2015

The Art of Inventory Planning

Valogix®

The Leader in
Inventory Planning
Solutions for SMB's

Now, more than ever, you have many choices for improving your inventory investment. The Cloud is a viable alternative to investing in On-Premise inventory software. Software-as-a-Service provides an affordable way to utilize some of the most powerful inventory planning solutions on the market.

Valogix LLC

CHAPTER 1 – WHAT'S THE STATE OF YOUR INVENTORY PLANNING?

Companies are demanding more of their suppliers to provide affordable products at the exact moment they want them. How can you effectively insure you have what your customers need when they need it? With the dramatic growth of e-Commerce, companies have an even bigger dilemma managing multiple sources of demand. Forecasting and demand planning applications can do more than help provide visibility into what lies ahead. These solutions can increase value propositions critical to thriving in a competitive industry in the short and longer term.

In any industry, compelling value propositions add up to hallmarks of success. In wholesale distribution, leading value propositions include ***reliability, customer service, and pricing.*** And, as markets fluctuate, retailers and manufacturers count on distributors to supply goods rapidly and cost-effectively. But when they aren't able to provide immediate value, distributors can find that customer patience wears thin - ***quickly.***

So what gets in the way of providing value? Most frequently it's the inability to balance stock levels with service levels. Hold onto too much inventory, and you end up paying for items that collect dust in the warehouse. Stock too little inventory and you won't be able to keep up with customer requests. Sometimes wholesale distributors end up with *both* problems: ***holding excess stock of items customers don't need.***

That's where today's advanced inventory planning & optimization solutions come in. With these solutions, companies can more easily amplify value propositions—while cutting unnecessary operational costs. Proper inventory management will literally turn current and future inventory into cash by:

Its' your job to figure out how to improve your inventory right at this moment. Ask yourself these questions:

- **Are you ready to better manage your inventory to meet the new demand patterns?**
- **Is your inventory in balance with the inevitable changes in demand?**
- **What will happen if you don't invest in more modern planning tools to manage your inventory?**
- **How much money and sales will you lose if you don't forecast & plan accurately?**
- **Are you still manually planning your inventory with spreadsheets and reports?**

1. Planning and optimizing all items at all locations, ultimately eliminating backorders and over-stocks from the picture.

2. Reallocating employee labor from difficult spreadsheets and multi-channel inventory software to increase productivity and further grow business.

CHAPTER 2 – STAGES OF INVENTORY PLANNING MATURITY

How should a planner set the reorder point and reorder quantity (or order-up-to level) for thousands of items, perhaps at multiple locations? Due to the absence of an "intelligent" planning system, three commonly used approaches have been Brute Force Review, Economic Order Quantity, and Periods of Supply, usually done in spreadsheets.

√ Brute Force Review

√ Economic Order Quantity

√ Periods of Supply

In **Brute Force Review,** planners examine each item at each stocking location and manually set the min and max controls. This is such a time-intensive process that the results get out of date as soon as they're updated, yet nobody has time to update them. Moreover, without good tools there is no guarantee that the controls will be set well even at the start.

Economic Order Quantity (EOQ), a simple calculation of the reorder quantity as a tradeoff between the cost of carrying inventory and the cost of placing an order, is another commonly used approach. Frequent re-orders minimize inventory holding, but incur high ordering costs. Likewise, buying in quantity reduces the ordering cost, but results in low inventory turns and high carrying costs. Although EOQ calculations are frequently available in Enterprise Resource Planning (ERP) systems, planners have difficulty determining the two driving parameters: order cost and inventory holding cost.

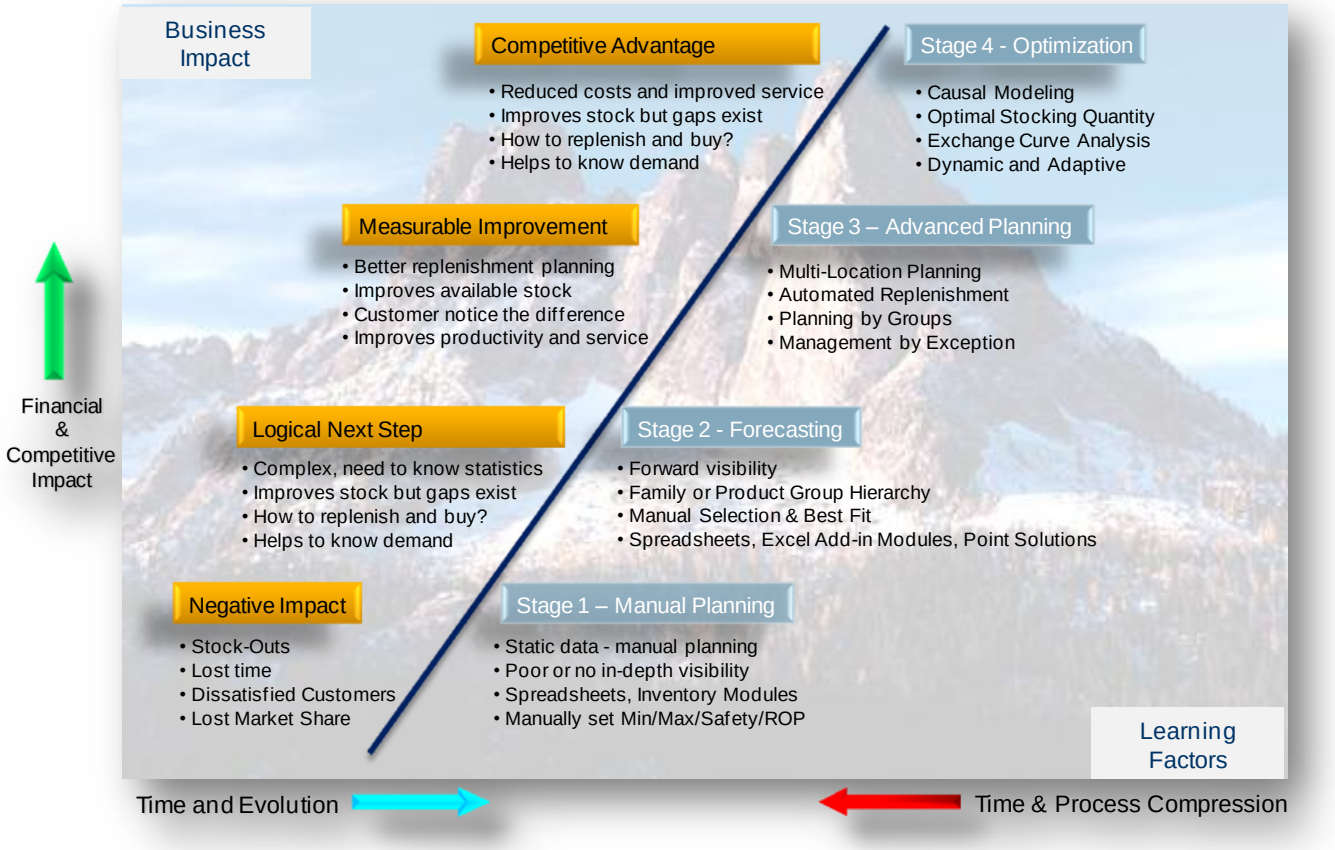
A third approach is to apply **"periods of supply"** for the max quantity. For example, average demand may be 120 units per week over the last four months. Taking two weeks of stock for the min and 8 weeks for the max, this approach would calculate min of 240 units and max of 960. Such an approach has the advantage of being easy to calculate. Although it is safe for high volume items, it works poorly for low and medium volume items.

The biggest problems with both EOQ and "periods of supply" are that neither:

1. *Fully considers the real potential or level of a spike in demand*
2. *Takes into account the impact of short life cycles*
3. *Factors in the timing of trend or seasonal changes*

These inefficiencies combined with situations where the planner may not have a system that handles "every" item requiring to be planned, accounts for the over or under buying that occurs daily.

When we talk with people who want to improve inventory management at their company, we like to find out what they have accomplished already. The "stages of planning growth" model helps classify their situation and indicate what should be their next step to improved inventory planning.



Invariably, there are at least four distinct stages. Companies must pass through each one in sequence to properly improve their policies, practices, and systems. Each stage improvement brings performance improvement in customer service and inventory reduction.

In **Stage 1,** the company doesn't have a good idea of how much inventory it has and where the inventory physically resides. If their enterprise system tracks inventory, it is highly inaccurate. Warehouse organization is messy and shrinkage is problematic. Getting stock from vendors and shipping orders to customers is primarily a costly expediting exercise. Spreadsheets and maybe a few reports are used.

To progress to **Stage 2**, there must be a strong desire for inventory accuracy and efficiency. A cycle counting program (randomly sample actual SKU inventories and compare them with system numbers) provides an excellent framework for the accuracy push. Warehouses need to be cleaned up and shrinkage needs to be addressed head-on, with causes and remedies identified. Most companies today have already reached Stage 2, because companies in Stage 1 tend to be blown

away by their competition. In addition, customers are dissatisfied due to the lack of correct and adequate stock. Excess inventory of the wrong items tends to be relatively high at this stage.

Companies at the this stage usually utilize an Enterprise Resource Planning (ERP) or Accounting system from vendors like SAP, Oracle, NetSuite, Sage or from other vendors. Among its many functions, the system maintains inventory status. When current inventory of an SKU falls below a minimum level, the system orders enough to get up to the maximum. Setting the min and max levels is mostly a manual, painful process, so it is not done often—perhaps once per year. As a result, Stage 2 companies have a relatively static approach that does not respond to dynamic changes in demand or supply.

To progress to **Stage 3**, the company recognizes the need for solid financial and customer service improvements. They also realize that dynamic demand responsiveness is critical to success. Sophisticated enabling technologies like those offered by Valogix fit the bill. These solutions automatically review each SKU's past demand history, forecast future demand, set optimal stocking quantities, and recommend the amount to order. Most companies are using a spreadsheet and reports to do this, but quickly find their results are too static and time-consuming and too error prone. An advanced automated approach is desired.

Raymond Singh, IT Manager
Fairview Fittings

"Right away, we were able to identify areas that we could get to work on. When we implemented VALOGIX, we immediately noted that we had $1,800,000 in dead stock that we previously did not know was on the shelves. Over the last two years, we've been able to whittle that down to just $400,000. We would have never known that we had such a substantial problem if we hadn't started using VALOGIX."

Stage 3 companies who have implemented a good set of dynamic policies and tools can still improve their performance. Inevitably, their inventory management has key cost and service level drivers that can be optimized for maximum value effectiveness. That is, an automated process needs to search through a large number of possibilities in order to select the best. Here are some examples:

- When using ocean shipments a large number of possible replenishment options should be examined to determine how to load full containers, while meeting expected demand.
- There may be a decision of which supplier to order from when one has higher cost and lower lead time than another does.
- Suppliers may offer quantity discounts, so an important decision is "How much do I buy now, at a lower price, beyond what I need for the near future?"

- Positioning inventory properly across the supply chain and across items may be a major need. Centralizing inventory allows "pooling" of demand and a smaller total inventory quantity. However, sending inventory out to regional and field sites enhances responsiveness to customer demands.

To reach **Stage 4 (Optimized)**, companies need first to make a careful assessment of what factors they should optimize. Then, they need to set policies and utilize appropriate techniques and tools to meet their optimization criteria. In our experience, the optimization criteria vary depending on the industry and can even differ for two companies in the same industry.

The approach for assisting companies in reaching Stage 4 is to provide a variety of optimization tools and techniques that enhance the dynamic inventory planning solutions.

Whichever Stage a company has attained, new advances in technology, processes, and people skills can continue to add value and dramatically increase ROI.

Get the Valogix ROI Calculator

The customer results of using advanced inventory planning & optimization show they achieve:

•Reduced inventory by 20% to 40% or more usually within 6 months or less

•reduced expediting and emergency shipments by 35% or more

•Improved productivity by reducing planning time by 60% to 80% or more

•Controlled and reduced replenishment spending by 15% or more

•Improved service levels by having the right items available when your customers want them by 5% to 15% or greater

•Reduced stockouts by 15% - 30% or higher

•Increased sales of 15% to 15% or more

CHAPTER 3 – BE PREPARED WITH GOOD INVENTORY PLANNING

Your greatest challenge is finding out how to grow and increase profitability while reducing & controlling costs. This is where the power of companies such as Valogix can step in and show you how a proven technology can pay for itself in a matter of months.

Valogix offers some of the most affordable true optimization products available and provide you with inventory planning solutions that:

- are fast and easy-to-use, with a fast return on investment
- automate all your inventory forecasting, planning and replenishment processes
- optimize to drive costs down while improving your ability to meet more customer orders the first time for less money than ever before

Read our Whitepaper

In the vast majority of SMBs, spreadsheets are the common tool in use. Inventory-laden companies like manufacturers, wholesalers, retailers, and aftermarket service organizations often see that inventory is their largest asset. The cost of carrying excess and obsolete stock, as well as not having sufficient saleable inventory to meet demand is enormously high.

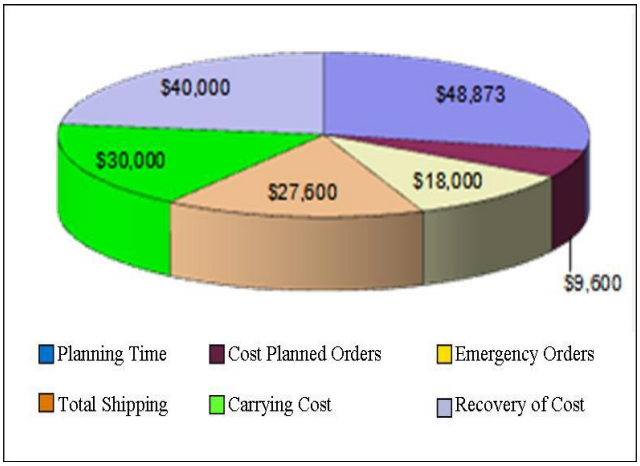
It is common to find excess and obsolete stock representing 30% - 60% of inventory and to find that up to 40% of the time, customer demand cannot be met. The latter often results in expediting vendor orders at a premium cost that cannot be passed through (based on Valogix' research and experience). On a $10M inventory that means potentially $4M - $6M is being misspent, a high price to pay for any size company. Business management solutions today, like Accounting and ERP software, have basic Inventory Control functions such as storing and tracking sales data, costs, and inventory balances (on-hand and on-order). Most let the user manually set Min, Max and Reorder quantities but like spreadsheets, this is a time-consuming, mostly static, and an error-prone process.

"In today's markets, it is imperative that we monitor and control our inventories as tightly as possible. If we don't, we'll miss major opportunities in the future. Valogix has helped us significantly reduce our costs and improve our productivity, giving us the ability to prepare for whatever comes our way."

Dave Richards, CIO Pacific Steel & Recycling

The good news is there are solutions to automate and dramatically improve inventory planning. These newer software solutions are known as decision support or **advanced planning solutions** and some of these are now available at an affordable cost for any size business.

How do you use or interpret the results of **forecasting** to establish inventory stocking levels and plan effectively? Generally, forecasts are used to set inventory levels and requirements. The user then manually sets min and max levels



and ultimately purchasing and production quantities. This approach can be acceptable if only a few items are involved, but it can be an insurmountable task for hundreds or thousands of items. Relying on just a forecast usually results in untimely stock-outs for many items and excess inventory for others. Both results are very costly to the company.

In addition to a forecast, there are other factors to be considered when deciding how much inventory to stock. One factor is Service Level. This can dramatically affect your investment depending on the service levels you want to achieve. Other factors include budget, carrying costs, planning horizon, lead times, and many more, such as:

- When planning ocean shipments, a large number of possible replenishment options should be examined to determine how to optimally load full containers, which supplier should be used when one has higher costs and shorter lead times than another?
- Suppliers may offer quantity discounts, so an important decision is "How much extra should I buy now, at a lower price, beyond what I need for the near future to be most cost effective?"
- Positioning inventory properly across the supply chain and across items may be a major consideration. Centralizing inventory allows "pooling" of demand and a smaller total inventory quantity. However, sending inventory out to regional and field sites or retail locations could improve responsiveness to customer demands.
- Your customers supply you with their forecast using you as a ready source of supply. How did they arrive at their numbers? Do you use their numbers entirely or do you adjust them? Should you be planning and forecasting for them instead?

Ray Panko, University of Hawaii compiled data from numerous studies that indicates up to 90% of spreadsheets contain significant error.

Click here to read more.

You should understand that forecasting is an important first step, but not the only step in good inventory planning. The entire inventory planning process must work smoothly and be in-sync from forecasting to setting stocking levels, to calculating replenishment levels, to purchasing and production.

CHAPTER 4 – SPREADSHEETS & REPORTS – IS THE YOUR ONLY ALTERNATIVE?

The vast majority of companies that own an inventory invariably use spreadsheets to control, manage, and report. The types of companies vary from manufacturing, to wholesale distribution, to retail, to aftermarket services, to maintenance and repair operations. ***So why the fascination with spreadsheets?***

In most cases, companies already own the software as part of a suite or as already installed on the computer they purchased. They are relatively low cost and have an abundance of features that make them attractive. People are unaware of the availability of easy to use affordable, automated inventory planning software.

Other factors that should be included in the calculations are:

- performance metric (no stock-outs, fill rate)
- target performance (Customer Service Level)
- forecast (future anticipated demand)
- replenishment lead time (time to get part back in stock)
- planning frequency (frequency of actual planning process)
- planning horizon (length of future covered in planning process)
- planning buckets (days, weeks, months, quarters or variables)
- demand variance
- supply variance
- unit cost
- fixed cost of placing a replenishment order
- inventory holding cost %
- backorder or stock-out cost

Keeping track of reorder points and safety stock for hundreds or thousands of items is becoming an overwhelming task. The time involved to update and maintain these spreadsheets can take hundreds of hours every week. Moreover, demand is constantly changing which can make the data stale and behind the curve for the most recent trends. This can lead to under-stocking causing lost sales and overstock creating excess inventory. In some cases, a loss and a waste of valuable cash. Cloud and advanced inventory planning is a winning combination. This combination of technologies allows you to work smarter by easily adapting all aspects of inventory management into one advanced, simple-to-use software product any time anywhere. The software lets all levels of employees understand and use the system. Instead of having one staff member dedicated to inventory planning, any employee can quickly learn and operate the software. Utilizing existing staff helps to keep costs low while expanding their capabilities.

CHAPTER 5 – IMPROVE YOUR INVENTORY PERFORMANCE WITH INVENTORY OPTIMIZATION -SCIENCE THAT EXCELS

Complexity and rapid change in modern supply chains are now the norm. Trying to manage a long list of variables and make sense of customer demand is overwhelming. Customers are demanding better product availability ***and*** top-notch service. If you are heads down trying to determine your replenishment strategy manually or trying to translate what a forecasting tool is telling you, then you are not focused on your customer.

Intelligent replenishment planning includes several components, of which forecasting is just one element. Complete, automated planning systems handle all behavior including low volume items as part of a total process. Advanced planning solutions also incorporate inventory optimization, which dramatically improve replenishment planning. **Why? Because optimization considers the wild cards in planning.** It considers how random the demand of an item is, i.e., standard deviation and service level objectives, and it does it for each **item, at every location, and leaving nothing to** chance ***(no spreadsheet can do that)!***

Advanced inventory planning and optimization software not only automates the entire planning process, it dramatically increases the positive cash flow of a company. By smartly reducing inventory investment, reducing stock-outs, decreasing expedited shipping costs, and reducing planning time all contribute to more available cash. Add to that increased sales and productivity and the gains will lead to an improved competitive advantage.

Advanced Planning Solutions:

1. **Are dynamic, changing automatically as business conditions change – manual intervention is not required. This saves time, money, and effort.**
2. **They account for many variables insuring the right coverage without over-or under-investing in inventory.**
3. **They calculate an optimal quantity which means you save money without sacrificing service by procuring or producing just the right amount of stock.**
4. **They replace the need for manually reviewing every item and manipulating data against the best guess approach.**

Time-phased planning examines a sequence of periods, looking at projected demands and replenishments, and determines both the timing and quantity of future orders.

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How does optimization work?

Valogix combines the pure science of the optimization algorithms, with the vast inventory planning experience of not only the Valogix founders but also from the thousands of Valogix users around the world. We have determined that you can dramatically improve the effectiveness of the optimization algorithms by adding heuristics into the overall process equation. Heuristic refers to experience-based techniques for problem solving, learning, and discovery. Heuristic methods are used to speed up the process of finding a satisfactory solution, where an exhaustive search is impractical. This combination of science and practical use (experience) gives Valogix a unique advantage as proven by customers published results.

Setting the re-ordering parameters (e.g., Safety Stock or Min/Max levels) manually is an extremely tedious activity. Hence, it tends to be done infrequently, and does not adjust to changed demand factors. Valuable buyer/planner time should not be taken up by such activity. Optimization of the re-ordering (replenishment) parameters can lead to dramatic cost savings. Computers can do it frequently, so the results dynamically reflect demand changes.

Basically, what inventory optimization does is balance the investment in an inventory with the fill-rate (service level) goals of a company. There are also financial considerations, constraints that can also be applied in the development of the algorithm. These highly complex algorithms work behind the scene so as not to confuse the user or make them fearful of using optimization to help manage their inventory.

Valogix optimization process defines the optimal stocking quantity (SQ) for every item at every location. Plus, it goes one step further and not only calculates the SQ to reach the service level goal, but an enhanced algorithm actually calculates the full coverage SQ as well. This full coverage SQ is based on the probability of stocking out and determines how best to avoid that situation. How many solutions do you know that can do all this, forecasting, planning, replenishments and optimization at an affordable price? Best of all, you can get these solutions for either on-site deployment or in the Cloud in a SaaS.

What's the state of your inventory planning? Contact us to set up your demo today, and we will show you how to find CASH in your warehouse.

Anthony "Tony" Robbins is an American life coach, self-help author, and motivational speaker. He said,

"Change happens when the pain of staying the same is greater than the pain of change."

Make sure you review inventory solutions carefully and find out if they include *genuine inventory optimization algorithms*. You owe it to yourself, your company and your customers to advance your planning capabilities by incorporating an inventory optimization solution that works.

Optimize your Inventory Planning with the Valogix Inventory Planner

VALOGIX

We can help!