

An Enhanced Model of TOC Supply Chain Replenishment System for Long Procurement Lead Time Materials

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Abstract

The replenishment of the required materials for a future order is an important and necessary planning work for the producer. Especially in Taiwan, some key materials are more expensive and imported from overseas market; the producer will be further challenged by the longer procurement lead time and higher transportation cost. The producer thus utilizes the strategic procurement of key materials for those future orders and further achieves the economic lot size and minimum cost. However, as the competition becomes keener in these years, buyers are plagued by the fluctuations in demand and must bear the risk of failure prediction. A modified Theory of Constraints (TOC) Supply Chain Replenishment System (TOC-SCRS) is thus provided in this thesis to replace the strategic procurement of key materials and so as to release the forecast risk of buyers. A numeric example is used to demonstrate the proposed method.

Keyword : Theory of Constraints (TOC) ; Supply Chain Management ; TOC Supply Chain Replenishment System (TOC-SCRS) ; Supply Chain Management ; Replenishment Management.