

DESCARTES™



Unlocking the Analytics Advantage: **Part 3**

Analytics for Improving Carrier Performance and Leveraging Trade Data



Table of Contents

- Analytics for Improving Carrier and Supplier Performance.....1**
 - Carrier Performance.....2
 - Costs.....2
 - Delivery Performance.....3
 - Reliability and Responsiveness3
 - Information Sharing3
- Shipper's Self-Scorecard4
 - Turn-around times and Detention Metrics.....4
 - Dock Door Scheduling.....4
 - Load Tender Timing.....4
 - Volume Commitments.....4
- Supplier Scorecards.....4

- Trade Data Analytics5**

- Unlocking the Analytics Advantage.....6**



This is the third in a three-part series on using analytics in transportation and logistics to achieve a competitive advantage:

Part One: The Democratization of Analytics for Transportation and Logistics

Here in part one, we explore the kinds of data being produced by transportation and logistics systems, how that can be used to create a data-driven enterprise, the substantial obstacles to achieving an analytic advantage, and how those obstacles can be overcome.

Part Two: Analytics for Private Fleet and Driver Performance

In part two, we look at how analytics uses real-time location data, combined with orders, plans, proof-of-delivery, vehicle data, and more to drive significant improvements to fleet and driver performance.

Part Three: Analytics for Improving Carrier Performance and Leveraging Trade Data

Here in the third and final part, we discuss how analytics can create improvements to carrier performance while substantially reducing costs, as well as how trade data can help importers and exporters gain competitive insights, manage supply chain risk, optimize total landed costs, and more.

Analytics for Improving Carrier and Supplier Performance



Carrier scorecards are largely derived from transportation-related data and can be used to measure and improve on-time pickup/delivery, detention/congestion, lower falloffs (cancellations), damage rates, billing accuracy, and more. Some elements of supplier performance can also be derived from transportation data (e.g. on-time delivery, routing guide compliance).

Companies using for-hire transportation services depend on their transportation carriers to deliver on time and provide a good customer experience. The carriers' drivers become the shipper's 'face to the customer' at the point of delivery, so shippers have a strong interest in measuring and improving carrier performance and controlling costs.

Many types of data can be brought together to measure and improve carrier performance, including:

- **TMS data** (contracts, forecasts and capacity bookings, load tenders and responses, etc.)
- **Carrier-provided data** (shipment status, truck location, pick-up and arrival events, manifests, invoices, etc.)
- **Data from non-TMS internal systems such as ERP, CRM, WMS, and purchasing systems** (orders, customer data, payments, receiving records, etc.)
- **External data** (freight indexes for rates, volumes, expenditures; CSA ratings, fuel prices, etc.)

Carrier and supplier performance analytics can be divided into three main buckets:

- 1 **Carrier Performance**
- 2 **Shipper's Self-Scorecard**
- 3 **Supplier Scorecard**

1

Carrier Performance

Carrier scorecards are commonly used to track key performance indicators, which can then be used in decision making about which carriers to use, as well as discussions with carriers about improving their performance. Analytics enables not only collection and reporting of these metrics but doing analysis to gain insights. This can help uncover the reasons behind poor performance and accelerate fixing the problems. Here we discuss some of the areas that analytics can help with, including transportation cost reduction, carrier delivery performance, reliability and responsiveness, and information sharing.

Costs

Analytics can help with cost reduction in at least three main ways:

- Transportation strategy
- Carrier negotiations
- Freight audit

Together, these can reduce freight costs by **15%–25%**

Taken together, these can reduce freight costs by 15%–25%. Regarding transportation strategy, analysis can help with *carrier rationalization*—figuring out who are the right carriers, and the *right number of carriers*. Using the right number of carriers can help to optimize volume discounts and build strategic relationships, while ensuring enough choice to retain the needed flexibility and resilience. Analytic tools, with the right data, can identify carriers who are based near your frequent ship-to locations, thereby turning your loads into backhaul opportunities for them. Analytics can also help discover untapped opportunities for consolidating shipments, intermodal shipments, shipping on off-peak days or night pick-up (the latter gives carriers an opportunity to turn your load into a backhaul), and optimizing shipment sizes.

Analytics enable data-driven carrier negotiations. For existing carriers, you will have granular data on their performance and your own firm's behavior. Market intelligence (current and forecasted spot rates, freight demand/market expansion or contraction, fuel prices, benchmarks, etc.) can also be an important part of the discussion. Regular feedback should be provided to carriers about their performance. However, contract negotiation is a point in time when you are more likely to have leverage and the full attention of the carrier for a heart-to-heart discussion on opportunities for improving performance and lowering costs. Analytics can bring many details and angles of carrier performance



into those conversations ... not just the KPIs, but insights into causes and possible remediation. Some of these are discussed further in the sections below on reliability and responsiveness, delivery performance, information sharing, and driver/vehicle.

Regarding bringing your own firm's behavior into carrier negotiations, if you always pay promptly and/or have much quicker than average turnaround times for trucks coming to your facilities—and you can *back up your assertions with data*—that should be worth something to the carrier and should help your negotiating stance.

Analytics can also help with the challenging task of freight audit. Typical estimates are that firms can usually recover 2%–5% of their freight spend by doing a proper audit.

Analytics can help with the task of uncovering incorrect rates, duplicate payments, payments to wrong carrier, incorrect currency, incorrect accessorial charges,¹ and other issues. Accessorials can be particularly challenging to research and audit manually. Analytics can be used to semi-automate the process, not only to find incorrect charges, but also to discover what behaviors or decisions your own company could change in order to avoid or reduce these charges.

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Delivery Performance

Delivery performance is central for measuring carriers. Typical KPIs measure on-time pickup, on-time delivery, and exception-/claims-free delivery. It is critical to know as early as possible when on-time delivery is slipping, as it directly



Analytics can help highlight delivery problems *and* diagnose them.

impacts customer satisfaction. Analytics can help highlight the problems *and* diagnose them. If problems are showing up for just one carrier, in just one region, it may be a problem with their regional hub. If you are seeing slowdowns across the board, with all carriers and regions, then it might point to an industry-wide capacity crunch. Analysis can also help identify which carriers are above and below average for different lanes or ports, enabling you to choose the best carrier for each lane.

Reliability and Responsiveness

Strong on-time delivery performance by a carrier is not nearly so useful if their tender acceptance rates are low or falloff rates (cancellations) are high. This includes availability of the right kind of equipment (e.g. a reefer with liftgate) when needed. The same applies to rate/bid adherence. After spending all that time on negotiating a good rate and committing to volumes with a carrier, you would like to actually get what you bargained for. Having data on tender acceptance, falloff, and rate adherence can drive discussions with a carrier to mutually figure out what the problem is, how to solve it, and get back on track.

Other dimensions of responsiveness to track include claims settlement timeliness (e.g. % claims settled within 30 days) and customer service responsiveness (average response time, duration to complete requests). The carriers' vehicle inspection and maintenance practices, as well as their CSA² score, may be taken into consideration, to reduce the chances of an equipment breakdown or accident with a truck carrying one of your shipments.

Information Sharing

Carriers should be measured on how well they are

sharing information with you. Data from your carriers is used for many purposes, such as tracking whether your shipments are on time or that you are paying the correct amount. Data from your carriers also feeds many of the analytics we are discussing here. One of the most important types of desired data is on shipment status, including both the timely logging of events and milestone, and near-real-time GPS tracking/location data. The latter can be invaluable to alert your own facilities and your customers when orders are running late, or when they are imminently arriving so they can ready the necessary resources (e.g. dock door or parking space, unloading crew, etc.).

Electronic PoD (Proof of Delivery) data is critical for reducing disputes as well as more timely and accurate invoicing of your customers. EDI messages³ to/from the carrier can be invaluable in digitizing and automating your businesses. Tracking the accuracy of invoices from carriers can help reduce incorrect billing in the first place, rather than having to discover them later with audits.

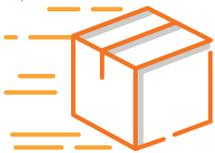
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2

Shipper's Self-Scorecard

A shipper's own actions can dramatically impact their carriers' performance, whether it is unreasonably short lead times when tendering, long turn-around times at the shipper's facilities, or other factors. Smart shippers track and improve what they are doing to impact their logistics performance and relationship with the carrier. Below we discuss in more detail turn-around times and detention metrics, dock door scheduling, load tender timing, and volume commitments.



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Turn-around times and Detention Metrics

Detention charges are perhaps the most obvious negative consequence of excessively long turn-around times. Less obvious, but potentially bigger is the fact that sites gain a reputation with carriers based on how quickly or slowly drivers and their trucks can get in and out. Carriers will often turn down tenders for extra-slow sites and or raise their rates when bidding to deliver to those sites, in order to compensate for the expected wait times.⁴

Reliable and accurate arrival- and departure-time data⁵ will be needed in order to measure and analyze turn-around times. Armed with that data, analytics can help ensure detention charges are fair and justified. More importantly, they can help identify problem sites and zero in on the issues. Perhaps the problem is with particular shifts or employees, or maybe it is a systemic problem with the site. Collecting data on the reason for any delays at the time it occurs is hard to do, but that data is valuable in diagnosing issues as well as assigning liability. In any case, analytics can help in understanding and ultimately fixing those problems, to reduce detention charges and improve the relationship with carriers.

Dock Door Scheduling

Dock scheduling practices have an impact on how long trucks wait. More fluid and dynamic dock door scheduling can help deal with early and late trucks. A carrier may feel it is unreasonable if their truck was five minutes late and as a result the driver had to wait four hours. If early/late penalties are excessive, that risk will typically get priced into the carriers pricing.

In addition, a company may want to measure how quickly they respond to dock door reservation requests and what percent of reservations are granted for the requested time/day. If carriers are late because they are unable to get a dock door reservation, it may be a problem with your system and processes, rather than the carrier's performance.

Load Tender Timing

The timing of tendering a load makes a big difference in availability and rates. Shippers that can forward-plan and tender loads several days in advance will have much better results than those that wait until the last minute. Shippers can measure the timing of all their load tenders, for example what percentage were tendered A) three days-before, B) two days-before, C) day-before by noon, and D) day-before after noon. Then they can make efforts to improve those, increasing early tenders and decreasing the last-minute requests.

Volume Commitments

Tracking actual shipping volumes versus the volume commitments made to that carrier can help prevent unexpected rate increases and maintain better relations with each carrier. Transportation Management Systems can be configured to help ensure that each carrier is getting their promised share, but those decisions can be overridden by planners. It is important that override decisions by planners are done with an understanding of the impact on volume commitments and longer-term prices. Analytics can provide a second line of defense to ensure that you are meeting volume commitments, or that decisions not to meet volume commitments are done deliberately and rationally.



3

Supplier Scorecards

Elements of supplier scorecards that can be derived from transportation data include on-time in-full delivery (early/late delivery rates) and routing guide adherence. These may be used to levy fines for non-compliance as well as discuss improvement opportunities with suppliers.

Trade Data Analytics



Using internal and external trade data (e.g. import/export filings), companies can use analytics to improve supply chain risk management, do supplier and price discovery, sourcing optimization, competitive intelligence, and more.

Ensuring compliance with trade regulations has become a significant expense for companies that import and export goods. Trade regulations have mushroomed, enforcement is more robust, trade agreements are proliferating, and trade wars have greatly increased the volatility and consequences of duties, tariffs, and quotas. Ensuring compliance requires access to a wide variety of trade data such as:

- Duties and tariffs with the associated harmonization codes for countries across the world
- An increasing variety of denied parties' lists
- Trade data on imports and exports by country pair (from/to), commodity, and buyer/seller
- Results of various rule making and legal cases

Many if not most companies strive for '*compliance at the lowest cost*'; minimizing the time, energy, and money spent dealing with trade data and contents. Far fewer enterprises fully appreciate how trade data and content can be a source of competitive advantage, well beyond compliance.



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Global trade data can drive analytics for many potential uses, such as:

- **Supply Chain Risk Management**—Trade data can be used to increase the percent of shipments that clear customs quickly, without issues. They can also help avoid major fines due to non-compliance. Analytics can be used to measure and highlight exchange rate risks. With access to both international purchase and sales data, the degree of natural hedging⁶ and the need for additional hedges can be calculated. Trade data for suppliers can be used to alert sudden drops in business for them. This could be part of a more comprehensive set of data to give advanced warning when suppliers may be experiencing issues.
- **Supplier Discovery**—Public trade data from import and export filings can be used to discover new suppliers that sell a particular commodity. This can help a sourcing group find suppliers they were unaware of and understand what kind of volumes those suppliers are exporting and to whom. Note that the raw public trade filings data is notoriously difficult to deal with and requires a lot of cleansing and normalization, as described in [Leveraging Global Trade Data-as-a-Service](#). It is strongly recommended to use a service that has done all the cleansing and normalizing for you, such as [Descartes Datamyne™](#).
- **Price Discovery**—Public trade data can also be used to discover market pricing, but only within certain geographies and commodities (for more see [Part Two- Applications of Trade DaaS](#)).
- **Total Landed Cost Optimization**—Trade data can help provide a clear understanding of total landed cost and the options for minimizing it. This has become even more important in the dynamic times we live in, with trade wars and dramatically fluctuating duties and tariffs. Beyond duties and tariffs, other aspects of total land cost (end-to-end transportation costs, customs clearance fees, taxes, brokerage fees, insurance, inspection fees, inventory holding costs, currency conversion, etc.) can be brought into an analytics model to get a clearer picture of where there are opportunities for reduction.
- **Lead Generation and Competitive Intelligence**—Trade data also enables seeing who competitors are selling to and the products they are selling. The size of various international markets can be estimated.⁷



Unlocking the Analytics Advantage

The process of digitizing a company's supply chain and logistics processes and systems is a journey.

Even early steps on that journey start to generate valuable data that can be mined. In fact, many companies are sitting on a goldmine of largely untapped transportations and logistics data. Part of the reason the value remains locked up is the scarcity of data science talent and the time and resources to wrangle data. These challenges can be overcome by choosing a full-suite transportation solution provider that has invested the time and resources to acquire the necessary data science talent and has done the heavy lifting involved in wrangling data across their suite, as well as their customer's systems.

Applying analytics can be like a near-sighted person putting on a pair of glasses for the first time. All of a sudden everything that was blurry comes into focus. As the use of analytics matures in a company, it can become an 'insights engine' for them, highlighting not just where problems are, but the 'why,' what is causing those problems, what are the potential solutions, and the tradeoffs between those potential solutions. As a company becomes more adept at leveraging these insights, a true 'analytics advantage' is realized.



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Notes

- 1 Accessorial charges may include fuel surcharges, redelivery, layover, reclassification, driver load/unload, sort/seg, after-hour delivery, truck ordered not used, diversion miles, storage, detention, pallet fees, and many other types of charges.
- 2 [CSA](#) = Compliance, Safety, and Accountability, a safety compliance and enforcement [program run by the Federal Motor Carrier Safety Administration](#) (FMCSA), to hold carriers and their drivers accountable for their road safety.
- 3 For example, [EDI 214 transactions](#) can be used to update status upon pickup and drop-off, and can include PO information, proof-of-delivery, BoL, and other status details.
- 4 Detention charges do not necessarily fully compensate the carrier for losses/expenses incurred. In any case most carriers would rather be making money delivering more services with their drivers and vehicles, rather than fighting with their customers over detention charges because their assets sat idle. Excessive detention is also bad for driver morale.
- 5 Arrival- and departure-time data may be gleaned from a variety of sources, depending on what is available. The most common sources are either check-in/check-out at gate (electronic or paper logs) or geofence-crossing (vehicle entering/leaving property) using GPS data from an ELD device or driver's app, provided the carrier shares that data with you.
- 6 A [natural hedge](#) occurs when an exchange rate risk is cancelled out by an opposite risk. For example, if a company buys and sells an equal amount into a foreign currency, then even though they will make less revenue if the foreign currency's value falls, the expenses for the goods they procure from that country will fall by a similar amount. By netting this out across a company's entire operations, the true exchange rate exposures can be understood. The finance group can then decide whether any additional [FOREX hedge](#) is needed.
- 7 Trade data provides data about goods being imported and exported to/from a country. It does not provide direct data about the size of domestic markets within each country—i.e. the goods that are bought and sold within the same country—though trade data may be used to make some partial inferences.



About ChainLink Research

ChainLink Research, Inc. is a Supply Chain research organization dedicated to helping executives improve business performance and competitiveness through an understanding of real-world implications, obstacles and results for supply-chain policies, practices, processes, and technologies. The ChainLink 3Pe Model is the basis for our research; a unique, multidimensional framework for managing and improving the links between supply chain partners.

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