SAS® SERVICE PARTS OPTIMIZATION

Reduce inventory costs and improve customer satisfaction

Overview

For organizations providing aftermarket services, it is crucial to manage service parts operations as efficiently and profitably as possible. However, erratic service parts demand, increasingly high customer service level requirements and delivery network challenges often lead to stock-outs or overages, obsolete inventory and missed service level targets. To streamline the service parts supply chain and improve overall profitability, you need a way to create meaningful forecasts and avoid stock-outs and overages.

SAS Service Parts Optimization provides service organizations the ability to forecast intermittent demand, new-part demand and lifecycle parts demand based on industry-leading models. The solution calculates optimized inventory and order quantities for parts distribution systems, thus helping you maintain adequate stock levels, minimize inventory holding costs and achieve targeted customer service levels.

Challenges

- Increasingly high customer service level requirements.

- Delivery network complexity and costs.

- Erratic service parts demand.

SAS Service Parts Optimization accounts for replenishment order lead times, service level commitments and other variables. In short, it goes well beyond the standard economic order quantity (EOQ) policies that most vendors would recommend.

A recent report from The Aberdeen Group indicates that improving service parts operations with such a solution can, on average, help reduce overall service costs by 20 percent, improve customer satisfaction by 10 percent and increase service revenues by 14 percent. (Source: Aberdeen Group, "Service Parts Management Landscape," June 12, 2006)

THE POWER TO KNOW®

Forecast demand and optimize inventory distribution

■ The solution

SAS® Service Parts Optimization provides the ability to forecast short-term, new-part and lifecycle parts demand. The solution also calculates optimized inventory and order quantities for all levels of the service parts chain, from warehouses to distributors, dealers and even on-truck inventories for service technicians, helping you maintain adequate stock levels, maximize response times and improve customer satisfaction.

SAS Service Parts Optimization is designed for complex global environments, scales to large volumes of data and includes performance management dashboards and scorecards as well as optimization routines that are customized for service department needs.

Users can plan inventory and orders to meet the forecasted demand and properly manage the introduction of new-parts and product launches into the service chain.

Benefits

Minimize stock-outs and overages by accurately forecasting demand

SAS Service Parts Optimization automatically uses millions of forecasting algorithms to quickly and accurately determine short-term, new-part and lifecycle parts demand so you can confidently plan and execute spare parts inventory and processes. The scalability of the solution makes it possible to quickly produce and compare alternate scenarios for multiple items.

Calculate optimal inventory replenishment policies and order quantities

SAS Service Parts Optimization calculates optimal inventory levels and replenishment policies based on user-specified constraints such as required lead times, costs and target service levels. It identifies items that have reached reorder thresholds and then generates recommended order quantities for each item based on cost and service-level targets. The solution is highly scalable, making it possible to produce and compare alternate planning scenarios for multiple items, thus helping select the optimal policy from a set of policies. This enables organizations to maintain optimized stock levels, improve customer satisfaction and reduce ordering and inventory costs.

Achieve targeted customer service levels

It is easy to customize key replenishment policy drivers such as review period lengths, customer service measures, ordering rules and cost figures to streamline replenishment for specific items. Easy comparison of planning scenarios lets you pick the optimal policy from a number of options so that you can best meet your targeted customer service levels while optimizing other key policy drivers.

Base your service parts strategy on information from all service systems across the enterprise

An integrated set of data management and analytic applications work with existing operational systems to collect, analyze and leverage all aspects of service parts data and history, resulting in optimized, strategic forecasting, significant costs savings and maximized performance.

Leverage your existing Investments in technology

SAS Service Parts Optimization seamlessly integrates with existing parts planning and inventory management systems, super-charging them with new state-of-the-art forecasting and stochastic, multi-echelon inventory optimization capabilities that simultaneously reduce inventories and increase service levels.

Capabilities

Accurate, automated forecasting

SAS Service Parts Optimization provides the ability to forecast short-term, new-part and lifecycle parts demand. The solution includes multiple forecasting techniques including time series forecasting, intermittent demand forecasting, causal techniques based on factors such as usage and install base, and data mining and clustering techniques for long term demand planning. An easy-to-use GUI enables both novice and experienced forecasters to quickly, accurately and automatically produce millions of forecasts for better planning and execution of spare parts inventory and processes.

Inventory optimization

Inventory optimization provides the ability to calculate optimal inventory levels and policies based on user-specified constraints, such as service levels, lead times and costs. This enables organizations to maintain high customer service levels, stock adequate inventory, while minimizing average total costs, which can include ordering, inventory holding and optional backorder penalty costs.

The solution incorporates a state-of-the-art simulation-based stochastic optimization algorithm that quickly calculates optimal multi-echelon inventory policies for large supply chain networks with complex business rules. The solution also automatically generates optimized orders that can then either be issued directly or can be reviewed and modified.

Scenario analysis

An easy-to-use interface supports the inventory optimization analysis by allowing users to create their own scenarios. This enables users to analyze the supply chain network, narrow down on problem areas and optimize the networks. It also provides the flexibility to adjust the values of the inventory replenishment policy parameters for enhanced business decision making. Users can easily select network, part, service level, vendor lead time, etc., and the solution will identify the impact of selected scenarios on operations and costs. SAS Service Parts Optimization is highly scalable, making it possible to quickly produce and compare alternate scenarios for multiple items.

Alerting and reporting

SAS Service Parts Optimization provides a number of standard and ad hoc reports, including alerts showing your most overstocked items, reports on the impact of overstocks and stock-outs on costs, and even the largest recommended changes in ordered quantities

for particular items. The solution comes complete with a dashboard for you to report on current performance at various levels and geographies throughout your enterprise. Other business intelligence capabilities include KPI scorecards, drillable views, snapshots and trends, and templated and customizable reports.

Customizable for your environment

SAS Service Parts Optimization supports customization of key replenishment policy drivers such as review period lengths, customer service

"It's one thing to earn the No. 1 spot in automotive after-market retail; it's another thing to stay there. SAS helps us accurately forecast consumer demand for service parts and accessories in our 3,000+ stores by sifting useful information from tens of billions of data points, so we can optimize our inventory and assets while serving our customers better."

Rajeeve Kaul, Director, Product and Price Optimization, AutoZone

measures, ordering rules and cost figures on a specific (item by item) or as broad basis as required by your organization. You can include features unique to your organization's replenishment environments.

Backed by the power of the SAS Enterprise Intelligence Platform

SAS Service Parts Optimization is a component of SAS Service Intelligence, an integrated set of products for the aftermarket service chain that also includes SAS Warranty Analysis and SAS Service Operations Optimization. By starting with SAS Service Parts Optimization and then extending to other components within the SAS Service Intelligence suite of solutions, organizations can gain even greater benefit with the capability to monitor, predict and optimize the entire service chain.

This family of flexible, extensible solutions includes prebuilt, service chain-specific data and analytical models, as well as streamlined processes and techniques that speed up both implementation and results, giving you a fast track to significant ROI.

All SAS Service Intelligence components are built on the SAS Enterprise Intelligence Platform, which provides a core set of technologies for integrating, managing and analyzing data, and deploying information across the enterprise. As the leader in forecasting and optimization solutions, SAS combines the world's best analytics with three decades of industry experience. No other software reads difficult data sources so effortlessly, processes large volumes of data so rapidly or interprets that data with greater clarity.

■ Differentiators

- **Forecasting depth.** Accurate, fast and automated hierarchical forecasting.

- **Causal forecasting.** Causal forecasting techniques that analyze factors such as install base, failure rate and usage.

- **Intermittent forecasting models.** Models provided that are specific to service parts demand forecasting.

- **Data mining for long-term forecasting.** Data mining and clustering techniques help determine long-term demand.

- **True multi-echelon optimization.** State-of-the-art simulation based on stochastic optimization algorithms.

- **Scalability.** Scalability to encompass and process hundreds of thousands of items.

- **Customization.** Customization of key replenishment policy drivers.

About SAS

SAS is the leader in business intelligence software and services. Customers at 40,000 sites, including 96 of the top 100 FORTUNE Global 500® companies, use SAS software to manage and gain insights from vast amounts of data, resulting in faster, more accurate business decisions; more profitable relationships with customers and suppliers; compliance with governmental regulations; research breakthroughs; and better products. Only SAS offers leading data integration, intelligence storage, advanced 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**.® **www.sas.com**