

# Identifying Trends of Sustainable Supply Chain Management

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**Keywords:** Sustainable Supply Chain Management, SSCM.

**Abstract:** This paper discusses the role of sustainable supply chain management is still a new thing of manufacturing companies. This review papers of SSCM is done from period 2018-2019. From the results of the review it can be seen the trends of the sustainable supply chain model that could be used as a reference for future research. This study discusses the concepts that have been applied to previous studies of sustainable supply chains involving organizations, based on assessment and study of literature on supply chains. In this journal there are several parts, namely the first part which contains the research background. The second section contains a literature review that is the literature that supports research and about the results of a review of several research journals about SSCM from 2018 and 2019. The third section contains the methods used in the research, which contain the stages of research. The fourth part contains a summary of research, the results of research on SSCM. The manufacturing industry is always related to chemical processes at the stages of the production process. This also always influences the environment. That is why the sustainable topic becomes an important thing to study and to find the solutions.

## 1 INTRODUCTION

Today's manufacturing industry companies need to be aware of environmental and social impacts which are important things to observe and act on. Because of this, the company needs to consider all decisions that will have further impact. This can be done by paying attention to the network in the supply chain, product design, and purchasing material which is an important part of the manufacturing company. A continuous, objective objective supply chain model that involves social, economic and environmental aspects is a crucial part of the supply chain (Lin, Tseng, & Pai, 2018). The manufacturing industry is always related to chemical processes at the stages of the production process. This also always influences the environment.

Supply chain management always involves consumers, distribution networks, and company internal communication. Therefore SCM is very influential on social sustainability that involves the sustainability of the organization's performance and its impact on the environment outside the company. With the increasing globalization and increasingly fierce competition, the company develops a strategy for its interests in the supplier of basic resources to the

distribution of finish goods for consumers which is the company's main focus (Bastas & Liyanage, 2018).

This review papers of SSCM is done from period 2018-2019. From analyzing the paper that reviewed it can be seen the trends of the SSCM model that can be used as a reference for next research.

## 2 PAPER REVIEW

Research on SSCM focuses on the close relationships of social, economic and environmental aspects that have specific objectives. SSCM is designed to manage the source sequence from basic sources/ materials to sustainable materials. In SSCM, the flow of capital, materials, and information, is designed in relation to source, as well as delivery the product after the production in order to achieving the high profit, affordability and organizational performance in the long run. SSCM involve the social environment and the natural environment. This shows that SSCM does not only involve relationships between suppliers, but also relationships with other agencies and managers. In using a sustainable supply chain, it is necessary to identify factors that influence the triple bottom line,

economic, social, and environmental aspects and impacts that can be expected to avoid negative impacts that harm the company and consumers. (Kot, 2018).

This study discusses the concepts that have been applied to previous studies of SSC involving organizations in the supply chain, based on specific assessment and study from literature on supply chains.

In this journal there are several parts, namely the first part which contains the research background. The second section contains a literature review that is the literature that supports research and about the results of a review of several research journals about SSCM from 2018 and 2019. The third section contains the methods used in the research, which contain the stages of research. The fourth part contains a summary of research, the results of research on SSCM.

Table 1: Review from Previous Literature.

Author	Variable	Findings
Zhu et al (2019)	Mathematical model of the food supply chain	<ul style="list-style-type: none"> <li>Publication of research has contributed to the important field of sustainable food</li> <li>There are significant challenges and valuable research questions considering</li> </ul>
Ding, Huang, & Tang (2018)	<ul style="list-style-type: none"> <li>Financial Viability</li> <li>Environmental constraints</li> <li>Governmental policy</li> </ul>	<ul style="list-style-type: none"> <li>Environmental externalities, governments are motivating good relationship among the supply chain partners, scale of economic production.</li> <li>The performance of environmental</li> </ul>
Soleimani (2018)	<ul style="list-style-type: none"> <li>Causal loop of rock waste</li> <li>The objective function maximized the model of profit</li> </ul>	<ul style="list-style-type: none"> <li>Mining industry applied Sustainable Approach in closed loop</li> <li>The chain of closed supply of the stone quarries loop</li> </ul>
Kot (2018)	Research in sustainable development field	<ul style="list-style-type: none"> <li>SMES using Sustainability principles</li> <li>Results show that the SMES sector acts the imbalance are better than big units</li> </ul>

Mathivathanan, Kannan & Haq (2018)	<ul style="list-style-type: none"> <li>The causal relationship of the sustained SSCM sustainable practices</li> <li>The probability the success of the implantation in the practice of the SSCM</li> </ul>	The commitment to management towards sustainability and the triple focus of the baseline to the combination in strategic decision making is a more influential practice in implementing supply chain management sustainable
Spariosu (2018)	<ul style="list-style-type: none"> <li>Multi-criteria decision-making problems</li> <li>Identifies the less and the most important criteria</li> </ul>	<ul style="list-style-type: none"> <li>Environment and its factors is the highest attention and government certification is the less attention</li> <li>Safety and security of food is affected by transportation</li> </ul>
Kim & Lee (2018)	The relationship between the participation, role, and perception of the clients in the SSCM	Financial and operational excellence result is better from the customer's that involvement in SSM
Moktadir, Ali, Rajesh & Paul (2018)	The economic aspects of the casual relationship	Research proves that to support the structural skin processing industry managers of industry can identify the highest barriers and focus to eliminate it
Orji (2019)	Using ISM technique and TOPSIS to identify the barriers	<ul style="list-style-type: none"> <li>Interpretive structural modelling methodology used for identifying contextual relationship</li> <li>Inadequate proactive plans, inefficient legal framework, and lack of sustainable waste are studied</li> </ul>
Rentizelas, de Sousa Jabbour, Al Balushi & Tuni (2018)	Social dimensions of supplier selection	<ul style="list-style-type: none"> <li>Besides of government prssure there must be an organization's initiative to develop a socially sustainable practice.</li> </ul>

### 3 METHODS

The research methodology is a stage that contains steps taken to achieve the research objectives. In the methodology there is a description, identification, and evaluation of research. A review of paper mean is to identify, evaluate, and interpretation reference journals in a systematic, explicit and reproducible approach. Figure 1 shows an overview of the underlying literature review methodology.

- Step 1 – choosing period of paper publication: Several studies in the Period between 2018 and 2019 have been chosen as the main references. The selection of this period of time is considered to have sufficiently represented thinking that is a developing science.
- Step 2 – choosing journal: In this step, several journals were selected to analyze and find differences in each study.
- Step 3 – choosing article: In selecting articles, the clear relationship of the content of the article to the framework of the previously defined text is important.
- Step 4 – analysis: The analysis aims to find differences between journals for subsequent studies.



Figure 1: Methodology of research.

### 4 RESULTS AND DISCUSSION

This study considers the tepid study, methodology, and results of previous studies that show the priority of the broader aspects of SSCM. The use of theoretical perspectives allows more research to be applied, while the application of broader sustainable supply chain theory is limited. Today's manufacturing industry uses a lot of media to implement SSCM practices. This has led to a reflection of the sustainable development approach in terms of social and environmental aspects (Kot, 2018). The results of the study show that the pressure from the government, customers and shareholders is a very important factor in SSCM, so many companies try to improve supply chain performance in implementing their strategies. To achieve this goal, a long-term partnership is very necessary, a win-win solution for each sustainable aspect is more emphasized than a trade-off, and the

social dimension of sustainability is not ignored in the company with the aim of avoiding company risk.

### 5 CONCLUSIONS

This study shows that the company's paradigm in supplying raw materials with the goal of sustainability aspects is very comprehensive on company behavior because awareness of the level of competition of companies around the world for environmental and ethical awareness lies behind the need for the supply chain to act. Thus, the entire supply chain component is very competitive. This has led to the development of the 'collaboration paradigm' in SCM as an important source of collaborative supply chain strategies. Traditional SCM has not yet applied the analysis that will continue in the sustainable supply chain.

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### REFERENCES

- Bastas, A., & Liyanage, K., 2018. Sustainable supply chain quality management: A systematic review. *Journal of Cleaner Production.*, 181:726–744.
- Ding, H., Huang, H., & Tang, O., 2018. Sustainable supply chain collaboration with outsourcing pollutant-reduction service in power industry. *Journal of Cleaner Production.*186, 215–228.
- Kim, H., & Lee, C. W., 2018. The effects of customer perception and participation in sustainable supply chain management: A smartphone industry study. *Sustainability (Switzerland)*, 10(7), 1–19.
- Kot, S. 2018. Sustainable supply chain management in small and medium enterprises. *Sustainability (Switzerland)*, 10(4), 1–19.
- Lin, K., Tseng, M., & Pai, P., 2018. Resources, Conservation and Recycling Sustainable supply chain management using approximate fuzzy DEMATEL method. "Resources, Conservation & Recycling," 128, 134–142.  
<https://doi.org/10.1016/j.resconrec.2016.11.017>

- Mathivathanan, D., Kannan, D., & Haq, A. N., 2018. Sustainable supply chain management practices in Indian automotive industry: A multi-stakeholder view. *Resources, Conservation and Recycling*, 128, 284–305. <https://doi.org/10.1016/j.resconrec.2017.01.003>
- Moktadir, M. A., Ali, S. M., Rajesh, R., & Paul, S. K., 2018. Modeling the interrelationships among barriers to sustainable supply chain management in leather industry. *Journal of Cleaner Production*, 181, 631–651. <https://doi.org/10.1016/j.jclepro.2018.01.245>
- Orji, I. J., 2019. Examining barriers to organizational change for sustainability and drivers of sustainable performance in the metal manufacturing industry. *Resources, Conservation and Recycling*, 140(September 2017), 102–114. <https://doi.org/10.1016/j.resconrec.2018.08.005>
- Rentizelas, A., de Sousa Jabbour, A. B. L., Al Balushi, A. D., & Tuni, A., 2018. Social sustainability in the oil and gas industry: institutional pressure and the management of sustainable supply chains. *Annals of Operations Research*, 1–22. <https://doi.org/10.1007/s10479-018-2821-3>
- Soleimani, H., 2018. A new sustainable closed-loop supply chain model for mining industry considering fixed-charged transportation: A case study in a travertine quarry. *Resources Policy*, (November 2017), 1–11. <https://doi.org/10.1016/j.resourpol.2018.07.006>
- Spariosu, M. I., 2018. Information and Communication Technology for Competitive Strategies. In *Remapping Knowledge*. <https://doi.org/10.1007/978-981-13-0586-3>
- Zhu, Z., Chu, F., Dolgui, A., Chu, C., Zhou, W., & Piramuthu, S., 2018. Recent advances and opportunities in sustainable food supply chain: a model-oriented review. *International Journal of Production Research*, 56(17), 5700–5722. <https://doi.org/10.1080/00207543.2018.1425014>