

VALOGIX[®] DMRP *Smooth-Flow* Inventory Planning and Optimization

Product manufacturers and contract manufacturers have unique challenges and opportunities when planning either the finished goods or the materials used in the manufacturing or assembly process. Keeping costs low and maintaining a competitive advantage often requires companies to do more than plan for the finished goods alone.

Many companies using contract manufacturers also provide the contract manufacturer with some or all of the materials used in the production process. These may be proprietary materials produced by, or for, the hiring company or they may be materials purchased from another supplier and shipped directly to the contract manufacturer.

Valogix has developed functionality specifically designed to meet the needs of the manufacturing process. Valogix also supports companies who utilize contract manufacturers with the functionality they need to easily plan for their manufacturing process.

Features include:

- Automated forecasting for each item and each location whether it is a finished good or a component
- Automated recommendations for the creation of purchase orders, work orders and transfer orders to meet each item's replenishment requirements
- Ability to plan for Production, Assembly, and Kit Items
- Ability to configure components of Production, Assembly or Kit Items to be sourced from different locations
- Ability to recognize demand and plan for components without the use of work orders

Challenges for Inventory Planning of the Manufacturing Process

- ◆ Recognizing "Demand variability"
- ◆ Continual growth of new SKU's
- ◆ Difficulty in setting and maintaining accurate stocking levels
- ◆ Dealing with critical "Stock-outs"
- ◆ Low inventory turns
- ◆ Excess and obsolete inventory
- ◆ No ability to easily forecast more accurately
- ◆ Wrong mix of available items
- ◆ Long and varied lead times—domestic and international
- ◆ Complexity in determining how much to order, when to order, and where to stock



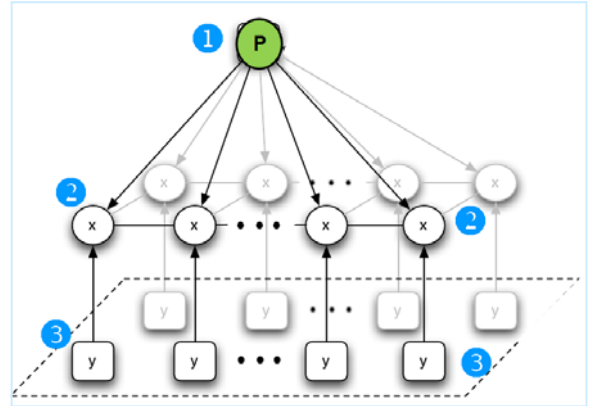
The bottom line - you need a modern solution to help solve these tough issues.

Manufacturing Inventory Process (MRP)

The basic purpose of Material Requirements Planning (MRP) is determining how much of which products needs to be either manufactured or purchased based on it being a component or ingredient of another item. MRP also determines when the product is required. Every item can have either Independent Demand or Dependent Demand.

Independent Demand is based on an item being an end product of a manufacturing facility. Independent Demand would include end products that are sold directly to customers or distributors, spare parts that are sold to repair shops or customers, supplies that are sold directly, etc.

Dependent Demand is based on an item being used, in the manufacturing process of making other items. This might include raw materials, purchased parts, sub assemblies, or complex parts that are also themselves manufactured or assembled. The Parent (P) is the high level assembly and the Children (x) & Grand Children (y) are the components that are used to make the finished product.



MRP Inputs

- Forecasts are created for the finished goods. These forecasts can either be generated statistically from historic demand or as sales projections or both.
- Planned Orders are either firm sales orders from customers or other manufacturing orders requiring the product to be planned as an input
- Back-scheduling insures that the longest lead time of the components (children) are accounted for

Bill of Materials (BOM) is the document that articulates each input item, along with a quantity and whether the item will be accounted for automatically issued for the production process.

MRP Outputs

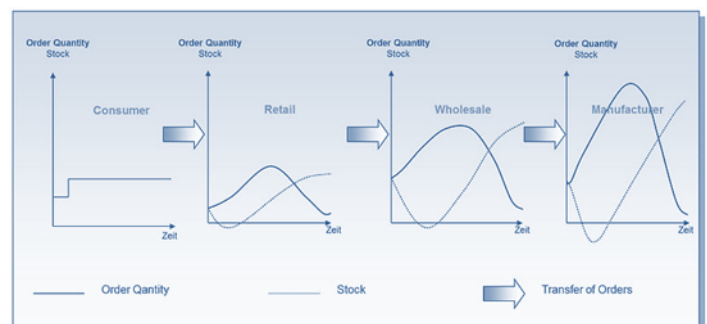
"Recommended Production Schedule": This lays out a detailed schedule of the required minimum start and completion dates, with quantities, for each step of the Bill Of Material (BOM) required to satisfy the demand from the Master Production Schedule (MPS).

"Recommended Purchasing Schedule": This lays out both the dates that the purchased items should be received into the facility AND the dates that the Purchase orders, or Blanket Order Release should occur to satisfy the demand from the Master Production Schedule (MPS).

Finished Goods Inventory Planning

The **bullwhip effect** is an observed phenomenon in forecast-driven distribution channels. Demand variability increases as one moves up the supply chain away from the retail customer, and small changes in consumer demand can result in large variations in orders placed upstream. Eventually, the network can oscillate in very large swings as each organization in the supply chain seeks to solve the problem from its own perspective. The bullwhip effect and has been observed across most industries, resulting in higher costs and poorer service.

Moving back in the supply chain from end-consumer to raw materials supplier, each supply chain participant has greater observed variation in demand and thus greater need for safety stock. In periods of rising demand, down-stream participants increase orders. In periods of falling demand, orders fall or stop, thereby not reducing inventory. The effect is that variations are amplified as one moves upstream in the supply chain (further from the customer).



Time-Phased Analysis and Planning

Parent items, including sub assemblies, are set as Make to Order or Make to Stock.

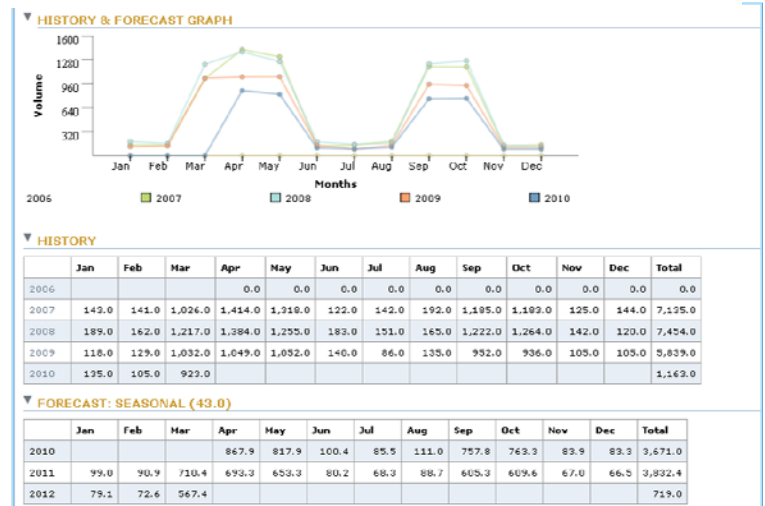
- **Make to Order** items are treated as special orders, such that they appear on the replenishment list only if the quantity on hand is insufficient to meet an open sales order.
- A **Make-to-Stock** item is forecasted, optimized (i.e. a stocking quantity is computed) and planned.
- A third **BOM** type is set to recognized BOM parents that are purchased and not made. They are set as BOMs in case of an emergency enabling them to be made internally; or perhaps they were once made internally and have shifted to a purchased status. In this case, the history of the parent is not considered at the component level, nor is its sales order commitments. The system simultaneously plans for items used in BOMs and Kits as well as for finished goods.
- Time Phased Planning provides the demand and supply needs for the current planning horizon.

Valogix								
HOME REPLENISHMENT PLANNING INVENTORY DATA ANALYTICS SETTINGS								
Overview Item Details Location Details Time Phased Plan								
Time Phased Plan								
C00006 @ 01	05-14	05-21	05-28	06-04	06-11	06-18	06-20	
Net and Required Calculation Planning Horizon (PH) Buckets								
On Hand Start	800	-89	-979	-1,885	-2,814	116	-150	
PH Released On Order Due	190	0	0	0	0	0	0	
PH Planned On Order Due	0	3,858	4,978	5,898	6,806	3,854	4,107	
PH Local Excess Commitments	0	0	0	0	0	0	0	
PH Transfer Commitments	0	0	0	0	0	0	0	
PH Dependent Commitments	0	0	0	0	0	0	0	
Reorder Quantity (SQ) - Estimated	4,847	4,888	4,919	4,920	4,897	4,222	4,607	
Net	-3,857	-1,119	-920	-907	-905	-252	-650	
Planned Order Quantity	3,858	1,120	920	908	906	253	650	
Planned Order Receipt Date	2012-06-13	2012-06-20	2012-06-27	2012-07-04	2012-07-11	2012-07-18	2012-07-20	
Inventory Status Next Review Review Period (RP) Buckets								
On Hand Start	800	-89	-979	-1,885	-2,814	116	-150	
RP Released On Order	0	0	0	0	0	0	0	
RP Planned On Order	0	0	0	0	3,858	0	1,120	
RP Local Unconsumed Forecast	889	889	906	929	929	265	663	
RP Local Excess Committed	0	0	0	0	0	0	0	
RP Transfer Commitments	0	0	0	0	0	0	0	
RP Dependent Commitments	0	0	0	0	0	0	0	
On Hand End	-89	-979	-1,885	-2,814	116	-150	307	

Demand History and Forecasting

Forecasting is automatic, requiring little to no user input to select factors or choosing which algorithm to use. The Valogix-built algorithms include trend, seasonal, and multiplicative models like Season-Trend or Trend-Season. Forecasting 'new' items is simple and easy using Proxy History. This enables the user to set a forecast by referencing the history of an existing item. Cost saving optimization runs automatically setting optimal stocking quantities providing dramatic savings.

You can edit both the History and Forecast right on-screen as needed. Information for a specific location is also at your fingertips.



Inventory Strategic and Operational Analytics

VALOGIX® DMRP Inventory Planner provides a framework for accessing relevant information to make intelligent replenishment decisions. The details are immediately accessible when questions arise about the status of an item at a stocking location. The use of dashboards throughout the product provides information that is easy to read and understand.



VALOGIX® DMRP Inventory Planner - Experience the power of optimization.

Valogix incorporates key aspects of inventory planning into one advanced, simple-to-use software product. The automated planning tools improve your competitive advantage by keeping costs low, so you can focus on customer service. Valogix' powerful, yet easy-to-use interface allows any employee to understand and use the system, freeing up valuable resources to do what you do best.

Strategic and Operational Analytics

Valogix Inventory Planner provides a framework for accessing relevant information to make intelligent replenishment decisions. The details are immediately accessible when questions arise about the status of an item at a stocking location. The use of dashboards throughout the product provides information that is easy to read and understand.

Based on your inventory goals, Valogix creates a forecast, sets optimal stocking levels and identifies your ideal inventory investment. It compares the recommended stock investment to your actual stock investment. Valogix makes it easy to identify and take action on obsolete, excess and inactive items. You can quickly filter, sort and drill down into item detail and make better decisions.



“Because of Valogix, ICI has been able to eliminate hundreds of spreadsheets used to track sales & purchases in each of their warehouses. Eliminating these spreadsheets saved more than three hours per day of tedious manual effort, saving money and allowing their staff to concentrate on other areas of the business. And finally, customer satisfaction has increased due to having the correct mix of items in the right locations when needed.”

-Rick Crowder, VP and General Manager, ICI

The Bottom Line

You may think your inventory is under control, but can you be sure?

Each day you are not using Valogix solutions, you are missing out on the opportunity to free up CASH.

For example, based on an inventory value of \$1,000,000 and an average inventory reduction and productivity gains of approximately 31%, you could free up as much as \$310,000! It doesn't get any easier or better than this.

Contact Valogix or your local Valogix representative today!

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