

A new supplier performance evaluation model: a case study of integrated
circuit (IC) packaging companies

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Abstract

Purpose - Most industries become increasingly competitive nowadays, and a good supply chain relationship is essential for a company to survive and to acquire reasonable profit. Therefore, supplier selection is very important. This research proposes a novel model for evaluating the performance of suppliers.

Design/methodology/approach - A supplier performance evaluation model based on analytic hierarchy process (AHP) 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 AHP analysis. Qualitative factors are also evaluated through AHP analysis, and a final ranking of suppliers can be obtained by combining the quantitative and qualitative results.

Findings - The proposed model can be applied to evaluate and select the most appropriate IC packaging company for outsourcing. With the incorporation of experts' opinions and the consideration of qualitative and quantitative factors, the model can provide a both subjective and objective supplier performance ranking.

Practical implications - The proposed model can be tailored and applied to supplier evaluation and selection in other industries.

Originality/value - Although many models are available for supplier evaluation, this study considers both the subjective and objective performance characteristics simultaneously in the evaluation process.

Keyword : Analytic hierarchy process, Data envelopment analysis, Performance, Semiconductor industry, IC packaging