

An evaluation framework for technology transfer of new equipment in high  
technology industry

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Abstract

With the rapid advancement of technology, product life cycle is shortening continuously. In order to compete against other firms in fiercely competitive global markets, a firm has to keep developing new technology to differentiate itself from others. The acquisition of new core-technology equipment is especially important for manufacturing advanced products, and the technology know-how of the equipment must be transferred completely from equipment supplier to engineers and operators of the firm to effectively utilize the equipment. The objective of this paper is to explore the technology transfer of equipment and to establish a comprehensive framework for evaluating and selecting new equipment with critical technology transfer. Influence factors for technology transfer of new equipment are first collected by literature review and interviews with related experts in the thin-film transistor liquid-crystal display (TFT-LCD) industry in Taiwan. Fuzzy Delphi method (FDM) is applied next to select the most critical factors. Then, interpretive structural modeling (ISM) is employed to determine the interrelationship among the critical factors. A fuzzy analytic network process (FANP) model is constructed to evaluate the technology transfer performance of equipment suppliers. The results of this study should provide a base for firms in evaluating the purchase of new equipment and a reference for equipment suppliers to strengthen their technology transfer process to their buyers.

Keyword : Technology transfer, buyer-supplier relationship, knowledge management, fuzzy Delphi method (FDM), interpretive structural modeling (ISM), fuzzy analytic network process (FANP)