ANALYSING THE PROCESS OF VENDOR MANAGED INVENTORY

Jyoti Pabbi  
Assistant Professor - Mathematics,  
YMCA University of Science and Technology  
jgrover1981@gmail.com

Dr. Neetu Gupta  
Assistant Professor - Mathematics,  
YMCA University of Science and Technology  
Neetuymca@yahoo.co.in

Abstract - Vendor Managed Inventory is a planning system in which the vendor is responsible for replenishment and management of inventory depending on the information shared between the supplier and buyer. The purpose of this paper is to investigate the literature on Vendor Managed Inventory and to segregate the analysis done by various researchers. The various research papers are classified into three categories and a conclusion is drawn about the future research.

Keywords - Vendor Managed Inventory, Inventory Models

INTRODUCTION

In the recent past, the scholarly attention has shifted to the terms Supply Chain Management, Logistics and sustainability of business practices. The benefits of VMI as cited in literature are reduction in costs related to ordering, improvement in areas like production planning, service levels, forecasting accuracy etc. VMI is viewed as a process in which improvement goes on.

The above stated advantages can be achieved by continuous replenishment planning (CRP) and Vendor Managed Inventory sometimes referred to as consignment inventory. In the recent decade, research on VMI is intensified. It is still noted that most of the accounts are anecdotally providing company specific examples. According to Daugherty and Myers, 1999". Several researchers have suggested ways to tell what causes difficulties in VMI implementation and its subsequent use.

UNDERSTANDING VMI:

This is defined as means of optimizing the whole supply chain performance in which the supplier accesses the customer’s inventory data and supplier is equally responsible for maintaining inventory level required by customer. The order transactions that are normally generated by buyer is now monitored and initiated by the supplier itself. Instead of putting pressure on manufacturer only, the responsibility and authority are shared in the whole replenishment process. The process can be shown as
IMPORTANT FEATURES OF VMI:

In VMI, supplier is responsible for managing a firm’s inventory which means constant monitoring of stocks, planning and direct replenishment of inventory at firm’s warehouse.

1. The whole data at vendors end will be shared by supplier. Based on this information, supplier will determine the maximum and minimum limit of inventory that should be at the firm’s site or warehouse.
2. With orders delivered at very short notice, the supplier aligns his operations with firm’s requirement in a transparent manner.
3. VMI actually provides manufacturer authority and responsibility to deliver goods fast and with accuracy.
4. Implementing VMI will enable vendors to focus on value added activities for the end customers and manufacturers can overcome the inconsistent demand patterns of the end customers.

Various objectives of VMI are

The classical success story of VMI implementation is partnership between Walmart and Procter & Gamble. Some case studies show the difficulties faced in implementation of VMI. The various hindrances are:

- Lack
of organizational structure, lack of infrastructure, lack of trust among members of supply chain, Lack of Integration of team internally and externally.

For efficient and smooth working of VMI, some of the things that must be ensured are: reliable data should be provided to the supplier, assurance by the supplier that his information will not be shared with anyone, very clear visibility for sales and inventory should be available to the supplier.

LITERATURE REVIEW:

This section gives an in-depth view of literature available on VMI. VMI was developed when the companies tried to achieve some competitive advantage. It has been adopted by various companies including Walmart, Campbell Soup, Intel and Shell. A number of benefits that this process brings into the supply chains particularly the dynamic inventory control, customer services and use of assets. Disney et al (2003) have provided a comprehensive description of development of VMI and its expected benefits.

In VMI implementation, supplier is in control of customer’s inventory to ensure that predetermined service levels are maintained. Hence the vendor makes all the decisions related to replenishment, dispatching a quantity of product may be fixed or variable according to the control system in use (Waller et al. 1999)

Around 40 research papers are included in this review. The literature review involved different methods to study VMI. These are mathematical models, reviews and discussions on VMI, quantitative and qualitative analysis of data. Further some researchers focussed on one side of the manufacturer, retailers or vendor customer relationship, focussing on customer’s side thereby not investigating the vendor’s side.

Table. 1 Those who adopted one sided approach can be listed according to the various methods adopted

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In both types, a very small fraction of papers consist of literature review. Some researchers like Blatherwick and Cooke (1998) discuss the VMI concepts and its effects and success factors in practice. Cachon (2001) says, “VMI alone cannot provide an optimal solution of VMI, both the vendors and retailers must agree on to participate actively in terms of VMI contract and willingly share benefits”. Barrat (2003) reviewed and call for the actual economic benefits of VMI applications.

Then some researchers tried to verify the actual economic benefits of VMI. William and Tokar (2008) carried a literature review of inventory management research pointing out the need of solving complex VMI problems by mathematical models. Zammori et al (2009) discussed how standard agreements can be applied effectively in VMI settings.

Most of the papers reviewed deal with mathematical modelling of VMI, as for Wilson (2007) and Yao and Dresner (2008). Most common approach is to arrive at models that could predict deterministic or stochastic

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demand on inventory. Others use empirical data to describe VMI related aspects through simulation models. Such research papers help in highlighting how certain variables are effected under various circumstances though most of the researchers admit to the fact that very complex setups are not taken up in these studies. Researchers have pointed that more case studies of industries that have implemented VMI and the benefits they have attained as well as the problems faced in the actual processes employed by companies needs to be done.

One section of literature uses quantitative data to check the various hypothesis. Kaipia et al. (2002) uses simulation approach to analyse benefits of VMI keeping in view the management of replenishment processes on the complete range of products. Their study does not provide an empirical proof of success. Waller et al. (1999) explained why savings potentially start from VMI for both suppliers and buyers. Toni and Zamolo (2005) on basis of quantitative data say that VMI is a successful method though their research focusses on the buyers side with no attention to supplier/manufacturer.

CONCLUSION:

After this intensive review of papers, it is observed that there are only few literature reviews conducted in VMI. Most of the researchers suggested a thorough study of costs and profit analysis of industries already using VMI needs to be done. Some researchers who studied and developed models suggested that more complex cases can be taken up for research, while some of them suggested that supplier/vendor should also be focussed while developing VMI model and agreements. Future researchers can focus upon case study of VMI using industry, develop VMI models for complex set ups and study the costs involved.

REFERENCES


