The construction of green supplier selection model

吳欣蔚,李欣怡,林俊宇
Technology Management
Management
amylee@chu.edu.tw

Abstract

To confront the global warming problem and the increase in environmental consciousness, many countries have devised various environmental protection policies. For instance, with the Energy-using Product Directive (2005/32/EC), the European Commission has been addressing energy-using and energy-related products which have a considerable impact on the energy consumption in the market. Therefore, many international companies and original design manufacturing (ODM) manufacturers have aimed to promote green products actively, while the communities are paying attention to the environmental protection of the enterprises. In addition, the international environmental issues have led to some of the technical non-tariff barriers to trade. However, the traditional supplier selection model has been incompatible with the environmental requirements. The purpose of this study thus aims to incorporate the concept of carbon reduction and environmental considerations in designing a supplier selection model. The relationships among criteria are determined first by decision making trial and evaluation laboratory (DEMATEL), and fuzzy analytic network process (FANP) model is constructed next to determine the weights of performance criteria and to obtain the overall performance of suppliers. The model can generate a list of criteria which are the most important for firms to assess the performance of suppliers and to give directions for suppliers to improve their performances.

Keyword：Fuzzy analytic network process (FANP); Decision making trial and evaluation laboratory (DEMATEL); Green supplier selection; Carbon reduction