CYIENT

ENABLING A CONNECTED SUPPLY CHAIN AND INVENTORY MANAGEMENT FOR A LEADING OEM IN THE AEROSPACE INDUSTRY

Client: Leading Global Aerospace & Defense Firm

Client Location: USA

Industry: Aerospace and Defense

Challenge: To gain better visibility and insights across the aircraft parts' supply chain and fulfill all customers' orders in time

Cyient's Solution: A state model-based forecasting engine for parts needed in manufacturing and safety stock—the platform sourced information from historical data to study demand patterns and offered an optimized estimate of final forecast

Summary of Results: With better forecasting accuracy, demand management and inventory control improved and orders could be fulfilled in preset time windows. The product lifecycle control and working capital management was also optimized leading to higher revenues and profitability for the client

Overview

For supply chain managers and suppliers of engine parts, the commercial drivers include inventory management and management of related working capital while fulfilling both manufacturing and maintenance—repair-overhaul (MRO) capacity.

In this case, our client—a supplier of aircraft engine spare components—approached Cyient for help in accurately forecasting, and meeting their customers' demand at the right time. The forecasting had to consider the predictable demands of manufacturing and the unpredictable demands of MROs and aftermarket. Hence there were different sets of challenges to deliver appropriate levels of off-the-shelf availability.

We provided a state model that uses past usage trends of different parts to forecast the demand for unscheduled consumables. The optimization module of this digital tool looks into costs and criticality of parts to define the numbers that will be reordered. It can also suggest the economic order quantities to minimize the inventory and ordering costs. The platform is tailored to facilitate more accurate year-wise forecasting with improved COGS and reduced buffer.

Business Challenge

The expansion of commercial aviation sector to new markets and demand for latest iterations of aircraft engines have also created concerns on capacity limitations in the supply chain.

Aerospace companies are continually redesigning their strategies and need to ensure that they have the right spare parts in their new locations, anywhere around the world at the right time.

For our client, it was important to develop better models to predict the demands of their customers (aircraft engine manufacturers and other aerospace companies). The client had to accurately forecast the expected order quantity for parts with varying prices, lead times and demand variability. This was important to consistently maintain high service levels.

Another challenge was to improve inventory management—when a manufacturer has excessive safety stock or buffer, these unnecessarily use up space. At times the manufacturers may even find themselves with an excess of obsolete aircraft parts while the technologies have already moved to the next level. On the other hand, if there is too little of inventory, it may lead to delays in fulfilling customer orders, and later the expedited shipping can cost more money. The client needed a course of action for balancing the inventory holdings and fulfilling demand effectively.

The Cyient Solution

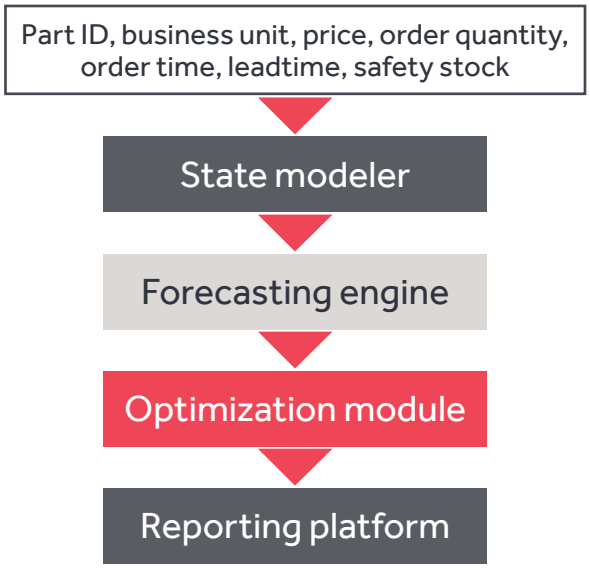
A team comprising six data scientists, one lead data scientist, and one SCM expert worked on this project. We designed a state model to predict part category transition on the basis of data that includes:

- Parts ID
- Applicable Business Unit
- Price
- Order Quantities
- Order Time
- Lead Time
- Safety Stock – Buffer

As an integrated platform, this digital tool allows the seamless flow of information between different modules to forecast the type and numbers of parts required for both manufacturing and MRO activities. From a single screen of the reporting platform, users can see the precise production and inventory needed to meet the demand in customer-defined time buckets.

The users can set the amount of time within which a spare part should be provided. The optimization module of the digital tool uses costs and significance of parts to set reorder numbers. It can also set the economic order quantity that minimizes the inventory and ordering costs. The system enables more accurate year wise forecasting with improved COGS and reduced buffer.

By aggregating information from multiple data sources, it provides the client more accurate visibility of demand across their product lines, geographies, and customers.



The Results

The digital platform offered by Cyient helped the client to optimize their demand forecasting process. They were able to fulfill the just-in-time (JIT) sourcing for their customers and reduce order-to-stock or excessive inventory buffer. The responsiveness towards market changes increased, and they could optimize their supply to meet the demand profitably. The timely fulfillment of orders also helped in reducing the inventory, distribution and transportation costs.

In particular, the client appreciated benefits of:

- Enhanced forecast accuracy
- Better Cost of Goods Sold (COGS)
- Reduced Safety Stock
- Improved working capital

By synchronizing internal and external supply chain processes, our solution helped the client in transforming into a demand-driven organization with the flexibility to respond quickly to changes in the market.

DESIGNING TOMORROW TOGETHER

The successful management of supply chains calls for an efficient infrastructure that offers high transparency in terms of business relationships. Working in tandem with our clients, we deploy such infrastructure optimized by software systems that are configurable, progressive and have comprehensive portfolio covering all supplier processes.

With ongoing changes in technology, the needs of aircraft engine manufacturers are getting complex and increasingly urgent to meet. The competition is strengthening, and organizations must manage a rapidly growing product database. As an end-to-end engineering partner for manufacturers, Cyient helps them gain more visibility into their operations, synchronize the supply chain and provide better services. All of this comes with reduced costs and manual efforts.

About Cyient

Cyient (Estd: 1991, NSE: CYIENT) provides engineering, manufacturing, geospatial, networks, and operations management services to global industry leaders. We leverage the power of digital technology and advanced analytics capabilities, along with domain knowledge and technical expertise, to solve complex business problems. As a Design, Build, and Maintain partner, we take solution ownership across the value chain to help our clients focus on their core, innovate, and stay ahead of the curve.

Relationships lie at the heart of how we work. With more than 15,000 employees in 22 countries, we partner with clients to operate as part of their extended team, in ways that best suit their organization's culture and requirements. Our industry focus spans aerospace and defense, medical, telecommunications, rail transportation, semiconductor, utilities, industrial, energy and natural resources.

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