

# Hierarchical Evidential Reasoning-based Assessments of New Product Development Strategies

*Kwai Sang Chin and Kit Fai Pun*

## **ABSTRACT**

This paper is geared toward the development of a hierarchical evidential reasoning-based model for manufacturers to determine the relative importance of decision factors for NPD strategy assessments. Incorporated the findings of focus group discussions and interviews with experts in Hong Kong, an assessment model of NPD strategies is devised using the Analytic Hierarchy Process (AHP) and the Evidential Reasoning (ER) approaches. The procedures are presented to illustrate how a list of fourteen decision factors be prioritised and the knowledge bases be established for modeling the strategy assessments. It was found that the risk and uncertainty, market competition, company growth, scale of market, distribution channel, manufacturing capability and technological R&D were important elements determining the NPD success. Using the proposed model, five distinctive evaluation grades of NPD strategies were introduced. The efficacy of the model depends on the establishment and customisation of a knowledge base which should be built and validated for individual companies. This paper contributes to identifying the decision factors and developing the assessment model of NPD strategies. The findings would drive the assessment initiatives of manufacturers towards the formulation and adoption of sustainable NPD strategies.

**Keywords:** Manufacturing, new product development, decision, strategy, AHP, evidential reasoning