A multiple-criteria supplier evaluation model

李欣怡,He-Yau Kang,Chun-Yu Lin
Technology Management
Management
amylee@chu.edu.tw

Abstract

Global competition is an unpreventable fact and customer demands are diversified in today's business environment. The result is progressively increased costs and sharply decreased profit. In consequence, supplier selection has become one of the critical tasks to ensure the profitability and survival of a company. The supplier selection problem is multi-criteria in nature, and a multi-criteria decision making method is necessary to solve such as problem. In this paper, a supplier performance evaluation model based on fuzzy analytic hierarchy process (FAHP) and data envelopment analysis (DEA) is constructed. DEA is applied first to evaluate quantitative factors, and the results are transformed into pairwise comparison values for FAHP analysis. With the consultation with the experts, qualitative factors are evaluated through FAHP analysis, so are the relative importance of factors. A final ranking of suppliers can be obtained by combining the quantitative and qualitative results. The priorities of the factors and the ranking of the suppliers can be a recommendation or reference for decision makers in making a supplier evaluation and selection decision.

Keyword：fuzzy analytic hierarchy process; data envelopment analysis; multi-criteria decision making; supplier selection