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Towards a sustainable automotive supply chain: a critical and systematic literature review of supplier selection criteria

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Abstract: The automotive supply chain faces increasing pressure to align supplier selection processes with sustainability and resilience goals while adhering to rigorous industry standards. However, many companies still rely on the traditional approach by considering mainly the piece price as criteria for supplier selection, and this approach can destroy the logistic flows and the supply chain performance. In this context, this paper aims to present a systematic literature review of over 100 peer-reviewed articles and studies that broaden current theoretical knowledge by identifying key Sustainable Supplier Selection Criteria. The methodology consists of three main steps. Firstly, the research was conducted using major academic databases between 2014 and 2024, such as Scopus, Web of Science, and Elsevier. Secondly, a database was developed to extract the most cited dimensions in the literature review. Finally, the criteria and sub-criteria identified from the reviewed literature were analyzed through a frequency analysis to determine the most frequently cited sub-criteria within each dimension. The findings show that six main dimensions are most cited in the literature: Economic, Social, Environmental, Green, Circular, and Resilience. Based on these results, we proposed the Sustainable Supplier Selection Concept (3SC Model), which integrates the six dimensions and will be further detailed through the criteria identified and presented in the results section. This model provides a comprehensive framework to guide both researchers and practitioners in developing more sustainable and resilient supplier selection systems.

1 Introduction

Global geopolitical processes, such as trade wars, climate change and pandemics, are radically restructuring the world economy. Global supply chains are undergoing significant changes due to geopolitical disruptions, economic instability, technological advances and cultural transformations [1]. Furthermore, the Automotive Supply Chain has faced significant transformations, impacted by electrification, digitalization and global challenges. These challenges include climate change, Industry 4.0 and various disruptions such as the COVID-19 pandemic and wars. Because of these changes, there is a high necessity for companies to focus on developing resilient and sustainable supply chains. Resilient supply chains are specified by their ability to support disruptions, recover efficiency and sustain continuous operations. However, this evolution has made supplier selection a crucial component in guaranteeing long-term sustainability and improving performance within supply chains.

The success of a supply chain and a robust logistic flow mainly depend on an effective supplier selection process (SSP), which is essential for maintaining sustainability and achieving the necessary standards. They underline three critical flows within the supply chain: materials, information, and money. These elements move from upstream suppliers, responsible for raw materials, to downstream producers, who handle final products [2].

Over the years, the aspect of green supplier selection has evolved as a crucial concern in the global green supply chain. Research by [3] explores integrating dynamic supplier risks and green market segmentation into SSP.

Sustainability in supply chain management (SCM) focuses on incorporating environmentally and socially responsible practices into business operations. It is based on the Triple Bottom Line framework, which emphasizes a balance between environmental care, economic success, and social fairness. Recent research highlights that sustainable SCM not only addresses environmental issues but also includes social and ethical aspects. Many businesses are now taking a more comprehensive approach to SCM, aiming to reduce their environmental impact while ensuring ethical sourcing and fair labor practices. This trend is particularly noticeable in industries like automotive, where selecting sustainable suppliers has become a top priority [4].

The problematic that we are trying to resolve in this paper is that several automotive companies are still using the old supplier selection approach based on one single criterion which is Piece Price, and it is not valid any more to consider only the piece price, since there are other qualitative and quantitative criteria to be considered and that's precisely where this article aims to contribute by listing the mains criteria that should be used by leaders to nominate the sustainable supplier. To achieve this goal, the study addresses the following research questions:

- **RQ1:** What are the main sustainability dimensions considered in supplier selection within the automotive industry?
- **RQ2:** What are the key criteria associated with each sustainability dimension as identified in the existing literature?
- **RQ3:** How can these dimensions and criteria be integrated to enhance sustainability and resilience in the automotive supply chain?

The structure of this paper consists of 6 sections: after the introduction, section 2 provides a Critical and Systematic literature review of supplier selection criteria for automotive industry. In section 3 we present the methodology used to extract data and to list the significant criteria. Section 4 aims to present the result obtained from the systematic literature review. In Section 5 we discuss the results, and we clarify the linkage between the 7 terms constituting the long-term sustainability concept for supplier selection. Section 6 concludes our work's result and highlights some perspectives for future research.

2 Literature review

The supplier selection topic has been a key area of interest for researchers since the 1960s, with several articles and papers addressing the importance of evaluating suppliers' performance based on multiple criteria. Given the complex nature of these decisions, which require input from various departments and stakeholders, the supplier selection is considered as a multi-criteria decision-making (MCDM) task. Through the years, the process has evolved to incorporate sustainability factors, considering the economic, social, and environmental impacts of suppliers. Moreover, it is important to differentiate between 3 types of suppliers. The traditional one focuses on maximizing economic benefits, while the green supplier strives to balance both economic and environmental goals. Lastly, the sustainable supplier aims to optimize the benefits across the economy, society, and environment [5].

2.1 The automotive supply chain

The automotive supply chain is a very challenging area, facing several issues. To better understand its complexity, it is important to recognize that the automotive supply chain is divided into four fundamental steps (as mentioned in Figure 1): Raw Materials (RM) from suppliers, manufacturing sites for the Original Equipment Manufacturer (OEM), dealerships, and the final customer.

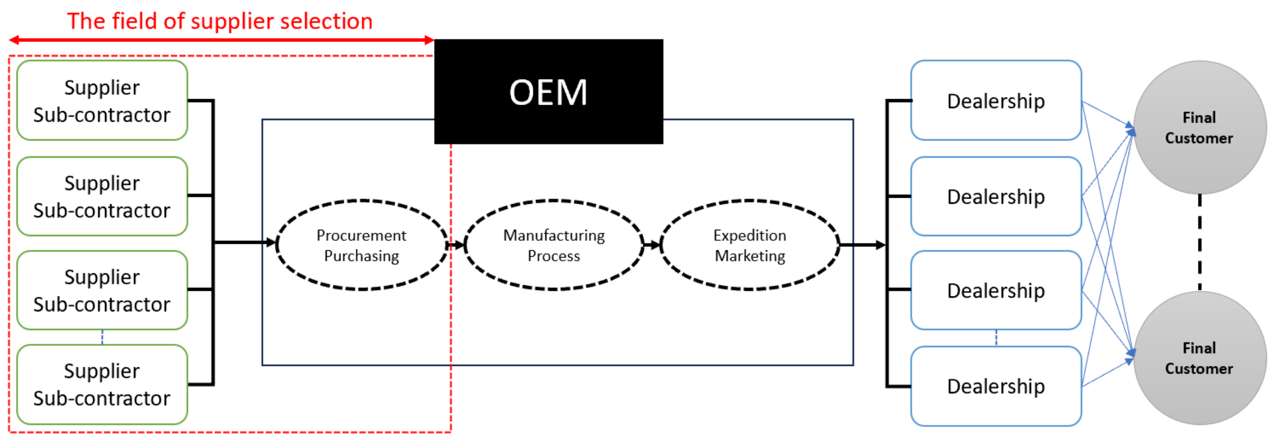

Figure 1 The process flow of automotive supply chain

Within each step, there are several risk factors and complexities who can impact the fluidity of the supply chain and logistic flows, especially the ones related to the RM from supplier as this is the first step in the supply chain flow and for sure, any risk at this step can destroy the whole chain value and logistic flows.

2.2 Supplier selection criteria (SSC)

Vendor or supplier selection problem is not a recent topic where industries and researchers are working on to find and develop new solutions to help the purchasing department choose a sustainable collaborator in supply chain value.

Obviously, the ability to define and choose suitable criteria are the key elements for companies to make the right decision about the supplier who will be identified to develop the project in the correct way.

In this paper, we aim to study more than 100 articles and extract all criteria and sub-criteria from those studies and summarize them in one database to have at the end the top cited criteria per dimension, and here in this section we cited only the most important ones (around 27 articles from Web of Science and SCOPUS).

There are several literature reviews done previously since 1966 when Dickson did a very interesting study about SSC. Weber gives us a clear idea about the interest that was given in the past to vendor selection field, and we understood why the SSP was, and still a strategic element for companies and specifically for purchasing team to make the right decision. A classification and review of 74 articles since 1966 was done to conclude that 23 criteria are classified by importance (based on Dickson study): 4 criteria extreme importance, 9 criteria considerable importance, 9 criteria average importance and 1 criterion slight importance.

According to [6], a literature review has been performed based on 82 reviewed papers to list the different supplier selection approaches that have been used between 1990 and 2019 and consider environmental, economic, and social aspects, simultaneously. Coupled with, [7] presents a literature review for SSC from 1995 till 2007 where the articles and studies published from 1995 to 2005 focus on Quality, Capabilities, Delivery, Services, Technology, Finance, Relationships, and management. Environmental risks highlighted in 2007, becoming one of the crucial SSC. By the same token, [8] presents a literature review which includes the list of Sustainable Supplier Selection Criteria (SSSC). This list includes 15 criteria shared between the main 3 sustainable aspects (economic, social, environmental).

In [9], a literature review was done on sustainable supplier topic with a special interest on approaches treating monitoring and development of decision-making in sustainable supplier selection, and as respond to the question number 3 in the paper, 143 peer-reviewed studies between 1997 and 2014 have been verified to list 34 criteria divided on the 3 dimensions of sustainable supplier management (economic, social, environmental).

Additionally, [10] presents a rich literature review about the main field related to supplier selection topic as strategies and approaches used including selection criteria. 326 papers published between 2000 and 2021 were reviewed and as we are focusing on SSC, we can list the criteria below presented in Figure 2.

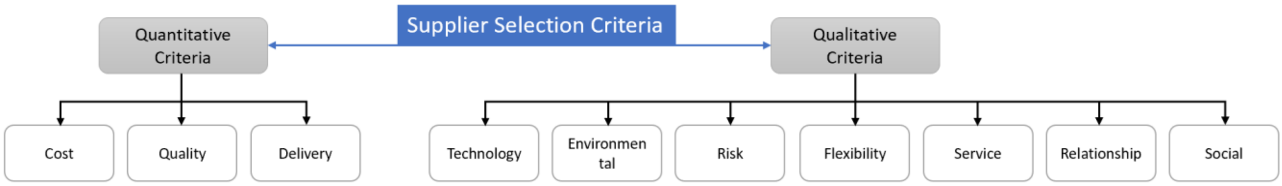

Figure 2 SSC from [10]

Furthermore, [5] presents a sustainable performance measure based on a systematic literature review and return of experience from experts in industry. In the paper we can find more than 30 criteria as a mix of traditional criteria (Quality, Delivery, Cost) and new criteria such as the alliance, training and education, governmental relations impact, and contracts. The study also follows the logic of the stakeholder theory to measure the social responsibility aspect. And in [11], the study identifies more than 14 criteria mixed between economic, social, environmental, green aspect, and the main criteria are green level of product and design, recycling, quality, service level and price.

Moreover, several studies and research have considered supplier selection problem as an extremely complex MCDM topic where the decision makers must evaluate both qualitative criteria (service, reputation, flexibility, etc.) and quantitative criteria (price and cost, delivery, etc.) to select a proper supplier [12]. Hence, [13] presents an integrated support system for supplier selection topic using a case of automotive industry, and the model identified 4 main criteria which are: price, quality, delivery, and service. Using the AHP and based on the expert's feedback, those criteria are classified as below: price, quality, delivery, and service. In addition, [14] discuss the sustainability concept as it becomes a philosophy of several industries, and the first step in this approach is to select a sustainable supplier. To do so, [14] presents an interesting fuzzy TOPSIS method to make the right decision and to select a sustainable supplier based on more than 30 SSC for an automotive manufacturer.

To be able to select a sustainable supplier who can maintain a good performance for a long period, [15] presented an integrated fuzzy logic and systems dynamics modeling approach where they considered 6 sustainable factors: Quality, Environmental Competencies, Safety Work, Information Disclosure, Green Design, and Policy Respect.

Likewise, [16] presents a new MCDM method that helps to choose and weigh the criteria used for SSP. As result of this proposed method, we can find more than 80 criteria which were classified into four groups: costly, complementary, critical, and priority. And according to [17], the authors contribute on a tedious task which is the selection of green supplier by using an MCDM framework, and a case study was applied in the Indian automotive industry based on 9 combined environmental and conventional criteria.

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There is another good study which uses machine learning and Random Forest approach to contribute on classification of relevant criteria for supplier selection problem [18], and the outcome of the study concludes with the classification of 30 potential criteria where nine of them were identified as critical in Table 1.

Table 1 SSC ranking according to [18]

Critical Criteria	Priority
Quality	1
Delivery On Time	2
Material Price	3
Information sharing	4
After sales services	5
Lead time	6
Quantity discount	7
Occupational health and safety system	8
Transportation cost	9

The automotive industry is increasingly prioritizing sustainability across its entire value chain, driven by regulatory pressures, consumer demand, and corporate responsibility goals. Therefore, [19] is one of the articles who give a significant interest to the sustainable supplier selection topic from the 3 aspects (environmental, economic, and social). Furthermore, the study aims to add the aspect of COVID-19 as the 4th aspect because it is affecting significantly the SSP, and the emergence of COVID-19 pandemic becomes a crucial criterion that companies must take into consideration to ensure a sustainable supply chain. An MCDM approach was presented in the paper and, to demonstrate the effectiveness, a case study is illustrated in automotive industry in Vietnam. 5 criteria have been considered as the most important: Price and Cost, Wellbeing of suppliers, Safety and health practices, Economic recovery programs and the use of personal protective equipment.

Based on [20], In general, most supplier selection studies evaluate sustainability based on three axes (Social, environment, and economy) and consider 5 majors to evaluate and ensure sustainability during SSP by adding Quality of relationship and Global risk dimensions. Similarly, [21] considered sustainability as a key element for supplier selection and evaluations problem and based on the literature (26 articles from 2008 till 2015) and feedback from experts, the author identified 3 major dimensions of criteria and 22 SSSC.

Social issues have become one of the major risk managements which is impacting the global supply chain. According to [22], a quantitative analytical approach was presented to discuss social risks of global supply chains, and as case study, the author chooses the application of the approach to supplier selection problem in the automotive industry. In the same line, [23] considers the sustainability aspect in the proposed study and performed a literature review to list the sustainable criteria, besides on that several meetings were performed with decision makers in the iron and steel industry to classify 66 SSSC on 3 dimensions (economic, environment, social).

According to [24], an empirical study was done to confirm that the influence of reputation factors on supplier selection is more important than other classical criteria, at least in the European Automotive Industry.

Recently, Several OEMs aimed to assess the supplier sustainability performance based on the self-assessment questionnaire (SAQ), this article uses the SAQ which is becoming a crucial tool in the automotive industry to evaluate the sustainability performance for suppliers [25].

As the green aspect become a crucial aspect for companies to be highlighted, [26] took into consideration both aspects (Green and sustainability) for SCM. Green SSP is a very challenging topic who can significantly conclude the success or failure of a business. The study proposed an MCDM method to select a suitable green supplier for a green and sustainable supply chain in the automotive industry.14 green criteria were identified in this paper.

On the other hand, [27] contributes to resolving the supplier selection problem and order allocation in the automotive industry, and the environment, social and economic factors are selected based on experts' opinions. Because supplier selection is the key for a successful supply chain, [28] presents an integrated approach for sustainable supplier selection problems. 13 criteria are considered in this work and customer satisfaction was the criterion of highest priority, followed by long-term relationships, and then pollution control.

According to [29], we find a very interesting SSP that can be used by automotive companies to select a suitable supplier. This process is divided into 3 phases and for each phase there are specific criteria to be considered for final supplier ranking. Those criteria are Quality performance, Delivery performance, financial performance, Launch performance and some key Indicators such as Overall Equipment Effectiveness OEE, Certification (International Automotive Task Force IATF, ISO 14001), Capacity, Political Stability and Price.

Recent years have underscored the paramount importance of resilience within the supply chain. Resilience refers to an organization's capacity to prepare for, adapt to, respond to, and swiftly recover from unexpected disruptions. The automotive sector has faced significant challenges, including semiconductor shortages, geopolitical tensions, natural disasters, pandemics like COVID-19, and economic fluctuations such as inflation. Consequently, effective supplier selection in the automotive industry now critically integrates resilience, moving beyond mere cost considerations to encompass a deeper evaluation of a supplier's financial health, adaptability, and ability to ensure continuity amidst unforeseen global complexities. According to [30], the resilience aspect of supplier selection is considered by identifying 12 criteria that can be used: Management and organization support, strategy vision and corporate commitment, community influence, position in the market and reputation, financial stability, logistics capabilities, environmental respect, vulnerability and risk management, sustainability level of suppliers, supplier responsiveness, velocity of supply chain, and training.

Supplier selection, a crucial process for automotive manufacturers, is now being influenced by the circular economic principles. According to [31], the relationship between circular economic and SCM became more and more significant, especially in the automotive industry because of critical materials used for Electrical Vehicles (EV) cars manufacturing. As the SSP is a crucial field in supply chain, this study aims to apply a MCDM approach for supplier selection in a circular supply chain. Electrical vehicles were chosen to be a case study for this paper. The result of the study contributes to identifying the main criteria for circular supplier selection problem based on 3 steps:

- literature review,
- assessment of criteria by experts from the procurement department in the automotive industry,
- determination of the mutual influence of the criteria.

Environmental certifications, environmental standards, resource consumption, and waste generation are the significant criteria which were identified for circular supplier selection in Electrical Vehicles (EV) supply chains.

Additionally, [32] highlighted how the life cycle of product can be extended by presenting a circular economic model which involves reusing, recycling, sharing, refurbishing, and repairing existing materials and products if possible, and the authors analyze the relevant SSC from different aspects: Environment, Economic, Social, resilience and circular.

To close this section, we can say that this paper addresses gaps in current research by conducting a systematic literature review of more than 100 studies published between 1960 and 2024. The study identifies key trends, research gaps, and opportunities in supplier selection. It particularly focuses on sustainability and resilience, emphasizing their strategic importance in building effective supply chains.

3 Methodology

This study presents the structured methodology aimed to identify, classify, and analyze supplier selection dimensions and criteria within the automotive industry. The research approach consists of three steps, as presented in figure 3.

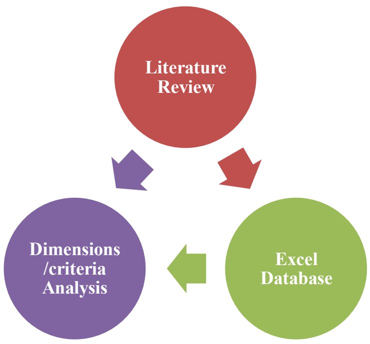

Figure 3 Summarized methodology

Our research starts with a literature review, which focuses on identifying and analyzing scientific publications related to supplier selection criteria, sustainability, and resilience, particularly in the automotive sector. The review was carried out using scientific databases such as Scopus, Web of Science, Elsevier, Emerald, Taylor & Francis, Springer, IEEE, and Google Scholar. Focused on titles, abstracts, and full-text articles published between 2014 and December 2024. The results indicate that Engineering dominates the field (23.5%), followed by Energy and Environmental Science (13.7%), and Computer Science and Business (13.6%). Other discipline such as Decision Sciences (8.1%), Social Sciences (7.3%), Mathematics (2%), Economics and Finance (2%), and Materials Science (2%) also participate to this multidisciplinary domain. This disciplinary diversity suggests that responding to the supplier selection and sustainability challenges requires a strong interdisciplinary approach. Moreover, the number of publications increased between 2014 and 2024, especially after 2020, indicating the rising awareness in sustainability, transparency, and corporate responsibility in supply chains (Figure 4).

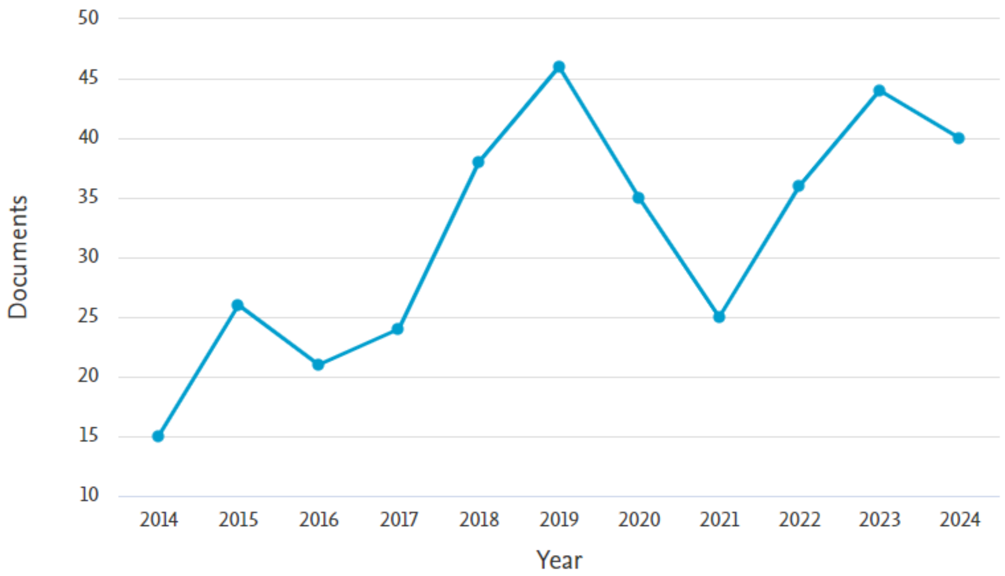

Figure 4 Evolution of publications on supplier selection

The papers and studies collected among the literature review were organized into an Excel database to ensure a consistent and systematic analysis of data. Each reviewed article was coded according to publication year, authors, journal, research methodology, and the supplier selection dimensions and criteria identified. Through this database we can identify six main dimensions more cited in literature review such as Circular, Green, Environmental, Social, Economic, and Resilience and more than 800 supplier selection criteria that will be classified and disused in the next section.

4 Results

From this literature review, only 10% of articles are before 2015 and 90% are later than 2015 which means the researchers are given more interest to supplier selection problem in the last decencies. Following the identification of over 800 supplier selection criteria (SSC) and sub-criteria, classified into six key dimensions (Circular, Green, Environmental, Social, Economic, and Resilience), this section highlights the most frequently cited criteria within each dimension.

4.1 Economic dimension

As illustrated in the figure 5, the quality management (e.g. Quality of product, certification, Quality rejects, Quality management system etc), Material Planning and Logistics MP&L management (Delivery, Leadtime, Logistics infrastructure, Inventory, etc) and Capabilities of company (Technology, production infrastructure, process capability, maintenance etc) are in the top of SSC list for economic dimension.

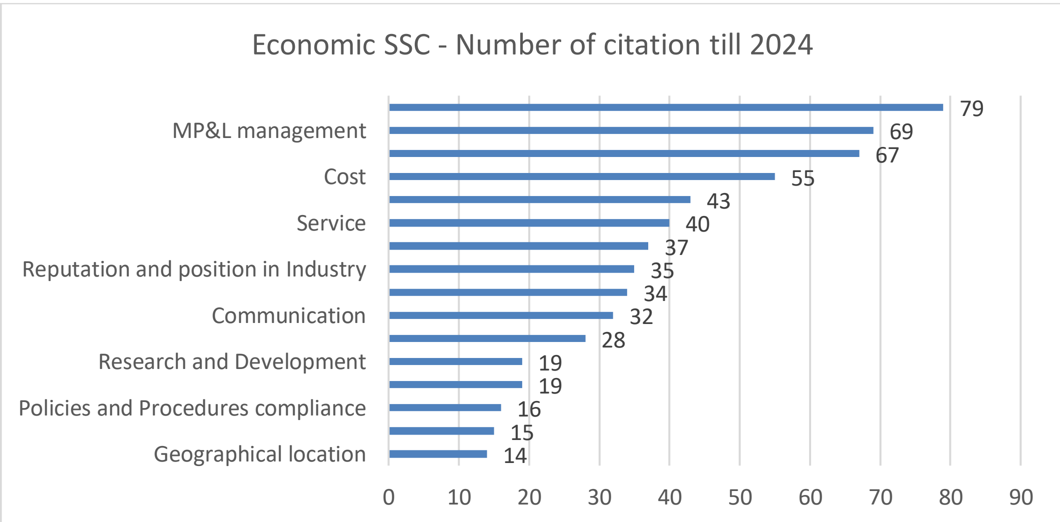

Figure 5 Top cited criteria for economic dimension

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4.2 Social dimension

According to the figure 6 , we can see clearly that the term of "**safety first**" is the objective of all companies and individuals, sfatey and health (Work safety, health insurance and programs, disiplinary and security practices etc), forced labor and human rights (Child labor, child abuse, The rights of employees, the rights of stakeholders, etc) and Human resources management (employee practices, Ethics, Job creation, career development, etc) are in the top of SSC list for social dimension.

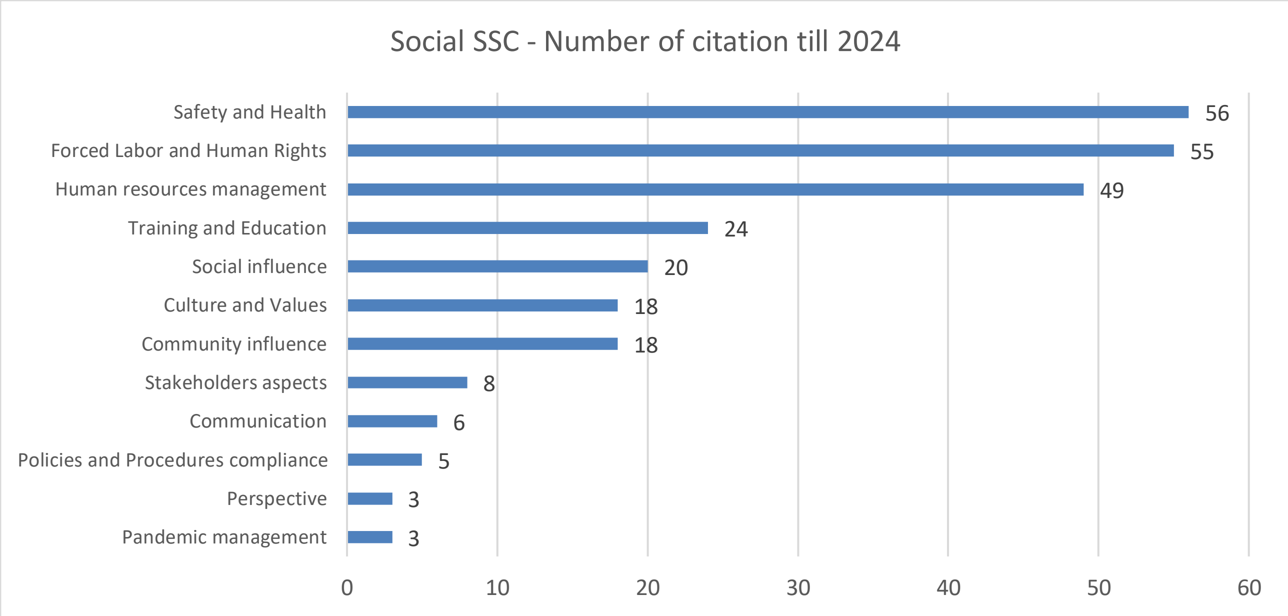

Figure 6 Top cited criteria for social dimension

4.3 Resilience dimension

The figure 7 illustrate the main Resilience SSC cited in literature. Resilience aspects (Agility, Attitude, Capacity, Closeness Relationship, Collaborative Plan, Communication Openness, Competency, Complexity, Cooperation, Critical Nodes, Density, etc) Flexibility and risk management are the top priority criteria for a resilient company.

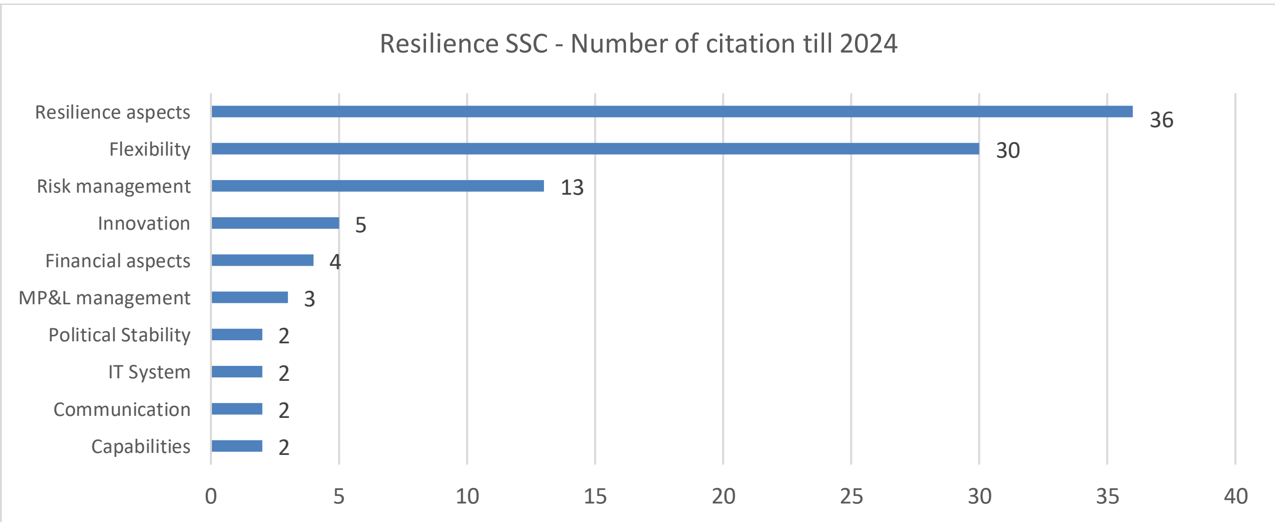

Figure 7 Top cited criteria for resilience dimension

4.4 Environmental dimension

The environmental dimension have a strong relationship with the green aspect and it is crucial for sustainability and competiviness. Environment Management System (eg ISO 14001), Pollution Control, Environment competencies, Eco-Design and Carbon emissions are in the top of Environmental SSC list (Figure 8).

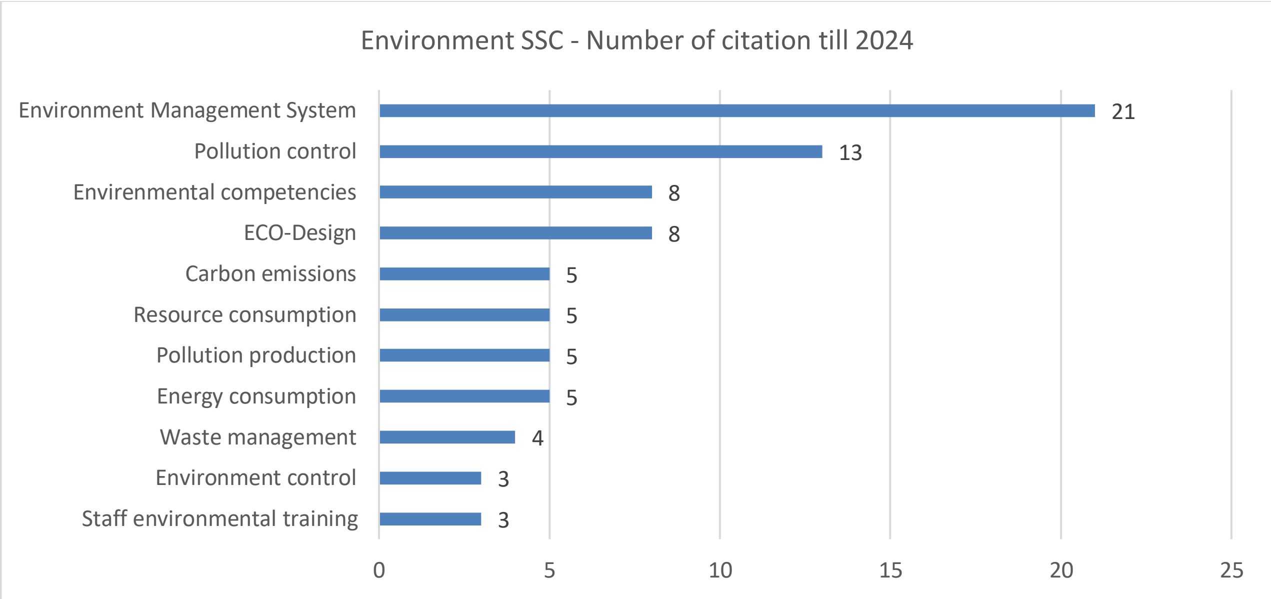

Figure 8 Top cited criteria for environmental dimension

4.5 Green dimension

The green dimension is the tendencee of reserchers and companies, due the climate change and the new international rules. To be competitor in the automotive market and to avoid penalities, the companies must take in consideration the green criteria listed in figure 9 for the supplier selection topic.

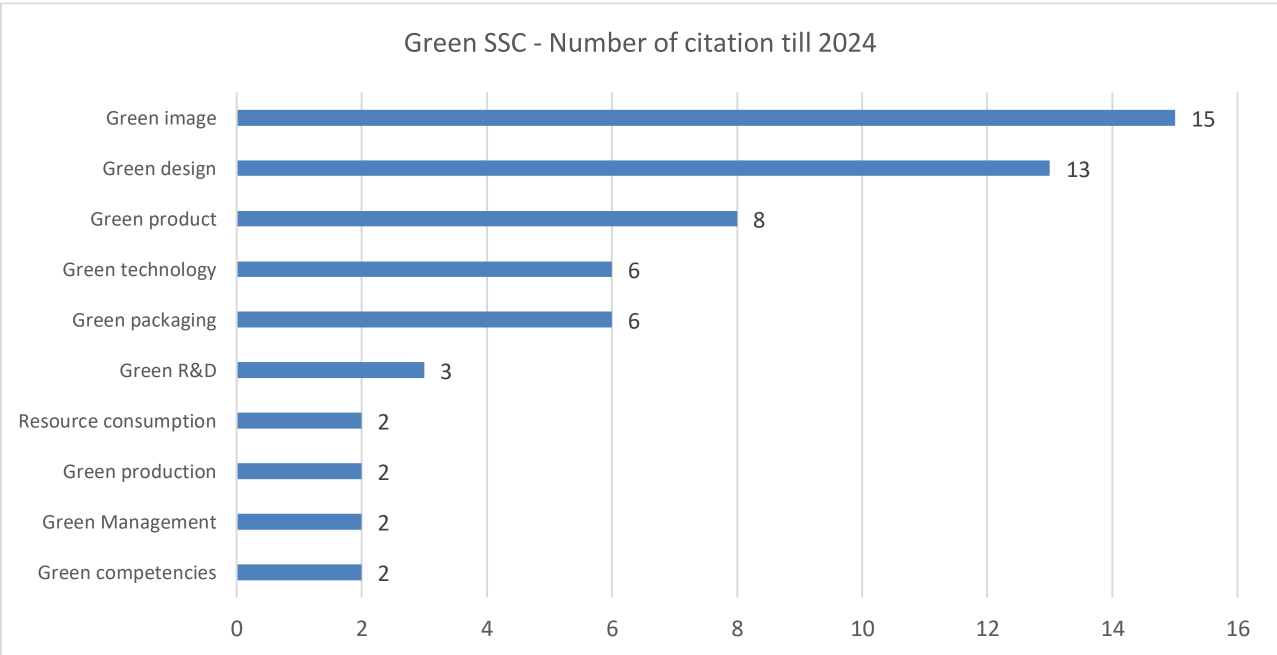

Figure 9 Top cited criteria for green dimension

4.6 Circular dimension

Circular Economic dimension is linked mainly to the green and envirenmental dimension because the top criteria cited in literature are commun.Reuse and recycle are the core terms of circular economic, folowed by waste managemenet (waste water, waste energy, waste prevention, etc) as mentioned in figure 10.

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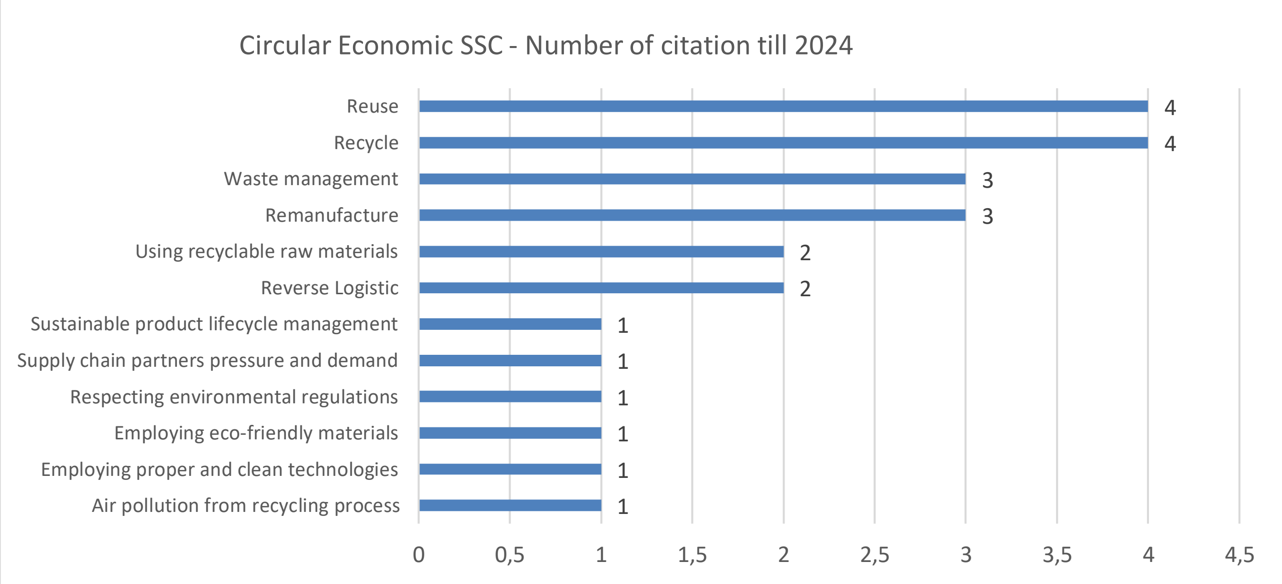

Figure 10 Top cited criteria for circular economic dimension

From these results, we can say clearly that the economic criteria: Quality management, MP&L management, capabilities and cost are the top cited ones, followed by social criteria: Safety and health, Forced Labor and human rights, and Human resources management, then we have resilience aspects such as Risk Management Capability, Flexibility and Adaptability, Financial Stability and Operational Health. And after that it comes environmental criteria like environment management system and pollution control. And at the end we find the green and circular economic impact as the recent dimensions in supplier selection field.

5 Discussion

The data from literature are very interesting and can be used by companies to establish a suitable system for supplier selection, and based on the literature review section, all selected articles were organized into Excel database to facilitate comparison and analysis. Each criterion from article was classified according to Circular, Green, Environmental, Social, Economic, and Resilience dimensions from which we derived the Sustainable Supplier Selection Concept (3SC model) for a long-term sustainability as mentioned in figure 11.

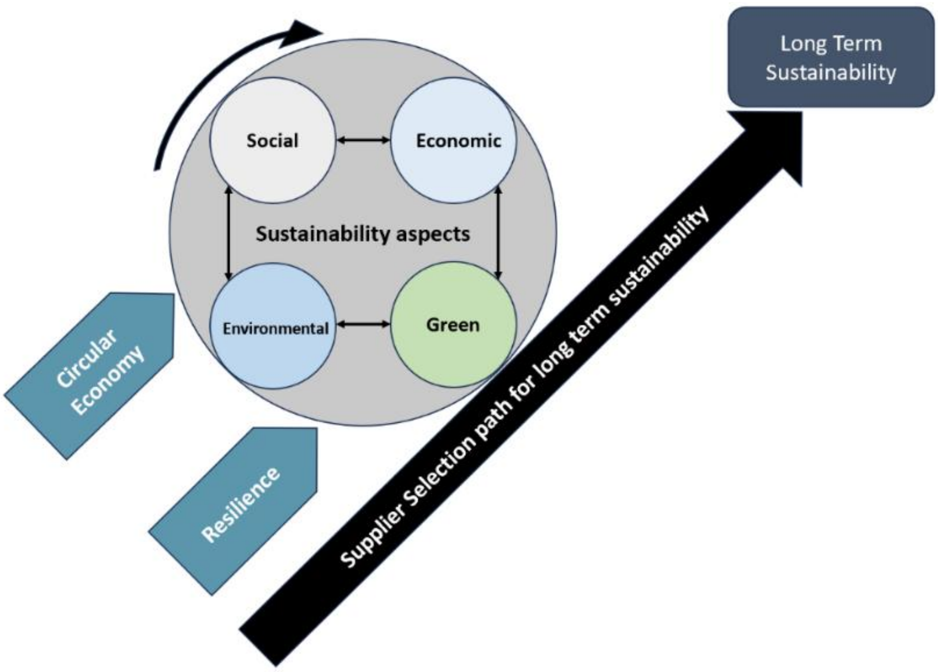

Figure 11 The sustainable supplier selection concept (3SC model)

The seven terms (the six dimensions and sustainability) are deeply interconnected, forming a complex web of relationships crucial for sustainable supplier selection. Here is a breakdown of their links, explaining different facets of their connections:

- **Green Aspects → Environment Management**: Green aspects (e.g., reduced emissions, renewable energy, biodiversity) are the targets of effective environment management. Environment management strategies aim to protect and improve these green aspects.
- **Environment Management → Circular Economy**: A circular economy minimizes waste and pollution – key goals of environment management. By designing out waste and pollution, reusing materials, and regenerating natural systems, the circular economy directly supports good environment management.
- **Circular Economy → Economic Aspects:** The circular economy offers significant economic benefits. It creates new business models, reduces resource costs, and stimulates innovation, all contributing positively to economic aspects.
- **Economic Aspects → Social Aspects:** A strong economy generally leads to improved social well-being. Increased employment opportunities, better infrastructure, and higher standards of living are all positive social outcomes linked to a healthy economy.
- **Social Aspects → Resilience:** Socially cohesive and equitable communities are more resilient to shocks and stresses (economic downturns, environmental disasters, etc.). Strong social networks and support systems enhance the capacity to adapt and recover.
- **Resilience → Sustainability:** Resilience is crucial for achieving sustainability. A system's ability to withstand and adapt to change is essential for long-term viability – whether it's an ecosystem, a community, or a business model.
- **Sustainability:** This overarching concept integrates all the other elements. It requires a balance between green aspects, economic aspects, and social aspects, enhanced by effective environment management, a circular economy, and system resilience.

The links are not always linear. For instance, strong economic aspects (particularly those based on sustainable practices) can support better environment management and increased resilience. Similarly, improved social aspects (like community engagement in conservation efforts) can lead to better protection of green aspects. A circular economy directly contributes to both environmental protection (green aspects) and economic growth (economic aspects). And resilience is essential for maintaining all other aspects in the face of various challenges.

In essence, sustainability is the goal, achieved through careful management and integration of all these elements. They are interdependent; improvements in one area often positively impact others, while neglecting one can negatively affect the entire system. We can conclude that the 7 terms are interconnected, and they are constituting the concept of long-term sustainability.

6 Conclusion

From this systematic literature review, we can see clearly that the piece price is not the only criteria that leaders need to take into account for supplier selection as there are other more improtant criteria from the 6 different dimensions that we need to take in consideration before any nominations of suppliers.

This paper is a crucial source of data for researchers and academics who are working on supply chain improvement and mainly in supplier selection topics. It presents a clear concept (3SC model) to achieve the long-term sustainability by evaluating and selecting the most important criteria. The results show that sustainability aspects (economic, social, and environmental) and resilience are essential for the SSP, reflecting the growing need for sustainable and resilient supply chains. We also summarized the criteria and sub-criteria from the literature, focusing on areas like cost optimization, reducing environmental impact, and improving social relationships in the supply chain. This paper offers as well a valuable database from the literature that includes more than 800 criteria needed to choose sustainable suppliers in the automotive industry. We also found that circular economy and resilience are key to improving sustainability and achieving long-term goals.

From a discussion with experts in automotive, there are several criteria that can be add like flexibility of negotiation, payment flexibility, design change flexibility, value chain transparency, digital manufacturing data, emotional criteria, trust level between supplier and customer, penetration rate: number of projects developed between supplier and customer (to evaluate monopoly level).

However, there are still challenges. In the future, we plan to survey experts in the automotive industry to confirm the criteria found in the literature and discover new ones not yet mentioned. Additionally, we aim to analyze supplier selection methods and develop new artificial intelligence (AI) tools to improve process and select the suitable suppliers for a sustainable automotive supply chain.

References

[1] BRATKO, O., GUKALIUK, A., SHYFRINA, N., KADYRUS, I.: Managing supply chains amidst geopolitical instability, *Acta logistica*, Vol. 12, No. 2, pp. 417-426, 2025. https://doi.org/10.22306/al.v12i2.669

[2] NUGROHO, B.D., MADELAN, S.: Analysis of Vendor Selection Decision Support System Using Analytical Hierarchy Process Method in Procurement of Spare Part Goods at PT Djakarta Lloyd (PERSERO), *International Research Journal of Innovations in Engineering and Technology (IRJIET)*, Vol. 6, No. 8, pp. 36-41, 2022. https://doi.org/10.47001/IRJIET/2022.608006

[3] WONG, J.T.: Dynamic procurement risk management with supplier portfolio selection and order allocation under green market segmentation, *Journal of Cleaner Production*, Vol. 253, No. April, 119835, 2020. https://doi.org/10.1016/j.jclepro.2019.119835

[4] EASTON, J.M.: *Digitalization and the Transport Industry – Are we Ready?*, In: 2022 IEEE International Conference on Big Data (Big Data), 2022, pp. 3814-3820, 2022. https://doi.org/10.1109/BigData55660.2022.10020210

[5] ZHOU, X., XU, Z.: An integrated sustainable supplier selection approach based on hybrid information aggregation, *Sustainability*, Vol. 10, No. 7, pp. 1-49, 2018. https://doi.org/10.3390/su10072543

[6] SCHRAMM, V.B., CABRAL, L.P.B., SCHRAMM, F.: Approaches for supporting sustainable supplier selection - A literature review, *Journal of Cleaner Production*, Vol. 273, No. November, 123089, 2020. https://doi.org/10.1016/j.jclepro.2020.123089

[7] CHEN, A., HSIEH, C.Y., WEE, H.M.: A resilient global supplier selection strategy—a case study of an automotive company, *International Journal of Advanced Manufacturing TechNology*, Vol. 87, No. 5-8, pp. 1475-1490, 2016. https://doi.org/10.1007/s00170-014-6567-z

[8] CHAI, N., ZHOU, W., JIANG, Z.: Sustainable supplier selection using an intuitionistic and interval-valued fuzzy MCDM approach based on cumulative prospect theory, *Information Sciences*, Vol. 626, pp. 710-737, 2023. https://doi.org/10.1016/j.ins.2023.01.070

[9] ZIMMER, K., FRÖHLING, M., SCHULTMANN, F.: Sustainable supplier management - A review of models supporting sustainable supplier selection, monitoring and development, *International Journal of Production Research*, Vol. 54, No. 5, pp. 1412-1442, 2015. https://doi.org/10.1080/00207543.2015.1079340

[10] SAPUTRO, T.E., FIGUEIRA, G., ALMADA-LOBO, B.: A comprehensive framework and literature review of supplier selection under different purchasing strategies, *Computers & Industrial Engineering*, Vol. 167, No. May, 108010, 2022. https://doi.org/10.1016/j.cie.2022.108010

[11] YU, Q., HOU, F.: An approach for green supplier selection in the automobile manufacturing industry, *Kybernetes*, Vol. 45, No. 4, pp. 571-588, 2016. https://doi.org/10.1108/K-01-2015-0034

[12] CHEN, Y., WANG, S., YAO, J., LI, Y., YANG, S.: Socially responsible supplier selection and sustainable supply chain development: A combined approach of total interpretive structural modeling and fuzzy analytic network process, *Business Strategy and the Environment*, Vol. 27, No. 8, pp. 1708-1719, 2018. https://doi.org/10.1002/bse.2236

[13] DWEIRI, F., KUMAR, S., KHAN, S.A., JAIN, V.: Designing an integrated AHP based decision support system for supplier selection in automotive industry, *Expert Systems with Applications*, Vol. 62, pp. 273-283, 2016. https://doi.org/10.1016/j.eswa.2016.06.030

[14] MEMARI, A., DARGI, A., AKBARI JOKAR, M.R., AHMAD, R., ABDUL RAHIM, A.R.: Sustainable supplier selection: A multi-criteria intuitionistic fuzzy TOPSIS method, *Journal of Manufacturing Systems*, Vol. 50, pp. 9-24, 2019. https://doi.org/10.1016/j.jmsy.2018.11.002

[15] ORJI, I.J., WEI, S.: An inNovative integration of fuzzy-logic and systems dynamics in sustainable supplier selection: A case on manufacturing industry, *Computers & Industrial Engineering*, Vol. 88, pp. 1-12, 2015. https://doi.org/10.1016/j.cie.2015.06.019

[16] LIMA-JUNIOR, F.R., CARPINETTI, L.C.R.: A multicriteria approach based on fuzzy QFD for choosing criteria for supplier selection, *Computers & Industrial Engineering*, Vol. 101, pp. 269-285, 2016. https://doi.org/10.1016/j.cie.2016.09.014

[17] GUPTA, S., U. SONI, AND G. KUMAR, Green supplier selection using multi-criterion decision making under fuzzy environment: A case study in automotive industry, *Computers & Industrial Engineering*, Vol. 136, pp. 663-680, 2019. https://doi.org/10.1016/j.cie.2019.07.038

[18] ALI, M.R., NIPU, S.M.A., KHAN, S.A.: A decision support system for classifying supplier selection criteria using machine learning and random forest approach, *Decision Analytics Journal*, Vol. 7, pp. 1-14, 2023. https://doi.org/10.1016/j.dajour.2023.100238

[19] DANG, TT., 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*, Vol. 11, No. 5, pp. 1-23, 2022. https://doi.org/10.3390/axioms11050228

[20] AWASTHI, A., GOVINDAN, K., GOLD, S.: Multi-tier sustainable global supplier selection using a fuzzy AHP-VIKOR based approach, *International Journal of Production Economics*, Vol. 195, pp. 106-117, 2018. https://doi.org/10.1016/j.ijpe.2017.10.013

[21] LUTHRA, S., GOVINDAN, K., KANNAN, D., MANGLA, S.K., GARG, C.P.: An integrated framework for sustainable supplier selection and evaluation in supply chains, *Journal of Cleaner Production*, Vol. 140, Part 3, pp. 1686-1698, 2017. https://doi.org/10.1016/j.jclepro.2016.09.078

[22] ZIMMER, K., FRÖHLING, M., BREUN, P., SCHULTMANN, F.: Assessing social risks of global supply chains: A quantitative analytical approach and its application to supplier selection in the German automotive industry, *Journal of Cleaner Production*, Vol. 149, pp. 96-109, 2017. https://doi.org/10.1016/j.jclepro.2017.02.041

[23] JAIN, N., SINGH, A.R.: Sustainable supplier selection under must-be criteria through Fuzzy inference system, *Journal of Cleaner Production*, Vol. 248, No. March, 119275, 2020. https://doi.org/10.1016/j.jclepro.2019.119275

[24] MANELLO, A., CALABRESE, G.: The influence of reputation on supplier selection: An empirical study of the European automotive industry, *Journal of Purchasing and Supply Management*, Vol. 25, No. 1, pp. 69-77, 2019. https://doi.org/10.1016/j.pursup.2018.03.001

[25] BARTOS, K.E., SCHWARZKOPF, J., MUELLER, M., HOFMANN-STOELTING, C.: Explanatory factors for variation in supplier sustainability performance in the automotive sector – A quantitative analysis, *Cleaner Logistics and Supply Chain*, Vol. 5, pp. 1-12, 2022. https://doi.org/10.1016/j.clscn.2022.100068

[26] GHOSH, S., BHOWMIK, C., SINHA, S., RAUT, R.D., MANDAL, M.C., RAY, A.: An integrated multi-criteria decision-making and multivariate analysis towards sustainable procurement with application in automotive industry, *Supply Chain Analytics*, Vol. 3, 100033, pp. 1-16, 2023. https://doi.org/10.1016/j.sca.2023.100033

[27] GHADIMI, P., SAR, K., AZADNIA, A.H.: An integrated decision-making process for sustainable supplier selection and order allocation in the automotive industry, *Procedia CIRP*, Vol. 122, pp. 1036-1041, 2024. https://doi.org/10.1016/j.procir.2024.01.140

[28] JEFROUDI, M.T., DARESTANI, S.A.: A decision support system for sustainable supplier selection problem: Evidence from a radiator manufacturing industry, *Journal of Engineering Research*, Vol. 12, No. 4, pp. 867-877, 2024. https://doi.org/10.1016/j.jer.2024.03.014

[29] ISMAIL, O., KAMACH, O., WIAM, A.: *Improvement of the supplier selection process in the Automotive Industry: Case study with a Moroccan Tier 1 Company*, In: 2024 IEEE 15th International Colloquium of Logistics and Supply Chain Management, LOGISTIQUA 2024, Sousse, Tunisia, pp. 1-7, 2024. https://doi.org/10.1109/LOGISTIQUA61063.2024.10571398

[30] PAMUCAR, D., YAZDANI, M., OBRADOVIC, R., KUMAR, A., TORRES-JIMÉNEZ, M.: A Novel fuzzy hybrid neutrosophic decision-making approach for the resilient supplier selection problem, *International Journal of Intelligent Systems*, Vol. 35, No. 12, pp. 1934-1986, 2020. https://doi.org/10.1002/int.22279

[31] MÜNCH, C., BENZ, L.A., HARTMANN, E.: Exploring the circular ecoNomy paradigm: A natural resource-based view on supplier selection criteria, *Journal of Purchasing and Supply Management*, Vol. 28, No. 4, 100793, 2022. https://doi.org/10.1016/j.pursup.2022.100793

[32] ECHEFAJ, K., CHARKAOUI, A., CHERRAFI, A., GARZA-REYES, J.A., KHAN, S.A.R., BENABDELLAH, A.C.: Sustainable and resilient supplier selection in the context of circular ecoNomy: an ontology-based model, *Management of Environmental Quality: An International Journal*, Vol. 34, No. 5, pp. 1461-1489, 2023. https://doi.org/10.1108/MEQ-02-2023-0037

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