

Yan, Bo; Wu, Jiwen; Liu, Lifeng; Chen, Qiuqing

Inventory management models in cluster supply chains based on system dynamics. (English)

Zbl 1384.90008

RAIRO, Oper. Res. 51, No. 3, 763-778 (2017).

Summary: This study introduces the methods of supply chain inventory management into the cluster supply chains and proposes the implementation of supply chain inventory management strategies under this circumstance. First, we analyze the system behavior patterns of the co-operation planning, forecasting and replenishment (CPFR), vendor-managed inventory (VMI), and jointly managed inventory (JMI) models of cluster supply chains. Therefore, we establish the inventory management models of CPFR, VMI and JMI in cluster supply chains. These models are simulated by VENSIM software. The simulation results show that compared with those in the VMI and JMI models, the inventory fluctuations of manufacturers, wholesalers and retailers in the CPFR model correspond; the total inventory is reduced while its stability is greatly improved. Therefore, the application of CPFR in cluster supply chains can effectively restrain the bullwhip effect, reduce the inventory and improve the efficiency of the entire supply chain.

MSC:

90B05 Inventory, storage, reservoirs

90B50 Management decision making, including multiple objectives

Cited in 1 Document

Keywords:

inventory management; cluster supply chains; system dynamics; CPFR; VMI

Software:

Vensim

Full Text: [DOI](#)

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