Vendor Managed Inventory: Providing Visibility Across the Pharma R&D Supply Chain

Executive Summary

Vendor managed inventory (VMI) is a concept in which stock is monitored, planned and managed by suppliers based on expected demand and previously established threshold levels. Although manufacturing and retail companies have relied on these practices for some time, top pharmaceutical companies only began experimenting with this concept for R&D supplies management in the early 1990s. At that time, the pharmaceuticals industry (top pharmaceutical companies in particular) increased its focus on R&D. With increasing cost pressures and the spread of R&D functions to pharma company operations in numerous geographic outposts, the need for a lean supply chain became paramount. This need led to increased adoption of VMI by pharma industry players and for R&D supplies in particular.

VMI implementation benefits both the pharmaceuticals company and its vendor(s) equally. For pharmaceuticals companies, benefits include increased inventory turnover, decreased liability and improved inventory availability, while their vendors can expect increased customer loyalty, differentiated customer service and better operational performance through inventory forecasts.

Efficiently implementing a VMI solution for pharma R&D laboratories’ supplies management depends on using a proper mix of technology and human resources. Using the latest technology for electronic sign-outs, data connectivity, demand planning, inventory planning and replenishment planning can lead to effective and smooth VMI implementation. Regular tracking of key metrics (e.g., the number of stock-outs per month or the number of expired items per month) could help measure vendor performance in a VMI scenario.

This white paper explains how new technology and process improvement can be used to implement VMI to extend effective and efficient pharmaceutical R&D supply chain management.

A VMI Primer

The importance of ensuring timely delivery and availability of R&D supplies was underscored recently when the vice president of R&D at a top-10 U.S.-based pharma company told us, “For every hour my scientists spend waiting for their supplies, R&D registers a loss of about $1 million a day in lost productivity.”

Pharmaceuticals research laboratories are seeking a solution to assist in managing high-dollar laboratory stock, track supplies in real-time and reduce the negative impact that supplies can have on the bottom line. Senior leadership is seeking ways to reduce unnecessary overstock-
ing and avoid stock-out situations. Also, there is a need to better manage items with expiration dates. In this scenario, VMI is a justifiable option for the following reasons:

- **Supplying parties are in a better position to manage inventory,** since they have better knowledge of production capacities and lead times.
- **Allowing vendors to manage inventory reduces the number of layers in the supply chain,** increases stock visibility and reduces overall inventory levels.

Traditionally, success in supply chain management is derived from understanding and managing the tradeoffs between inventory cost and service levels. VMI projects can result in improvements along both dimensions.

VMI started in the retail industry. It emerged from the concept of efficient consumer response, where fulfilling consumer expectations of stock availability leads to a competitive edge.

**VMI in the Pharmaceuticals Industry**

Supply chain executives struggle with five primary challenges: inventory visibility; risk (such as contaminated or expired inventory); cost containment (such as paying only for consumed inventory and not for supplied/expired inventory); internal customer demands; and globalization. In order to address these challenges, the pharmaceuticals industry needs a supply chain with the following attributes:

- **Transparency:** The latest technologies (e.g., RFID) are used to digitally track and gain greater visibility into goods across the supply chain.
- **Integration:** All supply chain actors (such as vendors and customers, either internal or external) can share information and make decisions collaboratively.
- **Intelligence:** Based on the latest advanced analytics, simulation and modeling tools, pharma companies can evaluate increasingly complex and dynamic risks and constraints and manage the supply chain more scientifically.

Pharma companies are increasingly realizing that VMI is critical and, given the aforementioned attributes, can help them transform their supply chains into lean, efficient and value-inducing machines. Prime motivating factors include moving from the traditional purchase order process (which offers minimal information exchange) to a full-blown vendor collaboration model that involves digitally transmitting accurate forecast and stock information to vendors that then facilitate just-in-time replenishment. To do this, they must arm vendors with the requisite value chain visibility and trust them to flexibly supply inventory within agreed-upon threshold levels.

While the adoption of VMI remains exceptionally low in the pharmaceuticals industry, this is beginning to change. For instance, major pharmaceuticals players such as GSK have started to experiment with VMI. In the 1990s, the company began using EDI to exchange replenishment information. It later introduced VMI to address rapidly changing customer needs and the obvious lack of visibility into actual inventory throughout the network, which was undermining operational efficiency and effectiveness. GSK extended VMI into its upstream and downstream networks to allow more timely and effective information-sharing and empowered its supplier network to automatically satisfy customer requirements. Other players are following suit. For example, we are helping a top-10 pharma company expand its deployment of VMI (see sidebar, page 4).

**VMI in Pharma R&D Supply Chain Management**

The pharmaceuticals industry is facing the challenges of ineffective drug discovery and expiration of patents, among other issues. Naturally, cost avoidance is high on the corporate agenda, with inefficient R&D supply chains ranking at the very top of all the cost avoidance opportunities available.

Pharmaceutical research laboratories are seeking a solution to assist with managing high-cost laboratory stock, tracking supplies in real-time and reducing the negative impact that supply shortcomings can have on the bottom line. Demand from the top down reduces unnecessary overstocking and helps avoid stock-out situations. Both typically result in increased margins related to overall carrying costs. Therefore, pharma companies need to better manage items with expiration dates to bolster their profitability.

In a traditional R&D supply chain, there is a greater chance of stock-outs. Also, the sign-out process is time-consuming and complex, which can cause
scientists to lose valuable research. Purchasing departments spend a lot of time writing purchase orders (PO), and storeroom staff is stretched due to manual reconciliation of inventory. There is no quick option to retrieve detailed information from one source; inventory managers typically rely on multiple sources to extract purchase history and identify whether the product type was consigned. Neither source can access information on stock expiration or on hazardous items that might lead to regulatory compliance issues.

Implementing VMI will help ameliorate inventory management issues, particularly expired, obsolete and recalled products. Scientists can either electronically sign out using barcode scanners or use RFID technology to sign out automatically. The platform would provide real-time alerts on anything related to inventory and a dollar value of expired inventory and inventory that is nearing expiration, as well as products that have been inactive over a period of time. Detailed information would be readily available and easily accessible.

A VMI system in R&D supplies management cannot be a stand-alone system, however; for optimal payback, it needs to be integrated with numerous related systems. This will allow the application to act as a full-service system and not just for inventory management (see Figure 2).

**Benefits of a VMI Solution**

Benefits of VMI to various stakeholders within the pharma R&D supply chain include:

**Scientists**
- No manual sign-outs required.
- No interruption in research work due to unavailability of research materials.
- Reduced number of special orders.

**Stockroom**
- No manual reconciliation of inventory.
- Automatic reorders.
- No risk of power/equipment outage.
- Visibility of expired items.
- No stock-outs.

**Purchasing**
- Less PO paperwork (each PO costs between $75 and $150 to create).
- Better visibility into vendor prices.

**Regulatory Affairs**
- Ensured regulatory compliance and tracking for potentially dangerous, harmful or regulated materials.

**Vendors**
- Better scheduling and planning for replenishments.
CASE STUDY >>
VMI Feasibility Assessment for R&D Supply Centers

Business Situation
This client is among the top-10 global pharma companies, with total 2010 revenue of $35.2 billion and R&D spend of $3.7 billion. It serves customers in more than 130 countries, with an employee base of nearly 90,000 at more than 100 manufacturing, distribution, R&D and other locations worldwide.

To a large extent, the client’s R&D supply centers were geared around the VMI concept, where vendors (or suppliers) were responsible for:

- Determining appropriate stocking levels on their respective shelves.
- Managing different SKU mixes based on demand.
- Configuring appropriate safety stock levels for each SKU.
- Shipping, receiving and stocking replenishments.
- Invoicing based on consumed quantities.

The client was responsible for:

- Providing shelf space and utilities on client premises for vendor cabinets.
- Managing relationships with vendors.
- Ensuring POs are in place to cover consumed materials.
- Collecting consumption details for invoice reconciliation.

Challenge
In the absence of a technology solution, the client’s current VMI operations were constrained. Challenges included:

- Using information strategically to improve service levels, reduce obsolescence and ensure compliance with environmental, health and safety regulations.
- Effectively scaling operations to other indirect procurement areas, such as chemical reagents and laboratory supplies.

Benefits
Our team identified the following benefits that would result from the client’s implementation of a VMI solution for its biologics supplies:

Cycle time reduction:
- Improved chances of procuring desired item.
  - Frequent replenishments based on real-time inventory tracking.
  - Fewer stock-outs because of re-order notifications to vendors.
- A smoother chargeback and invoicing process due to:
  - An electronic sign-out process to capture user data electronically.
  - Sign-out data simultaneously available to finance, stockroom operators and vendors.
  - Consumption data electronically consolidated from all sites.

Cost avoidance:
- Consignment-based VMI solution, ensuring:
  - The client is not liable for expired/spoiled inventory.
  - Price comparison features will level price disparities for some products.
- The opportunity to stock more SKUs based on effective inventory management (e.g., real-time inventory tracking), resulting in:
  - Avoidance of shipping costs for special orders (orders for items that are not stored in supply centers because of perceived low consumption rates) or spot buys.
  - Fewer spot buys.
- Reduced administrative overhead, enabling the client to free up resources to focus on core activities, since many administrative tasks will either be automated or performed by the vendor.
• Better market information (usage patterns, inventory depletion).
• Competitive advantage over non-program participants.
• Optimal product mixes based on actual demand.

Metrics to Measure Vendor Performance
The following metrics should be used to measure vendor performance within any VMI scenario to ensure optimal results.

• Number of stock-outs per month: Ideally, there should not be any stock-outs in a VMI scenario, but if stock-outs occur, this is an indication that the vendor’s inventory planning is incorrect.

• Number of special orders per month: If the number of special orders (orders for products not stocked in the supply center) for a particular SKU is high, it points to an insufficient number of SKUs stocked in supply centers.

• Number of expired items per month: A higher number of expired items indicates that the consumption estimation is incorrect.

• Frequency of replenishment: A high frequency of replenishment indicates a lack of proper inventory planning by the vendor.

• Number of returned full loads per month: A reduced number of returned full loads indicates better planning and forecasting.

• Time spent in administrative tasks related to inventory management: A gradual reduction in the time spent on administrative tasks related to inventory management (e.g., PO creation) indicates that the VMI implementation is on track.

Conclusion
Compared with other industries (e.g., retail or consumer goods manufacturing), the use of VMI remains exceptionally low among pharmaceutical companies. Although many pharma supply chain executives acknowledge the importance of VMI, actual VMI implementation rates are nowhere near that of other industries. Considering the importance of supplying pharma R&D scientists with the right inventory (e.g., chemicals, Petri dishes) at the right time, VMI adoption is increasingly becoming relevant for pharma companies in general and pharma R&D supply chain management, in particular.

VMI presents a win-win situation for pharmaceutical companies and vendors. Pharma companies attain more efficient inventory management of their R&D supplies, and vendors get effective delivery management capabilities.
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