

A Study of a Decision Support System for TOC Supply Chain Replenishment Systems

吳鴻輝, 任威達

Business Administration

Management

hhwu@chu.edu.tw

Abstract

The TOC (Theory Of Constraint) Supply Chain Replenishment System (TOC-SCRS) is a replenishment method of the TOC supply chain solution and now being implemented by a growing number of companies. The performance reported by the implemented companies includes reduction of inventory level, lead-time and transportation costs and increasing forecast accuracy and customer service levels. In application of the TOC-SCRS in a plant of a supply chain, the replenishment (set up) frequency is determined by its sale or production quantity. When the sale quantities increase, the replenishment frequency must be decreased or prolonged for the limited capacity. For example, the replenishment frequency is decreased or prolonged from daily setup (i.e., higher frequency) to a setup every two days (i.e., lower frequency) for daily sale quantity is increased from 2200 pieces to 2300 pieces. In general, the regulation of the replenishment frequency depends on the experience of senior manager. A decision support system of the TOC-SCRS is therefore proposed in this paper to support the managers. This decision support system recommends not only the feasible replenishment frequency of some products but also the regulating plan from current situation to the recommended situation. A prototype system is developed to demonstrate the feasibility of the decision support system of TOC-SCRS.

Keyword : theory of constraints(TOC); supply chain replenishment systems;
inventory replenishment; decision support systems