

Effects of Information Sharing on Vender Managed Inventory Operations with Varying Replenishing Strategies

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Abstract

The successful operation of a supply chain (SC) depends on members' coordination, which contains some form of information sharing (IS). Vender managed inventory (VMI) is a widely used SC operational technique that involves IS, and its goal is to coordinate and fulfill its member's needs to minimize the total operational cost. The advantage of adopting IS in a VMI program could be less information distortion and bullwhip effect. However, the economic benefits that a VMI program brings to its members depend on many factors and are varying case by case. Therefore, the study investigates what effects and economic benefits a specific VMI program that involves with different replenishing strategies and multiple replenishment time period under different IS scenarios could bring to its members to facilitate in-depth understanding of its real value in a SC using system simulation with the combination of integer programming method. The study results indicate that the replenishing strategy combining with lowering replenishing limit and slightly raising replenishment threshold can effectively reduce the total cost, improve the vehicle utilization rate and maintain a certain service performance in both the complete and partial IS scenario; moreover, it can deliver the replenishment to more retailers during the replenishment cycle to offer a new VMI control strategy for reference by the practitioner when making decisions.

Keyword : Information Sharing, Simulation, Vender Managed Inventory