#1 of Four TMS Perspectives

Creating a Common Foundation for the **Agile Supply Chain**

As global trade encircles the world in twisting, complicated ways, profit margins are decreasing everywhere. Supply chain expertise is becoming a crucial means of differentiation. There's great pressure to create agile, responsive, and risk-proof supply chains while curbing costs and improving overall efficiency.

Any serious effort to reduce costs cannot ignore transportation. Second only to the direct cost of goods themselves, transportation is an organizations's highest indirect cost. Despite this, there's been limited effort to reduce it. The main reason is that in most organizations, transportation spend gets distributed across multiple silos.

Organizations have looked to transportation management systems (TMS) to optimize transportation and costs within these silos. But traditional TMS technology limits just how much cost organizations can remove, and does not address the larger goals of supply chain agility and responsiveness.

This four-part series focuses on a new type of TMS, one that is not just globally aware, but is rooted in the very idea of breaking down silos and encouraging transparency. This new TMS — a global TMS — is end-to-end, network-based, and trans-business. It looks to optimize costs, savings, and efficiencies – without a massive rip-out-and-replace project.

This Perspective Piece explores how a new, global TMS can serve as the foundation for an agile supply chain.

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Growth & Agility

When companies expand, they often work with new suppliers, serve new regions, and sell to a more diverse set of customers. Since new customers often have different needs and expectations, expansion usually results in a more complex technology footprint. The result is a correspondingly highly complex supply chain — one that is tasked to keep up with unpredictable, unexpected surpluses, shortages, and demand volatility inherent to today's global markets.

How do you maintain control in the face of such overwhelming complexity? The answer, in a word, is agility.

The strongest supply chains are the most agile. For companies to avoid disruptions, maintain profitability, and set themselves apart from the competition, they need the ability to make quick adjustments to sudden changes in supply and demand.

Agility doesn't come when there are scattered processes cobbled together. It needs a strong common foundation to underpin it. To create a common foundation, you first need to know all the processes and stakeholders involved.

Many Systems, One Foundation

In a demand-driven supply chain, a lot of effort goes into measuring, predicting, and shaping demand.

This culminates in the creation of a demand plan, which in turn becomes the basis for both strategic and tactical supply planning.

Buyers generate and place orders to their suppliers. The suppliers execute their supply plans, which are based on predictions about how long it will take and how much it will cost to fulfill an order if it's executed according to normal contracts, procedures, rules and goals.

When suppliers are ready to ship, they send a "Ready to Ship" communication to the shipper and logistics service providers (LSPs) to go over the transportation plan. Logistics partners and transportation providers get access to the transportation requirements, so they can check

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on resource availability and freight cost. The shippers's customers are often left out of the transportation planning process.

Once in motion, financial and legal documents — goods invoices, letters of credit, bills of lading, customs compliance — are required and generated using various means, some manual and some automated. All supply chain participants, financial and physical, get involved.



FIGURE 1: Data becomes hidden in silos when supply chain partners operate on separate systems.

This is where the difficulty begins. It's not uncommon that each stakeholder has its own information system. And this system doesn't have a good way to transmit data to another system, let alone synchronize it. EDI and manual processes like emailing attached spreadsheets are point-to-point solutions. At best, they operate effectively only between two groups, in a very restricted, linear way. At worst, manual processes end up being sources of confusion and information black holes. No matter what, they fail at being an effective method to give all stakeholders the same picture of reality — a single version of the truth — at any given time. As a result, key information is usually scattered across multiple systems at multiple places, creating disruptions, conflicts of interest, and unnecessary costs.

Partner information coming from the extended multi-enterprise supply chain gets buried in silos. As it does, the truth becomes exponentially harder to find.

In most real-world situations today, there is no platform — no common foundation — that provides a single version of the truth to the entire supply chain. A common platform is exactly what is needed.

When all stakeholders operate on a common platform — even if they have their own customized, private application interfaces — there's a direct line of sight all the way down to the item level, linking into everyone's operations. Any sudden changes are visible at once to everybody involved. There's no disconnect to prevent taking action.

Sewing information together in one connected platform allows commerce to take place in real time. It eliminates guesswork and provides a seamless experience that is in stark contrast to the all-too-common patchwork of systems that destroy reliability, flexibility, and profitability.

As a supply chain leader, you want to see how well your partners, internal and external, are complying with guidelines and measure the impact of non-compliance on the overall performance of your supply chain.

Traditional TMS Fails as a Foundation

The transportation planning process typically starts with a demand trigger projected as an order — a purchase order, a replenishment order, or a transfer order — and a supply trigger to satisfy this demand. These applications reside in a silo and operational logistics applications like TMS and warehouse management systems reside in their own silos. Transportation applications lose connection with line-level or item-level information in the order and the "Ready to Ship" message.

These static and asynchronous instances of TMS work with aggregated subsets of data. Any downstream or upstream changes in the supply chain render these plans irrelevant from a physical and financial visibility and executional perspective. For example, an order change at the last minute or an unforeseen loading constraint does not trigger re-planning. Similarly, standard operating procedure compliance and a non-transportation event in the supply chain rarely raises an exception. A planning-centric TMS implemented in a silo cannot measure its impact on activities in other silos, whether they are transportation-related or not. When variables change at different steps within the supply chain, it's difficult to get a good picture of what's taken place in order to respond to the situation.

To act as a foundation, a TMS application has to link to actual demand and supply information. It has to seamlessly tie into execution and visibility information, transportation and non-transportation. It has to allow all communities — suppliers, enterprises, logistics services providers, carriers, financial institutions — to work off the same source of information. All traditional TMS applications are

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designed from the ground up to be stand-alone applications with limited connectivity with WMS and labor management applications. Converging these three functional sets does not address this need.

Changes that Go Unnoticed

Order changes are not the only events that disrupt a supply chain when there are silos. Any number of other situations can affect manufacturers:

- Natural disasters: In 2010, the eruption of Iceland's Eyjafjallajökull volcano resulted in an ash cloud disrupting air traffic throughout Europe; the Japanese earthquake and tsunami of 2011 affected manufacturers and shippers alike. Natural disasters such as these are hard to predict and highly disruptive to the organizations whose goods move through the areas affected.
- Transit failures: Trucks break down, trains don't always run on schedule, and we know that ports can go on strike. These breakdowns in transit are often outside the control of a manufacturer. The ability to respond is key.
- Unexpected changes: Planned events and promotions create a challenge but provide us the luxury of time to appropriately address the changed needs. Unplanned events, political turbulence, and unexpected demand have an effect that resonates all the way across the supply chain. Reacting to these unexpected changes requires full visibility linked with execution tools to respond.

Un-siloing TMS for Agility and Responsiveness

A strategic approach to global transportation management, or a control layer strategy, is one where both planning and execution data are used across the supply chain, together in one platform. Unlike a traditional isolated transportation management approach, a global TMS makes use of orders and supplier "ready to ship" details in the planning and execution of transportation moves. It tracks transportation and non-transportation events across the supply chain to assess any deviation from the plan, compliance by internal and external parties, and most importantly, the impact of these deviations on overall customer experience.

This creates a unique linkage of transportation data with what is generally considered non-transportation data. Multi-strategy transportation plans, with interconnected multi-stop routes and multi-leg international moves, not only become possible — they're able to be executed with efficiency and agility.

A strategic, un-siloed, global TMS approach connects network nodes and enables transport plans to seamlessly execute robust strategies without losing item-level detail. In a situation where a manufacturer is attempting to respond to unexpected demand or disruptions, global TMS can provide a granular, but widespread view of the entire supply chain. It can help identify the most critical products and determine the best way to deliver them. This makes for a more responsive and agile supply network that can minimize cost of expediting goods. Having all parties connected on a single platform has further benefits: when everyone is already linked and plugged into the network, there are no data translation issues or disconnects. This ensures goods are shipped right the very first time — a huge win for customer service, cost savings, and competitive advantage.

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