Transforming transportation

Bringing enterprise analytics to transportation presents a unique opportunity to increase efficiency and meet global customer requirements.

With ever growing attention on leveraging data created through a variety of complex transactions, supply chain executives continue to hone their approaches to applying analytics to distribution, logistics and transportation processes.

Structural challenges in the transportation industry in terms of capacity constraints and driver shortages have placed an increased importance on optimizing moves – both domestic and international. Internal factors have further pressed companies. Merger and acquisition activity has put emphasis on consolidating systems, networks, and freight spend to achieve expected synergies. Visibility to the underlying drivers of cost and efficiency has become critical in maintaining past gains. Leaders are moving from static and backward looking optimization techniques to forward looking simulation capabilities that integrate with their existing technology platform to be able to operationalize models and make improvement stick.

**Opportunities for transportation analytics**

It’s in this environment that companies are building operating models to leverage investments in technology and available data from the growing use of analytics across the business. Their success is rooted in balancing two key facets of the business – understanding the evolving growth from new markets, product mix, and channels married with an understanding of how transportation industry and regulatory dynamics constrain the optimal deployment of assets and resources. This is where building quality scenarios to model is critical.

**Reimagining transportation**

The power of analytics and modeling are reflected in the way in which operating scenarios are developed. In addition to traditional levers like load management, driver availability, and carrier capacity, models should consider a number of influencers including:

- External partner cost models
- Inventory strategies
- Government policy
- Natural phenomena

**Steps to institutionalizing value**

Although operational challenges vary – especially across industries – there are common drivers of successful implementation of analytics that are present in companies that are able to sustain value. This gets accomplished by focus on three critical questions – what do I have to work with, who is able to understand the challenges and opportunities, and how will those resources move from the conceptual notions of value to executable actions in the real-world environment.

**Start with data.** This may sound counterintuitive as many would say it’s all about the people. But, great resources can only work with what they have. The key to modeling the future for game-changing insights is understanding **what** is available to model. The quality of the fact base will determine the confidence level leaders have in the results from the analyses. Managers who understand the deficiencies in data are prepared to adopt strategies that overcome incomplete data sets from disparate systems.
Now focus on the people. The skills required to conceptualize potential models, build those models, and interpret the result are not easily established. Recruiting and retaining resources with the math background and logical reasoning skills are critical in establishing who will be in a position to drive the transportation analytics function. Identifying internal resources with an interest and aptitude is the fastest route to building capabilities, but leadership will need to commit to invest in continuous, structured training.

Build the analytics operating model. With the team in place, the focus shifts to how the logistics operation will utilize its analytics capabilities in addressing the cost and service trade-offs to be able to address customer needs and operational cost reduction targets. During this step, analytics processes need to be defined to create a repeatable and consistent method that can be institutionalized and rolled out to the broader supply chain organization. Beyond data management and model management, processes are needed to understand how external influencers (e.g., carrier market trends) are tracked and how internal changes in commercial priorities (e.g., new product introduction). Ultimately, the transportation organization’s ways of working will be the determining factor in how well initial value is sustained over time.

Case study: Identifying opportunities ahead of a global transportation management system roll out

Issue: A global beverage company operating a multi-tiered supply chain across 15+ countries needed to standardize its processes and enabling technologies.

Solution: With KPMG’s support, the company developed route and load models to optimize carrier capacity and better align service level performance to specific customers.

The following logistics considerations were assessed:

— Target operating model
— Network footprint
— Sourcing strategy
— Global trade strategy
— Product flows

Benefits: The client successfully stood up a formal analytics capacity and reusable models that integrated into its TMS solution. These models drove design decisions that reduced freight cost by $1.5M and logistics cost savings and improved service levels to critical customers by 0.11% service level improvement points.

Product flow example
Areas of transportation analytics impact

Companies embarking on the transformation of transportation to a data-driven operating model should start by taking a look at the influencers of value.

**Product flow:** The ability to leverage transportation as a lever for cost and service improvement begins by mapping out the physical product flows between regions/countries, and identify the implications for operations. Collaboration with the commercial and manufacturing organizations is critical in understanding what transportation options are possible.

**Distribution network footprint:** Collaborating with warehousing and distribution on fulfillment models – from traditional nodes to cross-dock models – will likely be a more flexible lever than product flow. Marrying network and inventory optimization with transportation modeling is critical. Transportation analytics should rarely be done in without companion distribution models.

**Global trade strategy:** In an ever increasing global economy of ever more complex partner-driven supply chains, the movement of materials is influenced as much by manufacturing strategies as it is by distribution ones. Being able to model import and export decisions are critical. These become increasingly important as political decisions play an important role as nations re-evaluate trade policies and the value they drive for their own economy.

**Quality and regulatory:** If political concerns are a (relatively) fluid set of influencers on transportation, quality and regulatory are the more permanent policies that should be addressed in any transportation model. Often industry-specific, these policies are none-the-less a critical driver of inventory investment and positioning. Transportation organizations will need to respond with viable models to manage these requirements much as they do customer ones.

**Sourcing strategy:** Possibly the most significant lever of cost and risk mitigation, data needs to be included to reflect the impact of leveraging third-parties to manage moves and augment existing capabilities. Likewise, data for “own/buy” models will require involvement and collaboration with procurement organizations. Time should be factored into modeling exercises to allow for external cost data to be included for a full cost-to-serve evaluation in modeling.

**Tax opportunities:** Creating value in transportation extends beyond the operational realm. Finance and tax opportunities have emerged as countries and municipalities compete for jobs and commerce.

**Operations and procurement advisory:** KPMG works with clients to drive structural improvements that accelerate growth, lower costs, improve services, and reduce risks. We partner with our clients throughout their transformation journey, delivering sustainable value from strategy through results.

**Data and analytics advisory:** KPMG drives value from your data through astute analysis. In a world of complexity, our advanced technologies can provide insightful information derived from your data. This helps our clients make faster and better decisions.
After conducting multiple scenario tests, we found over $700K in potential transportation savings. In conjunction with those findings, we found opportunities for consolidation which reduced mileage by over 20%.

### Savings Analysis

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Freight Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline</td>
<td>$1.85 M</td>
</tr>
<tr>
<td>Scenario 1 (Correct Mode Selection)</td>
<td>$1.33 M</td>
</tr>
<tr>
<td>Scenario 2 (OD Consolidation)</td>
<td>$1.27 M</td>
</tr>
<tr>
<td>Scenario 3 (MultiPick-MultiDrop)</td>
<td>$1.14 M</td>
</tr>
</tbody>
</table>

By testing different transportation strategies (i.e.: changing mode selections or including consolidation of shipments by pickup and/or destination locations.”), the client was able to recognize a 38% cost in savings.

### Client Challenge:
- Inaccurate mode selection during execution results in light weight truck loads
- Lack of visibility of shipments leads to lack of load leveling and lost consolidation opportunity
- Mileage driven and costs are high due to lack of an optimization engine. This makes it impossible to combine loads originating or destined to the same geographical area (multi-pick-multi-drop) where it makes sense financially

### KPMG Response:
- Gather executed data from client which represents an accurate subset for the business
- Get or extrapolate executed costs, locations, hours of operation and any data which affects execution from data provided
- Employ Transportation Modeler to load and model data with constrained strategies to mimic actual operations environment
- Enhance strategies and improve results by allowing the optimization engine to solve the data
- Extract the data into reports and present to the client for feedback and or implementation to realize cost savings

### Benefits to Client:
- The modeling exercise allowed the client to visualize a 38% reduction in cost. Generated over $700K in savings
- The truck loads ran 20% less miles compared to baseline
- Utilization also substantially improved as truck loads were ran efficiently
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