BakerHughesC3.ai

BHC3 Inventory Optimization

Reduce Inventory Costs and Free Up Working Capital While Lowering the Risk of Stock-outs

BHC3 Inventory Optimization™ applies advanced AI-machine learning and optimization techniques to help discrete manufacturers reduce inventory levels of parts that are required in manufacturing activities, while maintaining confidence that they will not run out of parts.

Manufacturers of expensive and sophisticated industrial equipment often allow customers to configure hundreds of individual options on their products, leading to products that could have thousands of permutations. Since the final configuration of a product is often not known until close to submission of the order for that product, manufacturing companies need to have significant excess inventory on hand to be able to fulfill their orders on time. Over the years, manufacturing companies have deployed Material Requirements Planning (MRP) software solutions that support planning and automated inventory management. However, most MRP software solutions were not designed to optimize inventory levels by learning continually from data.

BHC3 Inventory Optimization solves this problem by considering several real-world uncertainties including variability in demand, supplier delivery times, quality issues with parts delivered by suppliers, and production line disruptions. BHC3 Inventory Optimization then dynamically and continually optimizes reorder parameters and minimizes inventory holding and shipping costs for each part.

In order to do this, BHC3 Inventory Optimization aggregates data from different disparate source systems including production orders (actuals and planned), product configurations, bills of material, inventory movements (e.g., arrivals from suppliers, consumption in a production line, intra- and inter- facility shipments), historical settings of re-order parameters, lead time and shipping costs from suppliers, and part-level costs for each location where inventory is maintained.

Feature Summary

- **Real-time recommendations**
  Get real-time recommendations to optimize re-order parameters by part and by location – updated as new data from manufacturing, inventory management, or any other source system are available.

- **Real-time monitoring and notifications**
  View inventory metrics in real-time and on any device to identify anticipated issues with inventory levels and analyze root causes; get notified when certain KPIs exceed thresholds.

- **Optimization by confidence-level**
  Specify the level of maximum acceptable risk of stock-out for any part to optimize recommendations.

- **Summary view for operators**
  View inventory savings to date, actual and optimized inventory by location on dashboard, and prioritized lists of high-opportunity parts, leading to faster value-realization.

Figure 1: Home screen of BHC3 Inventory Optimization. Operators are able to view potential inventory savings and inventory costs, identify parts with highest savings opportunity, and view recommendations to optimize part inventory levels.

Feature Summary (continued)

- **Detailed view of individual parts**
  View details of individual parts and compare a range of KPIs for a part over time – including actual and optimal inventory, actual and recommended re-order parameters, inventory savings opportunity, re-order parameter compliance, material quality.

- **Benchmark parts**
  Compare and benchmark different parts or suppliers over time using a range of KPIs.

- **Ability to create 'What-if' scenarios**
  Define scenarios and understand potential business implications of changing re-order parameters before committing the changes to the system.

- **Live optimization with real time data integration**
  Dynamically optimize re-order parameters as new data is received; Bi-directionally connect to source systems to update reorder parameters.

- **Scale to millions of parts**
  Scale to individually optimize inventory levels of millions of parts at different production locations across a manufacturer's global footprint.
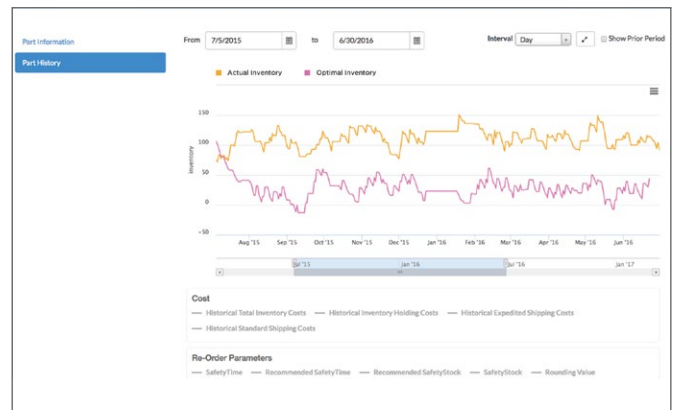

Figure 2: Using BHC3 Inventory Optimization, operators are able to view part-level KPIs over a time period for detailed analysis

Reduce Inventory Costs, Improve Visibility of Critical Uncertainties, and Increase Productivity with BHC3 Inventory Optimization

Benefits of BHC3 Inventory Optimization include:

- **Reduction in inventory holding costs and improve cash flow without compromising part availability** by optimizing re-order parameters such as safety stock, safety time subject to necessary confidence levels.

- **Improved ability to manage and negotiate with suppliers** through improved understanding of supplier performance, and by simulating effects of order parameters and their impact on suppliers.

- **Improved visibility of critical uncertainties** such as seasonality in demand, uncertainty in arrivals, quality issues from suppliers, and production-line disruptions.

- **Improved organizational efficiency** through a common view across various departments (e.g. material management, supplier management, logistics management), leading to optimized inventory aligned with organizational goals.

- **Increased productivity of inventory analysts** through automated recommendations based on new data, and live integration with operational systems to consistently apply recommendations to supplier orders.

- **Reduction in total landed costs** that include standard and expedited shipping costs, as a result of reduced inventory.

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