

A Literature Survey on Green Supplier Selection

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Abstract: In today's supply chain, we have to deal with many complex decision problems. Under appropriate circumstances, appropriate decision problems must be solved. In recent years, as in many fields of work, the increase in environmental awareness in the manufacturing sector and the legal obligations imposed have influenced decisions made by many manufacturers. The green strategies dealt with have become a new competitive tool for companies. Firms have been aiming to increase their productivity and profitability with green applications. In this study, the criterias to be considered in choosing the green supplier, which is the most important group of the green supply chain, have been examined and classified. It has been explained how suppliers should improve their working conditions for these criteria that are sensitive to the environment. In which sectors, which green criteria are mentioned in the foreground. It is explained that the obligations of the law regulatory authorities bring to what sectors.

Keywords: Green supplier, Green supply chain

Introduction

The supply chain, starting with goods movement and ending up to the point of consumption, is a network of interconnected and collaborative organizations (Handfield and Ernest, 1999) that controls, manages and develops the flow of materials and information to meet customer expectations. Figure 1 shows this structure.



Figure 1. Structure of the Supply Chain

Supply chain management has been influential in expanding and expanding businesses into new markets. Organizations have come to a stronger position in the market they owned over time. As a result, production and consumption showed a rapid increase. The increase of education and consumption brought many problems together. With the increase in consumption, the wastes generated after use have seriously threatened human health and the ecological balance of the world.

Green Supply Chain

Businesses have developed the concept of "Green Supply Chain Management" by incorporating environmental elements and social responsibility into the classical supply chain management. The organization, procurement,

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production and logistics functions are also designed to include environmental awareness (Simpson and Power, 2005). Green supply chain;

- ▶ Addresses the environmentally sensitive approach to products throughout their lifecycle.
- ▶ the product; is the production of the waste by minimizing the harm to the environment after it has been consumed until it is consumed as raw material.
- ▶ Enables production to be achieved by having environmental and quality certificates.

Green supply chain management systems; declining sources of raw materials, waste of landfills, increased environmental pollution such as pollution has become an important competitive factor. (Shang, Lu and Li, 2010). Firms are aiming to increase their productivity and profitability with green applications and they want to minimize the negative effects on the environment and create awareness.

Green Supplier

Businesses are faced with many suppliers that they provide various raw materials and services. Choosing the best suppliers for businesses and the evaluation of these suppliers is as complex as it is important.

Companies have to pay more attention to environmental management because of environmental issues such as global warming. Therefore, in choosing suppliers, they prefer the firm that best matches the environmental goals of the operator, not the supplier that gives the most reasonable price. From this point of view, the evaluation and selection of suppliers in the green supply chain will be differentiated and important. We will try to develop long-term relationships with suppliers. Suppliers, who are the first people in the green supply chain, have quite a big deal.

Green supplier choice approach; monitoring of suppliers based on environmental performance, and cooperation with green suppliers that meet only environmental standards (Arimura et al., 2011).

In the selection of green suppliers, they are detailed with sub criteria based on the main criteria of green design, green production, green image, green storage and environment management system. For example, under the main criteria of green supplier selection, recycled products, reduced use of hazardous materials, and cooperation with customers for economic design can be defined. Sub criteria can be defined within other main criteria.

Green Supplier Selection Literature Survey

In studies of the green supply chain and the green supply chain components, it is clear that the interest in the concept of 'green' is increasing and the environmental elements are added to each of the traditional supply chain components. As a result of the research, the literature on the green supply chain is presented in Table 1.

Table 1. Literature on green supplier selection

RESEARCHERS	YEAR	NAME	DISCUSSED CRITERIA
Joseph Fiksel	1996	Environmental Design: Creating Efficient Products and Processes	Pollution prevention, environmental management, total quality management, design
C.R. Carter ve J.R. Carter	1998	Organizational Determinants of Environmental Procurement: The First Evidence from the Consumer Products Industry	Distribution channels, environmental procurement, structural equality models and supply chain management
Benita M. Beamon	1999	Green Supply Chain Design	Supply chain, logistics, environment, environmental management strategy
F. Boons	2002	Green Products: Framework for Product Chain Management	Material reduction, product substitution, recycling
Devashish Pujari, Gillian Wright, Ken Peattie	2003	Green and Competitive Impact on Environmental New Product Development Performance	Customer satisfaction, product life cycle, post-use application design, senior management support, environmental product policy
Samir K. Srivastava	2007	Green Supply Chain Management: A Literature Review	Design, green production, reverse logistics, energy management, recycling
Sinem Büyüksaatçi	2009	Green Supply Chain Management and an Application	Air pollutant rate, photochemical smoke incident frequency, change in surface water level, algae growth
Jamal Fortes	2009	Green Supply Chain Management: A Literature Review	Green design, recycling, green production, reverse logistics
Deniz Peker	2010	Green Supply Chain Management in Enhancing Environmental Performance	Green procurement, green design, recycling, green distribution, business association
Joseph Sarkis, Qinghua Zhu, Kee-Hung Lai	2010	Organizational Theoretical Review of Green Supply Chain Management Literature	Environmental performance, economic performance, operational performance
Anil S. Dube, Dr.R.R. Gawande	2011	Green Supply Chain Management: A Literature Review	Product life cycle, green design, reverse logistics, green production
Nevzat Korkankorkmaz	2012	A Research on Lean and Green Supply Chain Management	Senior management support, relations with suppliers, relations with customers, lean practices, environmental management system
Esen Andiç, Öznur Yurt, Tunçdan Baltacıoğlu	2012	Green Supply Chains: Potential Applications and Markets Efforts to Turkey	Green supply chains environmental issues, focus groups waste management reverse logistics
Nadine Kafa, Yasmina Hanı, Abederrahman El Mhamedı	2013	Sustainability Performance Measurement for Green Supply Chain Management	Green procurement, green design, green production, green distribution, reverse logistics
Wenge Zhu, Yuanjie Hekristina	2017	Green Product Design in Competitive Supply Chains	Yeşil ürün marjinal maliyeti, yoğun yeşil ürün, yeşil ürün geliştirme, yeşil tedarik zinciri tasarımları
Sarkis, J.	2018	Sustainable green supply chain	Grene product
Nasrollahi	2018	The impact of social media applications on the green supply chain	Structural equation model (206 firms)

Results and Discussion

The ability of the supply chain to demonstrate its expected performance depends on the correct choice of the supplier regarding the supply chain first supplier. It is also valuable to work with environmentalists. In this study, studies carried out in the literature with emphasis on green suppliers are examined. These studies are presented in a table form for review.

Recommendations

In this study, the criteria affecting the selection of green suppliers can be included in the optimization methods so that firms can better manage the decision making process.

Conclusion

In the literature survey, it is observed that in recent years the importance of green procurement selection has increased in the historical development process. Limited resource utilization and environmental practices are expected to be even more dramatic in the coming years

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