



Case study

Warehouse Footprint Optimization

A leading international beverages can manufacturer in Europe was a client of a large IT system integration company. The system integration company approached IGSA for a warehouse-distribution network design optimization model and solution.

Challenge

The challenge of the can manufacturer was to identify the optimal warehouse footprint across the entire European region and to determine product movements from plants to warehouses to markets so that the cost to serve is minimum and the desired service levels are achieved. Main objectives of the engagement were:

- To rationalize warehouse network including the recommendation of opening new warehouses and closing existing ones.
- To recommend the right size of each warehouse based on average sales variability and safety stock norms.
- To achieve target service levels and simultaneously reduce total supply chain cost.

Solution

Based on the client's requirement, IGSA configured its network design optimization model with the data of existing markets, products, demand forecasts, candidate and existing warehouse locations, existing plant locations and capacities, logistics routes and constraints, various costs in the supply chain, and service level requirements.

As a key requirement of the client was to model the impact of seasonality on the network's performance, IGSA team advised them to provide input data on a multi-time period basis. IGSA deployed the multi-period version of its network design solution.

The network allocation and design optimization solution of IGSA has a large scale OR model developed in GAMS/CPLEX and integrated with Oracle database and a user-friendly J2EE interface.

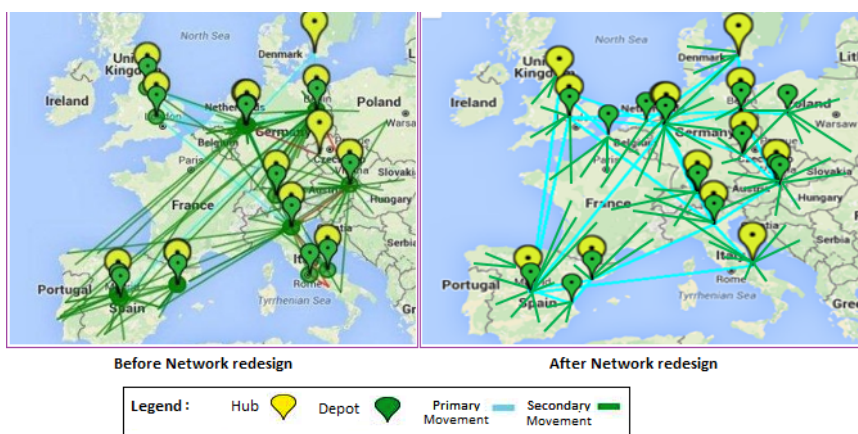
The client shared input data from its ERP system (SAP ERP). Candidate locations were identified by the client separately and transportation costs were estimated in terms of Euro per pallet. As part of its preparatory analysis, IGSA team found some gaps in the data and provided support to the client in the process of data preparation and validation.

Multiple "what-if" scenarios were run using IGSA's optimization model in order to assess the effect of variations in demands and specific costs on the optimal network footprint and its performance on total supply chain cost and service level.

Results

IGSA's optimization model helped the client to determine the optimal warehouse network design that was also feasible to implement. The key benefits were:

- Maximization of the total contribution via optimal warehouse footprint and optimal allocations of SKUs from the different manufacturing plant to warehouses and markets. This simultaneously assured minimization of total supply chain cost.
- The Proactive readiness of the company to meet the expected growth in certain markets by preparing an optimal distribution network plan ahead in time.



Network optimization design model

