An Improved Transportation Management System for Domestic Surface Transportation Needs

A robust solution for shippers and 3PLs to extract significant savings from the transport budget

Abstract

Manufacturers, distributors, and third-party logistics companies all have specific business needs and processes concerning the movement of goods and product from sourcing locations to factories to distribution warehouses and retail or customer locations. The movement of product between locations is frequently controlled by software applications referred to as “transportation management systems”.

To support improved efficiencies in the transportation process, companies will look for a Transportation Management System (TMS) that fits their current and planned operational needs and that can be integrated smoothly with existing ERP or corporate financial systems.

This paper will explore a new category of TMS that has unique capabilities to manage and incorporate fleet and asset management within a richly-featured, robust and highly flexible solution for shippers and 3PLs concerned with cost containment and increased efficiencies in domestic surface transportation.
Introduction

The term “Transportation Management System” is evolving in the marketplace to fit an ever-increasing range of software functionality and purpose. A TMS is always expected to improve the shippers’ capabilities to plan, execute, analyze, benchmark and continuously improve the management of product flow. As the ranks of global corporations with world-spanning supply chains are joined by more large and medium businesses with less attenuated—but no less important—lines of supply, the capabilities and focus of tools designed for the logistics function are changing to meet new demands. Chief among these emerging requests are the needs for:

- better cost control tools
- continuous improvement metrics
- automated, best-mode decision support
- improved shipment visibility
- the affordability of the TMS itself.

A proliferation of new and competitive solutions for transportation management guarantees that shippers and third-party logistics companies will have more choices in feature mix, hosting mode and price point than ever before, but finding an ideal fit for complex and distributed transportation management processes from among so many candidates will remain challenging.

Domestic Transportation Management

One of the most opaque segments of freight movement domestically continues to be over-the-road trucking, which accounts for 80% of freight transportation modes in the US alone. A TMS that could open a window of business visibility and control to North American truck transportation would put unprecedented cost and service management tools in the hands of shippers and 3PLs.

In the commercial freight sector, one company has established a dominant technology practice focused on improving operational efficiencies, stripping out waste and reducing costs through automation and integration, while bringing increased visibility to key performance indicators and shipment status as well as daily exception monitoring. This technology has been successfully integrated with motor carrier operations for many years.

Historically operating with the slimmest of margins—motor carriers average operating margins of 5-6%—trucking companies have also been forced to seek out more sophisticated management software and technology capabilities to satisfy the needs of their shipping customers for greater visibility and more efficient business transactions, as well as their own needs to oversee complex
and distributed service operations. The margins for error in making profitable transportation decisions are even narrower for asset-based firms than for shippers themselves.

**TMW Systems**

From within this demanding business environment that lies at the heart of domestic surface transportation in the US and Canada, TMW Systems has emerged in the past several years as the leading supplier of enterprise-class business software for both asset- and non-asset-based freight management companies. Many private fleet operations that are part of larger corporate shipping entities, carrying everything from produce and paint to electronics and retail goods, have also turned to TMW for their transportation management needs. This has lead to increasing convergence for the technologies that enable captive fleets to increase their value to their parent companies and the systems that help a 3PL or carrier to partner with shippers in delivering more transparent goods movement at the most competitive rates.

Today, TMW Systems serves more than 1800 customers that are cumulatively responsible for well over USD $62 billion in annual freight spend. Founded in 1983 and still privately held, TMW now has six offices across Canada and the US that support, maintain and develop solutions for enterprise transportation management, freight and fleet cost optimization and fleet asset maintenance, across brokerage, intermodal, dedicated, truckload and LTL modes.
The Limitations of Conventional TMS Designs

For years, the design of TMS solutions originated from the perspective of manufacturing and retail organizations, often incorporating a strong transactional bias that tended to reduce the variability in transportation service modeling for simpler financial decision-making. This disconnect from the real-world complexities that their own traffic and logistics departments face daily, such as:

- carrier relationship management and selection
- dock scheduling
- shipment monitoring
- federal rule-making
- and over-the-road-travel constraints

probably accounts for the sizeable market for third-party freight payment and auditing services.

Many TMS systems could never accurately capture the multiple variables that factor in to truckload transport costs and delivery time, often producing inaccurate total freight cost predictions. Shipping decisions were made based on inaccurate cost and service information. Third-party payment providers allowed shippers to outsource the complexities of resolving these rating inaccuracies and inevitable invoice discrepancies with motor carriers--for a fee--but also isolated the supply chain traffic planners from the potential benefits of more accurate and granular surface transportation execution models.

Private Fleet Management Underperforms

Attempting to use higher-order supply chain tools to manage the operations of a company’s private fleet, which may fulfill only one component of the firm’s total freight services needs, is frequently an exercise in frustration.

ERP systems designed for retail and manufacturing organizations provide only cursory management tools for captive fleet scheduling and assignment, leaving fleet management personnel to rely on spreadsheets, fax machines, phone calls, whiteboards and staff experience to run fleet operations as well as they can. It’s little wonder that private fleets are typically run as a cost-center in most larger companies, kept on by tradition or corporate belief in the unquantifiable competitive advantage in running their own delivery trucks.

Where private fleets have been able to break from under corporate ERP system limitations to seek operations software designed for the unique complications of trucking, they have been able to improve efficiencies, reduce costs, more concretely substantiate their ROI to the business as a whole and even transform their departments into profit centers.
The successful experiences of many private and dedicated fleets employing TMW Systems software to manage their daily operations as well as the notable non-asset-based shipping and logistics organizations that rely on TMW technologies to reduce their costs in supply chain transportation management prove the flexibility and value of this combined approach.

What can traditional traffic and logistics departments—with their own fleets in the transportation mix or not—expect to gain from a TMS built on a robust and accurate model of truck freight execution?

**Expectations For A TMS**

At the highest level, the corporate logistics function responsible for moving goods through supply chain and distribution channels encompasses five major business processes:

**Plan** – the flow of product orders from the core ERP system into the transportation management process to be planned for shipment, including consolidated orders and optimal mode selection. The accurate capture of tariffs and contract details is vital to effective planning.
**Execute** – the process of evaluating, selecting, assigning, tendering, and dispatching shipments with transportation providers, including the private fleet. Automate to help ensure organizational compliance, but support ad hoc shipments with best rate/best carrier selection assistance. Active carrier qualification processes are critical to reducing business liability.

**Audit** – capturing the flow of information for tenders, rating, shipment status, exception alerts and billing with transportation providers to drive KPIs and settlement reconciliation.

**Analyze** – operational business intelligence with historical perspective to spot process inefficiencies, opportunities for increased savings, negative trends that should be corrected.

**Benchmark** – establish operational performance metrics for internal processes as well as service providers so that baselines can be evaluated against improvement goals; where possible, compare with industry average performance statistics, especially contract rating, for a cost “reality-check”.

**Competitive Bid** – fundamental for optimal savings is the practice of timely re-bids to take advantage of market trends and competitive pressures when possible. Economic conditions and market dynamics should influence bid frequency.

Two goals that are part of every TMS purchase decision are minimizing overall transportation costs and optimizing the timely flow of products through the company’s supply and distribution chains. The right TMS selection can be expected to benefit the shipper or 3PL in the following ways:

- Improve freight bid process to allow frequent re-calibration with carriers; can yield 10-15% total freight spend savings
- Consolidate multiple orders into single shipments for transport savings opportunities; savings can average 2-5%
- Optimize mode and carrier or private fleet selection for cost and delivery service-level requirements; can save an additional 2-7%
- Provide visibility to shipment status in-transit
- Audit and settle transportation invoices accurately; can yield up to 2% savings
- Track service provider and departmental performance for analysis and decision support

Where private fleets are part of the corporate transportation strategy, additional management capabilities are required because fleets often operate as self-contained business units:

- Electronically receive shipment tenders
- Manage fleet assets such as trucks, trailer and drivers as well as shipment order details
- Track fleet operation and management costs accurately
- Plan and dispatch transportation assets efficiently and cost-effectively
- Track and communicate shipment status regularly
- Notify, validate and confirm pickup and delivery events
How TMW Optimizes Surface Freight Management Workflow

Transportation management workflow captures the discrete sequence of tasks that make up each process in support of moving goods, from the time of their order and fulfillment by a warehouse or manufacturing operation through to their arrival at the point of consumption, preferably on time and at an optimal cost. The following process model is an overview of the workflow as executed with TMW Systems solutions:

<table>
<thead>
<tr>
<th>PROCESS</th>
<th>TRANSPORTATION MANAGEMENT</th>
<th>PRIVATE FLEET CONSIDERATIONS</th>
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<tbody>
<tr>
<td>Benchmark, Contract &amp; Compliance</td>
<td>Bid management and rating automation with routing guidance to ensure organizational compliance with preferred contract service providers</td>
<td>Private fleets must demonstrate organizational investment pays off in consistent service levels at a competitive level of expense</td>
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<tr>
<td>Planning</td>
<td>Consolidation and optimization of multiple orders into single or multi-stop shipments; consideration of merge-in-transit points, dynamic cross-dock transfers; modal selections</td>
<td>Plan assets to orders (driver, tractor, trailer) based on business requirements. Match driver and equipment to special load or service requirements. Identify/integrate backhaul freight on return trips to defray overhead expense</td>
</tr>
<tr>
<td>Execution</td>
<td>Determine optimal shipment assignment: private fleet or common carrier; tender shipment to carrier or private fleet, manage the acceptance/rejection process; incorporate exception monitoring to improve organizational responsiveness</td>
<td>Mobile communications and asset tracking; optimal truck routing, stop schedule and fueling plan; Hours of Service rules; schedule resources, execute load-swaps for service exceptions and road-calls for equipment breakdowns</td>
</tr>
<tr>
<td>Monitor and Audit</td>
<td>Track shipment status from tender to final delivery; communicate exceptions throughout organization or customer base that affect other receiving or fulfillment processes; monitor carrier performance and delivery exceptions over time</td>
<td>Track equipment status, progress of shipment delivery; alert to expected or actual delivery exceptions; manage assets for preventive maintenance and repair needs, driver qualification and training, track life-cycle costs and replacement schedules</td>
</tr>
<tr>
<td>Audit &amp; Payments</td>
<td>Verify proof of delivery for the shipment; receive, audit, and reconcile freight bills from carrier or service provider</td>
<td>Process order paperwork to verify delivery completion and any irregularities; capture/allocate accurate internal costs for improved operations management and decision support</td>
</tr>
<tr>
<td>Analyze</td>
<td>Deliver management visibility to planned and actual costs, service performance, positive and negative trending; historical analysis and KPIs to track expected and actual performance across the entire transport management process</td>
<td>Historical analysis and KPIs to track expected and actual performance across fleet operations as an integral part of the transport management process</td>
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Electronic Workflows

Electronic Data Interchange protocols include standardized communication forms that have automated much shipper/carrier information exchange over the years, although ‘standard’ forms usually vary significantly between shipping entities and not all aspects of commonly expected communications are adequately captured with existing protocols.

EDI Transactions- both inbound and outbound, are a core capability within TMW solutions and can be configured to process automatically without employee intervention, or to be held for review and individual approval and release, as business conditions require. Generating and accepting EDI transactions with TMW covers both tender to outside carriers and the private fleet’s receipt and processing of such tenders when generated from within their own organizations.

TMS Capability Highlights (No Private Fleet Component)

Many TMS systems have rigid workflow designs, not easily adapted to the complex realities in many logistics operations. Solutions from TMW Systems include these powerful, highly integrated capabilities that can be quickly and flexibly configured in workflows to support business processes for a broad array of shipper or 3PL needs:

Cost savings opportunities

• Bid management and response automation - timely rebids can reduce freight spend as much as 10-15%
• Accurate import of contract tariffs into TMS assures savings can be realized
• Order consolidation from multiple LTL to Truckload shipments; optimized routing through dynamic cross-docks and merge-in-transit capabilities can save 5%
• Selecting the “best” carrier assignment based on cost, service capability and service history and using routing guidance to ensure compliance can save 2% of total spend
• Brokering ad hoc shipments and posting to load boards instead of using expedited carriers can pare 5% from your total freight spend
• Auditing and reconciling freight charges for payment with integration to parent company financials can save 2%

Productivity improvement

• Rapid on-boarding of new clients with discrete contract and rate tables
• Auto-rating from stored tariffs for carriers and for customers
• Planning for continuous moves and backhauls when building shipment routings
• Configurable, discrete task workflows to assure compliance
• Secure, customer self-service web portals for track & trace, RFQ and online tenders
• Execution of optimized plans through electronically tendered shipments to carriers or private fleet operations, monitoring shipment and order delivery status
• ACE e-Manifest customs communications for truck-based exports

Visibility and control

• Carrier management and qualification, including CRM capabilities and certification/insurance tracking
• Web-based load availability notification, carrier negotiation
• Exception tracking, alerts and management
• Tracking shipment status from carriers and measuring on-time performance
• Customer invoicing capabilities, with master and consolidated invoices (3PL)
• Management reporting, exception alerts and email notification to external stakeholders

TMW solutions provide the logistical planning capabilities to streamline order processing for delivery and execution and the communication and tracking capabilities to follow the orders through tendering and transit status.

TMS Capability Highlights Incorporating Private Fleet Operations

Whether the private fleet is the primary transportation service provider or only a specialized service within the company’s overall freight transportation activities, TMW solutions extend the transportation management discipline seamlessly to include company-owned assets. When an order or shipment is tendered to the fleet for delivery, TMW provides execution visibility to those shipments as well as fleet operations oversight:

Cost savings opportunities

• Improved transportation back-office performance and productivity
• Invoicing or internal capture of transportation charges
• Efficient utilization and right-sizing of the resources within the fleet
• Effective backhaul opportunity integration to reduce empty miles

Productivity improvement

• Electronic shipment/tender acceptance and response, via EDI or ERP integrations
• Shipment acceptance response
• Assignment and dispatch of resources (driver, tractor, trailer); mobile communications and asset tracking integration
• Driver management (licensing, training, and compliance)
• Equipment management (maintenance, inspections, licensing)

Visibility and control
• Notification for pick-ups, deliveries, ETA, or current position
• Analysis of fleet performance and productivity
• Mileage-based, lane-based analyses

The asset management process within the transportation function often yields significant savings opportunities for companies that want to improve resource utilization, balance internal and outsourced transportation spend for optimal cost containment and streamline order fulfillment.

Benefits of TMW Transportation Management Systems for Domestic Transportation Needs

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<tr>
<th>DESCRIPTION</th>
<th>BUSINESS BENEFIT</th>
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| **Company (Shipper or 3PL) with no transportation assets managing third party carriers** | • 10-15% freight spend savings through active bid management  
• Optimized load consolidation and route planning for up to 5% savings  
• Execution compliance across multiple sites assures savings capture for additional 2% reduction  
• Ad hoc shipment execution, spot market placement, as-needed brokering |
| **Company (Shipper or 3PL) with transportation assets and outside carriers** | • Single-system management for external providers and internal fleet operations offers comprehensive cost control and performance visibility  
• Balanced utilization of fleet and service providers for reduced total freight spend  
• Optimized load consolidation and route planning for up to 5% savings  
• Fleet productivity improvement, up to 15%  
• Reduced manual processes, 1-5% overhead reductions in administration  
• Accurate fleet cost capture and management for 2-7% operational savings  
• Improved on-time service  
• Ad hoc shipment execution, spot market placement, as-needed brokering |
| **Company (Shipper or 3PL) with transportation assets only** | • Optimized load consolidation and route planning for up to 5% savings  
• Fleet productivity improvement, up to 15%  
• Reduced manual processes, 1-5% overhead reductions in administration  
• Accurate fleet cost capture and management for 2-7% operational savings  
• Improved on-time service  
• Ad hoc shipment execution, spot market placement, as-needed brokering |
Conclusion

Selecting a Transportation Management Solution to support a company’s business objectives requires a frank assessment of primary transportation needs and the identification of those workflow processes that could benefit from automation and optimization to reduce significant manual processes and sources of error. Where domestic surface transportation management is characterized by:

- a high staff-to-order ratio
- excessive paper-based processes in execution
- inadequate visibility to current shipments, costs and operations performance

these findings can indicate a need for more granular management and execution solution. Such a system should accurately model and address most common truck freight planning and dispatch processes, supporting:

- automatic rating
- multiple accessorials
- fuel surcharges
- route optimization
- load consolidation.

When Private Fleets are part of the transportation mix, they should be provided with a technology platform comparable to those in use by high-performing common carriers, enabling them to provide superior service at competitive rates. Elevating the captive fleet to technical parity with commercial carrier operations systems not only improves their responsiveness to parent business needs but provides the basis for continuous improvement in cost reduction and productivity. Optimize the contribution of private fleets within the total transportation management function with a TMS solution from TMW Systems that can fully integrate fleet operations with the management of external transportation service providers.
Appendix: TMW Systems Solutions

TMW Enterprise Transportation Software (ETS), Asset Maintenance Software and Optimization Software are designed to address all of the detailed planning and execution processes of an asset-based transportation service provider, of a third-party logistics company managing commercial carriers—especially in combination with assets of its own—and of shippers primarily concerned with North American surface transportation. TMW solutions provide a field-proven, expandable and robust platform that can be quickly configured for the many unique business needs of shippers and 3PLs—without custom software development costs. Control expense and improve visibility to surface transportation execution with cost-effective TMS solutions from North America’s leading enterprise transportation software provider.

TMW software is extendable with a broad range of specialized modules and integrated solutions for web portal deployment, remote operations access, services and data integration, carrier management, optimization and fleet maintenance operations. Together, these applications form an execution-based transaction system that supports the full life-cycle of the transportation execution process, from order management and carrier bids through financial settlement—including routing, rating, shipment tendering, track & trace and carrier or driver payment.

The modular nature of our solution portfolio has been proven successful in supporting the diverse business needs of:

- direct shippers and manufacturers with - or without - private fleets
- high-volume freight brokers with no fleet assets
- 3PLs serving specialized verticals, such as food and beverage, or broader markets
- retailers and DCs
- dedicated fleet operations
- petroleum marketers and distributors

Contact TMW Systems today for customer references that demonstrate our capabilities and commitment to customer success.
About TMW Systems

TMW Systems is the leading provider of enterprise transportation software, including TL2000, TruckMate, Innovative IES and TMWSuite. For use with all major operations platforms in the trucking industry, TMW also offers TMT Fleet Maintenance software, IDSC ExpertFuel for fuel purchase optimization, IDSC Netwise for yield optimization and IDSC MatchAdvice and TripAlert to improve asset utilization. Customers include private and for-hire trucking, 3PLs and shippers, brokerage, construction, ready-mix concrete, municipal fleets, heavy-duty repair and waste management operations. With offices in Cleveland, Dallas, Indianapolis, Nashville, Oklahoma City, Raleigh, and Vancouver, TMW currently serves more than 1,800 customers managing more than $62 billion in freight spend and maintaining more than 1.2 million assets worldwide, including North America, Europe, China and Latin America.

For more information, visit www.tmwsystems.com/TMS or call (800) 401-6682.
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