

Disparate Level of Satisfaction in Intelligent TOC Product-Mix Decisions using Smooth Membership Function

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Abstract

This paper outlines intelligent fuzzified product-mix decision under theory of constraints (TOC) using a smooth logistic membership function (MF) for finding out fuzziness patterns in disparate level of satisfaction. Agility of this MF in applying to real world product-mix problems has been validated. Objective of the paper is to provide a robust, quantified monitor of the level of satisfaction among DMs and to calibrate these levels of satisfaction against decision-makers' (DM) expectations. Sensitivity of the decision is focused for a bottle-neck-free, optimal product-mix solution of TOC problem. Inefficiency of traditional linear programming (LP) in handling multiple-bottleneck problem through TOC is discussed through an illustrative example.