PROJECT SUMMARY

A generic global supply chain simulation model is developed to assess variations and uncertainties in sales, transportation lead times, supplier issues, inventory levels, and manufacturing constraints.

SYSTEM DESCRIPTION

All product configurations, strategic groupings of agricultural equipment, are manufactured at a given plant. Products are first sent to intermediary distribution centers, and then shipped to dealers for sale to customers. Customer demand is either satisfied at dealers or an order is sent up in the supply chain to the distribution centers or to the plant. Dealers and distribution centers carry inventories of all or a subset of product configurations and adopt a variation of order-up-to-target inventory order rule.

OPPORTUNITY

The client, a leading worldwide designer, manufacturer and distributor of agricultural and construction equipment, is interested in rapidly responding to changes in supply chain parameters. PMC was asked to develop a ProModel simulation model to help make strategic level decisions concerning balancing supply and demand on an aggregate level.

APPROACH

The objective was to develop a supply chain network, such that both cost and customer service based performance measures are optimized. Cost measure includes transportation costs and inventory holding costs. Customer service metrics include fill rates and order waiting times.

SOLUTION

A simulation model is deemed appropriate to evaluate the effects of changes on the current chain as well as to verify the virtue of proposed remedies. An animation feature allows the user to spot some of the problems related to the current scenario on the screen, and improve the understanding of the supply chain. All input parameters and output statistics are handled by an easy-to-use user interface.