

The construction of a comprehensive model for production strategy  
evaluation

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Abstract

To acquire reasonable profits and to be competitive in the globalize market, more and more firms today have exploited various kinds of production strategies, such as outsourcing, joint venture, or some kind of strategic alliance. Since every production strategy has its benefits and costs and may bring a firm different opportunities and risks, which kind of production strategy is the most suitable for a firm to carry out is a difficult and complicated decision with a high degree of uncertainty. Therefore, this research proposes a comprehensive production strategy evaluation model that can facilitate such a decision making for a firm. The factors that should be considered for devising a production strategy are listed for the benefits, opportunities, costs and risks (BOCR) merits first, and fuzzy Delphi method (FDM) is applied next to select the most important factors under each merit. A network with BOCR merits is constructed to incorporate the selected factors, and fuzzy analytic network process (FANP) is then applied to consider the interdependence and feedback inside the network. The proposed model can effectively aid decision making on which kind of production strategy should be adopted by a firm. A case of a printed circuit board (PCB) manufacturer is presented for the illustration of the proposed model.

Keyword : Production strategy · Fuzzy Delphi method · Fuzzy analytic network process · Printed circuit board