The Economic Benefits of Multi-echelon Inventory Optimization

Lower working capital requirements, reduce assets and increase inventory turnover

The confusion of market speak—what does ‘multi-echelon replenishment’ really mean?

Step into the shoes of today’s retail or wholesale distribution CFO and one of the goals at the top of your list will be making your inventory investment as productive as it can be. You may ask, “Why do we have so much inventory?” While this is a fair question, some common excuses you might hear in response include:

- “I was told to never be out-of-stock on XYZ products.”
- “The vendor’s minimum is too high.”
- “The season didn’t increase sales like we thought it would.”

The problem may not be with your buyers or purchasing group. There’s a staggering amount of information available in the marketplace on software solutions for purchasing professionals, so it can be difficult to navigate through all the options and assess their claims. Every software vendor that offers a replenishment product claims to support multi-echelon inventory optimization—even when they don’t actually have that capability. Whether this is intentional or simply a matter of varying semantics, it’s important to know what you’re getting.

If you’re in the retail or wholesale distribution business of buying and re-selling finished goods and need to facilitate replenishment from your suppliers to your facilities—and perhaps from your DCs to other downstream facilities like retail stores, forward DCs and ecommerce—you need a multi-echelon replenishment buying system. Sounds obvious, right? The problem is most software vendors claim to support multi-echelon replenishment, but many of these systems were originally engineered for manufacturers to handle manufacturing requirements, planning and production scheduling. Manufacturers have a unique set of business problems, which have historically been solved by systems specifically designed for a manufacturer’s production issues.

However, the business issues in retail and wholesale are dramatically different and there are very few solutions available on the market that properly address multi-echelon replenishment—even fewer that provide these capabilities in a buying system designed specifically for buyers, re-buyers, inventory analysts or those tasked with replenishment.
Let’s examine some of the common challenges:

“I was told to never be out-of-stock on XYZ products.”
This is a common theme. Every company has key items that define the business for which they must provide the highest service levels. But when the edict “never be out of stock on these items” or “maintain 100% service” is issued, your replenishment system should be able to tell you what it will cost to achieve this goal, versus relaxing the requirement just a bit to a 98% service or fill rate. Safety stock is your service guarantee.

A best-in-class inventory optimization solution enables you to simulate multiple advanced service investment strategies to determine how much money you need to commit to achieve a given service level before you commit it to production. Additionally, your inventory optimization solution should track every unit of inventory purchased regardless of reason—safety stock, cycle stock promotions or deals—providing multiple discreet layers that are updated in real time so you can instantly view how much inventory you own and why you own it.

“The vendor’s minimum is too high.”
This is another actual problem purchasing departments face—what you can do about it usually depends on your leverage with the vendor. But regardless of your relative size in the market, your replenishment system should provide the ability to analyze your inventory and suggest the most profitable order cycle.

Manhattan’s Inventory Optimization solution handles the analysis of ordering every day up to once per year, taking into account annual dollars spent for a given vendor line—order generation costs such as accounting and receiving, transportation costs, inventory carrying costs, safety stock carrying costs, as well as order brackets based on different order sizes and discounts. Our solution determines the most profitable order cycle to implement, which can be a powerful negotiating tool with your vendors. Perhaps you can get vendor to reduce your order minimum, or use it to negotiate other concessions when you can demonstrate how their minimum impacts your profitability.

“The season didn’t drive sales like we thought it would.”
Properly identifying SKUs with seasonal demand, creating seasonal profiles and assigning them is quite possibly the most often misunderstood and under-resourced component of demand forecasting. The wrong seasonal profile is worse than no profile at all. Correct identification of seasonality is absolutely critical to forecast accuracy, which in turn affects every other component of your inventory investment. If you’re in retail, the problem is further exacerbated by the sheer volume of item-store combinations.

Another issue faced by all businesses, particularly in retail, is intermittent demand. This further complicates building seasonal profiles and assigning them correctly. The old, traditional method in retail was to aggregate demand for a logical family grouping like a sub-category or class of SKUs, build a seasonal profile based on that aggregation and assign it to SKUs in the group. This method can result in a high error rate because not all SKUs in the aggregation have the aggregate seasonal curve. Recognizing seasonality in intermittent demand SKUs at the item-store level is impossible using traditional methods. Manhattan Associates’ Pattern Reinforced Seasonal Profiling™ solves these problems.
Seasonal Profiling™ solves these problems. Our novel approach to seasonal profiling leverages the strength of various levels of store-product hierarchy combinations to assign the right seasonal profile to store-item SKUs, thereby improving forecast accuracy by percentage points simply by providing a better seasonal profile. This capability works equally well for wholesalers.

Maximizing return on your inventory investment
Your investment in inventory is your largest liquid asset so it makes sense to take advantage of any resource that can quickly lower your inventory investment while allowing you to maintain, and ultimately improve, your service levels.

Manhattan customers, representing a range of sizes and industries, often achieve a significant one-time inventory reduction while improving service. This return on investment is typically measured in weeks and months, not years.

Results include:

- **Reduce working capital** – Typical results are 10%-30% productivity improvement.
- **Build gross margin** – Increase gross margin by 1% to 5%.
- **Improve replenishment buyer efficiency** – Results range widely depending on level of pre-existing automation but are at least 20%.

Let’s look at some actual customer results by industry vertical:

**Pet Supplies Retailer**
- Achieved 8-10% inventory reduction.
- Attained over 99% in order selection accuracy.
- Increased productivity.
- Gained complete visibility to inventory data.

**Regional Hardware Retailer**
- Runs forecasting and replenishment for 26,000 SKUs.
- Increased accuracy in seasonal profiling to account for unexpected demand.
- Significantly reduced safety stock levels.
- Increased productivity and scalability to allow market expansion.
Manhattan’s approach to optimizing your inventory investment can solve today’s complex omni-channel issues and yield a significantly improved return for your inventory dollar.

Making omni-channel profitable

The retail world is abuzz with stories of omni-channel transformations, which opens up more opportunities—and conundrums—when it comes to optimizing return on inventory investment. Retailers are rapidly adopting ‘sell anywhere, fulfill anywhere’ capabilities in an effort to allay lost sales from out-of-stocks. These solutions range from simply providing store associates ecommerce access, to intelligent distributed order management algorithms that seek out the optimal source for a customer order. But, regardless of the path taken to ‘save the sale,’ every retailer ultimately asks the same fundamental question: “How can I make this as profitable as possible?”

Answering this question requires figuring out how you arrived at the problem to begin with. In a ‘save the sale’ situation, you face opposing inventory challenges. On one hand, you’re concerned about having the proper in-stock position to avoid unnecessary stock-outs. At the same time, you want to maximize inventory turns by setting the optimal targets to avoid overstocks. Solving the in-stock concern is a lot easier when you don’t have to balance it with efficiency in your inventory investment, which is usually measured in inventory turns. The typical retail infrastructure compounds these problems, with large numbers of stores and multiple selling channels multiplied by thousands of items at each customer-facing location. Effectively managing inventory in this complex omni-channel

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**National Specialty Retailer**
- Reduced overall inventory 18% with 5% increase in service across its 1300+ stores.
- Replaced a large ERP competitor replenishment application.

**$30B General Foodservice Wholesaler**
- Utilize a very large distributed multi-echelon replenishment model.
- Forward DCs reduced inventory on average by $27M at each location year-over-year after go-live.
environment requires a system designed to accommodate all of these variables while enabling your users to manage it via a robust, exception-based process.

It’s all about protecting the merchant. Our Inventory Optimization solution provides your order management system with inventory insurance levels that maintain the integrity of the inventory plan. The solution for profitably saving the sale lies in optimum safety stock and replenishment buying practices. Your in-stock position should be protected by your safety stock which defends against uncertainty in supply and demand. Your inventory turn goal should be reliably achieved as the result of smarter replenishment buying, freeing up cash to fund other initiatives.

Manhattan’s approach to optimizing your inventory investment can solve today’s complex omni-channel issues and yield a significantly improved return for your inventory dollar. To learn more, please visit http://www.manh.com/products/inventory-products.

About Manhattan Associates, Inc.

Manhattan Associates, Inc. brings companies closer to their customers. We design, build and deliver market-leading Supply Chain Commerce solutions that drive top-line growth by converging front-end sales with back-end supply chain execution and efficiency. Our software, platform technology and unmatched experience help our customers around the world adapt to the challenges of the omni-channel marketplace. For more information, please visit www.manh.com