



Transportation Planner

Every organization that requires transportation planning, including manufacturers, retailers, and logistics service providers, is faced with the task of improving service while reducing costs. Furthermore, these industries must be prepared to effectively manage sophisticated transportation networks with high volumes of orders to keep up with the dynamically changing nature of order fulfillment requirements.

i2 Transportation Planner™ is designed to transform order fulfillment, procurement, and replenishment plans into cost-optimized transportation plans using configurable business rules that adhere to facility, inventory, and transportation network constraints. Plans generated by i2 Transportation Planner are physically executable and operationally viable. They consider customer delivery commitments, product availability, and other real-world constraints while reducing the need for human intervention and review, thereby increasing labor productivity.

Solution Capabilities

i2 Transportation Planner is a key component of i2 Transportation Management Solutions, which allow customers to procure, plan, execute, and monitor freight across multiple modes, borders, and enterprises. i2 Transportation Planner enables customers to plan the optimal way to ship high volumes of goods from one location to another. i2 Transportation Planner works by considering real-world constraints, sophisticated business rules, and advanced transportation strategies such as inventory-constrained shipment scheduling, dynamic multi-leg routing, and three-dimensional load building and containerization. It can produce a cost-effective plan for private and dedicated assets alongside contract carrier and mode selection trade-offs.

i2 Transportation Planner can take replenishment orders from master planning solutions like i2 Supply Chain Planner™ and efficiently build them into shipments that maximize truck capacity utilization while adhering to inventory policies, product mixing constraints, and palletization constraints. This powerful shipment scheduling capability is ideal for consumer goods, manufacturing, and other distribution-intensive industries where inter-facility moves must be intelligently grouped together to minimize transportation costs. Furthermore, i2 Transportation Planner shipment plans adhere to inventory policies at both the origin and the destination, and respect demand consumption dates and freshness constraints.

“Sorrento Lactalis is building loads that are roughly 2,000 pounds more than what they had been prior to the implementation. We saved in the neighborhood of 150 to 170 loads in the first quarter because of the increased load factor. We were able to minimize miles through maximizing equipment utilization—and that is helping us to reduce Sorrento’s overall transportation spend.”

—Stuart Rosenlund
Manager of Business Solutions
England Logistics

i2 Transportation Planner is effective at maximizing transportation efficiencies when managing inbound shipments from suppliers and outbound shipments to customers. The best-of-breed shipment optimization capability determines the most cost-effective and feasible way to consolidate and route shipments. When determining how to optimally build and route loads, i2 Transportation Planner considers available modes, services, and carriers, as well as available transportation networks including cross-docks. It also respects real-world constraints such as shipping windows, delivery windows, carrier equipment availability, dock schedules, business hours, equipment type restrictions, industry regulations, and owned-asset availability. The end result is a cost-effective shipment plan that can be executed without violating real-world constraints.

i2 Transportation Planner also offers multi-level, three-dimensional load building. This capability can be used to automatically convert order line information into recommended pallet configurations, considering the weight, dimensional attributes, and product families of individual cases. It can then suggest how to physically load the pallets into a truck or ocean container while considering stacking rules, weight, and volume. i2 Transportation Planner is designed to address the complete breadth of operational challenges associated with stacking, packing, routing, and shipping goods in a high-volume dynamic environment—resulting in improved productivity and significant savings in freight costs.

i2 Transportation Planner is a comprehensive solution that provides:

- **Optimized consolidation and routing:** i2 Transportation Planner consolidates shipments into cost-effective loads, evaluating load consolidation, modal trade-offs, and opportunities for continuous moves. This least-cost plan respects resource and carrier availability, dock scheduling constraints, and trade-offs between a company fleet versus contract carriers.
- **Transportation-optimized replenishment plans:** i2 Transportation Planner can decide whether to delay or pull forward recommended replenishments in order to maximize load efficiency while satisfying inventory constraints, item packaging requirements, and equipment capacity.
- **Containerization:** Demand signals are often stated in different units and package sizes than are actually shipped. For example, demand may be in terms of SKUs or cartons that are grouped into pallets, containers, and truckloads. i2 Transportation Planner's containerization tool respects a configurable set of stacking, product combination, and loading rules. i2 Transportation Planner can optimize the load composition based on a set of allowable configurations.
- **Flexible solution deployment:** i2 Transportation Planner is designed to be a modular component within a larger solution, integrating with enterprise resource planning (ERP), order management system (OMS), and warehouse management system (WMS) solutions for input and providing optimized results to transportation management solutions such as i2 Transportation Manager.™ i2 Transportation Planner accepts distribution plans, replenishment plans, sales orders, purchase orders, or simple shipment orders as inputs. The solution output consists of palletized shipments, optimized stock transfer plans, and optimized loads with suggested mode and carrier assignments.

i2's Differentiators

Powerful Solving Engine

With its comprehensive feature set, i2 Transportation Planner's powerful and flexible solving engine:

- Represents actual costs based on load properties such as distance, weight, and stops
- Consolidates shipments and capitalizes on multi-stop, continuous move, and merge-in-transit opportunities
- Simultaneously optimizes least-cost delivery routes, determines pick-up and delivery times, and respects all equipment and department of transportation scheduling constraints
- Respects owned and contract carrier equipment capacity constraints and honors volume and percentage-based commitments
- Qualifies modal trade-offs, including truckload, less than load, parcel, rail, ocean, and intermodal
- Dynamically evaluates cross-docking opportunities while respecting the associated capacities and costs
- Considers dedicated and private fleet domiciled assets and reuses equipment to minimize vehicle utilization
- Optimizes dock-door throughput and availability to create actionable schedules
- Uses container dimensions, stacking rules, and orientation constraints to check load feasibility
- Enables user-configurable algorithm behavior and solver tuning to meet a variety of business challenges

Integrated Containerization and Inventory-Constrained Load Building

i2 Transportation Planner supports the full range of load building and containerization requirements:

- Enables both push and pull of orders based on the critical nature of the freight, while respecting inventory policy
- Provides multi-tiered load building that incorporates user-defined nested configurations
- Respects equipment dimensions, including different pallet sizes, to achieve the best fit for the load, while honoring the number of available vehicles
- Prioritizes load building based on a number of order attributes
- Supports a robust set of user-definable item loading properties
- Aggregates and splits quantities across multiple trucks to achieve maximum load efficiency
- Incorporates transportation-driven changes into future planning runs, including updates to production planning
- Handles dynamic sourcing of locations, with multiple source points for items

Interactive Optimization and Plan Editing

i2 Transportation Planner supports initial planning, adjustment, and execution of an optimization workflow through:

- An intuitive, web-enabled user interface that provides customizable views, real-time optimization feedback, Gantt charts of dock and vehicle utilization, and three-dimensional views of load composition
- Consideration of previous allocations of assets and carrier commitments in future optimizations
- Plan archiving and retrieval that supports historical analysis and "what-if" scenarios
- User role management, including enablement of specific application features and access to plan queues
- Plan accessibility that enables multiple users to edit and review a specific active plan
- Full user-interface-enabled deployment configuration, such as optimization server set up and availability, default optimization parameters, and distance and rating data sources
- Visibility into optimization request queues that indicate current plan status and "owner"

Benefits Summary

i2 Transportation Planner is designed to provide modular features and functionality that contribute to a best-of-breed operational planning capability for shipments of all types. Companies taking advantage of these capabilities can directly improve their bottom-line margins.

Direct Cost Savings

An average 3–5 percent reduction in overall freight costs is possible for companies that leverage i2 solutions to automatically select the most efficient combination of modes, carriers, shipment schedules, and routes. Time to value can be very fast with payback measured in months rather than years.

Increased Asset Utilization

More than simply determining the best network and transportation strategy on a daily basis, i2 Transportation Planner can also help maximize the utilization of private fleets and shipping containers by leveraging automated scheduling and three-dimensional load-building capabilities.

Improved Customer Satisfaction

By using i2 Transportation Planner to create an operationally feasible plan that meets real-world conditions, customers can be assured of a reliable distribution network with highly competitive lead times and shipping costs—increasing customer satisfaction and driving repeat orders as a result.

For more information on i2 Transportation Planner and other i2 solutions, visit www.i2.com.



The Supply Chain Company®

11701 Luna Road
Dallas, Texas 75234, USA
Phone 1.877.926.9286
Email info@i2.com
Web www.i2.com