



## DIGITAL TRANSFORMATION IN TRANSPORT MANAGEMENT SYSTEM

### Abstract

In the last 2 years, businesses saw their best-laid plans for supply chain management falling apart as the COVID-19 outbreak spread across the globe in multiple waves. Historically, supply chain operations strategy has focused on balancing cost reduction and investments to improve product availability and reduce lead times. Supply chain risk has always been important, but it was typically addressed with simple approaches, such as maintaining safety stocks at distribution centers or establishing one-off secondary supplier relationships. Responding to a global crisis was hardly ever a serious part of the picture. Today, technology and digitalization are the new imperative for supply chains worldwide.

A critical component of efficient supply chain operations is the right transportation management system (TMS). TMS applications have evolved steadily over the years. These systems provide end-to-end logistics order planning, execution, visibility, freight audit, and reporting capabilities.

However, businesses must carefully evaluate and choose the right partner to implement the TMS solution that meets their needs.

This paper highlights the current TMS trends as well as parameters to consider for selecting the right implementation partner for your business.

## The COVID-19 Pandemic and Supply Chain Challenges

Although the experience across industries is varied, following the COVID-19 pandemic, every industry and business group has faced supply chain disruptions that challenged how they operated in several ways.

### New sourcing challenges

COVID-19 caused major shifts – from working with core suppliers to finding alternative sources for inventory while keeping employees safe and manufacturing capacity available.

### Stop-and-go logistics

Port congestions and lack of truck/driver availability put inventories on indefinite hold. However, the last mile delivery network flourished during the pandemic. Some businesses were able to use gig workers to deliver food, groceries, and consumer goods to the doorstep. This was visible across networks, regions, and geographies.

### Global network issues

As different geographies experienced the pandemic in phases, suppliers, manufacturers, and distributors in global networks were cut off from one another. In the post-pandemic world, companies will re-examine on-shore, off-shore, and near-shore supplier networks.

### Technology gap

Effective response to the crisis required real-time data on the status and location of materials and products as well as the health of employees in plants and warehouses. It required control towers to alert and pro-actively identify alternate routes in case of shipping disruptions. However, most companies did not have the right technologies to receive

notifications or make proactive and reactive recommendations to manage the disruptions.

The pandemic has taught us that leaders must prioritize supply chain risk management at the same level as overall company risk strategy. It is vital for every enterprise to understand how resilient and exposed their supply chain and logistics network is.

## Post-pandemic Review

### Customer behavior has changed

Internet purchasing has skyrocketed in some industries, and brick-and-mortar retail may never be the same. Demand for products has changed. Many products saw a rapid increase in demand while others saw a decline.

### Customer expectation has changed

Big and small businesses must focus on faster customer fulfillment while balancing cost and CO2 emissions. The focus will be on micro-fulfillment centers, dark stores, and a more agile delivery network.

### Digitalization

To manage customer expectations and shifting behaviors, businesses will need to develop agility at every level. Companies need to deploy scalable, agile technologies that can predict and manage customer demand using AI and ML algorithms.

### Shortage of labor

Whether it is parcel pickers in warehouses or long-haul drivers on the roads, there is a severe shortage of supply chain staff. The need for a more skilled labor force is further skewing the demand-supply equation in the labor market.

## Transportation Management Systems

Existing challenges will influence how supply chain operations need to upgrade for resiliency, preparedness, and long-term challenges of an organization. The right transport management system (TMS) can enable companies to improve customer experience even as they save on costs. Best-of-breed TMS solutions can deliver a range of competitive advantages for companies of all shapes, sizes, and levels of complexity. With an experienced partner, the implementation timeframes can be reduced to weeks. TMS solutions can provide significant return on investment (ROI) compared to other supply chain solutions on the market – an average of about eight percent, according to a recent study done by ARC Advisory Group.\*

*\*Transportation Management Systems Market Research, ARC Advisory Group, April 2, 2018*



## Justifying TMS Implementation

Transportation management systems have been around for three decades. Over this period, they have proven to be effective in automating and optimizing business processes. The underlying technology of the TMS has evolved from mainframe systems to a PC-based single-user application to a client-server technology to a web-based hosted solution to the current day microservices-based technology hosted on a public cloud. The functionality of TMS too has increased 10-fold during this time. Today, these systems provide several advantages.

- End-to-end logistics order planning, execution, visibility, freight audit, and reporting capabilities

- Apart from core capabilities, the new applications provide robust pro-active and reactive exception management capability enabled using AI and ML technologies
- TMS applications provide dashboards, control tower views, and near real-time tracking to effectively manage domestic and international shipments
- Enterprise systems such as TMS provide multiple opportunities, including cost savings and service level improvements

Companies need not implement the entire application to get the benefits. They can start with challenging areas or implement modules that can provide a quick ROI to justify the rest of the project. For example,

enabling freight visibility using a TMS can provide up to 4% savings on labor costs while enhancing customer experience. Similarly, companies can automate freight audit functions using the freight audit capability within a TMS, resulting in labor savings and up to 4% savings in claims and OS&D expenses.

With the evolution of SaaS, microservices-based architecture offers more robust, scalable, connectable, affordable, and justifiable solutions. The technology, along with the system capabilities, helps realize higher ROI much faster.

Table 1 shows different areas of benefits and potential ROI impact on the freight spend.

Area	New feature	Benefit	ROI Impact*
Transportation procurement	Extend the carrier base	Freight spend through competitive rates ↓	3% - 10%
	Align lane to carrier network	Freight spend through continuous moves or backhaul ↓	
	Implement core carrier program	On-time delivery ↑	
	Use modeling to compare cost versus service	Freight spend ↓	
Planning and optimization	Automated order consolidation, especially for parcel size orders	Freight spends ↓	5% - 15%
	Automated mode conversion: LTL to MSTL and Parcel to LTL	Transportation planner labor cost ↓	
	Route optimization	On-time delivery ↑	
	Effective tools for manual planning shipments	Planner productivity ↑	
	Workflow automation no-touch planning	Planner productivity ↑	
Execution	Appointment scheduling with vendor/carrier self-scheduling	Freight spends ↓	1% - 5%
	Electronic communication for tendering and ready-to-ship	Transportation planner labor cost ↓	
	Tools to select the optimal spot market carrier	On-time delivery ↑	
	Carrier assignment, management, and compliance	Supplier and carrier relationships ↑	
	Routing guide optimization and compliance	Freight spends ↓	
Visibility and event management	Control tower visibility to track all shipments in near real-time	Transportation planner labor cost ↓	1% - 4%
	Configurable alerts and dashboards with exception management	On-time delivery and customer service ↑	
	Provide visibility to shipment status across the organization	Customer/carrier relationships ↑	
	Effective dock management	DC operations ↑	
Freight audit, payment, and claims	Automated management-by-exception process to audit all carrier invoices	Freight spends through more accurate invoice payment ↓	1% - 4%
	Automated process for claims, including OS&D	Labor cost for freight audit ↓	
	Self-invoicing	Efficient claims processing ↑	

Table 1 – Freight spend benefits and ROI impact

## Finding the Right Implementation Partner

Gartner TMS Magic Quadrant 2022 lists fifteen vendors who can provide robust planning, execution, and visibility features. Most of these vendors can offer capabilities that meet 70% of business requirements. However, some leaders in the quadrant meet 95% of business needs by providing both domestic and international freight management capabilities.

Even though technology and capabilities have come a long way, technology alone cannot solve business needs. Businesses must find a suitable partner that cannot merely understand processes, challenges, and future needs but also align them to vendor capabilities, experience, and roadmap to realize projected ROI calculations.

The right implementation partner must provide consulting, implementation, and technical resources to formulate the business case that identifies process improvements, articulates value areas, defines roadmaps, and aligns current processes to best practices. Once the business case is approved, the partner can help with vendor selection, and measure the client's internal resource capabilities to formulate a technical and functional implementation plan considering project timelines and cost.

To determine the right delivery partner, enterprises must consider:

- Knowledge of various areas and total experience in the supply chain management (SCM) space

- Capabilities with AI and ML
- Expertise to add bolt-on solutions on top of a COTS platform
- Financial viability of the partner – are they going to grow with the customer or get acquired?
- Resources available to meet customer delivery timelines
- Support structure during and after project delivery

The right partner can help the customer achieve success by identifying their value areas to delivering best-in-class solutions.

For more information, contact [askus@infosys.com](mailto:askus@infosys.com)



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