

## Chapter 16

# Information Technology Enabled Vendor Managed Inventory in Modelling Supply Chain Issues: A Review

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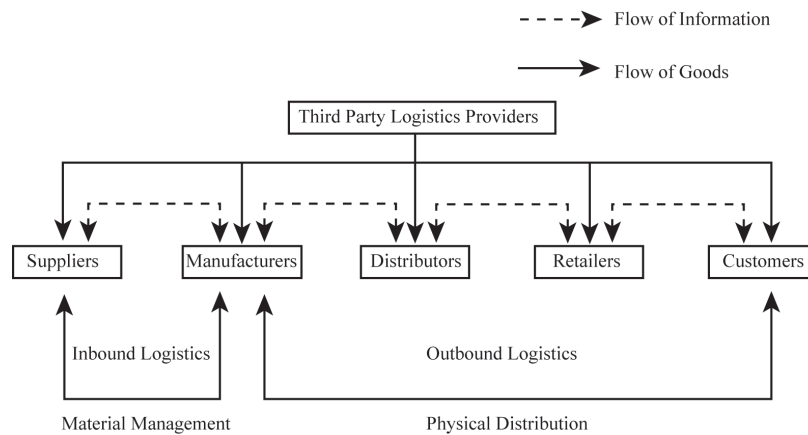
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### ABSTRACT

*Supply chain is a network of firms interacting in a linear fashion to produce, sell and deliver a product or service to a predetermined market segment. It links all the chain partners within and across organization to work competitively by forming the partnerships together with the integration of business processes, technical and organizational aspects. The successful implementation of supply chain management depends on many soft issues (strategic/behavioural). The soft issues of supply chain models can be dealt through proper information sharing, communication and coordination between the stages of supply chain. Vendor managed inventory is a proven concept for successful collaborative and cooperative agreements in supply chain. This chapter reviews some of the soft issues in two-echelon supply chain models and proposes a classification schema. This chapter surveys the theoretical background and application of vendor managed inventory systems based on environment, operational issues and solution approaches. Hence it is concluded that the framework presented in this chapter would aid supply chain managers and researchers to further look into the soft issues while modeling supply chain with information technology enabled vendor managed inventory systems.*

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Figure 1. Model of SC process



## INTRODUCTION

Supply Chain (SC) is a network of firms interacting in a linear fashion to produce, sell and deliver a product or service to a predetermined market segment (Chopra and Meindl, 2001). Figure 1 shows the business model of SC process (Min and Zhou, 2002).

This arrangement is found in a wide-range of industries like Dupont, Exxon, General Motors, in pharmaceuticals like Pfizer and in carriers like Federal Express, UPS. This arrangement is also found with retailers like Wal-Mart, Home Depot, and Sears. SC links all the chain partners within and across organization to work together by forming the partnerships to make the whole supply chain competitive (Maloni and Benton, 1997). Organizations recognized that they could not excel at the necessary competitive dimensions at a level needed to gain a competitive advantage without the cooperation and input of both their suppliers and their customers. The ability to integrate the differing functional areas of an organization with its suppliers and partners was seen as a logical step to improve competitiveness (Greis and Kasarda 1997; Morash et al., 1997; Thomas and Griffin, 1996; Houlihan, 1988, Beamon, 1998; Melachrinoudis et al., 2000). This requires

integration of business processes, technical and organizational aspects. The concept of Supply Chain Management (SCM) emerged in the mid 1980s to meet this challenge of such integrations (Southard, 2001; Bowersox and Closs 1996). SCM is a recent evolution for such integration on the following grounds:

- *It speeds up the flow of information and materials through the whole process from the suppliers to the customers due to the advancements in information technology.*
- *It is also proven that supply chain partnerships lead to more technical innovation and better quality products.*
- *The concept that satisfies the essential customer attributes such as responsiveness, quality, flexibility, dependability and cost.*

However, the successful implementation of SCM depends on many soft issues (strategic/behavioural) such as organizational resistance to change, inter-functional conflicts, joint production planning, profit sharing, team oriented performance measures, channel power shift, information sharing, real time communication, inventory and technical compatibility (Min and Zhou 2002). Many of the above issues in SCM

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