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## Chapter 9: Vendor Managed Inventory

### Objectives

- Examine the purpose of VMI.
- Determine the conditions necessary to implement VMI focusing on the collaborative relationship between suppliers and customers.
- Identify the steps necessary in setting up VMI.
- List the benefits and issues of VMI.

### 1. Introduction

Customers (retailer or final consumer) have been in charge of monitoring their inventory levels and place purchase orders to vendors (retailer-managed systems).

There has been a growth in vendor-managed systems, in which vendors monitor customer sales (or consumption) and inventories through electronic data interchange (EDI), and decide when and how to replenish their customers.

Vendors are thus able to achieve cost savings through a better coordination of customer deliveries while customers do not need to allocate costly resources to keep inventory and manage it.

Vendor-managed inventory (VMI) is a business model in which the buyer of a product provides certain information to a vendor of that product it takes full responsibility for maintaining an agreed inventory of the product, usually at the buyer's consumption location – retail store or warehouse.

The implementation of VMI requires the close working relationship between supply chains partners. Vendors receive POS data from retailers, and use this information to synchronize production and inventory activities at the supplier. The retailer still prepares individual orders, but the POS data is used by the supplier to improve forecasting and scheduling.

### 2. Definition of VMI

VMI is a coordination system in which a supplier manages the inventory on its customer's shelf, deciding when and how much to reorder.

VMI is a collaborative strategy between a customer and supplier to optimize the availability of products at minimal cost to the two companies. The supplier takes responsibility for the operational management of the inventory within a mutually agreed framework of performance targets, which are constantly monitored and updated to create an environment of continuous improvement.

### 3. How Supplier and Retailer Manage Inventory

When retailers managed inventory, one of the methods of managing inventory is to use some form of a trigger-point method replenishment program. When an item in stock is depleted to the level of the trigger-point quantity, a purchase order is placed on a vendor to replenish the item. This is illustrated in Figure 9-1.

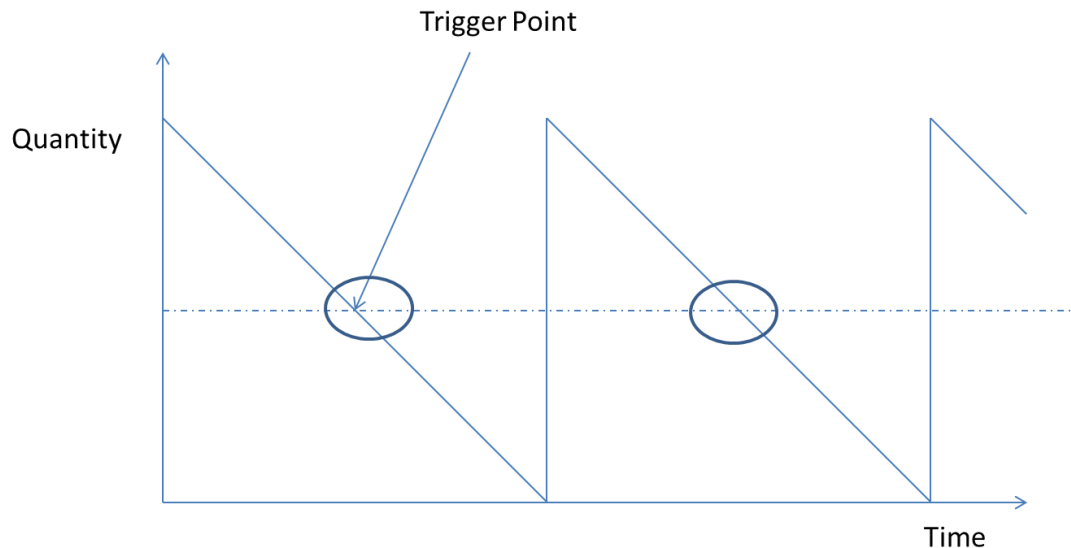


Figure 9-1: Trigger Point Replenishment System

In such systems, retailers make their own forecasts and inventory control rules. Alternatively, retailers will replenish on a fixed cycle and order an amount to fill designated shelf space for an item.

Although retailer managed program are expected to grow, there is expected to be a substantial growth in VMI as well.

With EDI and Point-of-Sales (POS), vendors can be aware of what is on retailer's shelf as the retailer itself. Retailers such as Wal-Mart and Toys R Us allow vendors to be in charge of their own inventory, deciding what and when to ship.

Once the product is received, ownership of the inventory generally shifts to the retailer, although some retailers would like to reach the point where they do not even own the goods sitting on their shelves.

The increased availability of information is permitting new alternatives for managing the flow of goods in the supply chain to emerge.

By pushing the decision making responsibility further up the supply chain, the manufacturer/vendor will be in a better position to support the objectives of the entire integrated supply chain resulting in sustainable competitive advantage as shown in Figure 9-2.

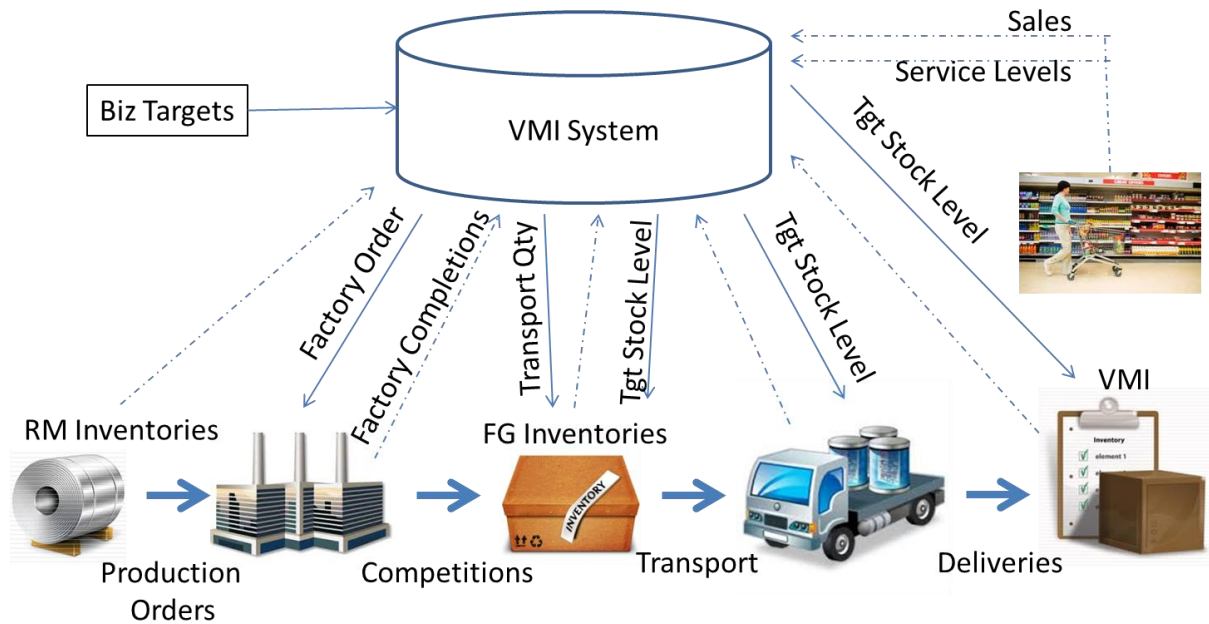


Figure 9-2: VMI System

Vendors require that their customers supply them with information about product sales, current inventory levels, dates of receipts of goods and dead stocks and returns.

Information flows to the vendors through an EDI or other electronic network so that it is up to date at all times.

Vendors sometimes incur great costs, but feel that the additional costs are covered by increased sales that are realized from the use of VMI.

#### 4. Why VMI?

Manufacturers and suppliers with greater concentration and knowledge of a smaller number of products should be able to forecast and manage the flow of products from their end to the customers or end-consumers.

Theoretically, stocks and chain-related costs should be reduced. From the retailers' perspective, there was an attraction to push the inventories upstream to reduce stockholding level and costs, putting emphasis to suppliers to hold stocks and protecting the retailers' service levels.

This would allow retailers to move away from stockholding depots to cross dock platforms.

Retailers should be able to supply good quality projections and then order in an even and efficient manner. Manufacturers want to produce and delivered products as needed in a smooth and uninterrupted flow and to avoid demand peaks and valleys.

VMI makes it less likely that a business will unintentionally become out of stock of a good and reduces inventory in the supply chain.

Furthermore, vendor representatives in a store benefit the vendor by ensuring the product is properly displayed and store staff are familiar with the features of the product line, all the while helping to clean and organize their product lines for the store.

By providing improved supply and demand information visibility via centralized control, VMI can specifically reduce the impact of bullwhip effect.

As with CPFR, JIT and other systems covered in earlier chapters, significant investment in developing an appropriate collaborative relationship is a prerequisite to operating VMI.

## 5. Types of VMI Relationships

Configuration	Collaborative Relationships
Type 0	Traditional supply chain
Type 1	Replenishment only
Type 2	Replenishment and forecasting
Type 3	Replenishment, forecasting & inventory management
Type 4	Replenishment, forecasting, inventory management & distribution planning

Table 1: Types of VMI Relationships

Supply chain collaborations may begin with a traditional supply chain. This type of relationship is one in which partners perform transactions with either no plan to bring the relationship to the next level or with the intention of upgrading the relationship in medium or long term.

Type 1 relationship allows supply chain partners to exchange information but only for replenishment purposes. A certain level of trust is developed but not deep enough to completely share information.

When a relationship deepens, then more information is shared and the collaborative relationship is described as Type 2. Forecasting allows a higher degree of trust since the buyer is dependent on the supplier for forecasting.

When a relationship allows a vendor to manage inventory for a retailer, then the relationship is brought to a higher level – Type 3.

The final level of collaborative relationship is reached when both partners allow information to flow freely to allow the VMI system to not only manage replenishment, forecasting and inventory management but also the distribution of goods. This requires a considerable amount of trust since the buyer is going to be dependent on the vendor to deliver goods reliably.

## 6. Types of VMI

- a. Consigned inventory with period payment where the supplier manages and owns the products until they are used by the customer.
- b. VMI pay on receipt where the supplier manages the products and receives payment on per shipment basis as the customer receives at site.
- c. VMI with consolidated payment where the supplier manages the products and receives payment on consolidated basis. For example, the 8 shipments made during the month are paid only at the end of the month.

A number of large retailers have moved away from VMI to CMI. This should enable retailers to keep control of their supply chains while having the opportunity to push stockholding upstream.

The use of IT, advanced purchasing management systems, better promo planning models, necessity to work together to meet challenges of other supply chains, more trusting relationships, are having a positive impact on supply chains.

## **7. Principles of VMI**

In VMI, both parties have to discuss and negotiate on the terms and conditions of the contract and formalize the relationship in a written agreement. The following are the basic parameters to be included:

- a. SL expectation
- b. Agreed inventory limits
- c. Frequency of replenishment
- d. Agreed payment of services
- e. Stocktaking responsibilities
- f. Obsolescence cost sharing
- g. Regulatory in parameters and forecast review
- h. Duration of agreement
- i. Termination clause

## **8. Buyer's Responsibilities**

The role is to provide the daily usage information to the supplier and ensure the inventory records are accurate and available. The buyer has to provide accurate forecasts at least 5 to 6 months into the future and try to minimize changes within the 30-day window. All promotion plans should be given to the supplier in advance.

## **9. Supplier's Responsibilities**

Its role is to deliver within the service level expectation. The supplier is required to use the usage data and POS scan data to manage orders and provide Advanced Shipping Notice (ASN) on all shipments.

## **10. Joint Responsibilities**

Both are required to maintain efficient and effective communications and notify each other of all potential problems as they arise. Both have to measure and give feedback on performance for improvement.

## **11. Conditions Necessary for VMI**

- Top management commitment.
- Focus on effort trust and partnership between supply chain stakeholders.
- Advanced and highly effective computer/information systems (EDI, Bar coding, Scanning).
- Competent manufacturers and the ability to forecast.
- Willing stakeholders partners and patience.
- Shared power and responsibility within an organization might change (for example, contact with customers switches from sales and marketing to logistics).

## **12. Benefits & Issues of VMI**

### **12.1 Benefits**

- Decrease required inventory levels Improve service levels Decrease work duplication Improve forecasts.
- Manufacturers enjoy lower inventory investments (raw and finished).
- Better scheduling and planning Better market information Closer customer ties and preferred status.
- Retailers have fewer stock-out with higher inventory turnover.
- Better market information.
- More optimal product mix.
- Store staff have good knowledge of most product lines offered by the entire range of vendors. They can help the consumer choose from competing

products for items most suited to them and offer service support being offered by the store.

- Data entry errors are reduced due to computer to computer communications. Speed of the processing is also improved.
- A true partnership is formed between the Manufacturer and the Distributor. They work closer together and strengthen their ties.
- The overall service level is improved by having the right product at the right time.

## **12.2 Issues**

- Expensive advanced technology is required.
- Supplier/retailer trust must be developed.
- Supplier responsibility increases. Expenses at the supplier often increase.
- EDI data must be well defined.
- Data integrity is necessary.

## **13. Conclusion**

The benefits of VMI are countless. Because of this, one wonders why it is not widespread. The cost of transferring responsibility to the suppliers is one of the major causes why suppliers are reluctant to carry the burden alone. Suppliers prefer to sell and not be concerned with returns. However, large box malls do have the purchasing power to encourage suppliers to be jointly responsible for managing inventory.