

A green supplier selection model for high-tech industry

李欣怡, He-Yau Kang, Chang-Fu Hsu, Hsiao-Chu Hung

Industrial Engineering and System Management

Management

amylee@chu.edu.tw

Abstract

With growing worldwide awareness of environmental protection, green production has become an important issue for almost every manufacturer and will determine the sustainability of a manufacturer in the long term. A performance evaluation system for green suppliers thus is necessary to determine the suitability of suppliers to cooperate with the firm. While the works on the evaluation and/or selection of suppliers are abundant, those that concern environmental issues are rather limited. Therefore, in this study, a model for evaluating green suppliers is proposed. The Delphi method is applied first to differentiate the criteria for evaluating traditional suppliers and green suppliers. A hierarchy is constructed next to help evaluate the importance of the selected criteria and the performance of green suppliers. Since experts may not identify the importance of factors clearly, the results of questionnaires may be biased. To consider the vagueness of experts' opinions, the fuzzy extended analytic hierarchy process (FEAHP) is exploited. With the proposed model, manufacturers can have a better understanding of the capabilities that a green supplier must possess and can evaluate and select the most suitable green supplier for cooperation.

Keyword : Analytic hierarchy process, Environment, Fuzzy set theory, FEAHP, Green supplier