

Cooper Power Systems Provides Superior Service Through Vendor Managed Inventory

John Kebisek, Director, Marketing Services, Cooper Power Systems
 Matthias C. B. Dressler, Demand Forecasting and VMI Manager,
 Cooper Power Systems



Cooper Power Systems has been delivering dramatic results while managing utility inventories and the supporting supply chains since 1998. For example, in an arrangement in which Cooper manages the transformer supply of a major utility, inventory turns (a measure of operating efficiency and financial health) have consistently been more than twice that of inventories not included in this arrangement. This has been accomplished while maintaining fill rates (a measure of service) in excess of 97 percent, typically over 99 percent.

In its simplest form, Vendor Managed Inventory (VMI) is the process where the vendor assumes the task of generating purchase orders to replenish a customer's inventory. But VMI can be a term that is used to describe many types of supply chain initiatives.

What is the Cooper VMI Program?

The key to the success of the Cooper Power Systems program is the integration of four previously manual-intensive operations tasks into a layered holistic enterprise solution. The four major functional areas of the Cooper VMI program are e-commerce, production planning, replenishment management and performance metrics. By uniting these areas in a single program, an improved visibility of demand and product flow in the supply chain can be achieved, facilitating a more timely and accurate replenishment process between Cooper and the customer or distributor.

E-Commerce

The e-commerce layer leverages electronic (often real-time) communications to transfer the data necessary for the VMI program to function. For example, daily inventory transactions are automatically transferred from the customer to Cooper Power Systems (CPS). This inventory activity data provides Cooper with information about the quantity of material: on hand, on order, reserved for use, and consumed at the customer's location.

The data can be communicated via EDI, XML, FTP, automated E-mail or any other reliable electronic communications method. A key requirement of the e-commerce layer is that the data be timely and accurate.

Production Planning

The VMI software creates a statistical forecast that is shared with the customer and production scheduling. By reviewing the forecast and customer-supplied information on future requirements, an accurate picture of the future demand can be created. How the future demand information is used within Cooper is dependent upon the performance goals of the customer. This information may be used to reserve production or to build material in advance.

Performance Metrics

Performing monthly, quarterly, and/or yearly performance reviews allows for accountability and a process of continuous improvement. Typically, goals are established for turns and fill rate. Graphs are then provided monthly and additional key performance indicators can be defined as necessary.

Supply Chain Impact

Inventory is the proxy for information. In the absence of timely and accurate consumption data, each node in the supply chain compensates for the lack of information with excess (costly) inventory. When inventory is not available, service levels are directly impacted by lengthening lead times, slow replenishment times, potentially extending outages and service interruptions. As actual demand for products is disseminated up the supply chain in a more real-time environment, the more closely aligned production is with demand. As the gap between production and demand diminishes, so do supply chain inventories, service level interruptions, and material lead times.

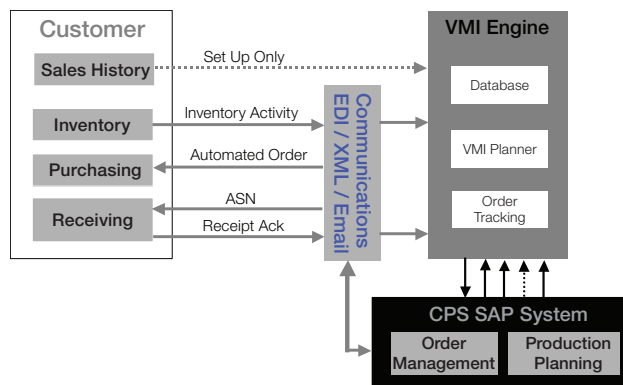


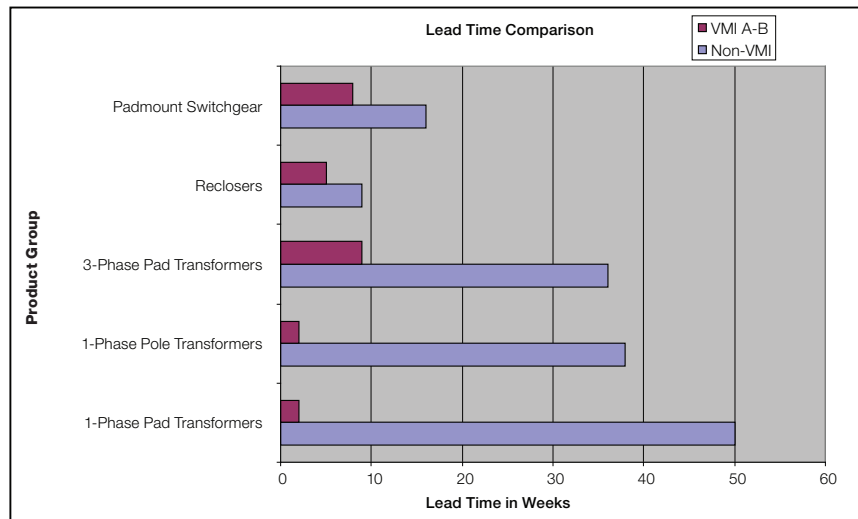
Figure 1. Typical Automated Electronic Communication Flow for VMI.

Replenishment Management

Based upon service level performance goals defined by the customer, a set of rules for material replenishment is established. These rules are used by the VMI replenishment software. The VMI software then develops a best case replenishment strategy at the material level to achieve the established goals at the lowest total cost.

The ultimate goal is supply chain excellence, as defined by service, speed and cost. Delivering the best service at the point of consumption, in the least amount of time, at the lowest total cost, is the key to success. The result is a supply chain that has an automated, timely flow of information triggering replenishment activities that anticipate demand accurately. Cooper Power Systems' VMI program delivers tangible results throughout the supply chain. ■

Figure 2. (RIGHT) Lead time comparison.



NEW Version of iXP-420 Transformer Differential Relay Available

Arvind Chaudhary, Staff Engineer—Relays and Controls, Cooper Power Systems

Since its introduction in 2002, the iXP-420 differential relay has proven itself to be an extremely versatile member of the Idea™ relay family. Officially classified as a transformer differential relay, the relay has proven well-suited for other applications that can take advantage of the iXP-420's functions, including restricted earth fault protection, bus differential protection, bus backup protection, multi-feeder frequency-based load shedding and restoration schemes, and over/under voltage protection. Enhancing these functions is the relay's ability to provide independent control for both high- and low-side circuit breakers.

A partial list of those functions that have made the iXP-420 so popular include:

- Dual-slope differential protection element (87-1)
- High set differential element (87-2) for fast response to large magnitude internal faults
- 2nd and 5th harmonic blocking
- Restricted earth fault (87N)

- Ground overcurrent with separate CT input for low-side winding (50N/51N)
- Overcurrent protection (50/51, 50R/51R, 50Q/51Q) for each winding
- Over-excitation (V/Hz) protection (24)
- Under/over-voltage protection (27/59, 27P, 59P, 59Q, 59N)
- Multiple-Step over/under frequency elements with voltage and current supervision (81)
- Power quality, metering, control and communications capabilities address the needs of automation, EMS and SCADA systems

New Enhancements

The updated release of the iXP-420 is designed to run in the ProView™ 4.0.1 application software. Software enhancements include:

- Adjustable Oscillographic Event and Pre-trigger Lengths
- Data Profiler to provide for tracking of transformer power loading trends
- Through-fault logic counts and



- accumulates statistical data for through-fault events
- Additional inverse time overcurrent curves
- COMTRADE file export
- Front panel access to the most recent 25 SOE records
- Custom front LCD messages may be programmed via the Idea Workbench™

Existing relays may be updated with a simple software download. New iXP-420 relays are now also available with optional dual 10/100MBPS Ethernet ports supporting both DNP 3.0 and ProView over TCP/IP. ■

Recently Introduced Idea Relays

- iCP-191 Fuseless Capacitor String-based Protection relay
- iCP-630 Ungrounded Capacitor Bank Protection relay
- iCP-440 Split Wye Capacitor Bank Protection relay