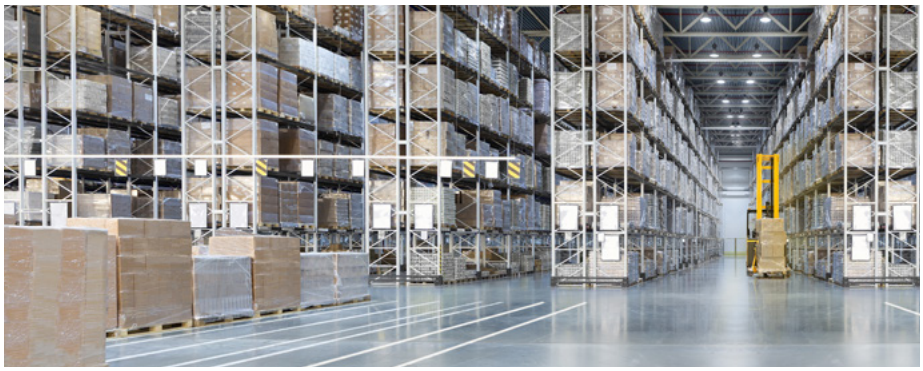

Inventory Optimization

Maximize availability and minimize waste with AI-powered precision

Business context/challenge

Transforming the supply chain into a competitive advantage is difficult amid volatile demand, elongated supplier lead times, shorter product lifecycles and rising logistics costs. Success depends on the ability to provide differentiated inventory investment—strategically allocating inventory based on business priorities, demand patterns, and service goals. Tailored inventory strategies ensure consistent availability of high value items, avoids excess carrying costs for low margin items, and prioritizes stock for key customers or regions.

Inventory management is one of the most important aspects of a successful and profitable supply chain to ensure the right stock is in the right place at the right time without overstocking or stockouts, leading companies are adopting scientific, AI-driven inventory optimization to boost efficiency, free working capital, and protect customer satisfaction.

The Blue Yonder solution

Our AI- and ML-driven platform continuously senses demand signals, evaluates supply constraints, and optimizes inventory across the entire network in real time. Unlike traditional, static planning tools, it integrates demand forecasting, replenishment, and multi-echelon inventory optimization into a unified, end-to-end solution. The platform leverages vast internal and external data sources to adapt to changing market conditions, enabling precise inventory placement to balance service levels, cost and risk.

This agility allows companies to free working capital, reduce waste, and improve customer satisfaction, transforming inventory management into a strategic differentiator.

Measurable Impact

30%
Inventory reduction

15%
Improvement in service levels

99.3%
Product availability

10%
Increase in revenue

Key Benefits

- **Reduces inventory costs** and drives service, revenue and growth.
- **Supports SKU classification** and portfolio micro-segmentation, improving flexibility and accuracy
- **Increases service levels** across all products while reducing inventory investment
- **Enables multi-echelon inventory optimization (MEIO)**, improving accuracy and performance of daily replenishment and inventory planning
- **Supports strategic, informed decision making** via scenario management capabilities
- **Automatically** manages inventory targets
- **Achieves lower landed cost** via replenishment interval optimization capabilities

Make-to-stock or make-to-order, our inventory optimization capabilities excel across industry sectors—from high-tech manufacturing, semiconductors, consumer electronics, consumer durables, food and beverage and apparel and fashion, to life sciences and aerospace.

Powered by Blue Yonder Platform's unified data and a multi-enterprise network driven by AI, our inventory optimization capability enables real-time, machine-speed decisions that keep businesses competitive and responsive.

Capability offerings

SKU classification & portfolio micro-segmentation: Allows categorization based on any combination of predefined or custom attributes, including historical sales revenues, forecast revenue, margin, cost, forecast variability, historical trend and lifecycle stage. Allowing you to tailor inventory strategies to different products, locations, or customers—optimizing stock levels, reducing costs, and improving service levels.

Multi-echelon inventory optimization (MEIO): Leverages AI/ML demand forecasts and network modeling to account for demand and supply variability, service levels and determine optimal safety stock levels for each location and product. Simultaneously optimizes inventory and economic ordering quantities (EOQ.) Enables time-phased inventory planning and optimization to determine *when and how much* inventory you'll need at each point in time, achieving the best balance between service level and working capital.

Scenario management and lever based planning: Models multiple "what-if" situations—such as demand changes, service levels, and lead times—and compares results. Supports contingency planning and forward-looking strategic growth/expansion planning. Quickly adjust key drivers, like service levels, lead times, and budgets, and instantly see the impact, enabling smarter, faster inventory decisions.

Inventory Policy Management: Automatically reviews and updates targets on an ongoing basis. Configures exception conditions by item location and escalates for manual review. Automatically diagnoses the root causes of why targets have changed. Enables you to improve service levels, minimize inventory, and reduce lead times by optimizing the position and levels of inventory across all stages of the supply chain.

Inventory early warning performance analysis: Monitors inventory to anticipate stock-outs and excess exceptions. Drills down to reveal root causes of impending or recent exceptions. Enables timely adjustments to inventory plans and response to exceptions for improved service levels and reduced carrying costs.

AI agents and autonomous supply chains: Harness AI to build agile supply chains that swiftly adapt to changing market conditions. Enable rapid inventory adjustments with *incremental solve*, which updates forecasts and recalculates safety stock for selected items and locations without recalculating the entire dataset—saving time and boosting efficiency.

Key Features

- **Improve accuracy** with AI- and ML-driven forecasting
- **Quickly adjust plans** with lever-based controls
- **Adapt in real time** as demand and supply change
- **Test "what-if"** scenarios to make confident decisions
- **Optimize across the network** with multi-echelon inventory planning
- **Tailor strategies** using product, location, or customer segmentation
- **Inventory management** supports data management, inventory analysis, inventory policy management, and analysis of inventory strategies
- **Achieve optimal stock levels** and manage product lifecycles with cognitive algorithms for new product introduction (NPI) and end of life (EOL)

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