



How Network Optimisation Models Work

Building a Network Model involves capturing, at an aggregate level, the relevant costs, capacities and volumes in the supply chain. The result is a very large file set, which can be seen as an 'algorithm' depicting the network.

This algorithm is then 'solved' to satisfy an objective function, usually either to minimize the cost of operating the network or, by also capturing revenue in the model, to maximize profitability.

Although the backbone of the model is usually off-the shelf software with a mathematical 'optimiser', the characteristics of each supply chain need to be carefully configured into the model's required data file sets to ensure that the model accurately represents the particular problem and is at the appropriate level of detail.

A base 'validation' model is built to match a period (typically a year) of sales and operations. This confirms and gives the business confidence in the models ability to depict the cost and revenue relationships of the business.

Finally the true power of optimisation modelling can be utilized. Initially various levels of unconstrained 'optimisations' can be run to identify the underling trends and dynamics. These are followed by testing, with the model, the scenarios or strategic options identified by the organization. The model allows the impact of these different strategies on the performance of the network to be easily assessed by comparing the cost or cost/revenue of each scenario to the 'validation' case.

Typically a final scenario is selected which has evolved from the patterns identified along the way, overlaid with real-world implementation constraints.