



Optimized Load Planning Decisions

Supply Chains are becoming increasingly competitive and the focus is now on squeezing every dollar out of each function involved therein. **Optimization is no longer a luxury but has become the order of the day.** Therefore, the supply chain managers are closely looking even at the smallest opportunity available to analyze, evaluate, implement and integrate to add to the savings - possibly within the existing system of their supply chains.

One such opportunity available to supply chain managers is optimal loading and dispatching from manufacturing plants and points of transshipments. Organizations today are striving/battling to ensure that full **truckload shipments are dispatched having the right goods to reach the destination in the right time** in order to achieve following three conflicting objectives:

- Minimize transportation costs
- Minimize inventory carrying costs
- Achieve desired service levels (e.g., minimum or no stock-out)

Simple back-of-the-envelope calculation of transportation spends for multi-location, multi-SKU organizations demonstrate that this figure (transportation spends on primary freight in absolute terms) is huge and promises serious savings to any supply chain manager. Studies, however, have revealed that **optimum placement of SKUs and floor loaded products is often also an ignored area** within the logistics function. Maximized volumetric efficiency while transporting/storage can yield significant savings. Using historic data based on loads dispatched and product characteristics and attributes (weight - volume constraints), it is possible to assess the impact of results that can be achieved using a **modeling-based Decision Support System for creating Optimized Load Plans.**



Logistics Planner is a highly flexible cost-effective distribution planning solution that can help you minimize distribution costs. Logistics Planner **synchronizes supply with demand throughout a multi-echelon distribution network** consisting of plants, warehouses, depots and customers. It addresses the issue of managing inventory at minimum distribution costs while maintaining targeted service levels.

More Resources

- [Building the Perfect Load](#)
 - [On-Board Computers and Capacity Utilization in Trucking](#)
 - [Knapsack Loading Problem](#)
 - [Supply Chain Simulation](#)
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About DecisionCraft Analytics



Packing a container with multiple shape/size objects with maximum efficiency comes in the **knapsack** class of problems. Key areas of concern could be **maximizing cubic volume utilization**, at the same time ensuring that **legally permissible limits** are met. Appropriate constraint building ensures that

- Product stacking rules (stacking limits, orientation, top load, bottom load, etc.) are complied with
- Safety in terms of loading and unloading is factored in
- Actual item dimensions and weight that are used to calculate load plans with product attributes and descriptions are fed in.

At the same time, similar information about containers, trucks, railway wagons etc. could be captured such as unloadable void spaces, roll up door, steps in a step-van, issues related to keeping center of gravity within prescribed limits, etc. Considerations regarding drop locations and therefore **sequential loading / priority loading** could also be incorporated.

The solution envisaged creates ready databases and masters for different SKUs thereby creating a repository, or takes this information from the legacy systems if already captured. The **benefits envisaged** here are mainly from a **cost savings** perspective, and **increased efficiency**, while loading and transporting. However, time and opportunity costs for loading vehicles could cause the total impact (benefits) to be much higher. Other soft benefits could be in the form of **lower damages** while transportation, since certain constraint based planning would have been done through optimal packing and loading.

Next Issue: [Workforce Planning and Scheduling](#)

DecisionCraft Analytics is a consulting firm specialized in building Decision Support Systems in the **planning and optimization** domain using proprietary tools and techniques.

DecisionCraft's solutions are innovative and cutting edge and are a result of extensive research, setting industry wide benchmarks.

DecisionCraft Products

Applications Integrator

Automates operations of asset management companies by integrating business rules and regulations

dataOrganizer™

Integrates data from diverse sources on to one destination database

Logistics Planner

Synchronizes supply with demand to minimize distribution costs

qcCharts™

Enhances process capability of critical processes through interactive data visualization

Supply Chain Simulator

Determines optimum inventory policy such as re-order point and maximum stock based on fill rates

Travel Route Optimizer

Optimizes travel routes and automates travel planning process

Previous Issue: [Supply Chain Health Check](#)

