



OPSI CONSULTING SERVICES



OPSI Systems offers a wide range of consulting services in the field of logistics and supply chain optimization and management.

We have worked with many top companies in answering logistics related questions and providing high-level solutions.

Consulting services:

- **Warehouse placement/network optimization**
- **Fleet configuration**
- **3PL Contract costing**
- **Nominated delivery day assignment and van sales routes**
- **Distribution strategy evaluation**
- **GIS visualization**
- **Warehouse simulation**



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Warehouse placement/network optimization

When deciding on how to optimize the entire distribution network of a large enterprise, it is important to use information that is as accurate as possible. Decisions include which delivery mode to use, how many facilities including factories and warehouses to use and where, and what delivery strategy will result in the best trade-off between customer service, stock-holding costs, replenishment costs, and distribution costs. These kinds of decisions result in large capital expenditures with substantial long term implications.

Our usual methodology involves a two-stage process. In the first phase, as a rough estimate, we model the network by minimizing costs on the basis of straight-line distances between facilities and customers and total material movements. In the second phase, we refine and confirm the original solution by modeling the network exactly, using specific deliveries on the road network, with specifically modeled vehicle fleets and costs.

Fleet configuration

When evaluating an existing distribution environment, either at a warehouse or factory, it is often necessary to answer the question: what is the best fleet for this set of deliveries? Usually the workload will vary a lot between days of the week, time of the month and time of the year so no single fleet is optimal for the whole year. The methodology we use is to model the best fleet for each day in a reasonable period of time, from one to three months. Using these fleet configurations for each day we can recommend a fleet to cover, say, 85% of all days, allowing for the possibility of hiring external vehicles to cover the peak periods.

To model the fleet for each day, we enter all the deliveries for the period, geocode all the customers, specify working hours, delivery windows, vehicle exclusions, and other real-world restrictions, and specify the vehicle types that can be used. Then, using FLO, we run routing schedules for each day that minimize the costs and optimize the fleet for the day.

3PL Contract costing

Contract costing is very closely related to fleet configuration. Once an optimal fleet has been determined, this cost can be used to accurately predict the cost of running a contract, allowing providers to give the most competitive quotes while still ensuring profitability.

Nominated delivery day assignment and van sales routes

In many distribution environments, the supplier is able to dictate delivery days to customers. Usually, customers get one or two deliveries a week, and it is often necessary to find routes that allocate customers to delivery days and routes, in such a way as to minimize the total delivery cost. The data that is needed is a list of customers, addresses, average delivery size, number of visits per week, preferred delivery days, if any, delivery windows, vehicle exclusions, and working hours. We also use the vehicle sizes and fleet configuration in building the routes. The output that is provided is a list of routes, and vehicles for each day. Route maps can also be provided if required.

Distribution strategy evaluation

Distributors are often faced with many alternative strategies for supplying their products. These may involve trade-offs between customer service and cost. Examples would be the use of consolidators versus a dedicated fleet, or providing 72 hour delivery rather than 24 hour. We build models of the various options and provide financial implications to allow for complete quantitative evaluation of all the possibilities.

GIS visualization

It can often be useful to understand the geographical spread of customers. Questions arise such as: where are the biggest 10% of my customers, or how are the customers who make about the bottom 10% of my sales distributed, or can you show me a map with customers colour coded by sales volume? These, can be answered by using GIS (geographical information systems) solutions.

Warehouse simulation

To evaluate possible changes in a warehouse or the throughput of a proposed warehouse, the best method is to build a full simulation of the material movements within the facility. This is usually a time consuming and relatively expensive exercise, but compared to the costs of changing or building a warehouse, these costs are easily justified.

In addition to these, we are interested in all aspects of the supply chain and would welcome discussions on other areas of logistics and material handling.