

Decision Making in Toc-Product-Mix Selection Via Fuzzy Cost Function Optimization

Abstract

This paper presents an innovated fuzzy decision-making under Theory-of-Constraints for the product-mix problem using a smooth logistic membership function for finding out fuzziness patterns in disparate level of satisfaction. Agility of this membership function when applied to real-world product-mix problems has been validated. This contribution is believed to provide a robust, quantified monitoring of the level of satisfaction among decision-makers and to calibrate these levels of satisfaction against decision-makers' expectations, thus providing a computational intelligence procedure. Inefficiency of traditional linear programming in handling multiple-bottleneck problem through the traditional Theory-of-Constraints concept is discussed via an illustrative example.