and analysis is Systematic Literature Network Analysis (SLNA), which involves a bibliometric review in its initial phase. This phase emphasizes diversity through critical characteristics such as transparency, inclusiveness, and an explanatory and heuristic nature, distinguishing it from other literature review methodologies (Tranfield, Denyer & Smart, 2003). These attributes are crucial in facilitating a more objective evaluation of search results and mitigating potential biases.

The SLNA methodology is illustrated in Figure 2 and comprises two primary phases. The initial step involves conducting a systematic literature review (SLR) to define the investigation scope and identify relevant studies that will subsequently inform the second step, which involves analyzing and visualizing bibliographic networks. The SLR method (Rousseau et al., 2008) aids in identifying and selecting pertinent papers for subsequent

secondary data analysis. Additionally, the Context, Intervention, Mechanism and Outcome framework is employed to craft research inquiries and specify the extent of analysis. To explore the intersection between Knowledge Management and Sustainability Business research streams, we conducted a bibliographical overview by identifying relevant studies through targeted keyword searches. The present study employed the SLNA methodology (Figure 2). The outcomes facilitated the organization of knowledge management within the specified area to investigate, leading to the formulation of a framework that elucidates the interconnection between management and sustainable business. To uncover relevant terminology, synonyms, and abbreviations for the core concepts, we explored those studies that were extensively cited literature in Scopus (Table 1).

## RESULTS AND DISCUSSION

Bibliographic Coupling (BC) is a powerful analytical tool that identifies the connections between scholarly documents by tracking shared references. Using VOS viewer software (Hummon & Dereian, 1989) enhances the effectiveness of this method.

The network depicted in Figure 3 consists of six nodes and three links, revealing a connection between the authors based on BC. This allows for a discussion about the relationship between the documents. The predominant features are sustainability and the environment, as the authors aim to incorporate the critical success factors into their business. Given this premise, we can showcase the clusters they generated independently in Table 2. The examination found that research on combining sustainability and knowledge management needs to be more coherent and interdisciplinary. Three distinct clusters were identified.

*Cluster 1* shows that implementing quality and environmental management systems is critical for businesses seeking to improve their performance. These systems provide a framework for organizations to enhance their product and service quality while addressing environmental sustainability.

*Cluster 2* demonstrates how corporate governance mechanisms impact integrated reporting practices and their subsequent effect on sustainable goals. Effective governance mechanisms play a crucial role in shaping how organizations disclose integrated information, which is vital for companies aiming to align their reporting with sustainable objectives.

*Cluster 3* focuses on corporate sustainability practices in the industry, which involve a company's commitment to environmental, social, and economic responsibility within its operational framework. It includes implementing strategies to reduce environmental impact, prioritize social welfare, and ensure sustainable long-term economic viability. By integrating sustainability into core business operations, companies can contribute to environmental and social well-being while enhancing their resilience and competitiveness in a changing global landscape.

In addition, we conducted another analysis that reviewed the authors' keywords, which is valuable for identifying comprehensive research trends across all articles. This study examines the authors' terms, which complement the findings from the examination. While the examination helps group articles based on citations, it may need to look at significant papers with citations, particularly in emerging studies. The authors' keyword network analysis is employed to address this, constructing a network that represents authors' terms, uncovering valuable insights into research topics, patterns, and trends within a discipline.

In Table 3 "Primary research topics derived from the Co-Occurrence network of the author's keyword" and Figure 4 "Co-Occurrence network of author's keyword", detailed information on keywords and clusters is provided. These clusters represent five distinct study themes, with the order of themes determined by the co-occurrence of keywords in the dataset.

In *Cluster 1*, a comprehensive analysis is conducted to evaluate the impact of sustainable entrepreneurial leadership on small firms' performance (Akpamah & Matko, 2023). The research aims to unravel the intricate relationship between sustainable leadership practices and the overall effectiveness of small businesses (Rousseau et al., 2008) by providing valuable insights into how sustainable entrepreneurial leadership contributes to the success and sustainability of small firms (Malhotra, 2000). Through a detailed examination, this study offers a nuanced understanding of the critical factors that drive performance in this context.

*Cluster 2* presents a systematic literature review that critically evaluates the sustainability of meat supply chains (Chopra et al., 2021; Lopes et al., 2017). The study comprehensively analyzes existing research to evaluate meat supply chains' environmental, social, and economic aspects, seeking to pinpoint prominent trends, hurdles, and sustainable methodologies within the industry (Hesselbarth & Schaltegger, 2014). The review furnishes valuable observations regarding the status of sustainability in

meat supply chains, contributing to a broader understanding of the industry's environmental impact, social implications, and economic viability (Zapata-Cantu et al., 2023). This assessment is a foundation for informed decision-making and sustainable practices within the meat supply chain.

## CONCLUSIONS

Applying bibliometric analysis to articles from Scopus database provides a comprehensive view of the temporal dynamics and thematic shifts in research, revealing valuable historical context. Synthesizing literature underscores the pivotal role of knowledge management in advancing sustainable business practices. This examination traces the trajectory of knowledge management's contributions, identifies gaps, and indicates emerging areas for future exploration. The synergy of historical insights and quantitative metrics offers a robust foundation for practitioners, scholars, and policymakers to navigate the dynamic landscape of sustainable knowledge management (Klingenberg & Rothberg, 2020; Nunes et al., 2022). As businesses strive for sustainability, understanding the evolution and impact of knowledge management practices proves integral, shaping a strategic roadmap for organizations committed to balancing economic success with environmental and social responsibility throughout different epochs. One prominent theme revolves around the significance of organizational learning as a catalyst for sustainable development. Scholars emphasize the importance of cultivating a learning culture within organizations to enable the gathering, dissemination and applying knowledge for sustainable innovation and decision-making. From knowledge-sharing platforms to data analytics tools, technological advancements are reshaping the landscape of knowledge management practices, offering innovative opportunities to enhance environmental sustainability outcomes. The results highlight the interactive relationship between knowledge management and sustainability, revealing the evolving nature of research and practice in this domain. Continuing scholarly inquiry and practical applications are essential to advance our understanding and implementation of effective knowledge management strategies for fostering sustainable business practices. By embracing interdisciplinary perspectives, leveraging technological innovations, and fostering collaborative networks, organizations can harness the power of knowledge to foster favorable environmental, social, and economic impacts in the quest for sustainability.

We encountered a few challenges during our study on knowledge management practices for sustainable business. One of the challenges we faced was the limitations inherent in our bibliometric analysis. Despite our best efforts to cast a wide net and cover as much ground as possible, we must acknowledge that some valuable studies might have slipped through the cracks. Language barriers, access restrictions, and the sheer volume of literature out there all shaped the scope of our analysis. Additionally, while quantitative metrics like citation counts and keyword frequency provided valuable insights, they only tell part of the story. Future research directions could benefit from a more nuanced approach incorporating qualitative data and considering the evolving nature of knowledge management and sustainability. For instance, (1) how have knowledge management practices evolved, and what are the key historical milestones in their development that have contributed to sustainable business practices? (2) What are businesses' knowledge management strategies and best practices to enhance sustainability? (3) What challenges and barriers have organizations faced in implementing knowledge management practices for sustainable business? (4) How can knowledge management practices be adapted and customized in different countries to pursue sustainable business development?

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Table 1.  
**Reviews about the impact of knowledge management practices on sustainable business**

<i>Reference</i>	<i>Brief description of the topic of the reference</i>
(Singh et al., 2022)	Two prominent business methodologies, green practices and lean practices.
(Vrabcová, Urbancová & Petříček, 2022)	Importance of managing and sharing knowledge across various levels of an organization.
(Rahman et al., 2016)	It effectively integrating sustainable practices into the supply chain.
(Koskinen, 2013)	Authors analyses of how business organizations autonomously and continuously produce knowledge.
(Malhotra, 2000)	It proposes a framework that outlines how knowledge is harnessed.
(Chopra et al., 2021)	It analyzes the current landscape of knowledge management.
(Cavallo et al., 2020)	How business models interact, evolve, and contribute to the overall sustainability.
(Lopes et al., 2017)	Practical insights and strategies for organizations aiming to integrate sustainability.
(Milano, Giostri & Hatakeyama, 2015)	Business environment in South America, specified in Brazil.
(Klingenberg & Rothberg, 2020)	Contribute insights into the effectiveness, gaps, and opportunities for management.
(Nunes et al., 2022)	Examples of sustainable operations management in various companies.
(Dutt N., 2022)	It delves into the strategies, mechanisms, and platforms for sustainability.
(Kopnina et al., 2023)	The significance of sustainability in business.

Source: author's compilation

Table 2.  
**Research topics derived from the most prominent clusters within bibliographic coupling**

<b>Cluster</b>	<b>Nodes</b>	<b>Links</b>	<b>Topics</b>	<b>Top 3 Cited Papers</b>	<b>Period</b>	<b>Size*</b>
1	1	5	Leveraging quality and environmental management systems as strategic assets to boost business effectiveness	(Kumari & Saharan, 2020) (Xie et al., 2023) (Duarte, Martins & Alexandre, 2008)	1995- 2023	15%
2	1	2	The relationship between corporate governance mechanisms and integrated reporting practices and their impact on sustainable goals.	(Kurniawati, Samadhi, & Wiratmadja, 2016) (Winn & Pogutz, 2013) (Beske, Land & Seuring, 2014) (Cachon, 2019)	1995- 2023	7%
3	2	7	Corporate sustainability practices in the industry	(Saini & Garg, 2023) (Mukherjee & Kumta, 2016)	1995- 2023	8%

Source: author's compilation based on VOSviewer

Note: \*proportion of the total coupling

Table 3.  
**Primary research topics derived from the Co-Occurrence network of the author's keyword**

Cluster	Keywords	Total Link Strength	Occurrences*	Main Research Topics
1	business performance	125	78	Analyzing the Influence of Sustainable Entrepreneurial Leadership
	entrepreneurial leadership	190	74	
	entrepreneurship practice	69	31	
	small firms	55	37	
	sustainable leadership	93	45	
2	Meat production	151	27	Assessing the Sustainability of Supply Chain
	Supply chain	85	28	
	Sustainability	60	37	
	Systematic literature review	36	15	

Source: author's compilation

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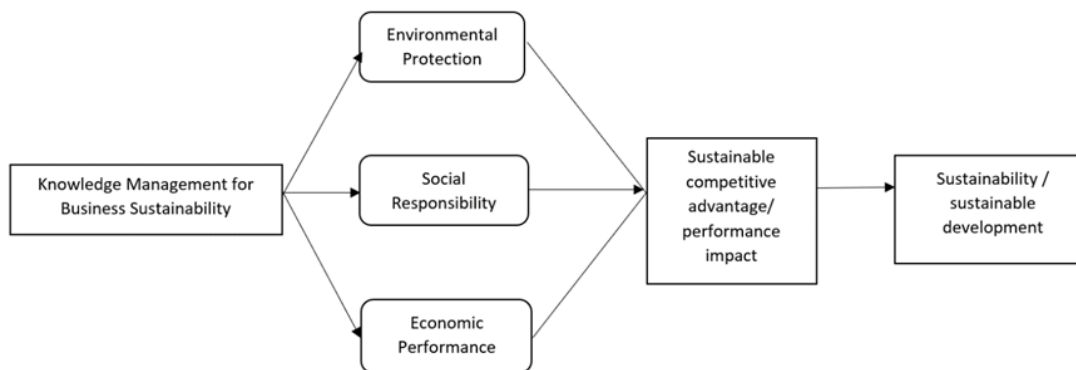


Figure 1.  
**Strategic Management Framework for Sustainability**  
 Source: author's compilation



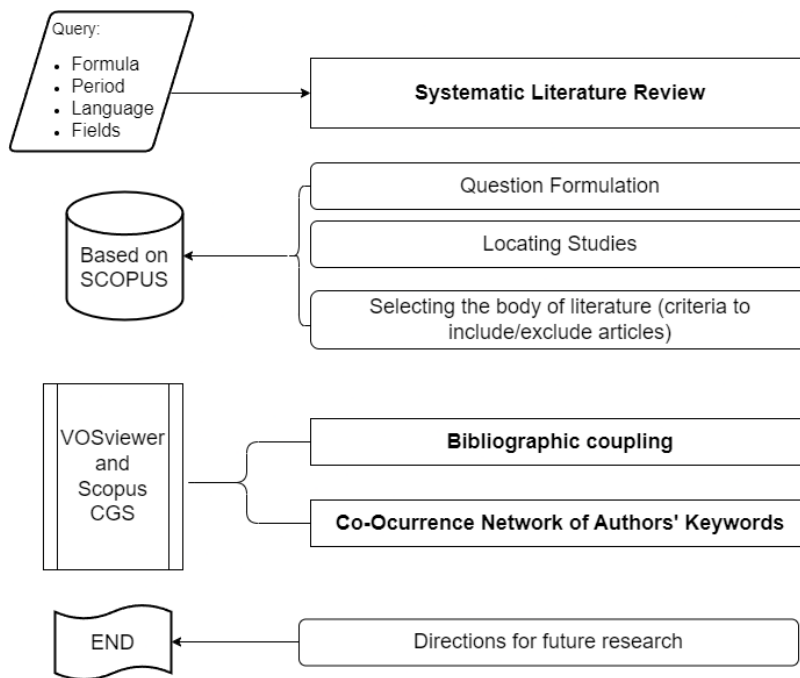


Figure 2.  
**Research Methodology of the Review**  
*Source: author's compilation*

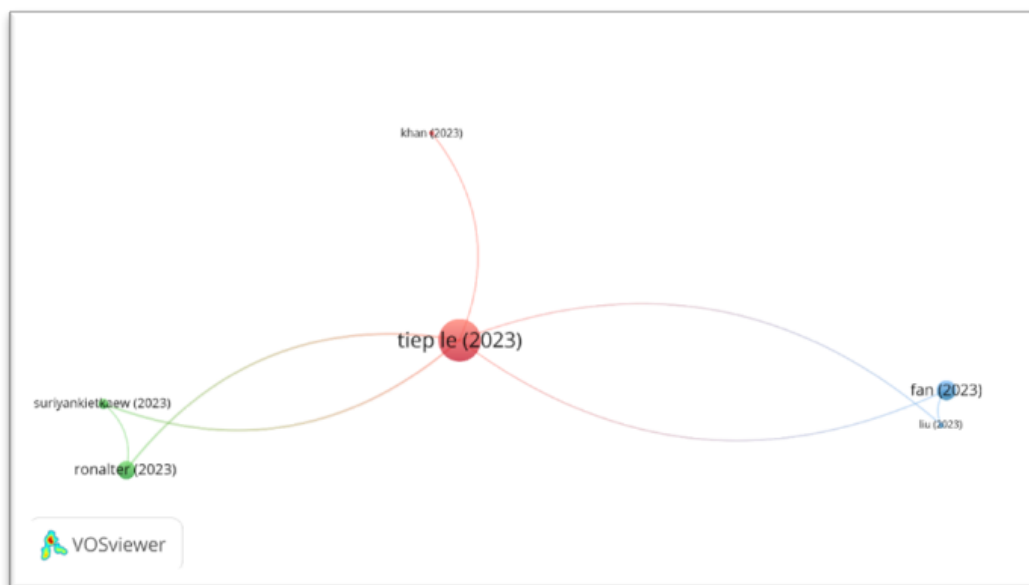


Figure 3.  
**Map depicting the bibliographic coupling**  
*Source: author's compilation based on VOSviewer*

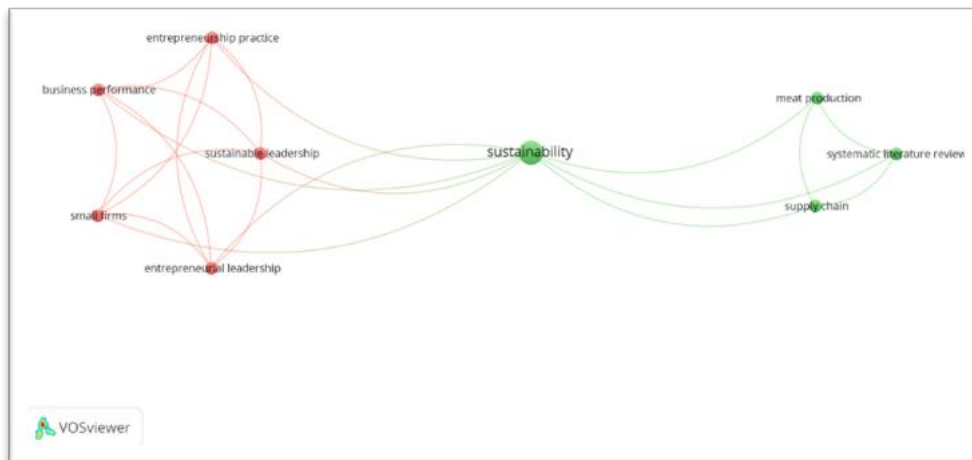


Figure 4.  
**Co-Occurrence network of author's keyword**  
Source: author's compilation based on VOSviewer