



LEADING SHIPPERS USE THESE TRUCKLOAD SUPPLIER STRATEGIES

RESEARCH



MIT Center for
Transportation &
Logistics



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IN BRIEF

Researchers discovered the difference between Leaders and Laggards in truckload service and rates. Discover what Leaders do to get the best results.

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MEASURING PERFECT TRUCKLOAD SHIPMENTS

How well do your suppliers really perform? If you're like many shippers, you already measure their:

- **On time pickup (OTP).**
- **On time delivery (OTD).**
- **First tender acceptance (FTA).** This is the percentage of the time that your intended supplier accepts your shipment tender the first time you offer it. Research shows high FTA correlates with lower rates.

Researchers used these 3 metrics to develop a way to think about top-performing truckload freight. These 3 metrics also account for price; if the intended supplier accepts the first tender, the shipper is getting the rate they published in their route guide and budget. Researchers used this formula to calculate Perfect Truckload Shipments:

C.H. ROBINSON TRUCKLOAD PERFORMANCE RATING™

$$\text{OTP}\% \times \text{OTD}\% \times \text{FTA}\% = \text{Perfect Truckload Shipment \%}^{\text{TM}}$$

EXAMPLE:

$$95\%_{\text{OTP}} \times 95\%_{\text{OTD}} \times 95\%_{\text{FTA}} = \mathbf{85.7\%}$$

While this percentage may seem shockingly low at first blush, it makes good sense that Perfect Truckload Shipment scores will be lower than the individual performance metrics that are part of the total. That's because there are three factors that could potentially go wrong before you achieve a Perfect Truckload Shipment. In fact, the highest-performing Leaders in our research achieve Perfect Truckload Shipments of 82.1%; Laggards achieved 46% Perfect Truckload Shipments.

EXECUTIVE SUMMARY

$$\text{OTP}\% \times \text{OTD}\% \times \text{FTA}\% \\ = \text{Perfect Truckload} \\ \text{Shipment \%}$$

THE MEASURE OF LEADERS VS. LAGGARDS

How did researchers rank shippers? By combining three commonly-used performance metrics: on time pickup, on time delivery, and full shipment tender acceptance.



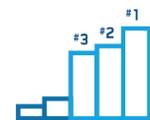
RATIONALIZE SUPPLIERS

Leaders engage a strategic mix of suppliers from both groups, and use fewer suppliers per origin.



USE SUPPLIERS IN A FOCUSED WAY

Award suppliers a defined set of lanes in your routing guide. Create a community of suppliers who are aligned with the attributes of your freight portfolio.



IDENTIFY TOP PERFORMING SUPPLIERS

Engage high-performing suppliers who have more capacity in the lanes you serve and who know the geographical area. Research shows that asset carriers and brokers can both be high performers.

LEADERS RATIONALIZE THEIR TRUCKLOAD SUPPLIER BASE

Leaders winnow the infinite set of suppliers into a finite number.

You may already suspect it is not efficient to use dozens, much less hundreds of transportation suppliers. We have wondered about that, too. As we work with shippers to help them improve supply chain operations, we dive deep into their shipment history by supplier and lane. Often, we find that a shipper may have a large number of suppliers, but literally, only a handful of them cover the vast majority of loads.

These pie charts show shipment data from one company. When we examined their shipment history with 300 suppliers, we found that just 6 of them handled 80% of the company's loads. A total of only 31 suppliers handled 90% of the company's loads.

SHIPMENT HISTORY WITH 300 SUPPLIERS



What about the rest of the shipments? Those were covered by the remaining 269 suppliers—at a delivered cost that was considered high for covering only 10% of the loads. Most likely, this was either unplanned freight or was rejected by suppliers when the freight was tendered. When suppliers reject shipment tenders beyond plan, a higher priced supplier typically accepts the shipment; this can lead to cost overruns.

In practice, this shipper could cut the number of suppliers they use to their top 31 to dramatically increase efficiency and reduce costs. A strategic, constraint based procurement approach allowed this shipper to reallocate almost all of the final 10% of loads to the core 6 suppliers.

The latest research bears out this logic. The findings show that Leaders get better performance and price from the suppliers they work with when they reduce the number they use to a defined number. In this study, Leaders worked with an average of between 7 and 30 suppliers; Laggards worked with 45, on average. Your ideal number of suppliers will vary, based on your unique business factors, lanes, and service mix. Of course, your success also depends on which suppliers you choose.

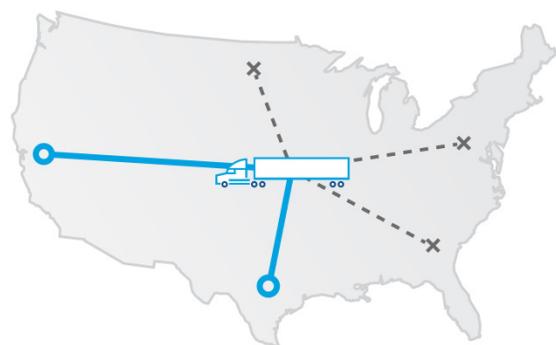
LEADERS USE SUPPLIERS IN A FOCUSED WAY

In the research, a strong indicator of a shipper's route guide performance was to award suppliers focused roles in the route guide.

Suppliers naturally have more assets in some lanes than others; some focus their efforts in a smaller geographical coverage area. Matching their strengths with your service corridors leads to better performance.

The principle also applies to larger suppliers with wider geographical coverage. They, too, have certain lanes where their focus makes them a "regional leader," which makes them a more appropriate strategic choice for specific lanes. They may have less-than-stellar performance in some areas where they do not have that focus, but their access to a larger number of assets may make them the best choice in lanes that need broader coverage, even where freight is spotty.

Leaders engage suppliers who fit into specific strategic roles to optimize their service levels while fulfilling all the truckload demand from different geographical areas.



LEADERS CHOOSE THE RIGHT STRATEGIC BLEND OF TOP PERFORMING SUPPLIERS

Leaders achieve better performance when they choose top performers in the geographic regions they serve. This principle holds true, whether the suppliers chosen are asset-based or non-asset based.

Here's what the MIT research team found in the data:

- Both Leaders and Laggards use a mix of asset-based and non-asset based suppliers.
- Leaders use top-performing suppliers and Laggards use low performing suppliers.

The results showed no significant difference in performance when shippers use asset-based vs. non-asset suppliers, based on freight with similar freight attributes. There are high performing suppliers in both groups. Shippers can receive good service, as long as they engage the strengths of the suppliers they choose in the regions they serve.

Focus on quality service suppliers and respect the attributes of your portfolio segments by using a blend of asset and brokerage. A reasonable market representation is that about 80% of a shipper's loads are in 20% of the lanes, and that 20% of their loads are in 80% of the lanes. Those 80% of the loads in 20% of the lanes typically present attributes that the asset carrier community is most interested in. The 20% of shipments in 80% of the lanes are often best served by the brokerage community. Brokerage often provides real value for variable demand, spikes on high demand lanes, lanes or corridors that are not strong economic markets, seasonal lanes, and live requirements. A broker's role is to aggregate the market and find a supplier and driver that aligns with the attributes of these types of loads.

DATA SAYS...

Leaders and Laggards both use a diversified mix of asset-based carriers and non-asset based suppliers. Leaders use fewer, higher-performing suppliers than their peers. Leader Group 1 achieved 82% Perfect Truckload Shipments. Leader Group 2 achieved 81%, and Laggards achieved 46%.

FIGURE 1. COUNT OF SUPPLIER TYPE-BLENDED STRATEGY:

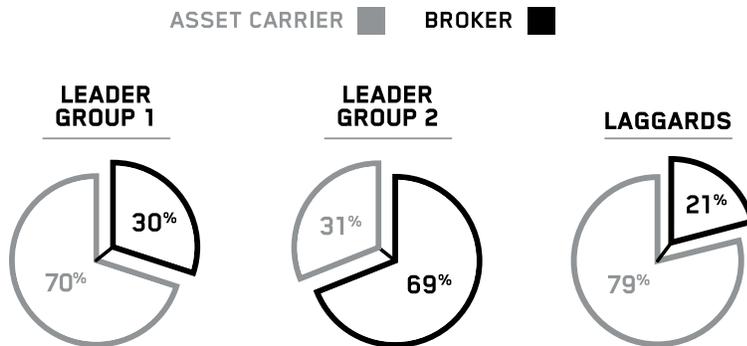
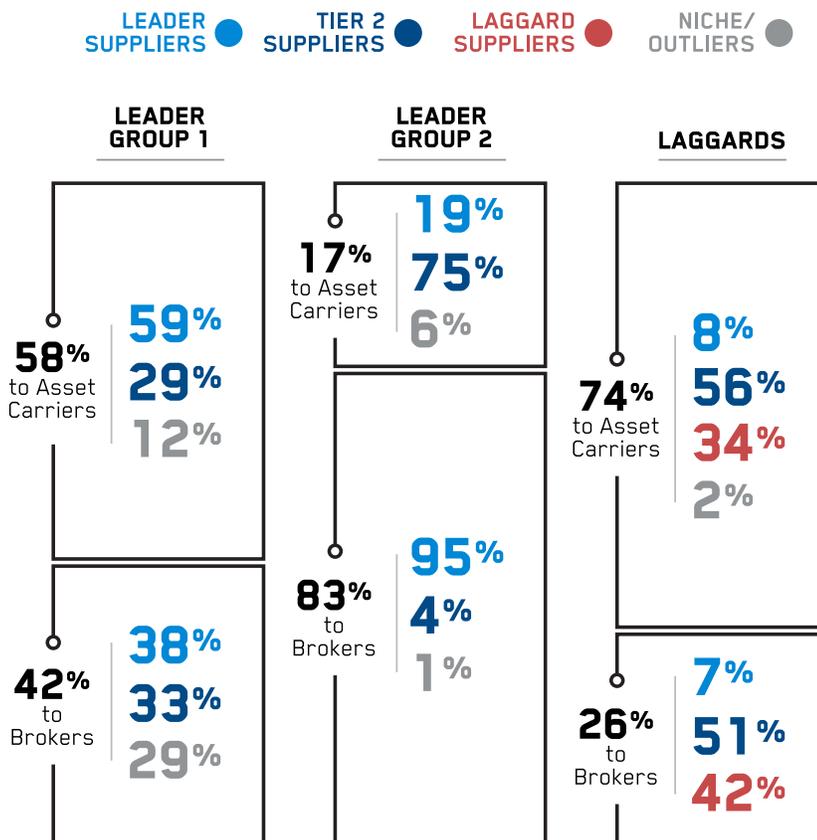


FIGURE 2. HOW LOADS ARE ALLOCATED



WHAT THEY DO

LEADER GROUP 1

- Uses top 2 performing tiers of medium and large asset carriers to move most of their loads, plus a small set of top-performing brokers (fig. 2).
- Distributes loads nearly equally to asset carriers and brokers (fig. 2).
- Assigns suppliers to a defined set of lanes each in the routing guide.
- Supplements their portfolio with Tier 2 suppliers in lanes not covered by leader suppliers (fig. 2).

LEADER GROUP 2

- Selectively uses niche suppliers—high performing asset carriers and brokers with very focused roles (fig. 2).
- Most loads distributed to higher performing brokers (fig. 2).
- Uses fewer suppliers that are highly lane focused over a narrower geographic region.

LAGGARDS

- Uses asset carriers heavily—including on lanes the carriers did not typically run, in geographic areas they were not familiar with (fig. 2).
- Uses low-performing asset carriers and brokers (fig. 2).

IS THIS RESEARCH THE DEFINITIVE LAST WORD ON THE SUBJECT?

It's important to note that this research provides valuable insights, but isn't the definitive last word. In research projects, timeframes are finite—in this case, the length of a school year. Students explored the data through the lens of a focused question, but each observation can raise even more questions.

For instance, midway through this project, students found that there were two distinct sets of Leader shippers who had obtained nearly identical Perfect Truckload Shipments. One Leader group used 30 suppliers per facility, and the other used 7. Both groups used a combination of asset carriers and brokers. But one of the Leader groups used a 70/30 split respectively, and the other, 31/69. The students spent the time they had left trying to learn more about the attributes of the freight that had been tendered to asset carriers and brokers.

They discovered that regardless of whether the service suppliers were asset based or brokers, shippers in both Leader groups achieved more Perfect Truckload Shipments when they used acknowledged service leaders for those lanes—suppliers who simply perform better. Conversely, Laggard shippers appeared to choose service suppliers who have a pattern of underperformance; those shippers obtained less than stellar results.

Researchers found that Leaders had certain freight attributes that worked together to improve freight performance. These included longer lead times, consistent load volume, geographic and lane focus, younger price ages, and using a mix of both asset carriers and brokers.

Another discovery: asset carriers at first appeared to have significantly better first tender acceptance than brokers. But when the students examined underlying demand trends for brokers,

About the study

These findings were drawn from a thesis entitled, "A Study of Freight Performance and Carrier Strategy," by Caroline Bleggi and Frederick (Qian) Zhou, MIT's Center for Transportation & Logistics, April 2017. Read the thesis [here](#).

- 1,074,000 shipments from TMC, a division of C.H. Robinson were studied
 - Full truckload van moves over 250 miles in the Lower 48 U.S. states
 - Origins with over 100 loads in 2016
- Approach: Cluster analysis (random forest analysis); lanes grouped by performance

they found that lanes and volumes tendered to them were not as consistent over time as the lanes and volumes given to asset carriers; this means that the percent of portfolio of loads brokers hauled that had lumpy demand and/or short lead time was higher than the asset carriers. The students concluded that more volatile and less predictable shipments made it more difficult for brokers to guarantee first tender acceptance. They suggested that shippers score asset carriers and brokers differently; scorecards should reflect the type of freight awarded to each supplier and their specific role in your strategy.

Given more time, the students could have dug deeper into the actual freight attributes for Leader shippers. But as the students said in their thesis, future research would have to delve into topics like comparing the impact of location, economic seasonality, weather-driven industry shifts, geographical performance, and market impact on the Leaders' strategies.

NEXT STEPS TO BECOME A LEADER

Our Process Consulting team can help you choose high-performing suppliers and build a more efficient route guide. We use a neutral approach to blend the best that asset carriers and brokers have to offer in your specific lanes.

Our Solution Design team can help you develop more efficient processes. We create process maps that reveal your best opportunities for saving time and money in the supply chain. Contact us for more information.

3 TAKEAWAYS

RATIONALIZE YOUR SUPPLIER BASE

There are high performing suppliers among both asset carriers and brokers. Engage both groups strategically, and use fewer suppliers per origin.

CHOOSE SUPPLIERS WITH FOCUS IN YOUR CORRIDORS

Contract with high-performing suppliers who have more assets in the lanes you serve and who know the geographical area.

IDENTIFY TOP PERFORMING SUPPLIERS

Award suppliers a finite set of lanes in your routing guide. Supplement your portfolio with suppliers who can provide wide capacity coverage.





Caroline Bleggi graduated with a Bachelors in International Studies and an MBA, both from Johns Hopkins University. She has experience in development, consulting, and operations. Today, Caroline is a pathways operations manager at Amazon.



Frederick (Qian) Zhou graduated with his Bachelors in Mechanical Engineering from Tongji University. He has experience in supply chain management at Royal Philips as the director of supply chain for their operations in Africa. Today, Frederick works at General Mills as a supply chain analytics manager.



Kevin McCarthy, recently retired from his position at C.H. Robinson as a director of Consulting Services. Kevin has over 27 years of experience in the logistics industry. Kevin has an MBA from the University of Minnesota Carlson School of Business with an emphasis in Management Information Systems and an undergraduate business degree with an emphasis in Marketing.



Steve Raetz, director of supply chain integration at C.H. Robinson, has 27 years of logistics experience. He holds a B.S. in Mathematics and Teaching from Minnesota State University, Mankato, and serves on two university supply chain advisory boards.



Glenn Koepke director of operations for TMC, a division of C.H. Robinson, has worked globally with shippers in Europe, the Middle East, and Africa (EMEA), responsible for both operational excellence and supply chain engineering. A graduate of the University of South Carolina in Columbia, Glenn also opened TMC's EMEA global Control Tower in Amsterdam.

ABOUT C.H. ROBINSON

At C.H. Robinson, [we see things differently](#). We believe in accelerating global trade to drive the world's economy. Using the strengths of our people, processes, and technology, we help our customers work smarter, not harder. As one of the world's largest third party logistics providers (3PL), we provide a broad portfolio of logistics services, fresh produce sourcing, and managed services through our global network. In addition, the company, our Foundation, and our employees contribute annually to a variety of organizations.

For more information, resources, and our blogs, visit www.chrobinson.com.

ABOUT TMC

Global supply chains are growing increasingly complex. Businesses need the latest technology and industry expertise to advance and stay ahead of the competition. At TMC, a division of C.H. Robinson, we understand what makes supply chains faster, stronger, and more efficient. As a leader in global logistics management, we combine industry expertise with our global technology platform, Navisphere®, to support the world's most complex supply chains. Our logistics experts are located in five Control Tower® locations around the world: Amsterdam, Chicago, São Paulo, Shanghai, and Wrocław. This Control Tower network, supported by our technology platform, connects our customers to their suppliers and supply chain partners. Our customers leverage these capabilities to manage their logistics in over 170 countries across all modes of transportation. For more information, visit www.mytmc.com.



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