




SAS® INVENTORY OPTIMIZATION

Easily calculate optimal replenishment policies and order quantities





Manage inventory levels to consistently meet customer requirements while reducing costs

Challenges

- **Inconsistent data.** Incompatible systems and volumes of structured and unstructured data prevent getting the needed information and having flexibility.
- **System limitations.** Systems are disjointed, can't handle large amounts of data, and require time-consuming, error-prone manual intervention.
- **Lack of visibility.** With millions of items spread throughout the global supply chain, it's difficult to manually gather data on all factors that impact demand.
- **Inaccurate forecasts.** Standard forecasting models that generate high-level forecasts based on historic demand can't project future demand accurately at the frequency and level of detail needed.
- **Need for policy optimization.** Cannot customize replenishment policy drivers with a suboptimal policy, resulting in higher inventory costs and a decline in customer service levels – and therefore overall profitability.

Globally, the cost of inventory inefficiencies is estimated to exceed US\$300 billion annually. Considering that average inventory holding costs amount to between 25 and 35 percent a year, inventory performance can have a very significant impact on a company's bottom line.

Determining the right amount of inventory to hold in which locations without excesses or shortages – while reducing inventory costs and improving sales – has become a central concern for inventory and supply chain managers who realize the need to become more demand driven and customer focused. When considering customer service targets, lead times, sourcing capacities, product returns and the large volume of items that must be stocked, existing inventory replenishment systems quickly become inadequate.

Targeted, functional solutions tend to optimize a single point in the supply chain without taking into account the impact of these changes on other areas. The move toward global sourcing networks has also made it difficult for companies to align inventories, develop pull-based networks and rationalize postponement strategies. Truly effective inventory management requires a system to collect data and analyze all the different scenarios that might result even from seemingly minor changes to the supply chain.

Why SAS®?

Recently, more and more businesses have started facing the challenge of optimizing one of their key strategic assets – their inventory. Today's tough economic conditions, characterized by increased competition, short product life cycles, increased outsourcing and demand uncertainty, make it more challenging to manage inventory policies and decide where exactly to hold how much inventory. By taking into account the supply, demand and lead time variability of the entire supply chain, SAS® Inventory Optimization enables companies to more cost-effectively balance cost, customer service levels and inventory budgets while determining their inventory strategies.

The SAS solution optimizes the way companies set policies on safety stock, not just for finished goods but across entire global supply chains, with huge potential for savings. By considering the demand, supply, constraints and variability in your extended supply chain, our solution balances the costs of inventory against shortages and optimizes the return on your business' investments in your inventory asset. It provides the capability of achieving sizeable reductions to inventory with virtually no negative impact on order fulfillment. Thus, you can provide higher service levels to your customers at significantly lower cost by applying inventory postponement recommendations while simultaneously weighing the impacts on revenue, budgets, inventory policies and sourcing.

SAS Inventory Optimization helps organizations answer the following questions:

- What is the most profitable balance between customer service levels and inventory cost?
- How much inventory should be held where and over which time period?
- How can supply chain variability be accounted for when determining time-phased safety stocks?
- What are the right decisions on inventory policies across the supply chain?

The SAS solution supports customization to include unique features of manufacturer and retailers' own replenishment environment. The speed of this solution makes it especially well-suited to retail planning as it can encompass thousands or even hundreds of thousands of items. You can align inventories to improve flexibility, develop pull-based networks, and rationalize postponement strategies by leveraging optimal inventory levels and policies. The solution includes a policy calculation algorithm for calculating optimal policies and supports production and comparison of multiple planning scenarios, thus helping you choose from a set of policies.

Companies can also compare various inventory policy scenarios as part of an integrated sales and operations planning process.

Benefits

Essential decision support

SAS Inventory Optimization provides manufacturers and retailers the ability to easily determine the best inventory replenishment policies and order quantities. These policies are optimized based on specific constraints, such as target service levels, lead times and costs, thus helping you maintain adequate stock levels, improve customer satisfaction and minimize inventory costs.

Ultimately, this powerful solution provides essential decision support by helping manufacturers and retailers answer the two fundamental questions of inventory management:

- Which items have crossed inventory thresholds and should be reordered?
- How much should be ordered?

SAS Inventory Optimization sits atop supply chain planning tools and uses existing demand information, reorder lead time, target service levels and associated inventory cost data (including the cost of replenishment, holding and backordering) to recommend optimal inventory replenishment policies – it helps ordinary planning tools live up to their full potential. The sophisticated policy calculation algorithm accounts for variability in demand data and supply, thus helping manufacturers and retailers compare and choose from various scenarios.

Solution

SAS[®] Inventory Optimization provides manufacturers and retailers the ability to calculate optimal inventory replenishment policies, thus enabling them to maintain customer service levels while minimizing average total costs such as ordering, inventory holding and backorder penalty costs.

Effective data management. Access all relevant data on every item from anywhere in your network – manufacturers, distributors, third-party logistics or other suppliers – and reconcile data for analysis.

Accurate forecasts at every level.

Frequently generate millions of accurate forecasts down to SKU level, including new and end-of-lifecycle products, without manual intervention and generate recommended order quantities for each item based on manufacturers' and retailers' cost and customer service level targets

Multi-echelon inventory optimization.

Optimize inventory levels simultaneously – taking into account all supply and demand variables – for every item at every location in your supply network, with the choice of a top-down, bottom-up or middle-out optimization.

Information sharing throughout the supply chain.

Align your inventory strategies by sharing information in a timely way with executives and supply professionals throughout your partner network in their preferred format.

The SAS® Difference

SAS goes well beyond the standard EOQ policies by helping you create an accurate forecasting environment designed specifically for inventory replenishment. While typical ERP systems attempt to optimize sequentially – leading to inflated demand forecasts and stock overages – SAS enables true multi-echelon optimization by letting you optimize inventory levels simultaneously for every item at every location in your network.

- Gain visibility across the entire supply network and overcome data discrepancies caused by inconsistent naming conventions and disjointed systems and processes.
- Determine how much and what kind of inventory to have at each location, as well as when and in what quantities to place replenishment orders.
- Optimize slow-moving items by applying specific algorithms for intermittent demand.
- Both scalability and speed of this solution make it especially well suited to retail planning as it can encompass thousands or even hundreds of thousands of items.
- Customize key replenishment policy drivers (review period lengths, customer service measures, ordering rules, cost figures) on as specific or as broad a basis as required.

For more information about SAS® Inventory Optimization, visit us at:
www.sas.com

Reduce holding, ordering and backorder costs

As SAS Inventory Optimization identifies items that reach reorder thresholds, it generates recommended order quantities for each item. These quantities are based on your company's cost and customer service targets. Because this solution incorporates an optimization algorithm to calculate replenishment policies, those policies are always accurate and fast.

In addition, SAS Inventory Optimization can perform quickly with hundreds of thousands of items, which dramatically eases complicated processes such as large-scale inventory planning. These capabilities help you reduce inventory costs and achieve target customer service levels.

Develop better replenishment strategies

With the ability to customize key replenishment policy drivers such as review period lengths, customer service measures, ordering rules and cost figures, SAS Inventory Optimization lets you quickly develop scenarios to compare possible inventory strategies. These scenarios are specific to your business situation and allow you to weigh the consequences of policy changes.

The optimal inventory levels and policies you can achieve with SAS Inventory Optimization will help you:

- Align inventories to improve flexibility.
- Develop pull-based networks.
- Rationalize postponement strategies.

About SAS

SAS is the leader in business intelligence and analytical software and services. Customers at 43,000 sites use SAS software to improve performance through insight from data, resulting in faster, more accurate business decisions; more profitable relationships with customers and suppliers; compliance with governmental regulations; research breakthroughs; and better products and processes. Only SAS offers leading data integration, storage, analytics and business intelligence applications within a comprehensive enterprise intelligence platform. Since 1976, SAS has been giving customers around the world THE POWER TO KNOW®.



SAS Institute Inc. World Headquarters +1 919 677 8000

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