

# Using Transportation Optimization Software to Improve Supply Chain Efficiency

**Once considered by only the largest businesses, Transportation Optimization is a strategy being adopted in greater measure by companies of all sizes. Grappling with volatility in demand as well as increasing transportation-related costs, businesses are looking to supply chain management solutions such as emerging transportation optimization software to help drive and maintain competitive advantage.**



More mature elements of supply chain management automation – like enterprise resource planning (ERP) systems, warehouse management systems (WMS) and transportation management systems (TMS) – already enjoy widespread adoption and the business community is well-informed about their capabilities and efficacy. As those tools settle into years

of industry-standard usage, supply chain managers are turning their attention to other niches within the supply chain where automation technology may be useful in unlocking additional savings and efficiency. Transportation optimization software is one such area enjoying greater scrutiny today. Like all emerging technologies, early adopters face significant risks and hurdles. However, those that are successful gain significant advantage and blaze the leadership trail for others to follow.

Understanding the underlying precepts behind any strategy make it more likely to be properly, and thus successfully, applied. This document will examine the needs that prompted the rise of transportation optimization technologies and the way successful users of the emerging technologies achieved their goals.

## MISSED OPPORTUNITIES

Two of the biggest missed savings opportunities in transportation management involve load planning and

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shipment routing. Load planning refers to how products are packed and loaded into trailers or containers for shipping. Shipment routing is the process of identifying the most efficient routes for freight between a given set of delivery points. According to the National Private Truck Council, 28% of trucks on the road in the US are partially empty, in spite of high fuel costs. This dichotomy is caused by a number of factors, not least of which is poor transportation network visibility and insufficient or inadequate systems for use by logistics personnel to address these problems.

Until the recent advent of transportation optimization software, the complexity of the calculations – factoring in weights, dimensions, densities and other product variables such as lead time, loading times, shipping hours and transit times – was a time consuming and difficult process to manage. For organizations managing several loads a day, the process was tolerable using manual processes. However, for companies shipping hundreds of loads a day, this process was overwhelmingly labor intensive to such a degree that many chose not to emphasize optimization as a standard practice. In addition to these complexities, load planners and logistics personnel often lacked access to such key information as transportation rates during in the planning process. This prevented them from seeing the financial impact their planning decisions had on the bottom line. As a result, most were saddled with planning and routing that was not as cost effective as it could have been.

Moreover, transportation executives lacked effective analytical tools and reports, rendering them unable to quantify, for buyers and sales staff, the impact of business rules and policies on transportation and distribution costs. This handicapped an

organization's ability to mitigate improper customer or supplier behaviors that cost their companies money.

All these factors together resulted in an unacceptably high frequency of underweight loads, out of route miles, late pickups/deliveries, wasted transport costs and reduced profitability.

## AUTOMATION TECHNOLOGIES TO THE RESCUE

Today, innovative, strategic-minded companies are overcoming these challenges using software known as transportation optimization systems to automate their daily shipment schedules. These applications quickly and efficiently build and route optimized loads for greater cost effectiveness, adding significant savings and improved on-time performance.

Best-in-class optimization tools fully integrate with Enterprise Resource Planning (ERP) ordering systems and TMS (Transportation Management Systems), processing anywhere from a dozen to many thousands of shipments— inbound or outbound – in a single pass, consolidating the loads, routes and deliveries for significant savings. Whether moving freight by truck, train, plane, ship or rail, today's leading optimization solutions are highly configurable and flexible enough to meet the needs of any business. Successfully implemented optimization software can deliver anywhere from 10 to 20 percent savings on shipping costs and logistics staff time.

So what is involved in the successful implementation of such technologies? How can an organization avoid the failed implementations which characteristically plague early adopters of disruptive technologies such as this?

## DOCUMENTING PROCEDURES

Implementation of a transportation optimization tool should begin with a comprehensive knowledge transfer process. Organizations should seek a provider with ample expertise in both logistics and IT to effectively complete the task of mapping out existing transportation processes and procedures via collaboration with their own team of logistics professionals. During this process, the provider and the company's logistics team should query the company's transportation and logistics

staff to extract the tribal knowledge they possess outside of any standardized processes.

This should include detailed review of shipment histories, which helps all parties better understand the scope and extent of the entire supply chain. The output of this knowledge transfer serves to uncover undocumented business processes the optimizer will have to address.

Next, the cross-functional group should map company locations, customers, vendors, products and the unique shipping rules for each. These rules would be programmed into the optimizer. By building company-specific processes into the system, information that may exist only in the minds of legacy users is captured, validated and, if proven effective, codified in the tool. This provides continuity of business rules and best practices that can be adhered to across the entire organization.

## INTEGRATION AND CONFIGURATION



With the knowledge transfer portion of the implementation complete, best-in-class optimization software moves toward the integration and configuration process. Companies should perform due diligence to ensure any selected provider maintains sufficient expertise to ensure seamless integration with ERP or order management systems and Transportation Management Systems (TMS).

A truly flexible and configurable optimization tool must be able to adapt to the unique requirements of any company's business. There are an endless number of permutations that an optimization tool may be called on to accommodate. For example, two producers of a very similar product may have very different locations, customer requirements and storage capacity in their warehouses requiring different pickup frequencies. Optimizers allow all of these variables to be built into the system, ensuring established standards are followed; no matter who is coordinating the shipping that day. The best optimization system is one that is fully flexible and expandable, allowing for the addition of as many constraints and filters as needed as business grows and changes.



Even the most robust optimizer will be of little use if it is not seamlessly integrated with the TMS systems being used by most companies today. The optimization tool must provide clean orders to the TMS either through EDI or direct export, which can be quickly sent

to carriers to reserve trucks ahead of the competition. Fully integrated with a TMS, an optimizer works quickly and efficiently, reducing the need to rebuild loads and routes, increasing lead-time. Other benefits of integrating an optimizer into transportation management processes include:

- Reduced shipping costs and environmental impact
- Maximized truck utilization
- Optimized mode selection, minimizing less-than-truckload shipments
- Reduced transit times and improved efficiencies via longer lead times
- Improved order processing efficiency
- Reduced carrier-missed deliveries, idle times and detention costs

## THE LOADFUSION OPTIMIZER FROM ULTRASHIPTMS

Built by the transportation and IT experts behind the acclaimed UltraShipTMS solution, LoadFusion not only helps improve shipping efficiency and reduce transportation costs, but it is also a powerful business tool that helps organizations with cost modeling and strategic business decisions. The optimization engine is offered as a standalone product or integrated as part of a complete UltraShipTMS solution.

LoadFusion is a proprietary optimization engine applying loading and routing algorithms to build and route shipments more quickly and efficiently. LoadFusion imports orders from existing ERP or order management systems, geo-coding the pickup and delivery points for the orders and clustering deliveries according to pre-set criteria. LoadFusion then builds loads, routes and stops with the fewest miles practical and allowable, efficiently comparing transportation modes and rates in near real-time.

In addition, it filters the loads against pre-set business constraints, such as customer and supplier preferences or seasonal variables. It does all of this in just a few seconds. When complete, users see the new list of consolidated orders in an easy-to-use interface with maps, allowing users to make adjustments, test additional filters or export it to a Transportation Management System (or third-party logistics provider) for tendering to carriers.

LoadFusion handles inbound and outbound orders across a company's entire operation. This also includes suppliers and customer locations. In addition, LoadFusion can handle complex routing, including single point to multipoint, multipoint to single point, and multipoint to multipoint.

## ORDERS AND ROUTES RIGHT FOR THE SHIPPING INDUSTRY

Because LoadFusion is built by transportation experts, the optimization engine builds loads that are practical and right for shippers, carriers and drivers, as well as fully compliant with U.S. Department of Transportation regulations.

Once the optimization engine is run on customer orders, users see the results: how orders were consolidated, routes/miles saved, how deliveries were clustered and the viability of the new loads and routes. In the drag-and-drop interface, users can view details on stops, loads and can make adjustments to order grouping, timing and routing. In addition, the reports will show loaded and unloaded miles on the route, helping private fleet and dedicated carriers minimize empty miles. LoadFusion is also a powerful data repository, with extensive archives and reporting tools.

## POWERFUL BUSINESS PLANNING TOOL

When considering locations for a new distribution facility, processing sample orders from potential sites through LoadFusion allows users to compare the transportation and handling cost differences. LoadFusion can also be used as a tool for business planners to determine how shipping costs will impact the pricing of goods, helping make informed decisions prior to a big capital investment.

## REDUCE MILES, REDUCE YOUR CARBON FOOTPRINT

By reducing shipments, miles and stops, LoadFusion is helping companies reduce their carbon footprint, making it an effective part a green strategy. With its detailed reports, LoadFusion also helps participating shippers log and report fuel efficiency and emissions reductions as part of the U.S. EPA's SmartWay program.

## DESIGNED, ENGINEERED AND SUPPORTED IN THE USA

All programming and support for LoadFusion is handled by Ultra's transportation and IT staff in the United States. LoadFusion comes with 24/7 support and U.S.-based programmers, so users have direct, easy access to the people who built the system.

### CASE STUDY: LOADFUSION OPTIMIZES VARIABLE WEIGHT LOADS FOR A NURSERY COMPANY

**Customer:** A major nursery wholesaler ships carts of young plants, with weights that vary due to moisture, to customers throughout the U.S., while coordinating deliveries of materials from suppliers.

**Challenge:** Deliveries were being managed by hand, from each of the company's nurseries, with office staff manually calculating truckloads, routes and delivery stops late into the night. As part of a company restructuring, logistics operations were consolidated to one location.

**Solution:** Ultra Logistics worked with the company to implement a new ordering system along with LoadFusion. The process included the mapping and programming of both

inbound and outbound orders, customers, vendors, products, loads, modes, timing, and other key variables into the system.

The LoadFusion team handled all system configurations; including the data integration with the company's ordering system.

**Results:** The software immediately began processing a full day's orders in only a few minutes, calculating the optimal shipments, routes and stops.

By feeding the orders through LoadFusion, the customer estimates it saved 18 staff-hours a day, while reducing trucks and miles. The time saved was reallocated toward pursuit of other strategic supply chain improvement initiatives, including optimizing production, order processing and TMS implementation.



UltraShipTMS is a respected provider of supply chain management technologies, services and consultation, helping Fortune 1000 organizations optimize and transform their transportation networks from opaque and rigid cost centers to strategic and responsive value drivers. UltraShipTMS provides a single-source solution for optimization, transportation and settlement for in- and out-bound shipping across all modes of transport. Delivered in the flexible, affordable Software-as-a-Service (SaaS) model, the UltraShipTMS suite offers proven tools for reengineering supply chain processes while unlocking complete transportation network visibility, improved collaboration and accountability. Built and supported by the same team of transportation industry veterans and software developers, UltraShipTMS is an emerging leader in the supply chain management industry.

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