# Fuzzy integrated model for evaluating customer requirements of TFT-LCD product

Chun-Yu Lin, 李欣怡
Industrial Engineering and System Management
Management
amylee@chu.edu.tw

## Abstract

Technological innovation and satisfaction of customer needs are the keys to survival and success for firms, especially in global competitive high-tech industries. Since new products are usually a source of new sales and profits, the success of new product development (NPD) is essential to maintain a competitive edge and to make a decent profit in a longer term. Thin film transistor-liquid crystal display (TFT-LCD) industry is currently one of the most brilliant industries in Taiwan. However, as more firms enter the market or expand their capacity, the market is becoming more competitive. Therefore, the development of new products that can meet the requirements of customers is very important for a firm. In this research, an integrated model is proposed to incorporate the experience and knowledge of experts to determine the critical requirements of customers for a NPD product. Due to the limited resources of a firm, only a few demand factors can be focused in developing a new product. Therefore, fuzzy Delphi method (FDM) is used first to select a number of customer requirements that have higher importance and that should be included in the model. To consider the impreciseness and vagueness in human judgments and information, fuzzy set theory is applied in the model. The interrelationship among customer requirements is analyzed by fuzzy interpretive structure modeling (FISM), and the customer requirements of TFT-LCD product are further evaluated by fuzzy analytic network process (FANP). The proposed model can assist designers to understand the importance of the essential customer requirements of a new product so that further product development can be carried out in the right direction efficiently and effectively.