

A Bibliometric Study of Sustainable Business Practices: Global Trends and Future Directions (2010–2024)

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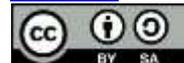
ABSTRAK

Studi ini menganalisis pola kolaborasi akademik global melalui analisis jaringan co-authorship, menggunakan VOSviewer untuk memvisualisasikan keterkaitan negara-negara dalam bidang penelitian dari tahun 2010 hingga 2024. Temuan menunjukkan bahwa negara-negara seperti Amerika Serikat, India, dan Indonesia membentuk pusat kolaborasi utama, dengan jaringan akademik yang kuat di Amerika Utara, Eropa, dan Asia. Wilayah-wilayah ini mendominasi lanskap penelitian global, dengan negara-negara seperti Italia, Prancis, Malaysia, dan Korea Selatan membentuk kluster yang erat terhubung. Analisis juga menyoroti kontribusi akademik yang semakin meningkat dari negara-negara Timur Tengah dan Afrika, menunjukkan peluang yang semakin besar untuk kemitraan penelitian lintas regional. Studi ini menekankan pentingnya kolaborasi internasional dalam mengatasi tantangan global seperti perubahan iklim, kesehatan masyarakat, dan pembangunan ekonomi, serta menyerukan peningkatan infrastruktur penelitian dan pertukaran akademik, terutama di wilayah yang kurang terwakili.

ABSTRACT

This study examines global academic collaboration patterns through a co-authorship network analysis, utilizing VOSviewer to visualize the interconnectedness of countries in the research field from 2010 to 2024. The findings reveal that countries like the United States, India, and Indonesia form central hubs of collaboration, with strong academic networks in North America, Europe, and Asia. These regions dominate the global research landscape, with countries such as Italy, France, Malaysia, and South Korea forming closely linked clusters. The analysis also highlights the increasing academic contributions from Middle Eastern and African nations, suggesting growing opportunities for cross-regional research partnerships. This study underscores the importance of international collaborations in addressing global challenges, such as climate change, public health, and economic development, and calls for enhancing research infrastructures and academic exchanges, particularly in underrepresented regions.

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1. INTRODUCTION

Sustainable business practices have emerged as a central concern in both academic research and corporate strategy over the past decade. Originally rooted in environmental management and corporate social responsibility (CSR), sustainability has expanded into a multidimensional paradigm

that integrates ecological stewardship, social equity, and economic viability (Edilia & Larasati, 2023; Wagner & Lutz, 2017; Yildiz et al., 2023). The United Nations' Sustainable Development Goals (SDGs), adopted in 2015, further catalyzed global attention toward sustainable business models, urging organizations across sectors to align operations with broader planetary and societal objectives (Nordhagen et al., 2021). As a result, sustainability has shifted from a peripheral concern for compliance or public image to a strategic imperative that shapes organizational innovation, governance, supply chain management, and stakeholder engagement (Jahid et al., 2023).

This transformation is evident in the way businesses conceptualize value. Traditional economic models prioritized profit maximization, often at the expense of environmental and social outcomes. However, contemporary business paradigms such as the triple bottom line, circular economy, and shared value perspective advocate a more holistic definition of performance that balances financial returns with ecological integrity and social well-being (Sabry Ahmed Ibrahim, 2023). Empirical research suggests that firms embracing sustainability often achieve competitive advantages through enhanced brand reputation, risk mitigation, and long-term resilience (Meilani Fajarsari, 2023; Sabry Ahmed Ibrahim, 2023). These insights have driven an upsurge of scholarly interest in sustainable business practices, reflected in the rapid growth of related publications across management, economics, environmental science, and interdisciplinary journals.

Given the multifaceted nature of sustainability, researchers have explored a wide array of themes, including sustainable supply chain management, green innovation, stakeholder theory application, corporate governance for sustainability, and sustainable entrepreneurship (Sood et al., 2024). For example, sustainable supply chain management emphasizes the integration of environmental and social considerations into procurement, logistics, and production processes, which has become a critical research frontier due to increasing regulatory pressures and consumer expectations. Furthermore, green innovation — the development of products and processes that reduce environmental impacts — has been linked to both sustainability performance and firm competitiveness, sparking extensive empirical and theoretical investigations (Haski-Leventhal, 2021).

In addition to thematic diversity, sustainability research showcases methodological pluralism, ranging from case studies and conceptual frameworks to large-scale quantitative analyses. Among these methods, bibliometric analysis has gained prominence as a powerful tool to map scientific knowledge, identify research trends, and assess scholarly networks (Donthu et al., 2021). Bibliometric studies apply quantitative techniques, such as citation analysis, co-authorship networks, and keyword co-occurrence, to reveal structural patterns within academic literatures. This approach enables researchers to understand how fields evolve over time, which topics attract the most attention, and where potential gaps or emerging frontiers lie. In sustainability research, bibliometric reviews have been used to examine subdomains such as green finance, sustainable tourism, and CSR, offering valuable insights into trends and scholarly collaborations.

Despite the increasing number of bibliometric investigations in specific sustainability niches, there remains a need for a comprehensive review that synthesizes the evolution of sustainable business practices as a whole over a significant time period. The period from 2010 to 2024 is particularly important for several reasons. First, it captures the rapid escalation of sustainability discourse following the global financial crisis, when firms and policymakers began to reconsider long-term resilience alongside short-term profitability. Second, this period encompasses major global milestones, such as the adoption of the SDGs, Paris Climate Agreement, and escalating climate risk disclosures, which have shaped corporate behavior and academic inquiry. Third, advancements in data accessibility, bibliometric tools, and research databases have made it possible to conduct large-scale analyses that more accurately reflect academic dynamics across disciplines.

Bibliometric analysis of sustainable business research can illuminate how concepts have migrated across fields, which regions lead publications and collaborations, and how thematic emphases have shifted in response to global challenges. For instance, the early 2010s witnessed a predominance of CSR-centric research, whereas recent years show growing interest in circular

economy, social innovation, and climate-related financial disclosures. Additionally, collaborative networks among institutions and countries reveal how knowledge production is geographically and institutionally structured, with potential implications for research equity and global knowledge flows.

Understanding these patterns is crucial not only for scholars but also for practitioners and policymakers who rely on academic insights to inform decision-making. By mapping the intellectual landscape of sustainable business practices, researchers can highlight influential works, underexplored topics, and future research directions that align with pressing sustainability challenges. Moreover, this knowledge can foster interdisciplinary engagement, guide curriculum development, and support evidence-based policymaking that acknowledges both global and localized sustainability imperatives.

Despite the growing body of literature on sustainable business practices, there is no comprehensive bibliometric study that systematically assesses global trends, intellectual structures, and research trajectories covering the full span from 2010 to 2024. Existing reviews tend to focus on narrow thematic areas — such as sustainable supply chains, CSR, or green innovation — often overlooking broader linkages and emergent phenomena across disciplines. Consequently, there is a fragmented understanding of how sustainable business research has evolved, where knowledge concentrations exist, and what future directions are most promising. This gap hinders the ability of scholars to consolidate cumulative insights and identify strategic opportunities for advancing sustainability research holistically. The objective of this study is to conduct a comprehensive bibliometric analysis of sustainable business practices research from 2010 to 2024, with the aim of identifying global trends, thematic evolution, leading contributors, institutional and geographic networks, and future research directions.

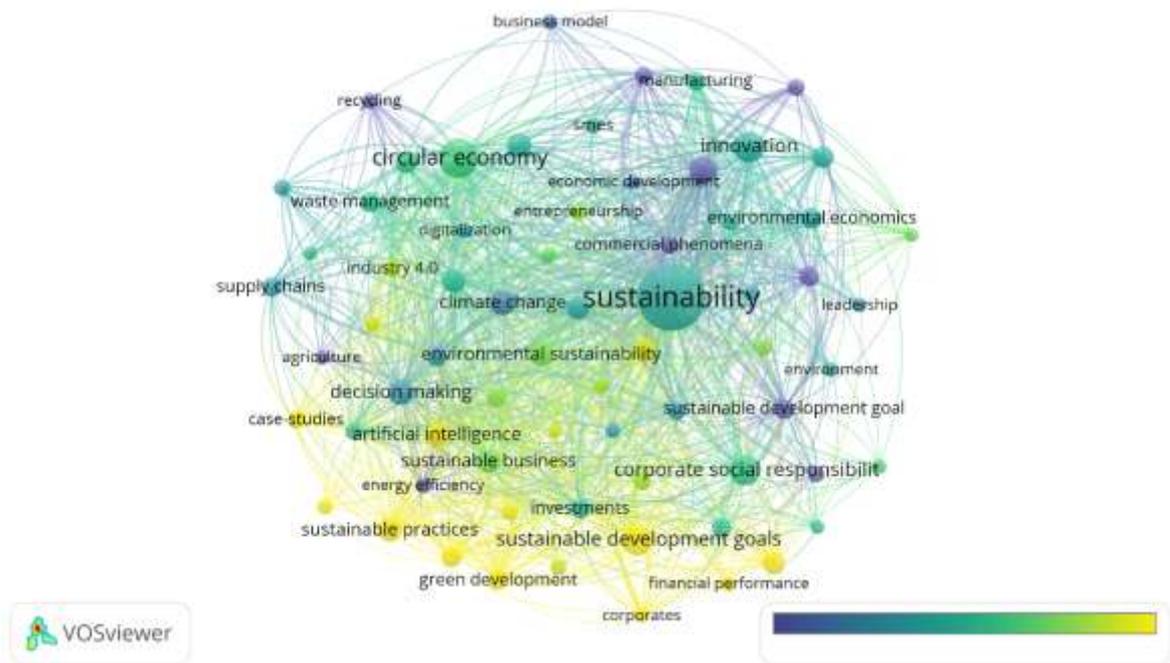
2. METHOD

This study employs a quantitative bibliometric research design to systematically analyze the development of scholarly literature on sustainable business practices between 2010 and 2024. Bibliometric analysis is an established method for evaluating academic output, identifying research trends, and mapping intellectual structures within a specific field. The approach combines performance analysis and science mapping techniques to assess publication growth, citation patterns, authorship productivity, and collaborative networks. Performance analysis is used to evaluate influential authors, journals, institutions, and countries, while science mapping explores relationships among keywords, documents, and researchers through co-occurrence, co-citation, and co-authorship analyses. This dual approach enables a comprehensive understanding of both the quantitative expansion and the conceptual evolution of sustainable business research over time.

Data for this study are collected from Scopus, chosen for its broad disciplinary coverage and high-quality indexing standards. A structured search strategy is developed using keywords related to “sustainable business practices,” “corporate sustainability,” “green innovation,” “sustainable entrepreneurship,” and related terms. Boolean operators (e.g., AND, OR) are applied to refine the search and ensure relevance. The inclusion criteria limit results to peer-reviewed journal articles published between 2010 and 2024, written in English, and categorized within business, management, economics, and related interdisciplinary fields. Documents such as conference proceedings, book chapters, editorials, and notes are excluded to maintain consistency and academic rigor. After data extraction, records are screened to remove duplicates and irrelevant publications, and bibliographic information—including authors, titles, abstracts, keywords, citations, affiliations, and references—is exported in compatible formats for further analysis.

The data analysis process utilizes VOSviewer to conduct network visualization and statistical analysis. Co-occurrence analysis of author keywords identifies major research themes and their evolution over time. Co-citation analysis reveals influential references and the intellectual foundations of the field, while co-authorship analysis maps collaborative relationships among

not only protect the environment but also offer competitive advantages and economic growth opportunities. The blue cluster, focused on terms like "corporate social responsibility" (CSR), "financial performance," and "investments," highlights the social and governance aspects of sustainability. This segment reflects the growing recognition of the importance of CSR and sustainable investments in driving long-term value creation. The integration of CSR into business strategies is becoming a critical part of how companies engage with their communities, address societal challenges, and improve their reputation while simultaneously enhancing financial performance.



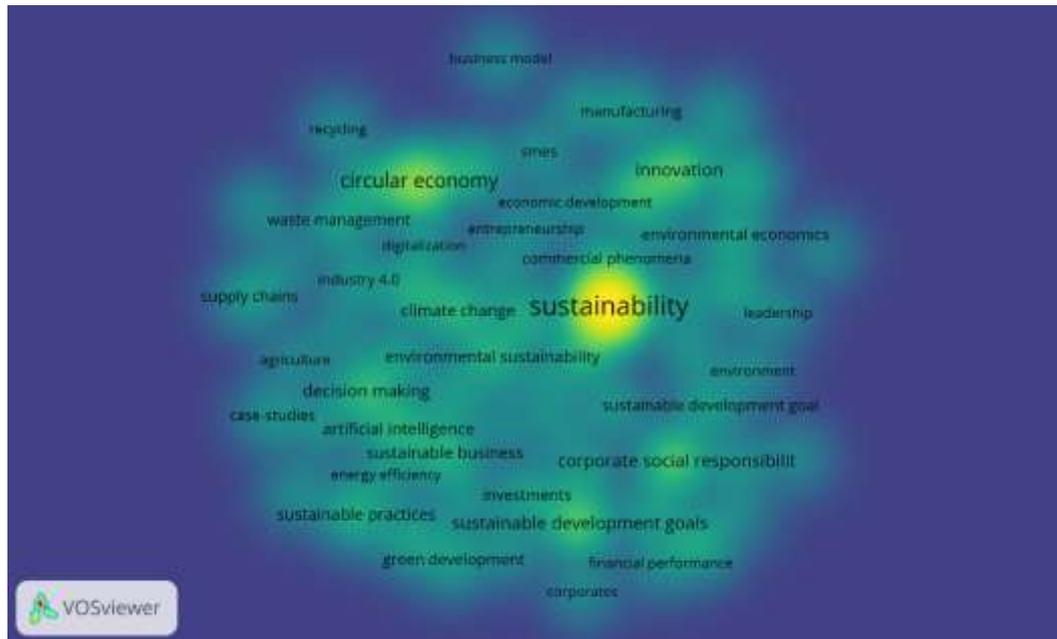
Gambar 2. Visualisasi Overlay
Sumber: Data Diolah

Figure 2 displays a VOSviewer network visualization focused on the theme of sustainability. The visualization highlights the intricate relationships and trends surrounding sustainable business practices, spanning a variety of disciplines and sectors from 2010 to 2024. The central node labeled "sustainability" is tightly connected to several clusters, indicating the comprehensive nature of sustainability in modern research and business practices. This centrality suggests that sustainability serves as an integrating concept, drawing connections between various aspects like environmental concerns, business practices, and social responsibility. The high concentration of related terms surrounding sustainability shows that the field is evolving to address not just ecological but also economic and societal dimensions.

The circular economy cluster (in blue-green tones) features terms such as "recycling," "supply chains," "waste management," and "climate change," which suggests a strong relationship with resource efficiency, waste reduction, and climate action. The environmental sustainability cluster connects closely with concepts like "green development," "energy efficiency," and "agriculture," emphasizing the growing recognition of environmental factors in sustainable business practices. This section of the map underscores the widespread integration of sustainability in addressing climate challenges and environmental impacts in industries like agriculture and manufacturing.

The innovation and business model clusters, shown in purple and green, reflect the increasing importance of innovation in sustainable business practices. Keywords like "economic development," "entrepreneurship," and "manufacturing" indicate a shift towards incorporating

sustainability into business strategies and technological advancements. Additionally, terms like "corporate social responsibility" and "sustainable development goals" highlight the growing social aspect of sustainability, indicating that companies are increasingly expected to align with global sustainability goals while focusing on responsible investments and societal impact.



Gambar 3. Visualisasi Densitas

Sumber: Data Diolah

Figure 3 depicting the relative frequency and centrality of terms in the research field from 2010–2024. The heatmap uses color intensity to highlight the most frequently occurring concepts, with "sustainability" at the center, indicated by the brightest yellow spot. The surrounding area is rich with interconnected keywords, which reflect the growing importance and complexity of sustainable business practices across various industries. The central location of "sustainability" and its vibrant connections to terms like "circular economy," "climate change," and "environmental sustainability" suggest that these concepts form the core of modern sustainability discourse.

The darker regions of the heatmap, with less intense color, suggest areas of lower frequency but still relevant terms, such as "financial performance," "corporate social responsibility," and "investment." These terms are associated with the social and economic dimensions of sustainability, emphasizing the growing recognition of the need to integrate sustainable practices within business models. Additionally, terms like "artificial intelligence," "energy efficiency," and "digitalization" hint at the emerging role of technology in driving sustainability efforts.

Citation Analysis

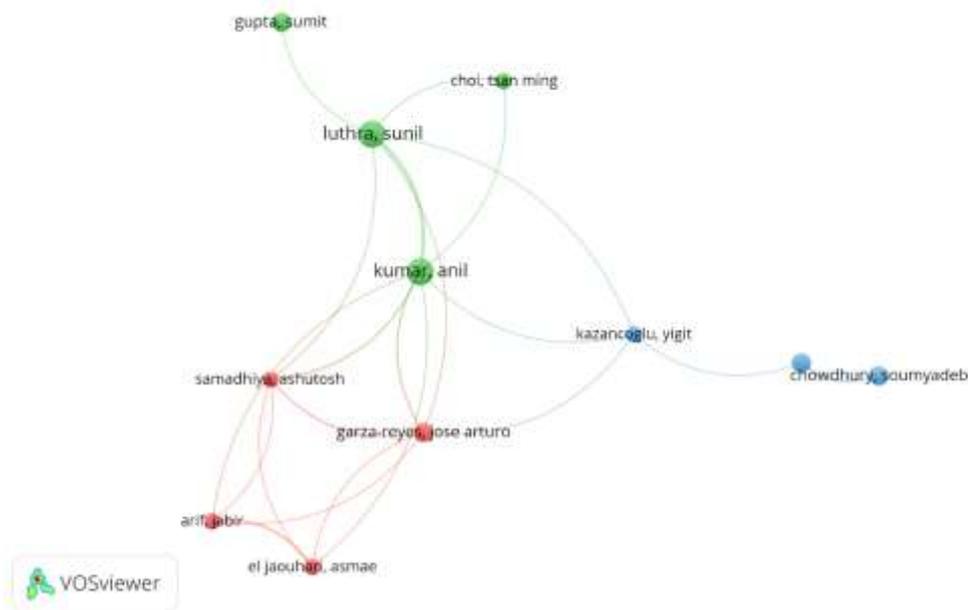
Table 1. Top Cited Literature

Citations	Authors and Year	Title
6,253	(Geissdoerfer et al., 2017)	The Circular Economy – A new sustainability paradigm?
3,138	(Bocken et al., 2014)	A literature and practice review to develop sustainable business model archetypes
1,434	(Reike et al., 2018)	The circular economy: New or Refurbished as CE 3.0? Exploring Controversies in the Conceptualization of the Circular Economy through a Focus on History and Resource Value Retention Options
1,296	(Freeman et al., 2010)	Stakeholder theory: The state of the art

1,235	(Niinimäki et al., 2020)	The environmental price of fast fashion
1,132	(Melville, 2010)	Information systems innovation for environmental sustainability
1,129	(Schanes et al., 2018)	Food waste matters – A systematic review of household food waste practices and their policy implications
1,069	(Merli et al., 2018)	How do scholars approach the circular economy? A systematic literature review
1,047	(Watson et al., 2010)	Information systems and environmentally sustainable development: Energy informatics and new directions for the IS community
1,043	(El-Kassar & Singh, 2019)	Green innovation and organizational performance: The influence of big data and the moderating role of management commitment and HR practices

Source: Scopus, 2026

Authorship Analysis



Gambar 4. Visualisasi Penulis

Sumber: Data Diolah

Figure 4 depicts the collaboration patterns between different authors in a research domain. The nodes represent individual authors, and the links between them highlight co-authorship relationships. The colors and the positioning of the nodes reveal distinct clusters of authors who have frequently worked together. For instance, Luthra, Sunil and Kumar, Anil form a prominent green cluster, suggesting they have collaborated extensively with others in the same network. The red cluster, involving Garza-Reyes, Jose Arturo and Samadhiya, Ashutosh, shows another group of authors who share common co-authorship ties. The blue cluster, including Chowdhury, Soumyadeb and Kazancoglu, Yigit, indicates yet another collaboration group. This visualization illustrates the interconnectedness of researchers within the field, highlighting collaboration patterns and potential research networks in the academic community.

Figure 6 visualizes the international collaboration patterns between countries. The nodes represent countries, while the edges connecting them reflect co-authorship or collaborative relationships in research. The countries are clustered into different regions based on their collaborative networks, with each cluster represented in distinct colors. For example, the United States, India, and Indonesia form a central cluster, indicating strong research collaboration between these countries, highlighted in purple and yellow. The European countries such as Italy, France, and Germany are grouped together, forming another prominent cluster in red. Meanwhile, Asian countries like Japan, Malaysia, South Korea, and Vietnam also form a cohesive network in the green and orange regions, showcasing their close academic ties. This visualization highlights the global nature of research collaborations, emphasizing the interconnectedness of countries across different continents, with significant clusters centered around regions like Europe, Asia, and North America.

Discussion

The co-authorship network visualization highlights significant global research collaboration patterns, particularly emphasizing how countries across different regions are interconnected. The findings suggest a dynamic interplay of academic partnerships, with countries from North America, Europe, and Asia forming prominent clusters. Central to the network are India, Indonesia, and the United States, indicating strong collaborative research ties, especially in regions like South Asia and Southeast Asia. This centrality suggests that these nations are pivotal players in global academic networks, driving collaborations in various research fields.

One of the key observations from this network is the apparent distinction between Western and Eastern academic collaborations. European countries, such as Italy, France, and Germany, form a cohesive cluster, demonstrating robust collaboration within Europe and beyond. The United States further strengthens its global academic influence by linking with countries across both the European and Asian continents. The research collaboration within Asia is equally noteworthy, with countries like Malaysia, India, South Korea, and Japan forming tightly knit networks, reflecting the rise of Asian countries as major contributors to global knowledge production. The emergence of India and Indonesia as central hubs in these networks suggests a growing recognition of their academic and research capabilities, particularly in sectors like information technology, business, and sustainable development.

The geographical diversification of the co-authorship network also highlights the global nature of academic collaborations, particularly in the fields of science, technology, and sustainability. While countries in Africa, like Nigeria, Kenya, and Egypt, are relatively more isolated in the network, their connections to other regions, especially through collaborations in areas like agriculture, health, and environmental studies, indicate increasing opportunities for global partnerships. Additionally, the strong presence of Middle Eastern countries like Jordan, Oman, and Bahrain reveals growing academic interest and cooperation in the region, particularly in fields like energy, engineering, and economics.

In terms of research policy, this visualization underscores the importance of fostering international partnerships to address complex global challenges such as climate change, public health, and economic development. As countries continue to face these challenges, academic collaboration becomes essential in creating solutions that transcend national boundaries. Institutions and governments must encourage these partnerships through funding opportunities, collaborative platforms, and international academic exchanges to strengthen the global research ecosystem. Furthermore, while Asia and North America dominate the collaboration network, it is crucial for Africa and other underrepresented regions to actively engage in these global research networks. Targeted efforts to enhance institutional support, improve research infrastructure, and encourage cross-border collaborations will be essential for these regions to increase their visibility in the global research landscape.

4. CONCLUSION

This study reveals the intricate and evolving patterns of global academic collaboration through a co-authorship network, highlighting the central role played by countries such as the United States, India, and Indonesia, alongside significant contributions from European and Asian nations. The network underscores the importance of international partnerships in advancing research across diverse fields, from sustainability and technology to economics and health. While the collaboration between countries in North America, Europe, and Asia is dominant, the study also emphasizes the growing academic engagement from Middle Eastern and African countries, which are becoming increasingly integrated into the global research landscape. The findings suggest that fostering stronger academic networks, improving research infrastructures, and encouraging cross-border collaborations will be critical in addressing global challenges, ensuring a more inclusive and impactful research ecosystem. Ultimately, enhancing global academic partnerships is essential for driving innovation, knowledge sharing, and sustainable solutions across regions.

REFERENCES

- Bocken, N. M. P., Short, S. W., Rana, P., & Evans, S. (2014). A literature and practice review to develop sustainable business model archetypes. *Journal of Cleaner Production*, 65, 42–56.
- Donthu, N., Kumar, S., Mukherjee, D., Pandey, N., & Lim, W. M. (2021). How to conduct a bibliometric analysis: An overview and guidelines. *Journal of Business Research*, 133, 285–296.
- Edilia, S., & Larasati, N. D. (2023). Innovative approaches in business development strategies through artificial intelligence technology. *IAIC Transactions on Sustainable Digital Innovation (ITSDI)*, 5(1), 84–90.
- El-Kassar, A.-N., & Singh, S. K. (2019). Green innovation and organizational performance: The influence of big data and the moderating role of management commitment and HR practices. *Technological Forecasting and Social Change*, 144, 483–498.
- Freeman, R. E., Harrison, J. S., Wicks, A. C., Parmar, B. L., & De Colle, S. (2010). *Stakeholder theory: The state of the art*.
- Geissdoerfer, M., Savaget, P., Bocken, N. M. P., & Hultink, E. J. (2017). The Circular Economy—A new sustainability paradigm? *Journal of Cleaner Production*, 143, 757–768.
- Haski-Leventhal, D. (2021). *Strategic corporate social responsibility: A holistic approach to responsible and sustainable Business*.
- Jahid, A., Alsharif, M. H., & Hall, T. J. (2023). The convergence of Blockchain, IoT and 6G: potential, opportunities, challenges and research roadmap. ... of *Network and Computer Applications*.
- Meilani Fajarsari, I. (2023). The Mindset of Msme Actors Towards Online Loan Application (Using The Rubicon Model Perspective). *American Journal of Economic and Management Business (AJEMB)*, 2(7), 253–258. <https://doi.org/10.58631/ajemb.v2i7.47>
- Melville, N. P. (2010). Information Systems Innovation for Environmental Sustainability1. *MIS Quarterly*, 34(1), 1–22.
- Merli, R., Preziosi, M., & Acampora, A. (2018). How do scholars approach the circular economy? A systematic literature review. *Journal of Cleaner Production*, 178, 703–722.
- Niinimäki, K., Peters, G., Dahlbo, H., Perry, P., Rissanen, T., & Gwilt, A. (2020). The environmental price of fast fashion. *Nature Reviews Earth & Environment*, 1(4), 189–200.
- Nordhagen, S., Igbeka, U., Rowlands, H., Shine, R. S., Heneghan, E., & Tench, J. (2021). COVID-19 and small enterprises in the food supply chain: Early impacts and implications for longer-term food system resilience in low- and middle-income countries. *World Development*, 141. <https://doi.org/10.1016/j.worlddev.2021.105405>
- Reike, D., Vermeulen, W. J. V., & Witjes, S. (2018). The circular economy: new or refurbished as CE 3.0? — exploring controversies in the conceptualization of the circular economy through a focus on history and resource value retention options. *Resources, Conservation and Recycling*, 135, 246–264.
- Sabry Ahmed Ibrahim, M. (2023). The creative economy and its role in comprehensive development. *International Journal of Multidisciplinary Studies on Management, Business, and Economy*, 6(2), 64–87.
- Schanes, K., Dobernick, K., & Gözet, B. (2018). Food waste matters-A systematic review of household food waste practices and their policy implications. *Journal of Cleaner Production*, 182, 978–991.
- Sood, K., Sharma, V., & Kumar, R. (2024). Unveiling Risks in Decentralized Finance: A Systematic Literature Review. *2nd International Conference on Emerging Technologies and Sustainable Business Practices-2024 (ICETSBP 2024)*, 320–340.

- Wagner, M., & Lutz, E. M. (2017). Sustainability-improving innovation empirical insights and relationships with sustainability-oriented entrepreneurship. *Entrepreneurship, Innovation and Sustainability*, 237(July 2010), 279–296. <https://doi.org/10.4324/9781351277761-14>
- Watson, R. T., Boudreau, M.-C., & Chen, A. J. (2010). Information Systems and Environmentally Sustainable Development: Energy Informatics and New Directions for the IS Community1. *MIS Quarterly*, 34(1), 23–38.
- Yildiz, H., Tahali, S., & Trichina, E. (2023). The adoption of the green label by SMEs in the hotel sector: a leverage for reassuring their customers. *Journal of Enterprise Information Management*. <https://doi.org/10.1108/JEIM-03-2023-0160>