White Paper

Seven Easy Estimates Reveal What to Expect from Inventory Optimization

Executive Summary

The first step toward successful inventory optimization is getting your internal conversation on the right track by assessing your current situation, understanding the potential benefits, and setting your expectations with confidence.

The benefits of multi-echelon inventory optimization [MEIO] have been well established by hundreds of companies of all sizes in industries ranging from consumer products to life sciences, high technology to process and discrete manufacturing. Leading organizations have shown that right-sizing inventory buffers and restructuring where and how inventory is held drives powerful financial benefits and adds tremendous value to the sales, inventory and operations planning [SIOP] process. MEIO provides a knowledge platform for better decision making and lets organizations use inventory as a lever for balancing supply and demand.

Supply chain managers seeking to assess the potential financial benefits of an MEIO initiative can start with the high-level process outlined here. Based on Logility's years of experience, this paper presents a good way to get the ball rolling, with seven simple estimates that help explore the impact an MEIO initiative can have on your organization.

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MEIO determines the correct levels of inventory needed across the network based on demand variability at the various nodes as well as lead time, delays, and service level factors.

Types of Inventory Available for Optimization

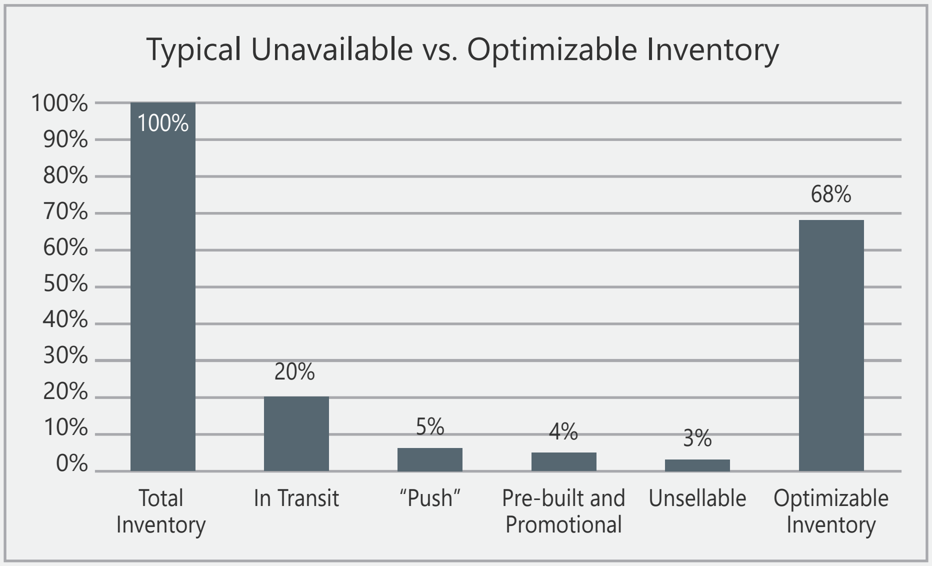
Optimizable inventory includes finished goods, work-in-process, raw materials, components and service parts. Inventory buffers that are held as a hedge against uncertainty in demand or supply are a primary source of excess and optimizable inventory. This safety stock can be dramatically reduced through MEIO.

Not all inventory is available for optimization. One example is in-transit inventory that resides on boats, trains, trucks and planes. Other forms of inventory not available for optimization include stock that was produced but is not expected to sell, pre-built/promotional inventory that has been pre-positioned to handle business cycles, and pre-ordered inventory.

The MEIO conversation starts by calculating what percentage of the supply chains total inventory is optimizable. This lends credibility to real-world benefit estimates.

Start by estimating what portion of your supply chain's total inventory is optimizable.

Types of inventory NOT available for optimization



Benefit Streams of MEIO

Based on years of actual results achieved by companies worldwide, its clear that the benefits of inventory optimization vary across industries and businesses. The financial impacts of MEIO span several one-time and recurring benefit streams:

Working capital and logistics burden are sometimes referred to together as "inventory carrying" cost.

One-Time Benefit

Inventory Reduction

Optimizable inventory can typically be reduced by 10% to 30% by rightsizing inventory buffers held at all stages, or echelons, of the supply chain. MEIO programs normally reduce overall inventory while meeting or improving service levels.

Recurring Benefits

Increase in Working Capital

As the amount of on-hand inventory drops, it frees up the cost of capital that would otherwise be trapped by that inventory. This is a net recurring benefit equal to your cost of capital multiplied by the value of the eliminated inventory.

Reduction in Logistics Costs

The total logistics burden includes costs for warehousing, insurance, labor and expedited shipping, among others. Eliminating inventory eliminates its associated logistics cost, which can amount to 10% of inventory value.

Reduction in Write-offs

Obsolete inventory is a write-off. Most companies can expect MEIO to save a portion of the cost of goods sold [COGS] of optimizable obsolete inventory. Savings can range from a few percentage points to substantially higher for companies with many new product introductions or high rates of product churn.

Reduction in Stock-outs

Shortages and stock-outs cause both fulfillment delays and permanently lost revenue due to cancelled orders. MEIO can reduce the percentage of permanently lost orders within your optimizable inventory by a significant amount typically a double-digit reduction. Lowering the lost order rate results in higher revenue generation.

Seven Easy Estimates of MEIO Potential

Inventory optimization drives both one-time and recurring benefits. The typical ranges used to estimate these benefits can be narrowed down for your unique supply chain by assessing the key factors below. Give your business a rating of low, medium or high in each of the following areas:

1 Level of Demand Uncertainty
To what degree does your company face highly variable, hard-to-forecast demand? Alternatively, is your demand signal very predictable, or do you consider forecast accuracy not a significant problem?

2 Supply Chain Complexity
A good starting point for assessing complexity is to consider four factors: your supply chain length [replenishment lead time] in days, the number of supply chain stages [echelons], the number of locations holding optimizable inventory, and your annual rate of SKU turnover. Lead times over 50 days typically indicate high complexity.

3 Current State of Inventory Optimization Maturity
Does your organization rely primarily on rules of thumb, such as 30 days of forward coverage for all items? Do you perform single-stage inventory optimization in some parts of the supply chain? Does your company have any experience with MEIO?

4 Presence of Long Lead Times
Comparing yourself to others in your industry, are your lead times of comparable length or longer? Are lead times highly variable or unpredictable?

5 Frequency of Inventory Target Reviews
Do your planners review their inventory targets weekly, monthly, quarterly,or annually?

6 Inventory Write-offs
What percentage of your inventory is lost to obsolescence annually, on average?

7 Permanent Stock-outs
How many lost orders are permanently lost [not made up for later or in a subsequent sales cycle]?

Give your organization a low-medium-high impact assessment based on your status in these key areas.

Assessing the Impact

To estimate the MEIO opportunity for your company, organize your potential savings into the benefit streams.

	Savings Potential		
One-Time Benefit			
Inventory reduction 10% to 30% of optimizable inventory	Low	Medium	High
Recurring Benefits			
Reduction in lost order revenue	Low	Medium	High
Reduction in cost of obsolescence	Low	Medium	High
Freed-up working capital	Dependent on cost of capital x value of inventory reduction		
Logistics savings	Can reach 10% of the value of inventory reduction		

The combination of a one-time reduction in inventory and multiple streams of recurring benefits reinforces the fact that multi-echelon inventory optimization affects many aspects of supply chain performance and delivers financial benefits above and beyond the freeing up of working capital.

Logility has helped hundreds of companies estimate the specific financial impact a successful MEIO initiative can have on their bottom line. We can help you take an organized approach to estimating and calculating each individual benefit stream. Information you will want to have on hand includes:

- Optimizable on-hand inventory [based on the value of inventory on hand and the percentage of inventory available for optimization]
- Annual sales for optimizable inventory [this estimate should incorporate your annual inventory turns and gross margin]
- Annual sales revenue permanently lost [based on your estimate of the percentage of unfilled orders that are permanently lost]
- Annual logistics cost for optimizable inventory [based on your Logistics cost burden as a percentage of the inventory value]
- COGS of optimizable unsold inventory [incorporating your estimate of your current obsolescence rate]

How to estimate each benefit stream:

One-Time Inventory Reduction Benefit

Inventory Reduction

Optimizable inventory can typically be reduced by 10% to 30% by rightsizing inventory buffers held at all stages, or echelons, of the supply chain. MEIO programs normally reduce overall inventory while meeting or improving service levels.

Recurring Benefits

Working Capital

The recurring financial impact equals your optimizable on-hand inventory x inventory reduction estimate x your cost of capital.

Conversation is good, but quantifying potential benefits and confirming your insights is even better.

Logistics Savings

This recurring impact equals your annual logistics cost for optimizable inventory x estimated logistics savings due to MEIO [contact Logility for details on estimating logistics savings].

Lost Order Recovery

Annual sales revenue lost permanently due to unfilled orders x estimated reduction in lost order rate achieved by MEIO [Logility can help you estimate this lost order reduction impact].

Reduction in Obsolescence Cost

COGS of unsold inventory x estimated savings from reduction in obsolete inventory due to MEIO [Logility can help you establish a useful estimate for your company].

Conclusion

Multi-echelon inventory optimization right-sizes inventory buffers and recommends where and how inventory should be held across all tiers of the chain. MEIO initiatives typically reduce inventory by 10% to 30% while improving service levels, resulting in dramatically improved profitability and happier customers. Significant recurring benefits include:

- Increase in working capital
- Reduction in logistics cost burden
- Savings from lower obsolescence
- Revenue uplift from fewer permanently lost sales orders

Estimating these recurring benefits for your individual business is a powerful place to start the internal conversation. Supply chain teams interested in exploring and refining these benefits can begin by looking at the seven easy estimates we've outlined in this paper. Its a good first step toward building a solid business case for MEIO.

Next step. Logility can help you dive deeper into estimating the direct value of supply chain optimization initiatives to your organization. Our uniquely detailed return-on-investment tools have been an invaluable aid to many supply chain staffs and senior management teams in creating confident and compelling business cases.

About Logility

Accelerating the sustainable digital supply chain, Logility helps companies seize new opportunities, sense and respond to changing market dynamics and more profitably manage their complex global businesses. The Logility® Digital Supply Chain Platform leverages an innovative blend of artificial intelligence [AI] and advanced analytics to automate planning, accelerate cycle times, increase precision, improve operating performance, break down business silos and deliver greater visibility. Logility is a wholly owned subsidiary of American Software, Inc. [NASDAQ: AMSWA].

To learn how Logility can help you make smarter decisions faster, visit www.logility.com.

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