CASE STUDY

Using Network Optimization to Model Production for New Product Introduction

Objective:
Model and simulate the effect of new product introduction on existing production capacity and inventory.

Solutions:
• Network Optimization
• Simulation

Results:
Global view of production network and capacity vacuums, identification of areas of cost reduction and route-to-market for new product.

Challenge
A leading global producer of agrochemicals was planning to introduce a new product to the market which was set to become a new blockbuster. The company chose LLamasoft supply chain design technology to model and simulate the effect the new product introduction would have on the existing production capacity and trade off inventory minimization objectives globally to optimize production scheduling across the existing network.

Because the product is made in two stages there were numerous constraints around production including duties on raw materials versus finished product in different geographies. In addition, a hugely seasonal demand forces the need to prebuild and hold inventory while striving to minimize capital expenditure and inventory holding costs.

Solution
The company used the LLamasoft® Supply Chain Guru® supply chain modeling platform to identify the optimal network given local content requirements. First, the modeling team created baseline constraint models and alternate design scenarios. Stakeholder interviews were conducted to obtain key information and buy-in. Location, cost and other critical data were imported into Supply Chain Guru and tested to determine accuracy, quick cost identification and analysis, ease of data refresh, scalability, optimal supplier and transportation utilization.
Supply Chain Guru analyzed every part and composite part’s cost and source relative to content constraints in order to create a detailed and robust single model of multiple cost, profit, assembly, logistics and feasibility options when compared to baseline models. The optimization engine created options under required local content scenarios by modeling all costs, currencies, different tax rates on finished/assembled parts versus individual components, sourcing points, assembly locations and end-to-end transportation options. Supply Chain Guru’s scenario management capability allowed the company to rapidly compare alternate potential what-if scenarios without recreating the entire business model.

LLamasoft gave the management team the confidence to plan and strategize the introduction of their new product, test impact on service when inventories of different stock lines were lowered and quantify additional initiatives required in manufacturing to enable this approach. Alternative production scenarios were also compared to analyze the effect of each on the entire supply chain. The key benefit was the ability to test the feasibility of the proposed new strategy in a risk-free simulation environment, rather than in a live business and risk impact on revenues and service levels.

Results

Using LLamasoft Supply Chain Guru, the company was able to:

- Map entire network for the first time and have a global view of the production network
- Discover a capacity vacuum within the next six months separate to the introduction of their new product – this offered the team a fresh perspective on their current network
- Deliver a roadmap for the introduction of the new product within the existing and future infrastructure
- Deliver route-to-market strategy for new product and identify single plant production as optimal
- Improve management and understanding of content constraints and their impact on profitability and project feasibility, including currency exchange and tax rate factors
- Identify cost savings and cost minimization opportunities associated with different levels of content constraints and alternative flow-path balancing
- Model and simulate the supply chain to create and test alternate global inventory policy changes for finished goods. This allowed the business to build consensus around practical next steps