

An integrated model for supplier selection for a high-tech manufacturer

李欣怡, 康鹤耀, 林俊宇

Technology Management

Management

amylee@chu.edu.tw

Abstract

Global competitiveness has become the biggest concern of manufacturing companies, especially in high-tech industries. Improving competitive edges in an environment with rapidly changing technological innovations and dynamic customer needs is essential for a firm to survive and to acquire a decent profit. Thus, the introduction of successful new products is a source of new sales and profits and is a necessity in the intense competitive international market. After a product is developed, a firm needs the cooperation of upstream suppliers to provide satisfactory components and parts for manufacturing final products. Therefore, the selection of suitable suppliers has also become a very important decision. In this study, an analytical approach is proposed to select the most appropriate critical-part suppliers in order to maintain a high reliability of the supply chain. A fuzzy analytic network process (FANP) model, which incorporates the benefits, opportunities, costs and risks (BOCR) concept, is constructed to evaluate various aspects of suppliers. The proposed model is adopted in a TFT-LCD manufacturer in Taiwan in evaluating the expected performance of suppliers with respect to each important factor, and an overall ranking of the suppliers can be generated as a result.

Keyword : Supplier selection; Fuzzy analytic network process (FANP); Benefits, opportunities, costs and risks (BOCR); TFT-LCD.