

## CASE STUDY 23

### END-TO-END ENHANCEMENT

#### Computer modeling and dashboards to optimize a global supply chain

##### Introduction

Following the approval of a multi-million dollar investment in additional MMA production capacity from the Middle East, scheduled for start-up in 2015, Lucite wished to take the opportunity to evaluate alternative shipping routes and parcel sizes, time charter vessels, alternative bulk storage locations, variable production capacities and optimized location sourcing using computerized software modeling techniques.

##### Opportunity

For example, the Agility approach uses computer modeling for supply chain optimization of the combined production volumes from 13 global manufacturing locations operated by Lucite and Mitsubishi Rayon Company Ltd (MRC). The scope includes individual fixed and variable costs, utilizing bulk shipping routes and parcel size, including ISO tanks.

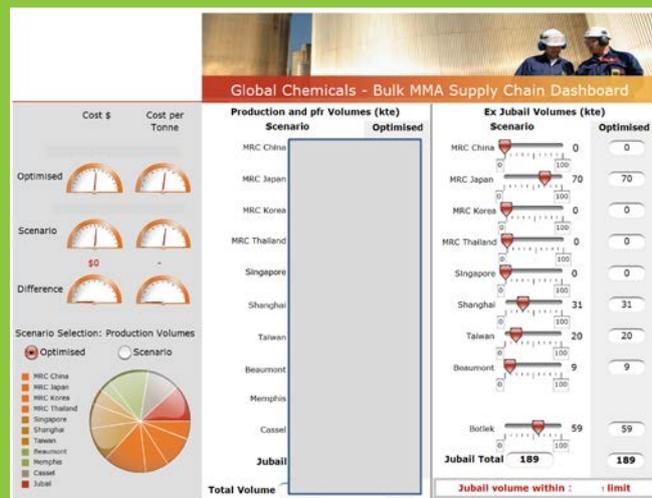
An essential part of modeling is to understand the local operational or economic issues (for example tax free zones) and to have full cooperation / understanding from all parties when developing scenarios, which includes the following components:

- Variable production costs and volumes
- Optimized customer to plant production based on entire supply chain cost
- Alternative shipping routes and parcel sizes
- European ISO tank consideration
- Forecast customer demand and production capacities
- Middle East production consideration given to the inventory impact on stock holding while product was at sea (in transit)

##### The Solution (Technology Application)

The solution is based on the development of a bulk shipping and manufacturing sourcing optimization model to evaluate alternative logistics strategies, for forecast customer demand volumes, by flexing production costs, alternative shipping lane availability, bulk parcel size variance and optimized customer to manufacturing plant allocation.

In addition to evaluating various production scenarios, Lucite uses interactive dashboards to assess production sourcing costs during scheduled plant shutdowns, and to compare their shipping rates with those of the market and mid-size chemical companies.



##### The Value

The strategic design model and dashboards allow global sourcing and optimum end-to-end supply chains for the business, covering all the components in the Business Case above, simplifying strategic and operational decisions and, in particular, generating significant competitive advantage.