logistics

MDPI

Review

Sustainable Supplier Selection through Multi-Criteria Decision Making (MCDM) Approach: A Bibliometric Analysis

Khoiron Khulud [1], Ilyas Masudin [2,*], Fien Zulfikarijah [1], Dian Palupi Restuputri [2] and Abdul Haris [3]

[1] Department of Management, University of Muhammadiyah Malang, Jl. Raya Tlogomas 246, Malang 65144, Indonesia; cooludroni@gmail.com (K.K.); fien@umm.ac.id (F.Z.)
[2] Department of Industrial Engineering, University of Muhammadiyah Malang, Jl. Raya Tlogomas 246, Malang 65144, Indonesia; restuputri@umm.ac.id
[3] Department of Management, University of Panca Marga, Probolinggo 67216, Indonesia; prof.haris7@upm.ac.id
* Correspondence: masudin@umm.ac.id

Abstract: *Background*: The primary objective of this study was to examine the advancements in sustainable supplier selection through multi-criteria decision making (MCDM) from the years 2013 to 2022. In the recent past, researchers have carried out a significant amount of research in this field over the course of several years; *Methods*: a total of 121 scientific publications sourced from the Scopus database were chosen for analysis, employing the bibliometric method and graphical visualization of the VOS viewer application to visually analyze and map research networks and collaboration patterns, aiding in the evaluation of scientific impact and knowledge dissemination; *Results*: the findings of this study indicate that the research trend in sustainable supplier selection through MCDM witnessed its most significant growth in the year 2019. Researchers predominantly disseminated their scientific findings through articles, accounting for 81% of the publications, followed by conference papers at 14%, and book chapters at 2.5%; *Conclusions*: the primary area of focus in these studies pertains to decision-making processes involved in sustainable supplier selection. The implications and theoretical contributions derived from this research, coupled with the latest advancements, serve as a foundation for further exploration and development of sustainable supplier selection research through MCDM.

Keywords: sustainability; supplier selection; MCDM; bibliometrics; VOS viewer

Citation: Khulud, K.; Masudin, I.; Zulfikarijah, F.; Restuputri, D.P.; Haris, A. Sustainable Supplier Selection through Multi-Criteria Decision Making (MCDM) Approach: A Bibliometric Analysis. *Logistics* **2023**, *7*, 96. https://doi.org/10.3390/logistics7040096

Academic Editor: Robert Handfield

Received: 2 September 2023
Revised: 7 November 2023
Accepted: 24 November 2023
Published: 8 December 2023

1. Introduction

In recent years, companies have faced increased competition in the market. The field of decision making involves the evaluation and selection of the most optimal course of action within the existing circumstances, aiming to achieve their objectives [1–3]. This study of decision making spans multiple academic disciplines, attracting the attention of scholars and professionals alike. Scientific methodologies are of paramount importance in decision making, alongside the factors of intelligence, intuition, and experience [4,5]. This heightened competition necessitates that companies across various industries seek innovative and efficient solutions to enhance supply chain management, thereby contributing to sustainable value creation. Supplier selection stands out as a critical step in the supply chain management process. Supply chain management encompasses a comprehensive strategy aimed at seamlessly integrating the supply chain from product procurement to the final customer delivery [6,7]. The role of suppliers within the supply chain is pivotal, ensuring that companies have access to the necessary goods and services at competitive prices [8,9]. Furthermore, a closer relationship between the company and the customer offers numerous advantages, including reduced purchase costs, higher quality goods and services, improved communication, and enhanced customer service. Effective workforce management plays a vital role in determining supply chain performance [10,11].

The selection of supplier partners plays a crucial role in the broader spectrum of supply chain management, and is a strategic decision that holds the potential to significantly enhance a company's competitive advantage [12]. Entrepreneurs are continually devising strategies to outperform their competitors, with supply chain performance improvement being a common and impactful approach. A well-executed supply chain strategy not only positively influences business operations but also bolsters overall competitiveness, enabling sustainable success in terms of product quality and supplier engagement [13,14]. In the realm of supply chain management, the choice of raw material suppliers stands out as a critical component, exerting profound short-term and long-term effects on a company's success [15]. The quality of raw materials supplied via a chosen supplier directly impacts the quality of the end products [16]. Furthermore, a supplier's ability to meet the company's specific raw material needs is paramount, as any disruption to the production schedule can lead to a failure in realizing the company's vision [17,18]. Effective supplier performance assessment is essential, and this process must consider the unique characteristics of each supplier, ensuring a comprehensive evaluation [19–24]. Beyond fostering strong relations with suppliers, this approach results in reduced procurement costs, improved product quality, and more efficient delivery timelines, ultimately strengthening the company's competitive position [25].

The selection of sustainable suppliers through MCDM approaches is not merely an operational consideration but a strategic necessity in today's competitive landscape. It empowers companies to make data-driven decisions that not only optimize costs but also enhance product quality, customer satisfaction, and overall competitiveness [26]. As the business world continues to evolve, sustainable supplier selection remains a pivotal element in the broader framework of supply chain management, offering companies the means to secure their position and thrive in an increasingly demanding and competitive market [27]. Moreover, the adoption of MCDM approaches in sustainable supplier selection reflects a broader commitment to corporate social responsibility and environmental stewardship. Companies that prioritize sustainable supplier selection could align themselves with the values of ethical and eco-conscious consumers and also reduce their ecological footprint [28]. As regulatory bodies and consumers increasingly demand transparency and accountability in supply chain practices, businesses that leverage MCDM methods to select sustainable suppliers are better equipped to mitigate risks and strengthen their brand reputation. Moreover, the authors of [29,30] believed that sustainable supplier selection through MCDM is not only a practical tool for immediate gains but a strategic imperative for long-term success in a world where sustainability and responsible sourcing are integral components of a resilient and thriving business ecosystem [31].

Therefore, it is essential to determine the appropriate selection criteria for suppliers in the food industry. However, there is an extremely limited number of studies focusing on the selection of suppliers [32,33]. A review of existing studies has shown a dominant focus on quality, price/cost, delivery, and service criteria in parallel with major trends. The number of studies employing environmental safety criteria, social responsibility, and new labor rights as well as legal considerations in the selection of new suppliers has recently increasingly attracted the attention of researchers using multi-criteria decision making (MCDM) techniques [34–36]. This article presents a significant contribution to the evolving landscape of supply chain management by focusing on the sustainable selection of suppliers using multi-criteria decision making (MCDM) techniques. Through a comprehensive analysis of Scopus database data and the application of bibliometric methods, this research offers a two-fold revelation. Firstly, it uncovered a notable surge in research pertaining to sustainable supplier selection through MCDM between 2019 and 2022, signifying a growing interest in this critical domain. Secondly, the predominant dissemination of research outcomes through articles underscores the pivotal role of scholarly publications in advancing knowledge in this area. Additionally, this study identified key research themes and keywords, highlighting decision making as the central objective in sustainable supplier selection through MCDM. Thus, the main objective of this article was to integrate

halal criteria in terms of the continuous selection of suppliers carried out using MCDM techniques. This technique was used due to its unique superiority over other techniques.

2. Methods

The method employed in this study focused on the content and analysis of bibliometric trends [32]. To restrain the publication of eyewear assessment trends in Indonesia, data from Scopus (www.scopus.com, accessed on 29 June 2023) were used as a general database link. Bibliometric and scientometric studies are the most commonly employed analyses in scientific studies [37]. Data in Scopus uniquely combines a comprehensive and curated database of abstracts and communities with enriched data and links to scholarly content with 90+ million records from 27,000 journals, 149,000 conferences, 289,000 books, and 1.56 million preprints from more than 7000 publishers worldwide involving 105 countries (www.elsevier.com/scopus, accessed on 29 June 2023). This study implemented 5 stages of bibliometric analysis work with the following stages [38]. Figure 1 show steps of bibliometric analysis.

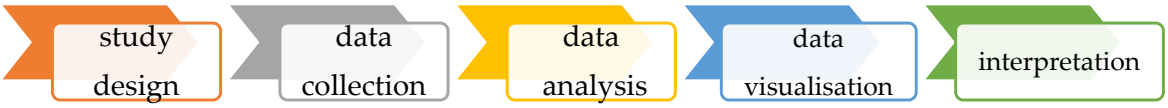

Figure 1. Bibliometric analysis work steps.

The first stage of the search conducted in this study was focused on the study design, which involved the publication of a Scopus-indexed bibliometric analysis of sustainable selection suppliers spanning the period from 2013 to 2022. This bibliometric analysis aimed to identify and examine the relevant literature pertaining to the themes, methods, and research theories concerning sustainable selection suppliers. By conducting a comprehensive literature review and analysis, valuable data were obtained, providing insights into the various aspects of sustainable selection suppliers. Moving on to the second stage of this study, data collection played a crucial role. In this stage, data were gathered from the Scopus database, which served as a comprehensive and reliable source of scholarly publications. The data collected from the Scopus database were then prepared for further analysis. To ensure the collection of relevant data, a string search technique derived from the Scopus database algorithm was employed. This technique involved conducting keyword searches within the title citations, abstracts, and keywords of the publications, with a specific time frame set from 2013 to 2022. This study selected 121 data points from the Scopus database, a trusted source of scholarly publications. They prepared the data for analysis and employed a string search technique based on the Scopus algorithm, involving keyword searches (MCDM and sustainable supplier selection) in titles, abstracts, and keywords, focusing on publications from 2013 to 2022 to ensure relevance. By employing this method, the researchers were able to retrieve published results that were closely aligned with the research objective, providing a solid foundation for the subsequent analysis and evaluation of the financing aspects related to sustainable selection suppliers [39]. Query string data via the Scopus database were as follows:

(TITLE-ABS-KEY(supplier AND sustainable AND selection) AND TITLE-ABS-KEY (MCDM)) AND PUBYEAR > 2013 AND PUBYEAR < 2022

In the field of sustainable selection suppliers, various frequencies are used to identify trend characteristics in publications and quotations. These frequencies include the frequency of publication order and citation data, which play a crucial role in determining the most prolific authors, institutions, countries, and journals within the domain [40]. To conduct a comprehensive analysis, researchers often employ RIS format data to summarize information under various stages. These data are then processed using specialized software such as VOS viewer version 1.6.19 [41]. VOS viewer is a powerful tool that facilitates the visualization of bibliometric maps, allowing researchers to identify and interpret patterns, relationships, and clusters within the scholarly literature. It provides a visual representation of the network of publications, authors, and keywords, aiding in the exploration

and understanding of the research landscape [42]. The availability of VOS viewer as a free download from its official website (www.vosviewer.com, accessed on 29 June 2023) makes it accessible to researchers worldwide, contributing to the dissemination and advancement of bibliometric analyses in various fields. By leveraging this software, researchers can gain valuable insights into the distribution of knowledge, collaborations, and emerging trends within the sustainable selection suppliers' domain, enabling informed decision making and further research in the pursuit of sustainable practices.

3. Results and Discussion

A search was conducted using Scopus on 29 June 2023 to explore the existing literature on sustainable supplier selection through the MCDM (multi-criteria decision making) approach. The results of this search revealed a total of 121 documents published between 2013 and 2022. Among these documents, there were ninety-eight articles, seventeen conference papers, three book chapters, two reviews, and one conference review, indicating a substantial body of research dedicated to this topic.

The abundance of articles and other document types indicates the growing interest in sustainable supplier selection and the utilization of the MCDM approach in this field. This approach enables decision makers to assess and evaluate potential suppliers based on multiple criteria, such as environmental impact, social responsibility, and economic considerations. By employing a systematic and structured decision-making process, organizations can make more informed choices when selecting suppliers, considering their sustainability performance alongside other important factors.

The significant number of publications on sustainable supplier selection using the MCDM approach underscores the importance of sustainable supply chain management in contemporary business practices. These findings provide valuable insights for researchers, practitioners, and policymakers seeking to enhance their understanding of sustainable supplier selection and implement effective strategies to promote sustainable and responsible supply chain practices.

The research findings clearly indicate a notable rise in the trend of sustainable supplier selection using the MCDM (multi-criteria decision making) approach since 2019. This upward trajectory is supported by the growing number of recent publications in reputable journals and proceedings, highlighting the recognition this research has garnered as a significant and groundbreaking topic. As depicted in Figure 2, which showcases the publication trends of sustainable supplier selection through the MCDM approach from 2013 to 2022, the number of articles exhibited a gradual rise over the years. However, it was in 2019 that a remarkable surge occurred, with the count reaching 22 articles. Subsequently, in 2020, there was a slight dip to 21 articles, but the following years, 2021 and 2022, witnessed resurgence, with the number climbing to 36 articles.

This surge in publications signifies the increasing interest and attention researchers and scholars have devoted to exploring the topic of sustainable supplier selection through the MCDM approach. The steady growth observed prior to 2019 suggested that the concept had already gained some traction, but the substantial spike in publications during that year indicated a turning point, where the research gained significant momentum and captured the attention of the academic community. The subsequent years' increase further solidifies the notion that this approach has become an area of active investigation and that its importance is recognized by scholars across various disciplines. The upward trend in publications showcases the commitment of researchers to delve deeper into this field, fostering a growing body of knowledge and paving the way for further advancements in sustainable supplier selection practices. One of the most studied topics in the supply chain literature is the supplier evaluation and selection problem. This is because suppliers play such an important part in the chain's long-term viability and profitability. In today's competitive business world, it is important for companies to have a structured way to find and choose the best seller based on their own criteria. This is what organizations

need multi-criteria decision-making methods to carry out, as choosing the right provider is basically a multi-criteria decision making (MCDM) problem [43–46].

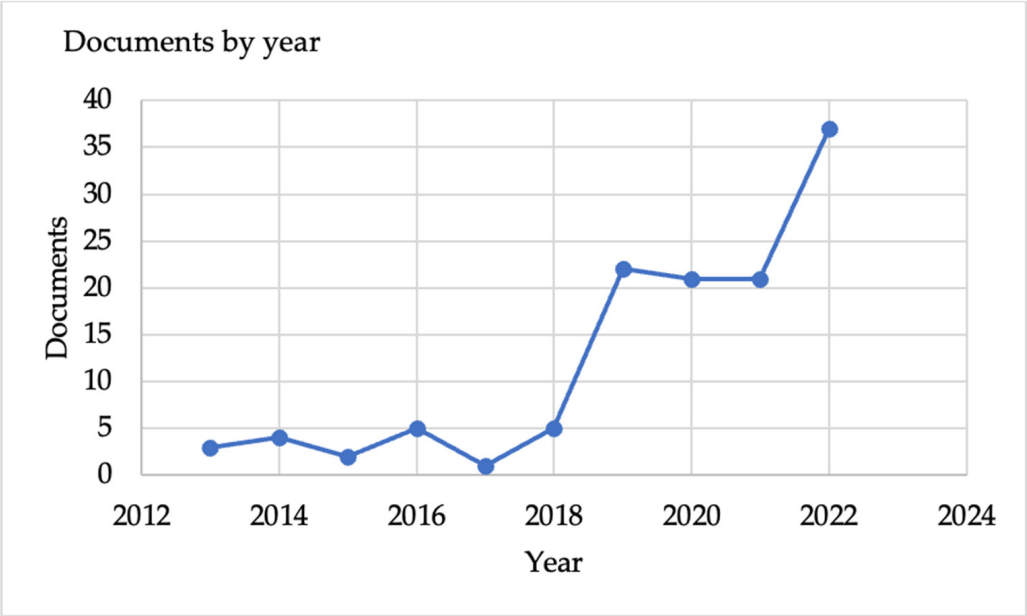

Figure 2. Distribution of supplier publications on sustainable selection through the MCDM approach from 2013 to 2022.

The leading author in terms of productivity is Wang, C.N [46], whose contributions are remarkable with a total of 10 articles dedicated to this research area. Wang's work reflects a deep commitment to exploring and advancing sustainable selection methods in the context of suppliers. Through the extensive body of research authored by Wang, it is evident that they have made significant strides in understanding and implementing the MCDM approach for sustainable supplier selection [5,18,46–52]. Wang et al. promoted the use of a thorough fuzzy multi-criteria decision making (MCDM) method that considers both environmental and economic factors while choosing and evaluating green suppliers. The suggested method employs a fuzzy analytic hierarchy process (AHP) to calculate the significant weights of criteria in an ambiguous setting. Their comprehensive exploration of this topic highlights their expertise and demonstrates their dedication to advancing this field. By focusing on sustainable selection through the MCDM approach for example [53–55], Wang's works not only provide valuable insights into effective decision-making processes but also serve as a foundation for future studies and practical applications in supplier research. Moreover, Chatterjee was identified as the second productive author within the supplier research scope of sustainable selection, employing the MCDM (multi-criteria decision making) approach. His works, such as [11,43,56,57], have been recognized significantly by other authors in the relevant fields.

Additionally, the third-most contributing authors within the supplier research scope of sustainable selection, employing the MCDM approach, are Dang et al. Their monumental works such as [58,59], which were published in 2021 and 2022 by MDPI, have been significantly recognized by other authors in the same field. The authors of these studies suggested a multi-criteria decision making (MCDM) model for improving the way the clothing business evaluates and chooses suppliers while taking sustainability into account [5,18,49].

The fourth- and fifth-most productive authors within the supplier research considering sustainable multi-criteria decision making are Nguyen et al. and Pamucar et al, respectively. Several MCDM studies by Nguyen et al. focused on renewable energy location selection such as solar plant location selection [60], which was published by MDPI. Another study of theirs discussed sustainable energy source selection for industrial complexes using Fuzzy [61]. Meanwhile, Pamucar et al. proposed several approaches in solving sustainable

MCDM problems. For example, the full consistency method (FUCOM) and fuzzy best worst method (FBWM) were developed in the scope of sustainable location selection [62,63].

In addition, Stevic, Z et. al and Nguyen, N. A. T et al. have made substantial contributions to the field of supplier selection in the context of sustainable multi-criteria decision making (MCDM). Their research and publications, such as [64,65], have shed light on the complex decision-making processes involved in choosing suppliers that align with sustainability goals. Their work not only emphasizes the importance of environmental and social criteria in supplier selection but also provides valuable methodologies and frameworks to help organizations make informed choices that not only benefit their bottom line but also contribute to a more sustainable and responsible business environment. These authors have played a pivotal role in advancing the understanding of sustainable supplier selection, making their work an essential reference for professionals and researchers in this field.

Finally, the last three authors of the top ten contributive authors to the field of sustainable MCDM are Nguyen, V.T, Puska, A, and Antucheviciene, J. These three authors have made significant contributions to the field of sustainable multi-criteria decision making (MCDM) through their innovative research and practical applications. Nguyen, V.T, has been recognized for developing novel decision support systems that integrate sustainability criteria into the decision-making process, enabling organizations to make more informed and environmentally responsible choices [66]. Puska, A, has focused on the application of MCDM techniques to address complex sustainability challenges in various sectors, ranging from renewable energy to supply chain management [67]. Antucheviciene, J, has contributed to the development of decision models that emphasize stakeholder engagement and the ethical considerations in sustainable decision-making processes [68]. Together with the other top authors in this field, their works have paved the way for more sustainable and responsible decision-making practices across different domains.

Figure 3 presents a comprehensive list of the top 10 active affiliations that have prominently featured articles on sustainable supplier selection using multi-criteria decision making (MCDM) methods. This figure serves as a valuable resource for researchers and scholars in the field, providing key insights into the most influential publications in this area. The ranking of these affiliations are determined by the number of papers they have published, signifying their contribution and dedication to advancing knowledge on sustainable supplier selection through MCDM.

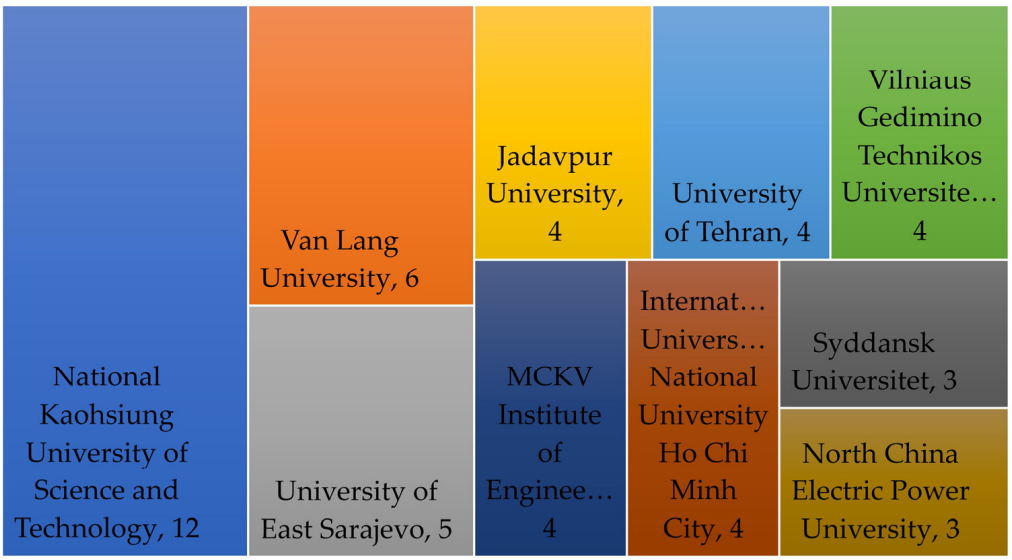

Figure 3. Journal publications on the most active sustainable selection through MCDM suppliers.

By examining Figure 3, researchers can gain a deeper understanding of the prominent platforms for disseminating research on this topic. The inclusion of various affiliations' related information allows readers to assess the relevance and impact of each publication.

The ranking system based on the number of papers published serves as a quantitative measure of an affiliation's productivity and involvement in the field. Affiliations occupying the top positions on this list have demonstrated a consistent focus on sustainable supplier selection and have played a significant role in shaping the discourse surrounding MCDM techniques in this domain.

Figure 3 plays a crucial role in shedding light on the most influential affiliations in the context of sustainable supplier selection using multi-criteria decision making (MCDM) techniques. By providing a snapshot of these affiliations, it aids researchers in recognizing the primary institutions that have contributed significantly to this particular domain. This information is immensely valuable, as it allows researchers to navigate through the vast literature and focus on the key sources that have shaped this field. Moreover, Figure 3 serves as a testament to the persistent scholarly endeavors aimed at tackling sustainability challenges within the realm of supply chain management.

The inclusion of this figure demonstrates the continuous dedication of researchers and academics towards addressing sustainability concerns in supply chain management. It highlights the significant attention that the topic of sustainable supplier selection has garnered within the academic community. By showcasing the influential organization in this area, Figure 3 underscores the collective efforts to explore and develop effective strategies for integrating sustainability into supplier selection processes. This representation not only facilitates the dissemination of knowledge but also fosters the collaboration and exchange of ideas among researchers working on similar topics. Ultimately, the presence of Figure 3 in this research study enhances its credibility and provides a comprehensive overview of the scholarly landscape related to sustainable supplier selection through MCDM [69].

Figure 3 also provides an insightful overview of the distribution of affiliation publications related to sustainable selection suppliers through multi-criteria decision making (MCDM). The analysis reveals that a substantial number of research outcomes were published in journals affiliated with the National Kaohsiung University of Science and Technology, with a total of 12 publications. This demonstrates the institution's significant contribution to advancing the field of sustainable supplier selection. Additionally, Van Lang University emerges as another prominent contributor, with six publications, further enriching the existing body of knowledge. The University of East Sarajevo also merits recognition for their contributions, having published five journal articles in this domain. However, despite these noteworthy efforts, the figure highlights that there is still a relatively limited number of publications in Scopus-indexed international journals, suggesting a potential area for further exploration and dissemination of research findings in a broader academic community.

Figure 4 illustrates the distribution of the top five documents sourced from the most relevant outlets in the domain of sustainable supplier selection through MCDM. Among the ten publications spanning from 2014 to 2022 present in the Scopus database, the *Sustainability* journal from Switzerland ranks highest. Additionally, the *Sustainability* journal consistently published the most articles in this field each year during the research period compared to other journals. The second most prominent journal outlet for publishing on sustainable supplier selection through MCDM is the *Processes* journal, with six documents. It is noteworthy that both of the top two journals, *Sustainability* and *Processes*, are affiliated with the same publisher, MDPI. Furthermore, the *Computers and Industrial Engineering* journal and the *Journal of Cleaner Production* each contributed five published articles in this particular area of study. In contrast, the journal of *Computers, Materials, and Continua* showed comparatively lower author interest in publishing papers related to sustainable supplier selection using the MCDM approach, with only three documents.

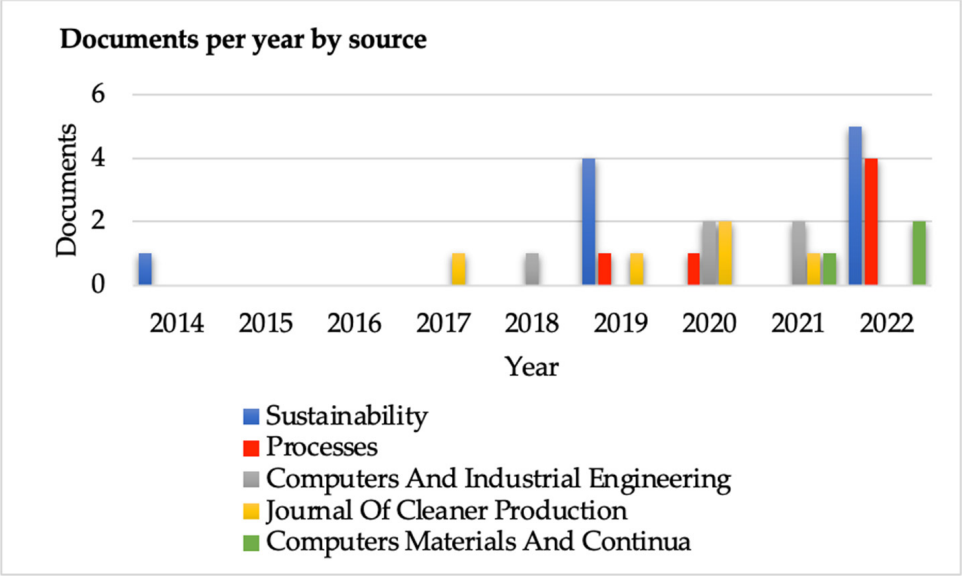

Figure 4. Comparison of the number of documents per year in journals.

Figure 5 show results of MCDM approaches in sustainable supplier selection. Researchers primarily prefer the TOPSIS (techniques for Order Preference by Similarity to an Ideal Solution) method when it comes to choosing sustainable suppliers, with 33 articles employing this approach. Notably, studies like those by Chen et al. [70] and Memari et al. [71] applied the TOPSIS approach for selecting sustainable suppliers in the construction sector. Following TOPSIS, the next most commonly utilized methods in the MCDM field for sustainable supplier selection were the AHP (analytical hierarchy process), with 17 articles, and SCOR (supply chain operation) metrics, with 14 articles. Several papers, including Wang's work in 2018 [51], utilized these two methods for choosing oil suppliers and determining the food processing industry. Moreover, the GRA (grey relational analysis) and OPA (ordinal priority approach) approaches were uncovered to be the next two approaches that have been most widely applied in the field of selecting sustainable suppliers through MCDM, which were ten and nine papers, respectively. Research that uses these two approaches mostly discusses supplier selection in the automotive [72] and the metal and steel industries [73].

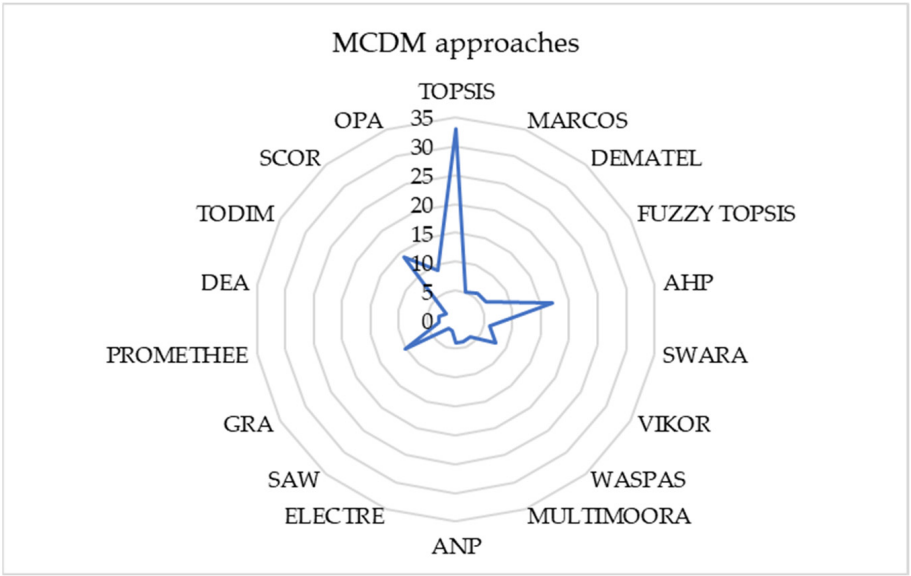

Figure 5. MCDM approaches in sustainable supplier selection.

Figure 6 provides an insightful correlation analysis of keywords in sustainable supplier selection through multi-criteria decision making (MCDM). The examination of keyword relationships serves to unravel the underlying knowledge components and structural aspects within the realm of scientific domains by establishing connections among keywords found in related articles [74]. The most frequently encountered keyword in this analysis was "decision making", which appeared a remarkable 65 times. Following closely was the keyword "sustainable development", which surfaced 52 times. Other notable keywords that exhibited co-occurrence patterns include "supplier selection", "supply chain management", and "multi-criteria decision making". The visualization offered in Figure 6 highlights circles that are relatively smaller in size and located farther away from the largest circles, indicating potential avenues for in-depth research regarding the scope of sustainable supplier selection through MCDM.

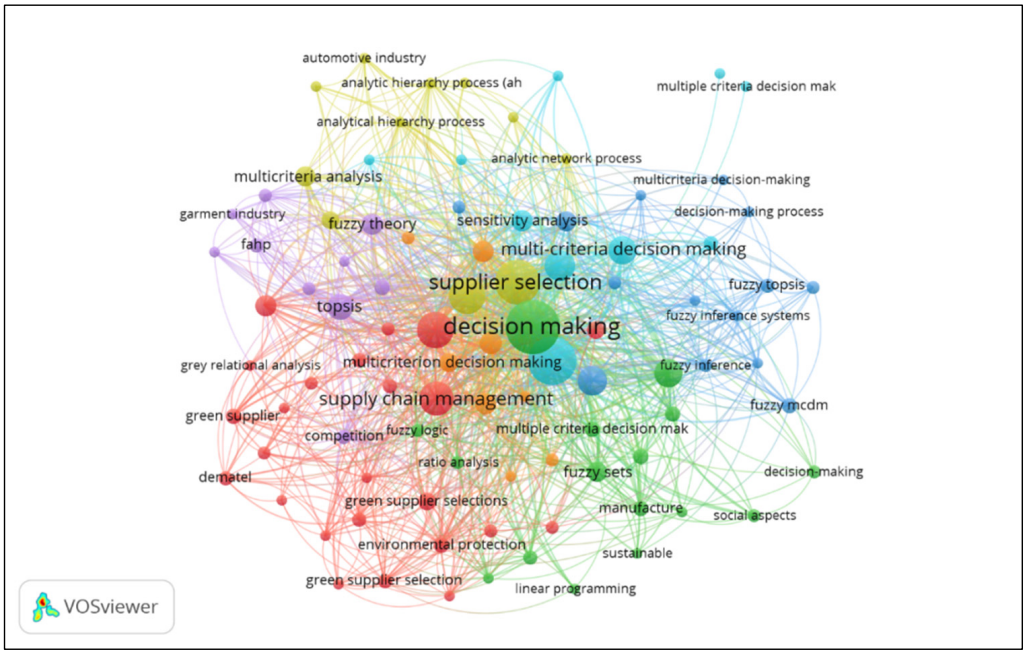

Figure 6. Visualization of co-occurrence relations with supplier keywords related to sustainable selection through MCDM.

The prominence of the "decision making" keyword underscores its critical role in the context of sustainable supplier selection. This suggests that decision-making processes are of significant concern in the evaluation and choice of sustainable suppliers. The frequency of the keyword "sustainable development" reflects the growing emphasis on integrating sustainability principles into supplier selection practices. The co-occurring keywords, such as "supplier selection", "supply chain management", and "multi-criteria decision making", further emphasize the interconnectedness of these concepts within this field. The presence of smaller circles, positioned distantly from the larger circles in the visualization, indicates potential research gaps and unexplored areas. These areas represent opportunities for researchers to delve deeper into understanding and expanding the scope of sustainable supplier selection through MCDM, thereby enriching the existing knowledge in the field and driving future advancements. The variables that are calculated include the chosen suppliers, the amount of inventory and shortage, the ordered number, and more. Sensitivity research also shows what happens when there are disruption risks and discounts for large orders. The results show that the proposed method works well [2,3,75]. In these visualizations, colors typically represent different clusters or groups of keyword items that are related to each other more closely than to those in other clusters. Each cluster may correspond to a particular theme or topic within the research landscape. For example, in a keyword co-occurrence analysis: Blue cluster represent keywords related to a specific

aspect of decision making, such as 'multi-criteria decision-making' or 'supplier selection'. Purple cluster represent keywords related to a certain methodological approach, like 'fuzzy theory' or 'analytic hierarchy process'. Yellow cluster indicate a focus on application areas or industries, such as the 'automotive industry' or 'garment industry'. The red cluster is focusing on the application of decision-making processes and criteria within the context of supply chain management, with a particular emphasis on environmental aspects and supplier selection. The green color cluster includes terms that are related to a different thematic focus. These terms are associated with multi-criteria decision-making methods, specifically referencing the Analytic Hierarchy Process (AHP), which is a structured technique for organizing and analyzing complex decisions.

Figure 7 shows the cluster network analysis and keywords. The first cluster focuses on sustainable supplier selection, sustainable supply chain management, multi-criteria decision making, and frameworks. Sustainable supply chain management research by the authors of [76] discussed interesting findings with social implications: improved supply chain quality management (SCQM) aligned with digital supplier selection (DSS) will offer sustainable quality products and provide social and economic benefits for society. Furthermore, research on sustainable supplier selection by the authors of [77] discussed the fact that the selection of sustainable suppliers is a complicated multi-criteria decision-making problem, including several criteria from economic, environmental, and social perspectives. Moreover, the proposed model can not only be used for selecting sustainable suppliers but also for other decision problems that have multiple criteria and alternatives. Currently, proficient practice is required to stimulate along various supply chain (SC) boundaries to exploit manufacturing resources economically, effectively, and gracefully to maintain operational excellence. The research findings explain "Internal communication agility", "Exchange to personnel resources", "Manufacturing flexibility", "online solution level", "Speed of resource upgrading", "Ability to manage demand and supply changes", and "Overstocking".

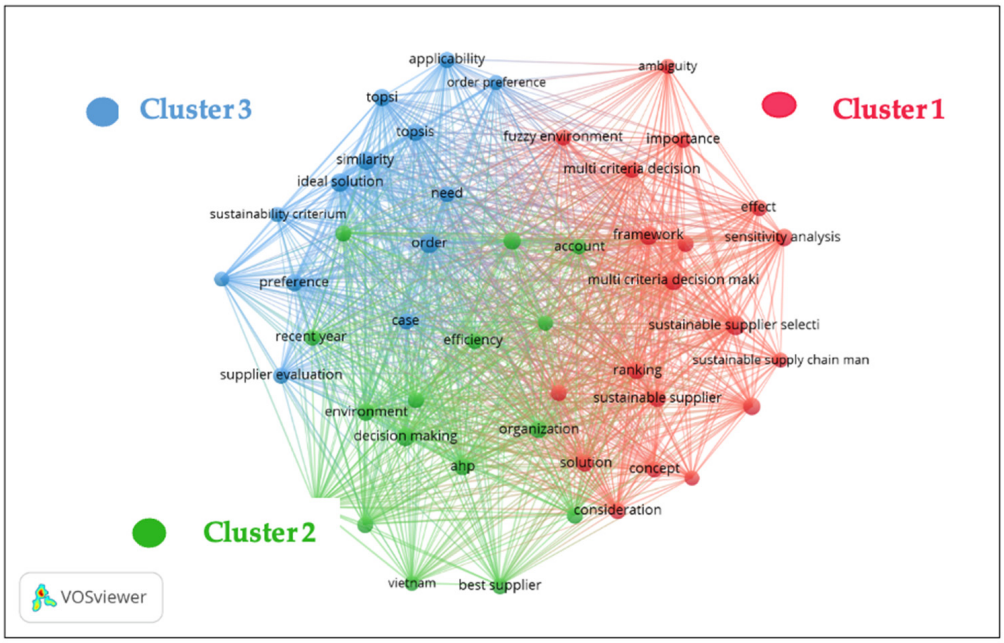

Figure 7. Cluster and keyword network analysis.

The second cluster focuses on environmental aspects, best suppliers, and countries. Environmental aspects were investigated by the authors of [78], with their results showing that the proposed model can not only find the most suitable sustainable suppliers but also that companies can assist their suppliers in increasing sustainability using the proposed method and can improve social–environmental performance in enterprises, which is the key to achieving sustainable development. Furthermore, the best supplier selection practices

have been developed by several researchers by considering case studies or data collection in an industry. For example, in a study by [79], empirical data for this research proposed the use of a sorting method, AHPSort II, under a fuzzy environment with interval type-2 fuzzy sets (IT2FSs) and a new way of selecting representative points to conclude supplier priorities that will improve the management of classes that are not clear [80,81].

Lastly, the third cluster focuses on supplier evaluation by [82–84], which found that effective supplier management is critical to company success since supplier procurement accounts for around 70% to 80% of total production costs. First, a variable precision-dominance-based rough set approach (VC-DRSA) was applied to extract the core criteria to defactor noise and to generate decision rules for reference of decision makers. Second, the criteria of importance through the correlation approach between criteria (CRITIC) were adopted to obtain the dependency weight of the core criteria and their ranking.

Multi-criteria decision making (MCDM) approaches are highly valuable instruments for facilitating decision-making processes across several domains. Moreover, the process of identifying a viable solution in light of several considerations is undeniably a challenging and arduous undertaking [33,57,79,85,86]. The matter of sustainability within the supply chain has emerged as a prominent concern that is currently garnering substantial attention. Within the medical sector, there exists a notable disparity in the emphasis placed on sustainability between public and private medical organizations. Public medical organizations tend to prioritize sustainability efforts, while private medical organizations tend to prioritize revenue generation. This study aimed to illustrate the process by which a private medical organization employs multi-criteria decision making (MCDM) methodologies to effectively and sustainably pick suppliers [87,88]. Research, in the future, should center on perfecting methods and structures for carrying out specific corporate sustainable projects [1,89].

Through a bibliometric analysis, this paper provides a comprehensive overview of multi-criteria methods, allowing academics to better understand the existing landscape and expected growth trends of multi-criteria decision-making methods. Indicative of future performance, by highlighting the need to study the origins and spread of certain methods and their variants, broaden studies in the selected nations, and explore their scientific output on the topic under investigation, and use what you learn, topic modeling helps unearth hidden patterns in the studied database and standardize practice differences and how they connect to other fields of study [69,70,73,90]. In reality, there is a limited number of studies that have examined the potential prerequisites for employing specific multi-criteria decision making (MCDM) methodologies, such as independence [14], the limitation of qualities, both in terms of quantity and size, and the examination of characteristics, as well as the transformation of qualitative characteristics [22]. Secondly, a limited number of scholars in the field of construction have identified two specific difficulties regarding the application of multi-criteria decision making (MCDM) methodologies in the construction industry [4,71].

One of the fundamental objectives in multi-criteria decision making (MCDM) modeling is the exploration of novel and coherent methodologies for assigning weights to decision elements, also known as attributes [3,91,92]. Numerous multi-criteria decision making (MCDM) techniques have been suggested for the purpose of sustainable supplier selection. However, in certain instances, it proves more advantageous to categorize suppliers into distinct groups that effectively demonstrate their performance [22,91]. Numerous multi-criteria decision making (MCDM) techniques have been employed in prior research to facilitate the identification and selection of the most suitable provider [93].

3.1. Theoretical Contributions

The theoretical contributions of this study extend beyond the mere documentation of trends in sustainable supplier selection through multi-criteria decision making (MCDM). By meticulously analyzing 121 scientific publications over the period from 2013 to 2022, this study offers a comprehensive understanding of how this field has evolved and matured

over the years. The spotlight on the substantial growth in 2019 highlights a pivotal moment in the advancement of sustainable supplier selection research. Moreover, the breakdown of publication types underscores the dissemination strategies employed by researchers, shedding light on the platforms where knowledge exchange is most active. However, the true theoretical value of this study lies in its identification of the primary focus of these publications, namely the decision-making processes underpinning sustainable supplier selection. The study pinpointing this central theme acts as a compass for future scholars, guiding them towards the most pressing questions and areas of exploration within this domain. Consequently, the implications drawn from this research, when combined with the latest advancements in the field, provide a robust foundation for further theoretical and empirical inquiry. This study's contributions ripple through the academic community, encouraging deeper investigations and fostering the development of innovative approaches to sustainability supplier selection through MCDM.

This study contributes by providing a historical perspective on the evolution of sustainable supplier selection research from 2013 to 2022. This temporal analysis can be valuable for understanding how trends and priorities in supplier sustainability have shifted over the years, potentially revealing important contextual factors. By examining the changes in the research landscape over this decade, we gained insights into the dynamic nature of sustainable supplier selection, which is crucial for practitioners and policy makers seeking to make informed decisions in the ever-evolving sustainability landscape [2,94,95]. This examination not only allows us to appreciate the shifting paradigms and emerging trends but also equips us with the knowledge necessary to adapt and make informed decisions in this rapidly changing arena. The significance of understanding the evolving research landscape in sustainable supplier selection cannot be overstated. Sustainability has transcended its status as a buzzword and has become a foundational pillar in the global business agenda [75,96]. As environmental, social, and ethical concerns continue to take center stage, organizations are under increasing pressure to select suppliers who align with these principles. This transition towards more sustainable practices has profound implications for supply chain management.

Drawing insights from the past decade's research trends, we uncovered a multifaceted narrative. We witnessed the maturation of sustainability criteria, as they expand beyond mere compliance to encompass a broader spectrum of environmental and social dimensions. Innovations in technology, such as blockchain and AI, have also played a pivotal role in enhancing supplier selection processes by providing greater transparency and traceability [97]. Furthermore, global events like the COVID-19 pandemic have highlighted the importance of supply chain resilience and the need to integrate sustainability into risk management strategies [98]. In addition, the historical perspective offered in this study aligns seamlessly with recent calls from scholars and industry experts for more longitudinal and context-sensitive research in the field of supply chain management. This alignment is particularly significant, as it reinforces the need to move beyond static, one-size-fits-all solutions in sustainable supplier selection [99]. Instead, we should consider the evolving nature of sustainability challenges across diverse industries and regions, acknowledging that what works today may not be effective tomorrow [100,101].

The selection of sustainable suppliers is becoming increasingly important for companies in developing a sustainable and responsible supply chain. From the perspective of multi-sectoral issues, sustainable supplier selection practice should consider various factors, such as quality, price, environmental sustainability, compliance with ethical standards, and customer relationships [102]. Regarding customer relationships, the multi-criteria decision making (MCDM) approach with customer relationship management (CRM) is one way that companies can use to make the right decisions in selecting sustainable suppliers [103]. In the context of sustainable supplier selection, CRM also plays an important role [104]. CRM involves managing customer relationships, which include analyzing customer data, managing customer interactions, and understanding customer needs. In selecting sustainable suppliers, CRM can be used to identify customer preferences and needs related to

sustainability aspects. This information can then be used in the MCDM process to select the supplier that best suits customer preferences and needs [20].

The MCDM approach with CRM provides the following benefits in the selection of sustainable suppliers:

- Data-driven decision making: This approach allows companies to collect data and information related to the relevant criteria in supplier selection. This helps companies make decisions that are supported by objective data [52,105]. The data-driven decision-making approach empowers companies to harness the power of information and insights when it comes to selecting their suppliers. By diligently collecting and analyzing data pertinent to the criteria deemed crucial in supplier evaluation, organizations can steer their decision-making processes towards more informed and objective outcomes. Additionally, a data-driven approach enhances risk management in supplier selection. Companies can use the data to evaluate their financial stability, compliance with regulations, and geographical diversification of their suppliers. This information helps in identifying potential risks and developing mitigation strategies to ensure a more resilient supply chain [106].
- Environmentally and socially sustainable: Taking sustainability criteria into account, companies can select suppliers that adhere to environmentally and socially responsible business practices. This helps companies to build a reputation for sustainability and minimize negative impacts on the environment and society [107]. Incorporating sustainability criteria into supplier selection processes is a crucial move for companies. It promotes responsible business practices, encourages an environmentally and socially conscious global marketplace, and ensures the quality of products and services. By choosing sustainable suppliers, businesses not only enhance their own reputation but also align with the growing global concern for ecological and social well-being. Responsible sourcing minimizes negative impacts on the environment and society, fulfilling corporate social responsibilities and showing commitment to a sustainable future [108]. This sets an example for the industry and inspires positive change throughout the supply chain, ultimately fostering a more harmonious and responsible global economy.
- Improved customer relationships: The symbiotic relationship between supplier selection and customer satisfaction becomes increasingly evident as businesses tailor their procurement processes. In the context of continuous supplier selection, companies that understand customer preferences can adapt their supplier selection to customer needs. This helps increase customer satisfaction and build stronger long-term relationships [109]. In the dynamic landscape of continuous supplier selection, businesses that possess a keen insight into customer preferences are empowered to finely tune their supplier selection strategies in direct alignment with the evolving demands and desires of their clientele. This strategic alignment serves as a powerful catalyst, propelling organizations towards enhanced customer satisfaction and fostering robust, enduring relationships.

Several studies have proposed a decision-making approach that combines the fuzzy analytic hierarchy process (FAHP) with the Technique for Order Preference by Similarity to Ideal Solution (TOPSIS) approach for sustainable supplier selection. The results showed that this approach can assist companies in selecting suppliers that meet sustainability requirements [110,111]. Another study integrated the analytic network process (ANP) and TOPSIS to select sustainable suppliers by considering various sustainability criteria. This research also considered the relationship with suppliers through the implementation of CRM to improve supply chain sustainability [111,112]. In addition, there are other studies on decision-making approaches that integrate fuzzy AHP, fuzzy TOPSIS, and fuzzy VlseKriterijumska Optimizacija I Kompromisno Resenje (VIKOR) to select sustainable suppliers by considering CRM. The results showed that this approach can assist companies in selecting sustainable suppliers by considering customer needs and supplier relationships [112–114]. By combining MCDM and CRM approaches, companies can make more informed and

sustainable decisions in supplier selection. This approach helps companies consider various important factors, such as sustainability, quality, price, and customer preferences, thus improving the overall supply chain performance [15,115].

3.2. Managerial Implication

The findings of a literature review are crucial for informing managerial implications in several ways. Firstly, they provide a comprehensive understanding of the existing body of knowledge on a particular subject, enabling managers to make informed decisions based on the collective wisdom of experts and scholars. Secondly, a well-conducted literature review can reveal gaps in the current research, helping managers identify areas where further investigation or innovation is needed to gain a competitive edge. Tranfield, Denyer, and Smart [116] believed that the findings of their systematic literature review can offer insights into the best practices, successful strategies, and potential pitfalls, allowing managers to adopt proven approaches and avoid costly mistakes. To achieve the goal of sustainable growth, it is important to think about and pick the right supplier. A new multi-criteria decision making (MCDM) method called spherical fuzzy analytic hierarchy process (SF-AHP) and the combinative distance-based assessment (CODAS) can be used to solve the problem of choosing a provider [33,90,114].

The findings of this study have significant managerial implications for organizations aiming to enhance their sustainability supplier selection processes. Firstly, the awareness of the substantial growth in sustainable supplier selection research in 2019 serves as a critical milestone for managers. This indicates that sustainable sourcing practices gained heightened attention around this time, and that companies should consider re-evaluating their supplier selection strategies to align with emerging sustainability trends. Zhu and Sarkis [117] believed that sustainable sourcing practices gained heightened attention in recent years due to several factors. One key factor is the increasing awareness of environmental and social issues among consumers and stakeholders. Additionally, as consumers become more conscious of the environmental and social impacts of the products they purchase, companies are under pressure to adopt sustainable sourcing practices to meet this demand [118]. Secondly, the insight into the primary focus of the publications, which is the decision-making processes in sustainable supplier selection, highlights the need for managers to prioritize decision-making models and frameworks in their supplier selection procedures. Investing in these approaches can not only improve environmental and social impacts but also enhance the overall efficiency and effectiveness of the procurement process. Mahmoudi, Deng [119] and Shah, Chaudhari, and Jani [120] argued that sustainable supplier selection can enhance risk management. Business owners or managers can identify potential vulnerabilities in their supply chains by considering environmental and social risks during supplier assessments. This proactive approach can help them prevent disruptions due to factors like regulatory changes or climate-related events, ultimately increasing procurement efficiency.

From a government perspective, the findings of this study offer valuable insights into how organizations can improve their sustainability supplier selection processes. Government agencies can play a role in encouraging and supporting these improvements. For example, governments can promote sustainable sourcing practices by creating awareness campaigns, providing incentives, or even implementing regulations that encourage businesses to consider sustainability in their supplier selection processes. This could include tax incentives for environmentally friendly sourcing or certification programs. Incentives offered by governments play a crucial role in encouraging businesses to consider sustainability in their supplier selection processes. According to a report by a study written by Khan and Qianli [121], businesses were more likely to adopt sustainable sourcing practices when offered tax incentives. Another study by Giunipero, Hooker [122] indicated that tax incentives for environmentally friendly sourcing could be an effective way for governments to drive sustainable sourcing practices, thereby reducing environmental impact. The findings of this study also indicated that environmental considerations become the main key

when applying sustainable supplier selection. Therefore, involved stakeholders, such as government agencies, can provide assistance and resources to help small business sectors adopt sustainable supplier selection practices, as they may lack the resources and expertise of larger organizations. Maheshwari, Samal [123] believed that in the context of sustainable supplier selection, small businesses often struggle due to resource constraints. Therefore, it is pertinent to cite research that underscores the vital role played by government agencies in aiding small businesses with the necessary resources and expertise.

From the perspective of suppliers, the findings of this study lead several managerial recommendations for suppliers in the context of sustainable supplier selection using multi-criteria decision making (MCDM) techniques. Firstly, suppliers should actively stay informed about emerging trends in supply chain management, especially in the area of sustainable supplier selection. This article highlighted a significant increase in research on this topic from 2019 to 2022. Being aware of these trends can help suppliers adapt their practices accordingly. Understanding and staying current with these trends can provide suppliers with a significant advantage. It enables them to adapt their practices in line with the latest developments, ultimately fostering stronger and more resilient supply chain relationships. Moreover, by embracing sustainable supplier selection practices, suppliers can align themselves with the growing environmental and social consciousness of consumers and stakeholders, which is a critical factor in today's business landscape [124]. Secondly, decision making is a central focus in sustainable supplier selection through MCDM. Suppliers should invest in robust decision-making processes that take into account various criteria, such as environmental impact, cost-effectiveness, and social responsibility. This will position them as attractive choices for buyers who prioritize sustainability. Decision-making processes play a pivotal role in the context of sustainable supplier selection through multi-criteria decision making (MCDM) methods [124,125]. In this regard, suppliers are encouraged to allocate resources towards developing robust decision-making frameworks that encompass a comprehensive range of criteria. These criteria encompass elements like environmental impact, cost-effectiveness, and social responsibility [126]. By adopting such an approach, suppliers can position themselves as highly appealing options for environmentally conscious buyers who give precedence to sustainability in their procurement strategies. Finally, suppliers should make efforts to provide clear and comprehensive information about their sustainability practices, certifications, and performance metrics. This transparency can build trust with potential buyers [97,127]. Suppliers should view transparency regarding sustainability practices, certifications, and performance metrics as a strategic imperative. Not only does it align with the ethical and environmental concerns of today's consumers, but it also establishes trust with potential buyers, ultimately leading to enhanced competitiveness and sustained business success. Moreover, research has shown that transparency about sustainability practices positively influences buyer–supplier relationships. When suppliers openly share information about their sustainability initiatives and performance metrics, it fosters a sense of trust and reliability among potential buyers. This trust is invaluable in an era where corporate social responsibility and ethical sourcing are key considerations for procurement professionals [128–131].

4. Conclusions

This article sheds light on the emerging trends in supply chain management, particularly regarding the sustainable selection of suppliers using multi-criteria decision making (MCDM) techniques. The authors conducted an extensive analysis of data obtained from the Scopus database, employing the bibliometric method to derive valuable insights. The findings of this study are two-fold. Firstly, the research on sustainable supplier selection through MCDM has experienced a substantial growth trajectory from 2019 to 2022, indicating a heightened interest in this field. Secondly, the research outcomes have predominantly been disseminated through articles, signifying the importance of scholarly publications in advancing knowledge in this domain.

This study also revealed the dominant focus and keywords used within the literature. Decision making emerges as the primary purpose of research in sustainable supplier selection through MCDM. Furthermore, the most frequently encountered research keywords encompass sustainable development, supplier selection, supply chain management, and multi-criteria decision making. The findings of this research underscore the significance of global collaboration in the domain of sustainable supplier selection through MCDM. This study demonstrates that a substantial portion of the research output is driven by international partnerships, reflecting a growing awareness of the global interconnectedness of supply chain management and sustainability concerns. It further highlights the need for cross-border cooperation to address the multifaceted challenges associated with supplier sustainability.

Finally, there is a growing body of research proposing decision-making approaches that combine various methodologies, such as fuzzy analytic hierarchy process (FAHP), Technique for Order Preference by Similarity to Ideal Solution (TOPSIS), and analytic network process (ANP), with CRM for sustainable supplier selection. These approaches can be further refined, and their effectiveness in considering various factors like sustainability, quality, price, and customer preferences can be explored in greater depth, ultimately leading to improved overall supply chain performance. Additionally, the results of this study indicated that it is crucial to acknowledge certain limitations in this investigation. Solely relying on the Scopus database may result in the exclusion of pertinent articles related to sustainable supplier selection through MCDM. To enhance the comprehensiveness of future analyses, the authors recommend incorporating additional sources, such as the Web of Science or other relevant databases. The outcomes of this research hold practical implications for research institutions and scholars in Indonesia, assisting them in formulating research plans that align with international standards and contribute to sustainable selection practices through MCDM in the supplier domain.

Author Contributions: Conceptualization, K.K. and I.M.; methodology, K.K.; software, D.P.R.; validation, F.Z., A.H. and I.M.; formal analysis, K.K.; investigation, I.M.; resources, D.P.R.; data curation, K.K.; writing—original draft preparation, I.M. and F.Z.; writing—review and editing, K.K. and A.H.; supervision, I.M. and D.P.R.; project administration, A.H.; funding acquisition, F.Z. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: Data are contained within the article.

Conflicts of Interest: The authors declare no conflict of interest.

References

1. Çalik, A. A comparative perspective in sustainable supplier selection by integrated mcdm techniques. *Sigma J. Eng. Nat. Sci.* **2020**, *38*, 835–852.
2. Dang, T.T.; Nguyen, N.A.T.; Nguyen, V.T.T.; Dang, L.T.H. A Two-Stage Multi-Criteria Supplier Selection Model for Sustainable Automotive Supply Chain under Uncertainty. *Axioms* **2022**, *11*, 228. [CrossRef]
3. Cheraghalipour, A.; Farsad, S. A bi-objective sustainable supplier selection and order allocation considering quantity discounts under disruption risks: A case study in plastic industry. *Comput. Ind. Eng.* **2018**, *118*, 237–250. [CrossRef]
4. Nazari, A.; Vandadian, S.; Abdirad, H. Fuzzy AHP model for prequalification of engineering consultants in the Iranian public procurement system. *J. Manag. Eng.* **2017**, *33*, 04016042. [CrossRef]
5. Wang, C.N.; Nguyen, T.L.; Dang, T.T. Two-Stage Fuzzy MCDM for Green Supplier Selection in Steel Industry. *Intell. Autom. Soft Comput.* **2022**, *33*, 1245–1260. [CrossRef]
6. Jahanbakhsh Javid, N.; Amini, M. Evaluating the effect of supply chain management practice on implementation of halal agroindustry and competitive advantage for small and medium enterprises. *Int. J. Comput. Sci. Inf. Technol.* **2023**, *15*, 8997–9008.
7. Cahyono, Y.; Purwoko, D.; Koho, I.; Setiani, A.; Supendi, S.; Setyoko, P.; Sosiady, M.; Wijoyo, H. The role of supply chain management practices on competitive advantage and performance of halal agroindustry SMEs. *Uncertain Supply Chain Manag.* **2023**, *11*, 153–160. [CrossRef]

8. Mahendra, G.S.; Wardoyo, R.; Pasrun, Y.P.; Sudipa, I.G.I.; Putra, I.N.T.A.; Wiguna, I.K.A.G.; Aristamy, I.G.A.A.M.; Kharisma, L.P.I.; Sutoyo, M.N.; Sarasvananda, I.B.G. *Implementasi Sistem Pendukung Keputusan: Teori & Studi Kasus*; PT. Sonpedia Publishing Indonesia: Jambi, Indonesia, 2023.
9. El Mariouli, O.; Abouabdellah, A. A new model of supplier's selection for sustainable supply chain management. *Adv. Sci. Technol. Eng. Syst.* **2019**, *4*, 251–259. [CrossRef]
10. Purnomo, M.R.A. Pendekatan Komprehensif Berbasis MCDM untuk Evaluasi Kinerja Pemasok. 2020. Available online: https://dspace.uii.ac.id/123456789/31155 (accessed on 30 June 2023).
11. Yazdani, M.; Chatterjee, P.; Zavadskas, E.K.; Hashemkhani Zolfani, S. Integrated QFD-MCDM framework for green supplier selection. *J. Clean. Prod.* **2017**, *142*, 3728–3740. [CrossRef]
12. Venkatesh, V.; Zhang, A.; Deakins, E.; Luthra, S.; Mangla, S. A fuzzy ahp-topsis approach to supply partner selection in continuous aid humanitarian supply chains. *Ann. Oper. Res.* **2019**, *283*, 1517–1550. [CrossRef]
13. Fauzi, F.Z.-Z. Pemilihan Supplier Daging Sapi Pada Masa Pandemi COVID-19 Menggunakan Metode Analytical Networking Process (Studi Kasus Rumah Makan Pasti Murah Kota Cirebon). 2021. Available online: https://dspace.uii.ac.id/handle/123456789/31708 (accessed on 30 June 2023).
14. Zhu, X.; Meng, X.; Zhang, M. Application of multiple criteria decision making methods in construction: A systematic literature review. *J. Civ. Eng. Manag.* **2021**, *27*, 372–403. [CrossRef]
15. Gegovska, T.; Koker, R.; Cakar, T. Green Supplier Selection Using Fuzzy Multiple-Criteria Decision-Making Methods and Artificial Neural Networks. *Comput. Intell. Neurosci.* **2020**, *2020*, 8811834. [CrossRef] [PubMed]
16. Nisa, A.A.K.; Subiyanto, S.; Sukamta, S. Penggunaan Analytical Hierarchy Process (AHP) Untuk Pemilihan Supplier Bahan Baku. *JSINBIS (J. Sist. Inf. Bisnis)* **2019**, *9*, 86–93. [CrossRef]
17. Zhang, L.; Xie, Y.; Zheng, Y.; Xue, W.; Zheng, X.; Xu, X. The challenges and countermeasures of blockchain in finance and economics. *Syst. Res. Behav. Sci.* **2020**, *37*, 691–698. [CrossRef]
18. Wang, C.N.; Yang, C.Y.; Cheng, H.C. A fuzzy multicriteria decision-making (MCDM) model for sustainable supplier evaluation and selection based on triple bottom line approaches in the garment industry. *Processes* **2019**, *7*, 400. [CrossRef]
19. Liu, A.; Xiao, Y.; Lu, H.; Tsai, S.B.; Song, W. A fuzzy three-stage multi-attribute decision-making approach based on customer needs for sustainable supplier selection. *J. Clean. Prod.* **2019**, *239*, 118043. [CrossRef]
20. Liu, C.; Rani, P.; Pachori, K. Sustainable circular supplier selection and evaluation in the manufacturing sector using Pythagorean fuzzy EDAS approach. *J. Enterp. Inf. Manag.* **2022**, *35*, 1040–1066. [CrossRef]
21. Liu, H.C.; Quan, M.Y.; Li, Z.; Wang, Z.L. A new integrated MCDM model for sustainable supplier selection under interval-valued intuitionistic uncertain linguistic environment. *Inf. Sci.* **2019**, *486*, 254–270. [CrossRef]
22. Ho, W.; Xu, X.; Dey, P.K. Multi-criteria decision making approaches for supplier evaluation and selection: A literature review. *Eur. J. Oper. Res.* **2010**, *202*, 16–24. [CrossRef]
23. Liu, J.; Yin, Y. An integrated method for sustainable energy storing node optimization selection in China. *Energy Convers. Manag.* **2019**, *199*, 112049. [CrossRef]
24. Liu, N.; Ye, Z. Empirical research on the blockchain adoption–based on TAM. *Appl. Econ.* **2021**, *53*, 4263–4275. [CrossRef]
25. Zakeri, S.; Yang, Y.; Konstantas, D. A Supplier Selection Model Using Alternative Ranking Process by Alternatives' Stability Scores and the Grey Equilibrium Product. *Processes* **2022**, *10*, 917. [CrossRef]
26. Wiwoho, F.A. *Pemilihan Supplier Menggunakan Metode Analytic Network Process (ANP) DI PT. HARVITA TISI MULIA Semarang*; Udinus: Kota Semarang, Indonesia, 2012.
27. Tayyar, S.H.; Soltani, R. Supplier Selection through a Hybrid MCDM-QFD Method: A Case Study in Mapna Group. In Proceedings of the 7th international Conference on Logistics and Supply Chain Management (LSCM 2020), Tehran, Iran, 23–24 December 2020; Communications in Computer and Information Science 2021.
28. Viterouli, M.; Belias, D.; Koustelios, A.; Tsigilis, N.; Bakogiannis, D. Fostering Sustainability Through the Integration of Green Human Resource Management and Change Management: Nurturing Eco-Conscious Organizational Practices. In *Managing Successful and Ethical Organizational Change*; Belias, D., Rossidis, I., Papademetriou, C., Masouras, A., Anastasiadou, S., Eds.; IGI Global: Hershey, PA, USA, 2023; pp. 241–278.
29. Agrawal, V.; Mohanty, R.P.; Agarwal, S.; Dixit, J.K.; Agrawal, A.M. Analyzing critical success factors for sustainable green supply chain management. *Environ. Dev. Sustain.* **2023**, *25*, 8233–8258. [CrossRef]
30. Cinnirella, V.; Carpitella, S.; Coco, A.; Frangiamore, D.D.M.; de Geronimo, R.P. *Sustainable Suppliers Evaluation in the Waste Management Sector: The Case of a Leading Sicilian Enterprise*; Ilieva, S., Ed.; IFAC-PapersOnLine; Elsevier B.V.: Amsterdam, The Netherlands, 2022; pp. 66–71.
31. Durmić, E.; Stević, Ž.; Chatterjee, P.; Vasiljević, M.; Tomašević, M. Sustainable supplier selection using combined FUCOM—Rough SAW model. *Rep. Mech. Eng.* **2020**, *1*, 34–43. [CrossRef]
32. Banaeian, N.; Mobli, H.; Fahimnia, B.; Nielsen, I.E.; Omid, M. Green supplier selection using fuzzy group decision making methods: A case study from the agri-food industry. *Comput. Oper. Res.* **2018**, *89*, 337–347. [CrossRef]
33. Büyükselçuk, E.Ç.; Tozan, H.; Vayvay, Ö. A multi-criteria decision-making approach for greenovative supplier selection. *Int. J. Ind. Eng. Theory Appl. Pract.* **2022**, *29*, 283–301.
34. Başaran, B.; Çakir, S. Evaluation of food safety and halal criteria in supplier selection: An application in food sector with fuzzy COPRAS method. *Int. Food Res. J.* **2021**, *28*, 576–585. [CrossRef]

35. Stević, Ž.; Pamučar, D.; Puška, A.; Chatterjee, P. Sustainable supplier selection in healthcare industries using a new MCDM method: Measurement of alternatives and ranking according to compromise solution (MARCOS). *Comput. Ind. Eng.* **2020**, *140*, 106231. [CrossRef]
36. Tolooie, M.; Alvandi, M.; Arani, M.S. Sustainable supplier evaluation and selection in developing countries: An integrated fuzzy framework. *Int. J. Integr. Supply Manag.* **2022**, *15*, 151–183. [CrossRef]
37. Mongeon, P.; Paul-Hus, A. Liputan jurnal Web of Science dan Scopus: Analisis komparatif. *Scientometrics* **2016**, *106*, 213–228. [CrossRef]
38. Zupic, I.; Čater, T. Bibliometric methods in management and organization. *Organ. Res. Methods* **2015**, *18*, 429–472. [CrossRef]
39. Ha, C.T.; Thao, T.T.P.; Trung, N.T.; Van Dinh, N.; Trung, T. A bibliometric review of research on STEM education in ASEAN: Science mapping the literature in Scopus database, 2000 to 2019. *Eurasia J. Math. Sci. Technol. Educ.* **2020**, *16*, em1889. [CrossRef]
40. Grosseck, G.; Țîru, L.G.; Bran, R.A. Education for sustainable development: Evolution and perspectives: A bibliometric review of research, 1992–2018. *Sustainability* **2019**, *11*, 6136. [CrossRef]
41. Yu, D.; Xu, Z.; Wang, X. Bibliometric analysis of support vector machines research trend: A case study in China. *Int. J. Mach. Learn. Cybern.* **2020**, *11*, 715–728. [CrossRef]
42. Lamers, W.S.; Boyack, K.; Larivière, V.; Sugimoto, C.R.; van Eck, N.J.; Waltman, L.; Murray, D. Meta-Research: Investigating disagreement in the scientific literature. *Elife* **2021**, *10*, e72737. [CrossRef]
43. Akcan, S.; Güldeş, M. Integrated Multicriteria Decision-Making Methods to Solve Supplier Selection Problem: A Case Study in a Hospital. *J. Healthc. Eng.* **2019**, *2019*, 5614892. [CrossRef] [PubMed]
44. Zhou, T.; Chen, Z.; Ming, X. A novel hesitant fuzzy linguistic hybrid cloud model and extended best-worst method for multicriteria decision making. *Int. J. Intell. Syst.* **2022**, *37*, 596–624. [CrossRef]
45. Yazdani, M.; Torkayesh, A.E.; Chatterjee, P. An integrated decision-making model for supplier evaluation in public healthcare system: The case study of a Spanish hospital. *J. Enterp. Inf. Manag.* **2020**, *33*, 965–989. [CrossRef]
46. Wang, R.; Li, X.; Li, C. Optimal selection of sustainable battery supplier for battery swapping station based on Triangular fuzzy entropy—MULTIMOORA method. *J. Energy Storage* **2021**, *34*, 102013. [CrossRef]
47. Wang, C.N.; Chou, C.C.; Dang, T.T.; Nguyen, H.P.; Nguyen, N.A.T. Integrating Triple Bottom Line in Sustainable Chemical Supplier Selection: A Compromise Decision-Making-Based Spherical Fuzzy Approach. *Processes* **2022**, *10*, 889. [CrossRef]
48. Wang, C.N.; Fu, H.P.; Hsu, H.P.; Nguyen, V.T.; Nguyen, V.T.; Ahmar, A.S. A model for selecting a biomass furnace supplier based on qualitative and quantitative factors. *Comput. Mater. Contin.* **2021**, *69*, 2339–2353. [CrossRef]
49. Wang, C.N.; Hoang Viet, V.T.; Ho, T.P.; Nguyen, V.T.; Nguyen, V.T. Multi-criteria decision model for the selection of suppliers in the textile industry. *Symmetry* **2020**, *12*, 979. [CrossRef]
50. Wang, C.N.; Nguyen, T.T.T.; Dang, T.T.; Nguyen, N.A.T. A Hybrid OPA and Fuzzy MARCOS Methodology for Sustainable Supplier Selection with Technology 4.0 Evaluation. *Processes* **2022**, *10*, 2351. [CrossRef]
51. Wang, C.N.; Nguyen, V.T.; Thai, H.T.N.; Tran, N.N.; Tran, T.L.A. Sustainable supplier selection process in edible oil production by a hybrid fuzzy analytical hierarchy process and green data envelopment analysis for the smes food processing industry. *Mathematics* **2018**, *6*, 302. [CrossRef]
52. Wang, C.N.; Pan, C.F.; Nguyen, V.T.; Husain, S.T. Sustainable supplier selection model in supply chains during the COVID-19 pandemic. *Comput. Mater. Contin.* **2022**, *70*, 3005–3019. [CrossRef]
53. Wang, C.-N.; Nguyen, V.T.; Chyou, J.-T.; Lin, T.-F.; Nguyen, T.N. Fuzzy Multicriteria Decision-Making Model (MCDM) for Raw Materials Supplier Selection in Plastics Industry. *Mathematics* **2019**, *7*, 981. [CrossRef]
54. Adhikary, P.; Roy, P.K.; Mazumdar, A. Turbine supplier selection for small hydro project: Application of multi-criteria optimization technique. *Int. J. Appl. Eng. Res.* **2015**, *10*, 13109–13122.
55. Wang, P.; Zhu, Z.; Wang, Y. A novel hybrid MCDM model combining the SAW, TOPSIS and GRA methods based on experimental design. *Inf. Sci.* **2016**, *345*, 27–45. [CrossRef]
56. Afrasiabi, A.; Tavana, M.; Di Caprio, D. An extended hybrid fuzzy multi-criteria decision model for sustainable and resilient supplier selection. *Environ. Sci. Pollut. Res.* **2022**, *29*, 37291–37314. [CrossRef]
57. Kazimieras Zavadskas, E.; Antucheviciene, J.; Chatterjee, P. Multiple-criteria decision-making (MCDM) techniques for business processes information management. *Information* **2019**, *10*, 4. [CrossRef]
58. Wang, C.-N.; Nguyen, N.-A.-T.; Dang, T.-T.; Lu, C.-M. A Compromised Decision-Making Approach to Third-Party Logistics Selection in Sustainable Supply Chain Using Fuzzy AHP and Fuzzy VIKOR Methods. *Mathematics* **2021**, *9*, 886. [CrossRef]
59. Dang, R.; Li, X.; Li, C.; Xu, C. A MCDM framework for site selection of island photovoltaic charging station based on new criteria identification and a hybrid fuzzy approach. *Sustain. Cities Soc.* **2021**, *74*, 103230. [CrossRef]
60. Wang, C.-N.; Nguyen, V.T.; Thai, H.T.; Duong, D.H. Multi-Criteria Decision Making (MCDM) Approaches for Solar Power Plant Location Selection in Viet Nam. *Energies* **2018**, *11*, 1504. [CrossRef]
61. Thanh, N.V. Sustainable Energy Source Selection for Industrial Complex in Vietnam: A Fuzzy MCDM Approach. *IEEE Access* **2022**, *10*, 50692–50701. [CrossRef]
62. Pamučar, D.; Stević, Ž.; Sremac, S. A New Model for Determining Weight Coefficients of Criteria in MCDM Models: Full Consistency Method (FUCOM). *Symmetry* **2018**, *10*, 393. [CrossRef]
63. Ecer, F.; Pamucar, D. Sustainable supplier selection: A novel integrated fuzzy best worst method (F-BWM) and fuzzy CoCoSo with bonferroni (CoCoSo'B) multi-criteria model. *J. Clean. Prod.* **2020**, *266*, 121981. [CrossRef]

64. Matić, B.; Jovanović, S.; Das, D.K.; Zavadskas, E.K.; Stević, Ž.; Sremac, S.; Marinković, M. A New Hybrid MCDM Model: Sustainable Supplier Selection in a Construction Company. *Symmetry* **2019**, *11*, 353. [CrossRef]
65. Wang, C.-N.; Tsai, H.-T.; Ho, T.-P.; Nguyen, V.-T.; Huang, Y.-F. Multi-Criteria Decision Making (MCDM) Model for Supplier Evaluation and Selection for Oil Production Projects in Vietnam. *Processes* **2020**, *8*, 134. [CrossRef]
66. Van Thanh, N. Optimal Waste-to-Energy Strategy Assisted by Fuzzy MCDM Model for Sustainable Solid Waste Management. *Sustainability* **2022**, *14*, 6565. [CrossRef]
67. Puška, A.; Stević, Ž.; Pamučar, D. Evaluation and selection of healthcare waste incinerators using extended sustainability criteria and multi-criteria analysis methods. *Environ. Dev. Sustain.* **2022**, *24*, 11195–11225. [CrossRef]
68. Antucheviciene, J.; Kala, Z.; Marzouk, M.; Vaidogas, E.R. Solving Civil Engineering Problems by Means of Fuzzy and Stochastic MCDM Methods: Current State and Future Research. *Math. Probl. Eng.* **2015**, *2015*, 362579. [CrossRef]
69. Basílio, M.P.; Pereira, V.; Costa, H.G.; Santos, M.; Ghosh, A. A systematic review of the applications of multi-criteria decision aid methods (1977–2022). *Electronics* **2022**, *11*, 1720. [CrossRef]
70. Chen, C.H. A new multi-criteria assessment model combining GRA techniques with intuitionistic fuzzy entropy-based TOPSIS method for sustainable building materials supplier selection. *Sustainability* **2019**, *11*, 2265. [CrossRef]
71. Memari, A.; Dargi, A.; Jokar, M.R.A.; Ahmad, R.; Rahim, A.R.A. Sustainable supplier selection: A multi-criteria intuitionistic fuzzy TOPSIS method. *J. Manuf. Syst.* **2019**, *50*, 9–24. [CrossRef]
72. Sahu, A.K.; Sharma, M.; Raut, R.D.; Sahu, A.K.; Sahu, N.K.; Antony, J.; Tortorella, G.L. Decision-making framework for supplier selection using an integrated MCDM approach in a lean-agile-resilient-green environment: Evidence from indian automotive sector. *TQM J.* **2023**, *35*, 964–1006. [CrossRef]
73. Chattopadhyay, R.; Chakraborty, S.; Chakraborty, S. An integrated d-marcos method for supplier selection in an iron and steel industry. *Decis. Mak. Appl. Manag. Eng.* **2020**, *3*, 49–69. [CrossRef]
74. Agbo, F.J.; Oyelere, S.S.; Suhonen, J.; Adewumi, S. A systematic review of computational thinking approach for programming education in higher education institutions. In Proceedings of the 19th Koli Calling International Conference on Computing Education Research, Koli, Finland, 21–24 November 2019; pp. 1–10.
75. Deniz, N. Cognitive biases in MCDM methods: An embedded filter proposal through sustainable supplier selection problem. *J. Enterp. Inf. Manag.* **2020**, *33*, 947–963. [CrossRef]
76. Sharma, M.; Joshi, S. Digital supplier selection reinforcing supply chain quality management systems to enhance firm's performance. *TQM J.* **2023**, *35*, 102–130. [CrossRef]
77. Ulutaş, A.; Topal, A.; Pamučar, D.; Stević, Ž.; Karabašević, D.; Popović, G. A New Integrated Multi-Criteria Decision-Making Model for Sustainable Supplier Selection Based on a Novel Grey WISP and Grey BWM Methods. *Sustainability* **2022**, *14*, 16921. [CrossRef]
78. Phochanikorn, P.; Tan, C. A new extension to a multi-criteria decision-making model for sustainable supplier selection under an intuitionistic fuzzy environment. *Sustainability* **2019**, *11*, 5413. [CrossRef]
79. Xu, Z.; Qin, J.; Liu, J.; Martínez, L. Sustainable supplier selection based on AHPSort II in interval type-2 fuzzy environment. *Inf. Sci.* **2019**, *483*, 273–293. [CrossRef]
80. Drakaki, M.; Goren, H.G.; Tzionas, P. Supplier selection problem in fuzzy environment considering risk factors. In Proceedings of the International Conference on Developments in eSystems Engineering (DeSE), Kazan, Russia, 7–10 October 2019; Al-Jumeily, D., Hind, J., Mustafina, J., Al-Hajj, A., Hussain, A., Magid, E., Tawfik, H., Eds.; Institute of Electrical and Electronics Engineers Inc.: Piscataway, NJ, USA, 2019; pp. 784–788.
81. Drakaki, M.; Gören, H.G.; Tzionas, P. A multi-agent based decision framework for sustainable supplier selection, order allocation and routing problem. In Proceedings of the VEHITS 2019—5th International Conference on Vehicle Technology and Intelligent Transport Systems, Crete, Greece, 3–5 May 2019; Gusikhin, O., Helfert, M., Eds.; SciTePress: Setúbal, Portugal, 2019; pp. 621–628.
82. Lo, H.-W. A data-driven decision support system for sustainable supplier evaluation in the Industry 5.0 era: A case study for medical equipment manufacturing. *Adv. Eng. Inform.* **2023**, *56*, 101998. [CrossRef]
83. Alazzawi, A.; Zak, J. *Mcdm/a Based Design of Sustainable Logistics Corridors Combined with Suppliers Selection. The Case Study of Freight Movement to Iraq*; Codina, E., Soriguera, F., Montero, L., Estrada, M., Linares, M., Eds.; Transportation Research Procedia; Elsevier B.V.: Amsterdam, The Netherlands, 2020; pp. 577–584.
84. Aslani, B.; Rabiee, M.; Tavana, M. An integrated information fusion and grey multi-criteria decision-making framework for sustainable supplier selection. *Int. J. Syst. Sci. Oper. Logist.* **2021**, *8*, 348–370. [CrossRef]
85. Bendarag, A.; Bakkas, J.; Hanine, M.; Boutkhoum, O. Pyopasolver: A python based tool for ordinal priority approach operations and normalization. *SoftwareX* **2022**, *20*, 101226. [CrossRef]
86. Boz, E.; Çizmecioğlu, S.; Çalık, A. A Novel MDCM Approach for Sustainable Supplier Selection in Healthcare System in the Era of Logistics 4.0. *Sustainability* **2022**, *14*, 13839. [CrossRef]
87. Salimian, S.; Mousavi, S.M.; Antucheviciene, J. An interval-valued intuitionistic fuzzy model based on extended VIKOR and MARCOS for sustainable supplier selection in organ transplantation networks for healthcare devices. *Sustainability* **2022**, *14*, 3795. [CrossRef]
88. Wu, C.M.; Hsieh, C.L.; Chang, K.L. A hybrid multiple criteria decision making model for supplier selection. *Math. Probl. Eng.* **2013**, *2013*, 324283. [CrossRef]

89. Chowdhury, P.; Paul, S.K. Applications of MCDM methods in research on corporate sustainability: A systematic literature review. *Manag. Environ. Qual. Int. J.* **2020**, *31*, 385–405. [CrossRef]
90. Caristi, G.; Boffardi, R.; Ciliberto, C.; Arbolino, R.; Ioppolo, G. Multicriteria Approach for Supplier Selection: Evidence from a Case Study in the Fashion Industry. *Sustainability* **2022**, *14*, 8038. [CrossRef]
91. Bhattacharya, R.K.; Das Chatterjee, N.; Das, K. Multifunctional resilience of river health to human service demand in an alluvial quarried reach: A comparison amongst fuzzy logic, entropy, and AHP-based MCDM models. *Environ. Sci. Pollut. Res.* **2022**, *29*, 84137–84165. [CrossRef]
92. da Silva, E.M.; Ramos, M.O.; Alexander, A.; Jabbour, C.J.C. A systematic review of empirical and normative decision analysis of sustainability-related supplier risk management. *J. Clean. Prod.* **2020**, *244*, 118808. [CrossRef]
93. Zhao, H.; Guo, S. Selecting green supplier of thermal power equipment by using a hybrid MCDM method for sustainability. *Sustainability* **2014**, *6*, 217–235. [CrossRef]
94. Lee, T.H.; Do, B.; Dantzinger, L.; Holmes, J.; Chyba, M.; Hankins, S.; Mersereau, E.; Hara, K.; Fan, V.Y. Mitigation Planning and Policies Informed by COVID-19 Modeling: A Framework and Case Study of the State of HAWAII. *Int. J. Environ. Res. Public Health* **2022**, *19*, 6119. [CrossRef]
95. de Almeida Santos, D.; Quelhas, O.L.G.; Gomęs, C.F.S.; Caiado, R.G.G.; da Silva Carvalho Santos, S. Review of decision support methods in green and sustainable supply chains. In *Engineering Education for Sustainability*; River Publishers: Gistrup, Denmark, 2019; pp. 35–50.
96. Ogrean, C.; Herciu, M. Business Models Addressing Sustainability Challenges—Towards a New Research Agenda. *Sustainability* **2020**, *12*, 3534. [CrossRef]
97. Masudin, I.; Rahmatullah, B.B.; Agung, M.A.; Dewanti, I.A.; Restuputri, D.P. Traceability System in Halal Procurement: A Bibliometric Review. *Logistics* **2022**, *6*, 67. [CrossRef]
98. Zandkarimkhani, S.; Amiri, M.; Mousavi, S.M.H. A hybrid multi-criteria decision making method for sustainable supplier selection: A case study. *Int. J. Manag. Decis. Mak.* **2022**, *21*, 113–128. [CrossRef]
99. Dzikriansyah, M.A.; Masudin, I.; Zulfikarijah, F.; Jihadi, M.; Jatmiko, R.D. The role of green supply chain management practices on environmental performance: A case of Indonesian small and medium enterprises. *Clean. Logist. Supply Chain* **2023**, *6*, 100100. [CrossRef]
100. Jafarzadeh Ghoushchi, S.; Khazaeili, M.; Amini, A.; Osgooei, E. Multi-criteria sustainable supplier selection using piecewise linear value function and fuzzy best-worst method. *J. Intell. Fuzzy Syst.* **2019**, *37*, 2309–2325. [CrossRef]
101. Jain, N.; Singh, A.R.; Upadhyay, R.K. Sustainable supplier selection under attractive criteria through FIS and integrated fuzzy MCDM techniques. *Int. J. Sustain. Eng.* **2020**, *13*, 441–462. [CrossRef]
102. Govindan, K.; Rajendran, S.; Sarkis, J.; Murugesan, P. Multi criteria decision making approaches for green supplier evaluation and selection: A literature review. *J. Clean. Prod.* **2015**, *98*, 66–83. [CrossRef]
103. Guo, Z.; Liu, H.; Zhang, D.; Yang, J. Green supplier evaluation and selection in apparel manufacturing using a fuzzy multi-criteria decision-making approach. *Sustainability* **2017**, *9*, 650. [CrossRef]
104. Kaviani, M.A.; Karbassi Yazdi, A.; Ocampo, L.; Kusi-Sarpong, S. An integrated grey-based multi-criteria decision-making approach for supplier evaluation and selection in the oil and gas industry. *Kybernetes* **2020**, *49*, 406–441. [CrossRef]
105. Shah, N.; Chaudhari, U.; Jani, M. Inventory control policies for substitutable deteriorating items under quadratic demand. *Oper. Supply Chain Manag. Int. J.* **2019**, *12*, 42–48. [CrossRef]
106. Handayani, D.I.; Masudin, I.; Susanty, A.; Anna, I.D. Modeling of halal supplier flexibility criteria in the food supply chain using hybrid ISM-MICMAC: A dynamic perspective. *Cogent Eng.* **2023**, *10*, 2219106. [CrossRef]
107. Chuang, S.-P.; Huang, S.-J. The effect of environmental corporate social responsibility on environmental performance and business competitiveness: The mediation of green information technology capital. *J. Bus. Ethics* **2018**, *150*, 991–1009. [CrossRef]
108. Masudin, I.; Umamy, S.Z.; Al-Imron, C.N.; Restuputri, D.P. Green procurement implementation through supplier selection: A bibliometric review. *Cogent Eng.* **2022**, *9*, 2119686. [CrossRef]
109. Guarnieri, P.; Trojan, F. Decision making on supplier selection based on social, ethical, and environmental criteria: A study in the textile industry. *Resour. Conserv. Recycl.* **2019**, *141*, 347–361. [CrossRef]
110. Abas, M.; Salah, B.; Khalid, Q.S.; Hussain, I.; Babar, A.R.; Nawaz, R.; Khan, R.; Saleem, W. Experimental investigation and statistical evaluation of optimized cutting process parameters and cutting conditions to minimize cutting forces and shape deviations in AL6026-T9. *Materials* **2020**, *13*, 4327. [CrossRef]
111. Fei, L.; Deng, Y.; Hu, Y. Ds-vikor: A new multi-criteria decision-making method for supplier selection. *Int. J. Fuzzy Syst.* **2019**, *21*, 157–175. [CrossRef]
112. Doğan, A.; Söylemez, İ.; Özcan, U. Green Supplier Selection by Using Fuzzy Topsis Method. In *Uncertainty Modelling in Knowledge Engineering and Decision Making*; Lu, J., Koehl, L., Kerre, E.E., Martinez, L., Zeng, X., Eds.; World Scientific Publishing Co., Pte Ltd.: Singapore, 2016; pp. 638–645.
113. Arab, A. A systematic review of multi-objective optimization applications in reverse logistics. *J. Supply Chain Manag. Sci.* **2022**, *3*, 37–64. [CrossRef]
114. Diem My, L.T.; Wang, C.N.; Van Thanh, N. Fuzzy MCDM for Improving the Performance of Agricultural Supply Chain. *Comput. Mater. Contin.* **2022**, *73*, 4003–4015. [CrossRef]

115. Ortiz-Barrios, M.; Cabarcas-Reyes, J.; Ishizaka, A.; Barbati, M.; Jaramillo-Rueda, N.; de Jesús Carrascal-Zambrano, G. A hybrid fuzzy multi-criteria decision making model for selecting a sustainable supplier of forklift filters: A case study from the mining industry. *Ann. Oper. Res.* **2021**, *307*, 443–481. [CrossRef]
116. Tranfield, D.; Denyer, D.; Smart, P. Towards a Methodology for Developing Evidence-Informed Management Knowledge by Means of Systematic Review. *Br. J. Manag.* **2003**, *14*, 207–222. [CrossRef]
117. Zhu, Q.; Sarkis, J. An inter-sectoral comparison of green supply chain management in China: Drivers and practices. *J. Clean. Prod.* **2006**, *14*, 472–486. [CrossRef]
118. Mitra, S.; Datta, P.P. Adoption of green supply chain management practices and their impact on performance: An exploratory study of Indian manufacturing firms. *Int. J. Prod. Res.* **2014**, *52*, 2085–2107. [CrossRef]
119. Mahmoudi, A.; Deng, X.; Javed, S.A.; Zhang, N. Sustainable supplier selection in megaprojects: Grey ordinal priority approach. *Bus. Strategy Environ.* **2021**, *30*, 318–339. [CrossRef]
120. Shah, N.H.; Chaudhari, U.; Jani, M.Y. Optimal down–stream credit period and replenishment time for deteriorating inventory in a supply chain. *J. Basic Appl. Res. Int.* **2016**, *14*, 101–115.
121. Khan, S.A.R.; Qianli, D. Impact of green supply chain management practices on firms' performance: An empirical study from the perspective of Pakistan. *Environ. Sci. Pollut. Res.* **2017**, *24*, 16829–16844. [CrossRef]
122. Giunipero, L.C.; Hooker, R.E.; Denslow, D. Purchasing and supply management sustainability: Drivers and barriers. *J. Purch. Supply Manag.* **2012**, *18*, 258–269. [CrossRef]
123. Maheshwari, M.; Samal, A.; Bhamoriya, V. Role of employee relations and HRM in driving commitment to sustainability in MSME firms. *Int. J. Product. Perform. Manag.* **2020**, *69*, 1743–1764. [CrossRef]
124. Reuter, C.; Goebel, P.; Foerstl, K. The impact of stakeholder orientation on sustainability and cost prevalence in supplier selection decisions. *J. Purch. Supply Manag.* **2012**, *18*, 270–281. [CrossRef]
125. Yang, Y.; Wang, Y. Supplier selection for the adoption of green innovation in sustainable supply chain management practices: A case of the chinese textile manufacturing industry. *Processes* **2020**, *8*, 717. [CrossRef]
126. Sapsanguanboon, W.; Sukhotu, V. Sustainable Retail Supply Chain Management Practices: A Case Study of a Modern Trade Retailer in an Emerging Market. *Sustain. J. Rec.* **2015**, *8*, 313–323. [CrossRef]
127. Osintsev, N.; Tsyganov, A.; Rakhmangulov, A.; Sładkowski, A. Multi-criteria Assessment of Piggyback Systems in Sustainable Supply Chains. In *Studies in Systems, Decision and Control*; Springer Science and Business Media Deutschland GmbH: Berlin/Heidelberg, Germany, 2022; Volume 400, pp. 451–559.
128. Roberts, S. Supply chain specific? Understanding the patchy success of ethical sourcing initiatives. *J. Bus. Ethics* **2003**, *44*, 159–170. [CrossRef]
129. Ghosh, S.; Mandal, M.C.; Ray, A. Green supply chain management framework for supplier selection: An integrated multi-criteria decision-making approach. *Int. J. Manag. Sci. Eng. Manag.* **2022**, *17*, 205–219. [CrossRef]
130. Jiang, P.; Hu, Y.C.; Yen, G.F.; Tsao, S.J. Green supplier selection for sustainable development of the automotive industry using grey decision-making. *Sustain. Dev.* **2018**, *26*, 890–903. [CrossRef]
131. Ratna, S.; Kumar, B. *Green Supplier Selection for Nickel Coating Industries Using a Hybrid GRAF-VIK Model*; Phanden, R.K., Mathiyazhagan, K., Kumar, R., Paulo Davim, J., Eds.; Lecture Notes in Mechanical Engineering; Springer Science and Business Media Deutschland GmbH: Berlin/Heidelberg, Germany, 2021; pp. 455–464.