Plastic Goods Maker
Supply Chain Master Planning Solution

Overview

■ *Objective:*

With worldwide operations and billions of dollars in annual sales, a global manufacturer of plastic products undertook an initiative to rationalize the manufacturing net-work of its fixtures division to improve customer service levels and streamline costs. With seasonal business and tight production capacities, determining the best way to build inventory for peak demand was a key issue, as well as increasing capacity to meet next year's demand.

■ *Solution:*

The company worked with LogicTools (now IBM ILOG) to determine the optimal month-by- month production plan for each division's products to meet customer demand, reallocate assets to better utilize capacity, and determine the number and type of machines to buy for each facility. Using IBM® ILOG LogicNet Plus XE, a network design and planning solution, the customer realized a net impact to its bottom line of U.S.$3 million through cost reductions of

U.S.$2.4 million and increased sales of U.S.$600,000 by meeting 100 percent of customer demand. The company also significantly reduced the number of expedited shipments and transfers between facilities, which provided additional savings.

■ *Benefits:*

- • *Improved production planning*
- • *Customer demand met 100%*
- • *Improved customer service*
- • *Reduced shipping costs*

Optimal production planning

The customer's division manufactures and ships products out of four North American plants. Its customers include many Fortune 500 consumer goods companies that typically receive product shipments directly from the plants through full truckload or less than truck load. The production process for fixtures consists of two stages, and each requires a unique type of machine. Furthermore, the output of the manufacturing network is constrained by available hours and the number of machines at each facility.

The division used IBM ILOG LogicNet Plus XE to accomplish several key objectives, including:

- Determine a month-by-month production plan that would meet demand forecasts at minimum cost and simultaneously reduce production bottle-necks.

- Determine the best configuration for current machinery and decide whether additional machinery was needed.

- Determine which types of machinery to acquire and identify the best place to locate the equipment.

- Analyze the above objectives under a variety of production and transportation assumptions.

The company utilized IBM ILOG LogicNet Plus XE to capture the current configuration of the manufacturing network and then determine the optimal production plan to meet customer demand at minimum cost.

Production costs and capacities, lane-by-lane transportation costs, speed of manufacturing, and availability of machines all formed some of the key inputs for the analysis. For those stock-keeping units (SKUs) produced at multiple locations, IBM ILOG LogicNet Plus XE helped the user determine the optimal quantities to produce monthly at each location.

Benefits

The customer reduced costs by U.S.$2.4 million, met more customer demand and increased sales by U.S.$600,000, resulting in a net bottom-line impact of U.S.$3 million with minimal investment in new machinery. Customer-order fill rates were improved, and expedited shipments were significantly reduced. During the study, additional opportunities were identified to reallocate key machinery among the plants. The impact on cost and customer service was quantified with a variety of scenarios. Further analysis included dynamic reassignment of customers among the plants and consolidating SKUs. In addition to the U.S.$3 million mentioned above, the customer identified a future impact on the bottom line in the range of U.S.$4 million to U.S.$6 million.

Products and services used

Software

IBM® ILOG LogicNet Plus XE

IBM

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