

Multi-Echelon Inventory Optimization

More Accurate Inventory Targets Across the Entire Supply Chain

Most companies carry more inventory than needed to meet their target service levels, resulting in excessive costs and unproductive working capital. E2open's Multi-Echelon Inventory Optimization application reduces inventory by mathematically determining the required target levels for materials and finished goods at all stocking echelons in the extended supply chain. This results in increased efficiency, lower carrying costs, and reduced working capital, all of which impact the bottom line.

Many organizations set stock targets using simplistic rule-of-thumb policies, missing the opportunity to tailor inventory levels to account for demand and supply uncertainty or meet specific service goals. Typically, companies also set policies independently by location rather than across the supply chain as a whole. The result is excessive inventory levels and erratic service. Advanced software has been available for years to statistically determine optimal inventory levels. However, companies with global supply chains, numerous stock-keeping units (SKUs), and unpredictable demand and supply have struggled to achieve advertised results because many optimization solutions cannot accurately model the supply chain or perform computations fast enough.

As part of the e2open Planning suite, e2open Multi-Echelon Inventory Optimization determines time-phased inventory targets for every item and location across all locations simultaneously. Inventory targets can be established at plants, supplier sites, distribution centers, inbound and outbound vendor-managed inventory (VMI) hubs, retailer locations, and other sites. All forms of stock are addressed — from raw materials and work-in-process to finished goods — as are all inventory types, including safety, cycle, and in-transit stock. Companies can easily tailor service goals for specific products and customers.

Key Features

- Simultaneous optimization across all echelons, including trading partner locations
- Recommendations for both minimum and maximum stock levels
- Demand volatility measured directly over the specific lead time for each SKU, resulting in more accurate inventory targets
- Automatic management of demand propagation and aggregation across the supply chain network to correctly measure uncertainty at non-customer-facing locations
- An easy-to-use interface that includes what-if scenarios with root cause analysis and numerous options for modeling the supply chain

Key Benefits

- 15-30% reduction in inventory, resulting in reduced working capital and carrying costs
- Ability to consistently meet target service levels by product, product group, and customer
- Increased revenue from improved service and on-shelf availability
- Elimination of waste for perishables and price erosion for items with short product lifecycles
- More frequent optimizations to better respond to changing demand and supply conditions

A Different Approach to Inventory Optimization

E2open takes a different approach compared with traditional inventory optimization solutions.

More Accurate Forecast Error Over Lead Time for Reliable Inventory Targets

Traditional solutions approximate forecast error by using weekly or monthly error and scaling it over the lead time. Forecast uncertainty is often underestimated with this method, resulting in insufficient inventory and missed service levels. E2open generates more accurate inventory levels by measuring error directly over the lead time for each product-location combination. This more accurate calculation yields a better determination of the stock required to ensure the desired service levels.



From Multi-Echelon to Multi-Enterprise for End-to-End Optimization

E2open offers true multi-echelon inventory optimization. All supply chain levels are optimized simultaneously, usually resulting in lower overall proposed inventory levels than those generated by solvers that work on one level at a time. For example, if a planner increases the minimum stock level at a regional warehouse via an override, the amount of stock required at forward locations may decrease without affecting service levels — but this would not be evident if the solver optimized forward locations in isolation before addressing the regional warehouse. E2open also goes beyond multi-echelon optimization to offer multi-enterprise optimization. Organizations can collect supplier and customer data from the e2open trading partner network and generate optimal inventory targets across both internal and trading partner stocking locations.

Realistic Model for Quick Results the First Time

E2open's application starts with a more comprehensive model of the supply chain, minimizing the need for repeated solver engine runs to get the right results. Users can configure numerous supply chain attributes, including storage capacity, maximum shelf life, time-phased parameter settings representing supplier changes, peak versus off-peak seasons, and different bills of materials or routings used at different times. With a more accurate representation of the supply chain combined with a fast engine, users can quickly generate new inventory targets and adjust their plans on a weekly basis to respond to changing market conditions. This yields greater savings and fewer disruptions than more cumbersome solutions that make big-bang changes once every quarter or year.

Scenario Management and Root Cause Analysis

Companies must replan target inventories whenever their network configurations change. E2open's scenario management capabilities allow users to easily evaluate the impact of these changes. Planners can set overrides, manage parameters at multiple levels of aggregation, and vary the settings to generate and compare multiple what-if scenarios. Users can then understand and validate scenarios using root cause analyses that attribute changes in stocking levels to individual drivers in the solver model.



Determining the most accurate stocking targets at every node in the extended supply chain helps companies provide reliable customer service while minimizing inventory levels. Reduced working capital and lower carrying costs are the result.

About e2open

E2open is the connected supply chain software platform that enables the world's largest companies to transform the way they make, move, and sell goods and services. With the broadest cloud-native global platform purpose-built for modern supply chains, e2open connects more than 400,000 manufacturing, logistics, channel, and distribution partners as one multi-enterprise network tracking over 12 billion transactions annually. Our SaaS platform anticipates disruptions and opportunities to help companies improve efficiency, reduce waste, and operate sustainably. Moving as One™. Learn more: www.e2open.com

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