

عنوان مقاله:

An integrated model for Green supplier selection and order allocation in an automotive company: a TOPSIS fuzzy Method and optimization mathematical model

محل انتشار:

کنفرانس بین المللی مدیریت، اقتصاد و مهندسی صنایع (سال: 1394)

تعداد صفحات اصل مقاله: 17

نویسندگان:

Marya maryam Kolyaei - *Master of science, department of Industrial management, faculty of management and economic, Tarbiat Modares University, Tehran, Iran*

Mohammad Marhamati - *Master of science, department of Industrial management, faculty of management and economic, Tarbiat Modares University, Tehran, Iran*

Azar Adel - *professor of management, department of Industrial management, faculty of management and economic, Tarbiat Modares University, Tehran, Iran*

خلاصه مقاله:

Nowadays Supplier selection has turned to an important decision-making challenge for factories which has considerable effect on production costs. On the other hand, importance of environmental protection has attracted attention of the governments, customers and organizations and has increased importance of environmental requirements for production. The objective of this research is to suggest an integrated approach for green supplier selection include two stages. In the first stage, a TOPSIS-fuzzy approach is presented to consider uncertainty in human's judgment. In the second stage, we apply multi-objective linear programming (MOLP) to facilitate optimal allocation of orders as well as to achieve optimal allocation of orders among the selected suppliers. In order to solve these conflicting objectives, we adopted multi-objective genetic algorithms to find the set of Pareto-optimal solutions. Although many research have been conducted on green supplier selection, Most of them not given enough importance to carbon emission for supplier evaluation. Moreover, most of former researches assume that supply chain was a balanced system. However, in this paper, we propose a defective supply chain to consider production loss in production process. Finally, the utilization of the proposed model is demonstrated with a case study in Iran. The results show that the model proposed in this paper can practically be used to green supplier evaluation and selection.

کلمات کلیدی:

Green Supplier selection, fuzzy TOPSIS, Optimization mathematical programming, Genetic algorithm

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