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THE ROAD AHEAD

Key trends and capabilities shaping the North American freight transportation market

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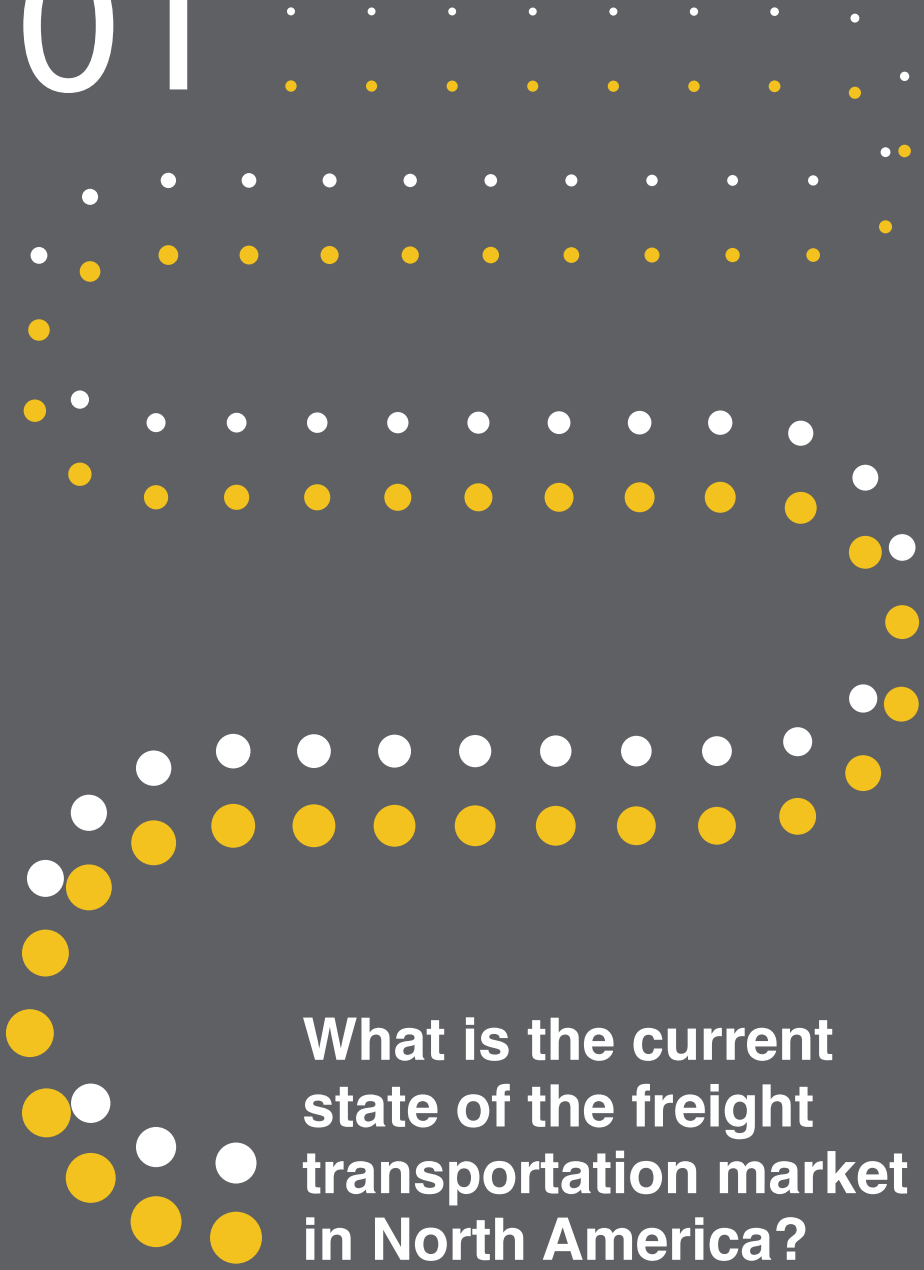

What is the current state of the freight transportation market in North America?

The answer depends on whom you ask. In April 2024, for example, members of Indago's supply chain research community -- who are all supply chain and logistics executives from manufacturing, retail and distribution companies -- **were asked**, "Is 2024 going better, worse, or the same as you expected in December 2023?" More than a third of the member respondents (35%) said that from a supply chain management perspective 2024 is going "Better" (32%) or "Much Better" (3%) than they had expected, while only 10% said that the year is going "Worse."

Now that we're a quarter into 2024, is the year (from a supply chain management perspective) going better, worse, or the same as you expected back in December 2023?

Source: *April 2024 Indago survey of 31 qualified and validated supply chain and logistics executives from leading manufacturing, retail and distribution companies.*

As the Senior Director of Global Logistics at a leading Industrial Manufacturer commented, "The supply chain in 2024 is behaving as expected for the most part, as inflation and consumer demand for products remains flat in a market with ample supply chain capacity."

Indago members, however, are all shippers. If carriers had been asked the same question, the responses would have been just the opposite.

"The current environment we're in has remained persistently challenging and for longer than we had predicted," said J.B. Hunt CEO John Roberts during an April 2024 conference call with investors. First quarter 2024 revenue was **down 9% for the carrier** and operating income decreased 30%, compared to the first quarter of 2023.

Knight-Swift also reported disappointing results for the first quarter of 2024. On April 17, the company issued a guidance on earnings which described the current market as follows:

"The full truckload industry continues to be challenging and oversupplied with capacity…The early part of the bid season led to greater than expected pressure on freight rates as some shippers are still trying to push rates down further. In some cases, we have lost contractual volumes because we were not willing to commit to further concessions on what we view as unsustainable contractual rates. **This resulted in more of our capacity being allocated to the spot market, which creates further pressure on revenue per mile and utilization in the near term but positions capacity to react to changes in the market.**"

"Cost depletion continues to be a challenge, labor is staying tight and interest rates are up significantly," said Knight-Swift CEO Adam Miller in an earnings call with investors. "This has resulted in both significant pricing and cost pressures and has led to razor-thin margins…It's clear that the highs during the pandemic have led to the lows in the current environment. As a cyclical industry, we are accustomed to changes in the market. We have never seen the extremes we are currently experiencing."

Tom Nightingale, CEO of AFS Logistics, summed it up best in a **comment to the Wall Street Journal**: "We are seeing the most prolonged bouncing along the bottom that I've seen in my 30-plus years in the industry."

Have we truly reached the bottom of the market? When will the pendulum swing in the other direction, toward an increase in freight volume, tighter capacity and higher rates?

While some analysts believe that we'll see an improvement in this "freight recession" in the second half of 2024, the truth is that predicting what will happen in the transportation market in the weeks and months ahead is a **fool's errand**. As the management consultant Peter Drucker put it, "Trying to predict the future is like trying to drive down a country road at night with no lights while looking out the back window." This is particularly true in the transportation market because of all the variables and uncertainties involved (e.g., economic conditions, consumer sentiment, geopolitical factors, weather, fuel prices, regulations, etc.).

Therefore, the better question to ask is, **"Do we have what we need to respond quickly, intelligently and effectively to whatever happens down the road?"**

We will address that question in this report, highlighting several key capabilities companies will need to effectively manage their transportation operations moving forward. We will also highlight several important industry trends that shippers and carriers must factor into their strategies and objectives. But first, we will begin with a snapshot of current market conditions.

NOTE

In this report we focus on the truckload transportation market, which moves the most freight in the United States by shipment weight and value. It is important to note that other modes like rail, intermodal and parcel have their own unique roles and trends in the market too, but the truckload market serves as a high-level barometer for the overall state of the freight transportation market.

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Market Snapshot: Too Much Supply, Too Little Demand

Like all markets, the transportation market is governed by the law of supply and demand.

On the supply side, the main issue at the moment is that there is too much capacity. From June 2020 through March of 2022, driven in part by the Covid pandemic, there was a big surge in the number of new carriers entering the market. According to **FTR Transportation Intelligence**, from January 2014 through May 2020, monthly new carrier registrations ranged between 2,212 and 4,273. In July 2020, however, new registrations climbed to 5,396 and it kept increasing until reaching a peak of 10,904 new carrier registrations in March 2022.

New truckers registered and number of trucker certifications revoked, monthly

Source: **Wall Street Journal**

Although fewer carriers are entering the market today -- and a greater number of carriers are also exiting the market -- new carrier registrations are still above the pre-2020 monthly average.

There are various reasons why new carrier registrations remain relatively strong, as FTR highlights in an August 2023 Food Shippers of America blog post:

Technology certainly is a major factor. Digital freight management platforms have allowed intermediaries to manage capacity from the numerous very small carriers more effectively.

*Another contributor is **California's AB 5 law,** which outlaws use of the leased owner-operator model and, thus, encourages such operations to establish firms under their own authority. The percentage of new carriers that are based in California jumped sharply a year ago after the U.S. Supreme Court cleared the state to enforce AB 5 on motor carriers.*

The rise of power-only options [which reduce equipment and maintenance costs for carriers] probably has bolstered new entries as well.

The demand side of the equation is a bit more complex -- that is, there are many factors that influence it. In a **May 2024 LinkedIn post**, Professor Jason Miller from Michigan State University highlights 11 different sources of trucking demand. Here are five from his list:

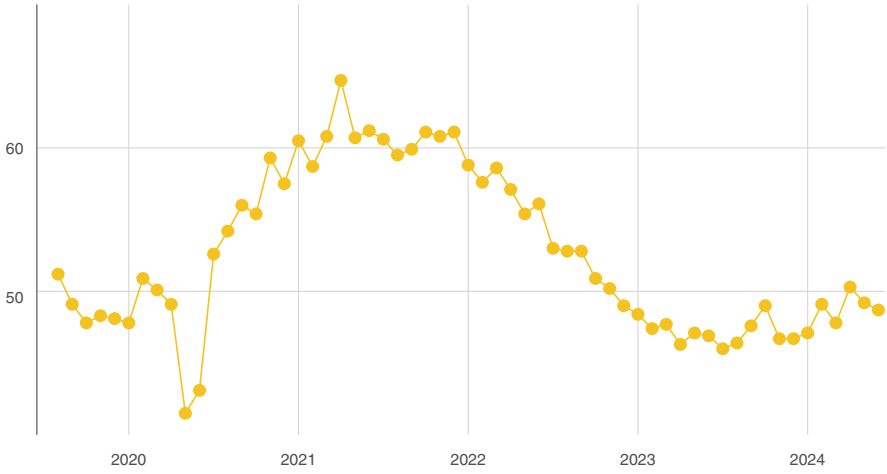
- **Movement of intermediate inputs due to downstream demand** (e.g., shipments of cardboard boxes from a manufacturer to a wholesaler who then ships them to a warehouse; movements from warehouses to retail stores to replenish store shelves).
- **Capital Investment in private structures** (e.g., shipments of steel beams to a warehouse construction site; single-family housing starts; moving drilling rigs to drill natural gas wells).
- **Capital investment in machinery & equipment** (e.g., shipments of combines from a wholesaler to a farmer; shipments of machine tools to a factory).
- **Change in inventories** (e.g., movement of imports into general merchandise retailers' warehouses earlier than usual in 2022 for the holiday season).
- **Cross-border imports from Mexico and Canada** (e.g., shipments of lumber from Canada into the USA)

Miller writes, "I bring up this list because I tend to find folks in this industry are excessively focused on freight oriented towards personal consumption (e.g., shipments to retailers' warehouses), while not paying as much attention to these other sources."

In fact, domestic manufacturing activity has a greater impact on freight demand than retail imports. That is why freight demand remains relatively weak despite **a strong 7.2% increase in imports in Q1 2024**. The Port of Los Angeles, for example, saw a **64% increase in import containers in February 2024** compared to the same month last year, while the Port of Long Beach experienced a 29.4% rise in imports.

Domestic manufacturing activity, however, remains in contraction mode. The ISM Manufacturing PMI Index was **48.7 in May 2024**. A PMI over 50 indicates a growing manufacturing economy while a value under 50 indicates a shrinking manufacturing economy. As illustrated in the chart below, the U.S. ISM Manufacturing PMI has been below 50 since November 2022 (except for March 2024, when it was 50.3 but then declined again in April as noted earlier).

US ISM Manufacturing PMI (I:USPMI)
48.70 for May 2024



Source: **Ycharts**

There are various indices that provide insights into the truckload market. Here are some examples, with highlights from their most recent reports:

ATA TRUCK TONNAGE INDEX

The index **decreased 1.5% in April 2024** compared to April 2023. It was the fourteenth straight year-over-year decline. "The truck freight market remained soft in April as seasonally adjusted volumes fell for the second straight month," said American Trucking Associations Chief Economist Bob Costello. "With a rebound in freight remaining elusive, it is likely that additional capacity will leave the industry in the face of continued softness in the market."

CASS TRANSPORTATION INDEX REPORT

"**The Cass Truckload Linehaul Index** managed to rise slightly, by 0.1%, in April, marking the third straight slight increase. The y/y decline continued to gradually narrow to 3.8%. This index [which includes both spot and contract freight] has been in a very tight range, from 140.4 to 142.0, over the past ten months as the market finds a floor…With spot rates steady over the past several months, downward pressure on the larger contract market is lessening, with some instances of contract rate increases bucking the downtrend recently."

DAT DRY VAN REPORT (MAY 7, 2024)

"After drifting down slightly for the last five weeks, **the national average dry van linehaul rate increased by just over a penny per mile to $1.57/mile** [on April 30]. Compared to last year, linehaul rates are $0.05/mile lower on a 12% higher volume of loads moved."

What will the remainder of 2024 be like in the truckload market? Well, as stated earlier, predicting the future with any certainty is a fool's errand, but here's how Professor Miller summarized the outlook in an **April 2024 LinkedIn post**: "For the dry van truckload market to turn from bear to bull, we either need a much larger loss of capacity (unlikely to happen quickly) or for demand to improve substantially, which will require a sharp rebound in domestic manufacturing activity (also unlikely to happen quickly). As such, I would pencil in 'blah' conditions for the immediate future."

"Blah" is as good a word as any to characterize the truckload market today and for the rest of 2024.

03

Important Industry Trends Shaping the Market

In addition to navigating the ebbs and flow of market conditions, shippers and carriers must also factor a variety of important trends into their strategies and operations.

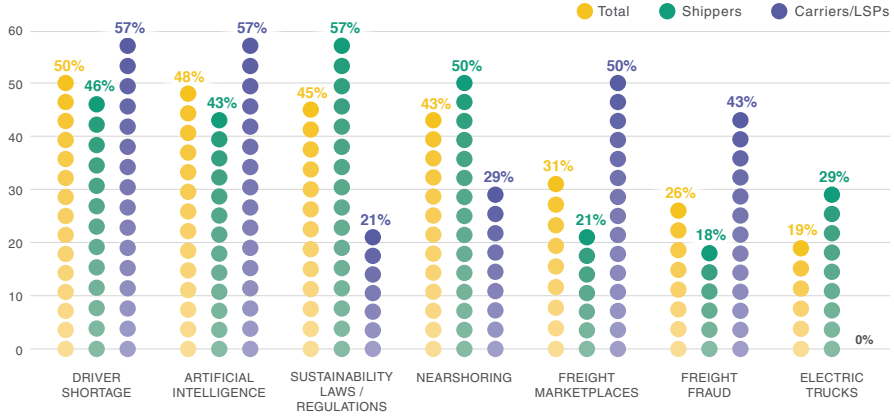
In a May 2024 survey, Indago members and Transporeon shipper and carrier clients were asked, "Which trends do you believe will have the greatest impact on freight transportation over the next 3 years?" Of the list of options provided, "Driver Shortage" topped the list amongst all respondents, followed by "Artificial Intelligence," "Sustainability Laws/Regulations," and "Nearshoring."

However, there were some notable differences between shippers and carriers/LSPs. For shippers, topping the list of trends was "Sustainability Laws/Regulations," which ranked sixth for carriers. For carriers/LSPs, the top trend was a tie between "Driver Shortage" and "Artificial Intelligence," which for shippers ranked third and fourth, respectively.

Also, "Electric Trucks" made the top five list for shippers (fifth place), but it came in last for carriers/LSPs. And for carriers/LSPs, "Freight Marketplaces" and "Freight Fraud" ranked third and fourth, respectively, while for shippers they ranked sixth and seventh, respectively.

While their lists and rankings might differ, it's clear that the road ahead for shippers and carriers will be paved with a lot of changes, challenges and opportunities. Below we discuss some of these industry trends in more detail.

Which trends do you believe will have the greatest impact on freight transportation over the next 3 years? Select 1-3 responses.



Source: *May 2024 Indago survey of 42 qualified and validated supply chain and logistics executives from 28 leading manufacturing, retail and distribution companies and 14 carriers/logistics service providers.*

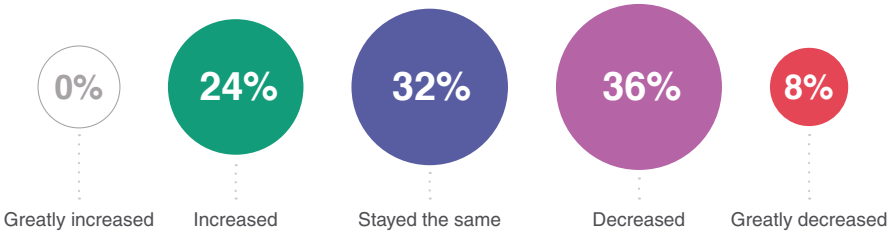
Nearshoring: Mexico Becomes Top Source of U.S. Imports

As reported by Paul Wiseman in February 2024, "For the first time in more than two decades, Mexico [in 2023] surpassed China as the leading source of goods imported by the United States."

This was not a complete surprise considering the nearshoring trend that has been gaining momentum in recent years, especially in the aftermath of the Covid pandemic. For example, in a **2022 survey conducted by Capterra**, "88% of small and midsize supply chain professionals [said that they] have plans to switch at least some of their suppliers to ones closer to the U.S; 45% plan to switch all of them."

Echoing these results is an **Indago survey** conducted in February 2024, where 44% of respondents said that they have either "Decreased" (36%) or "Greatly Decreased" (8%) their reliance on China for manufacturing or product/material sourcing in the past 3 years.

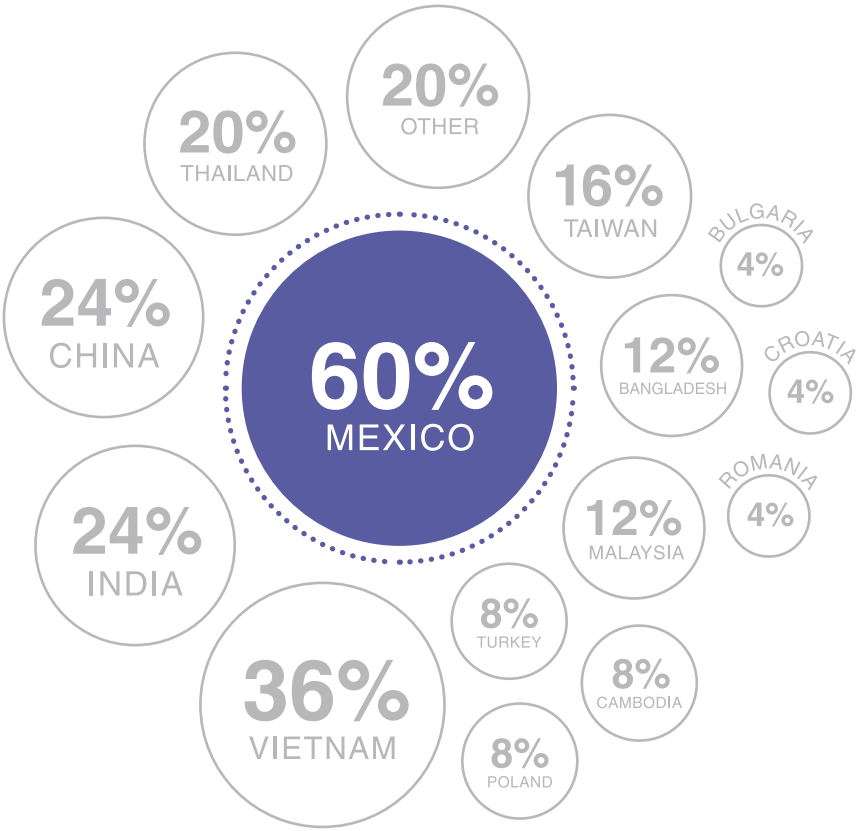
In the past 3 years, has your company increased or decreased its reliance on China for manufacturing or product/material sourcing?



Source: *February 2024 Indago survey of 25 qualified and validated supply chain and logistics executives from leading manufacturing, retail and distribution companies.*

Mexico, selected by 60% of the respondents, topped the list of countries respondents planning to add to their global supply chain in the next 3 years.

What countries do you plan to add to your global supply chain (or increase your imports from) in the next 3 years? Check all that apply.



Source: *February 2024 Indago survey of 25 qualified and validated supply chain and logistics executives from leading manufacturing, retail and distribution companies. Philippines, Indonesia, Czech Republic, Hungary, Slovakia, Morocco and Tunisia were selected by 0% of respondents and are therefore not represented in the graph.*

"We see the move to reshoring and near-shoring as an overall competitive advantage and one that aligns with our global supply chain risk mitigation and contingency planning," said one supply chain executive member. "Pros are optionality in the supply base and supply chain. Cons are the lack of needed infrastructure in countries like Mexico to support the influx of new demand and industries."

Also, **foreign direct investment in Mexico** increased to $36.1 billion in 2023 (up from **35.3 billion in 2022)**, which is the most since 2013. As **reported by bnamericas** in November 2023, "Some 50 new industrial parks will be built in northern and central Mexico due to the nearshoring effect and rising demand for space due to foreign direct investment, according to the national association of private industrial parks (AMPIP)...The general director of AMPIP, Claudia Esteves Cano, said that more than US$3bn has been invested in these projects to establish production plants, distribution centers and warehouses for many different companies."

According to the Bureau of Transportation Statistics, **7,356,659 trucks entered the United States from Mexico in 2023**, a 1.4% increase from 2022. "The port of Laredo, Texas handled nearly 3 million incoming trucks from Mexico in 2023, a 4.9% increase from 2022. Laredo also manages nearly 40% of the truck volume on the Southern border."

Incoming Trucks from Mexico: 2022-2023

Port	2022	2023	YoY Change	Port % of Total
Laredo, TX	2,799,601	2,936,130	4.9	39.9
Otay Mesa, CA	1,052,286	1,034,188	-1.7	14.1
Hidalgo, TX	673,836	708,726	5.2	9.6
Ysleta, TX	650,404	640,667	-1.5	8.7
Calexico East, CA	453,776	458,159	1.0	6.2
Total all ports	7,258,400	7,356,659	1.4	100.0

Source: *Bureau of Transportation Statistics*

Shippers who are new to importing goods from Mexico, however, need to be aware of the risks and challenges involved. The top risk is cargo theft while goods are in transit.

According to Overhaul, "During 2023, **Mexico experienced 20,746 cargo theft events**, representing an increase of 3.1% compared to 2022 and 4.4% over 2021. 81% of these events were concentrated in the Central and Southeast regions, with 95% occurring in just ten states, including Guanajuato, Jalisco and Michoacán."

Other risks and challenges, as highlighted by Coyote Logistics, include:

- **No cargo insurance coverage on your freight:** "Mexican carriers are not required by law to carry cargo insurance and the vast majority do not; [therefore], it is important for shippers to have an insurance policy that covers freight while it travels in Mexico."

- **Cargo theft while your freight is at the shipper:** "Criminals exploit any weak links in the supply chain, including warehouses, truck stops and other facilities. Criminal organizations have been known to send members to work in warehouses to get useful information that may enable cargo theft in the future. [Importers should] become familiar with the safety protocols for loading and unloading."

- **Poor highway infrastructure:** "The quality of the roads in Mexico is much lower than in the U.S. or Canada. Mexico ranked 49th out of 141 economies in the quality of its road infrastructure, according to the World Economic Forum's 2019 Global Competitiveness Index (Canada was 30th and the U.S. was 17th). [Shippers should] proactively plan their shipment journeys to find the best routes and avoid delays."

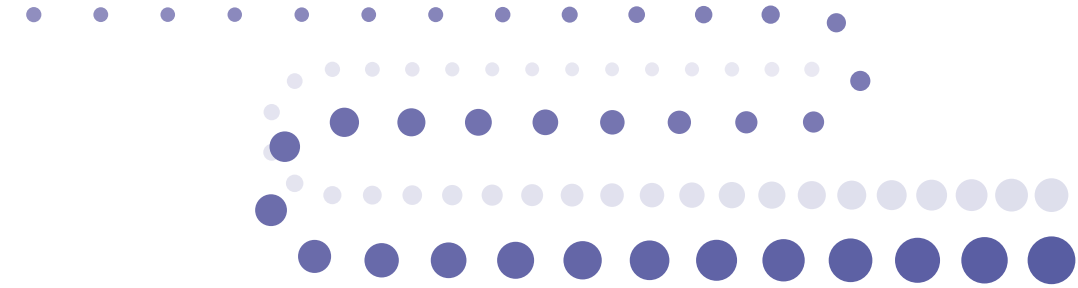
- **Complex border crossing process leading to disruptions:** "Numerous parties are involved to get freight across the border, including multiple carriers, customs brokers and possibly transloading facilities. There could be disruptions at any of these touch points, which could lead to late deliveries and damage customer relationships…Wait times for trucks exporting freight from Mexico to the U.S. can range from 3-12 hours depending on the crossing location and other contingencies."

Sustainability Regulations: The Electrification of Trucking

Transportation is one of the largest sources of greenhouse gas emissions, which is why a number of regulations and initiatives aimed at reducing emissions have been introduced recently.

For example, in April 2023, the California Air Resources Board (CARB) approved the **Advanced Clean Fleets Regulation (ACF)**, "which includes Drayage Truck Requirements for drayage trucks transporting cargo to and from California's intermodal seaports and railyards." Here are some of the requirements per the CARB website:

- **To reach California's ongoing goals of reducing tailpipe emissions**, drayage trucks will be required to begin implementation of zero-emission technology beginning in 2024, with full implementation by 2035.
- **All drayage trucks intending to begin or continue operations at a California seaport or intermodal rail yard** must be registered with CARB. Combustion powered trucks (non-zero-emission) must register in the CARB Online System by 12/31/23. Only zero-emission drayage trucks can register in the CARB Online System beginning 1/1/24.
- **Beginning in 2035**, all drayage trucks in the CARB Online System will be required to be zero-emission.

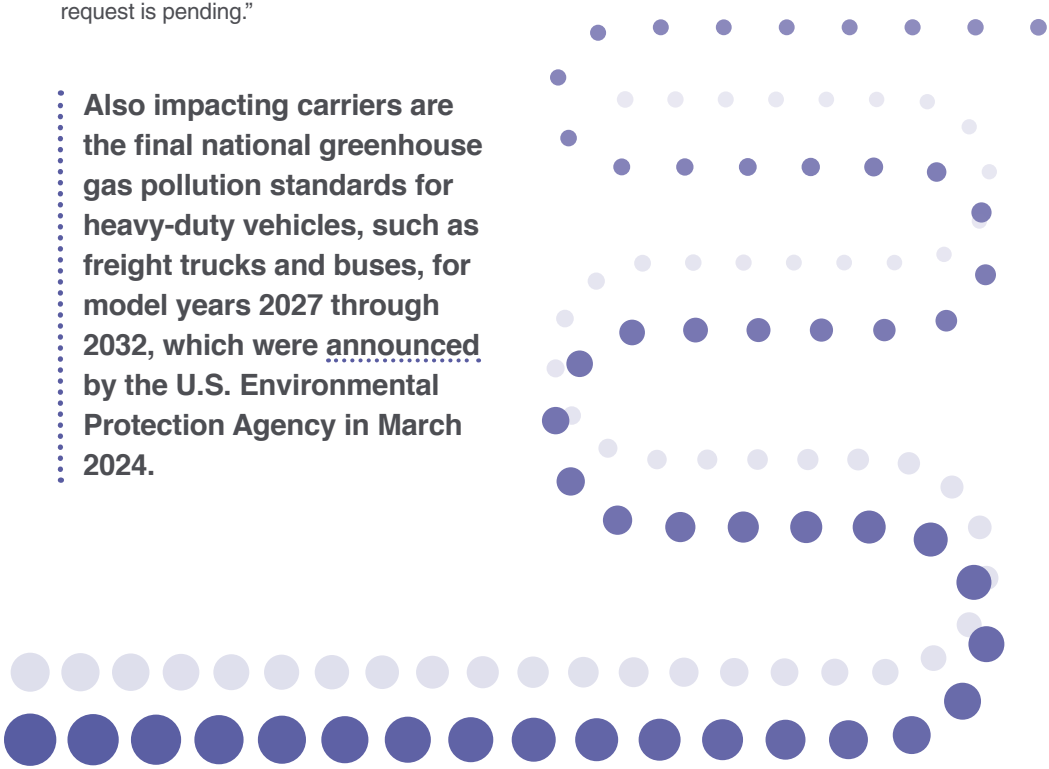


Enforcement was to begin on January 1, 2024, but CARB **announced** at the end of December 2023 that it will delay enforcement "until the U.S. EPA grants a preemption waiver applicable to those regulatory provisions or determines a waiver is not necessary." As of May 2024, enforcement has yet to begin, but "CARB encourages fleets to voluntarily report and comply while the waiver request is pending and reserves all of its rights to enforce the ACF regulation in full for any period for which a waiver is granted or for which a waiver is determined to be unnecessary, including (but not limited to) the right to remove non-compliant vehicles added to fleets while the waiver request is pending."

Also impacting carriers are the final national greenhouse gas pollution standards for heavy-duty vehicles, such as freight trucks and buses, for model years 2027 through 2032, which were announced by the U.S. Environmental Protection Agency in March 2024.

According to the press release, "The standards will avoid 1 billion tons of greenhouse gas emissions and provide $13 billion in annualized net benefits to society related to public health, the climate and savings for truck owners and operators."

In practice, as the The Wall Street Journal Editorial Board **commented**, these new emissions standards for heavy-duty trucks "will effectively require that electric semi-trucks make up an increasing share of manufacturer sales from 2027 through 2032."

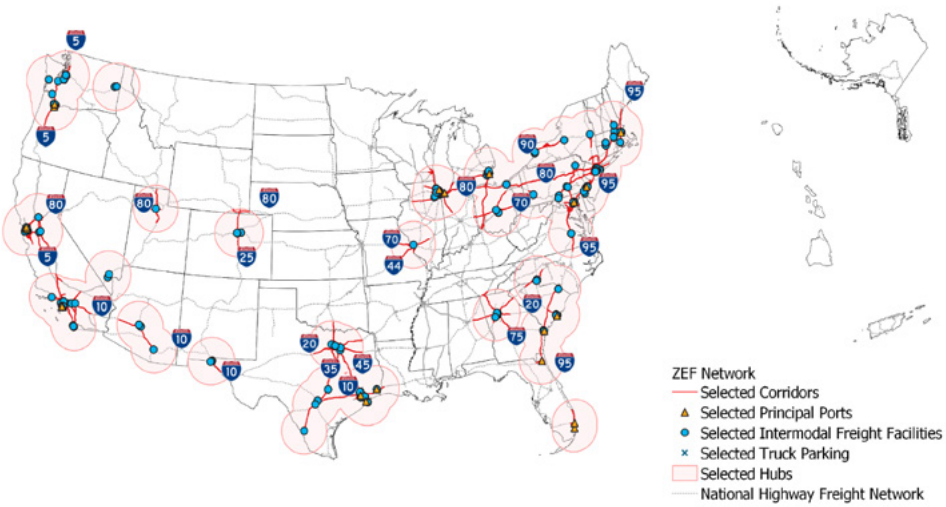


Earlier in March 2024, The Biden-Harris Administration released the National Zero-Emission Freight Corridor Strategy to "guide the deployment of zero-emission medium- and heavy-duty vehicle (ZE-MHDV) charging and hydrogen fueling infrastructure from 2024 to 2040." Here's an excerpt from the press release:

Providing ubiquitous and convenient access to electric vehicle (EV) charging and hydrogen refueling along our nation's freight corridors and at intermodal freight facilities and high-usage ports is key to achieving U.S. goals to promote at least 30 percent ZE-MHDV sales by 2030 and 100 percent sales by 2040. The goal of the Strategy is to align public policy and investments by prioritizing, sequencing and accelerating infrastructure along the National Highway Freight Network (NHFN) in four phases. A core objective of the Strategy is to meet freight truck and technology markets where they are today, determine where they are likely to develop next and set an ambitious pathway that mobilizes actions to achieve decarbonization.

Compared to diesel-powered trucks, however, battery-powered electric trucks are more costly, have a more limited range and take much longer to refuel.

National Zero-Emission Freight Corridor Strategy
Phase 1: Establish Hubs (2024-2027)



Source: United States Department of Transportation

Andrew Boyle, American Trucking Associations first vice chair and co-president of Massachusetts-based Boyle Transportation, highlighted the following hurdles in his April 2023 testimony before a Senate Environment and Public Works Subcommittee on the future of clean vehicles:

- **A clean diesel truck** can spend 15 minutes fueling anywhere in the country and then travel about 1,200 miles before fueling again. In contrast, today's long-haul battery electric trucks have a range of about 150-330 miles and can take up to 10 hours to charge.

- **A new, clean-diesel long-haul tractor** typically costs in the range of $180,000 to $200,000. A comparable battery-electric tractor costs upwards of $480,000. That $300,000 upcharge is cost-prohibitive for the overwhelming majority of motor carriers.

- **Battery-electric trucks** which run on two approx. 8,000-lb. lithium ion batteries are far heavier than their clean-diesel counterparts. Since trucks are subject to strict federal weight limits, mandating battery-electric will decrease the payload of each truck, putting more trucks on the road and increasing both traffic congestion and tailpipe emissions.

Shippers also face new sustainability-related laws and regulations. In September 2023, for example, the legislature in California **passed Senate Bill 253** that will require companies with over $1 billion in revenues that do business in the state to disclose all greenhouse-gas emissions associated with their operations, including Scope 3 emissions. Disclosure of Scope 1 and Scope 2 emissions will begin in 2026 and Scope 3 emissions will begin in 2027. A second bill (Senate Bill 261) will require businesses with revenues over $500 million to publicly disclose their climate-related financial risks and countermeasures.

The U.S. Chamber of Commerce and other groups **filed a joint lawsuit** on January 30, 2024 against the state of California over its new corporate climate disclosure laws, so nothing is final yet. However, if the legality of these bills is ultimately upheld, they will effectively make carbon emissions disclosures a national requirement for large companies in the United States.

In March 2024, The Securities and Exchange Commission (SEC) announced the adoption of rules "to enhance and standardize climate-related disclosures by public companies and in public offerings." The press release outlines all of the disclosures required, including Scope 1 and Scope 2 greenhouse-gas emissions (notably, Scope 3 emissions were excluded at this time). SEC Chair Gary Gensler commented:

"These final rules build on past requirements by mandating material climate risk disclosures by public companies and in public offerings. The rules will provide investors with consistent, comparable and decision-useful information and issuers with clear reporting requirements. Further, they will provide specificity on what companies must disclose, which will produce more useful information than what investors see today. They will also require that climate risk disclosures be included in a company's SEC filings, such as annual reports and registration statements rather than on company websites, which will help make them more reliable."

After a legal challenge, The Fifth U.S. Circuit Court of Appeals granted a stay on the new rules shortly after they were released. **As reported** by the Wall Street Journal, "The stay is the first strike against the SEC in what is likely to be a protracted battle over the rule as lawsuits with similar arguments work their way through courts around the U.S. Litigation over the rule is likely to cause some companies to delay compliance plans, but others will still see a need to prepare for the 2026 deadline set by the SEC, lawyers said."

In light of these regulations, having the ability to measure and report the CO2 emissions of shipments -- and using that data during mode and carrier selection -- will become increasingly important.

California Assembly Bill 5 (AB5)

Beyond driving a push toward electric trucks, California is also transforming the way carriers and drivers operate in the state -- and potentially the rest of the country too.

AB5 was signed into law by California Governor Newsom in September 2019, but it was put on hold pending legal review by federal courts. That hold was lifted in June 2022 when the U.S. Supreme Court denied review of the appeal filed by the California Trucking Association. Other appeals have also failed and as FreightWaves **reported** in March 2024, "California's trucking industry is facing the reality that its battle to keep the state's AB5 independent contractor law out of the trucking sector is likely at a dead end."

As a result, "motor carriers will be subject to AB5's worker classification test, a narrow three-prong 'ABC test,' in order to classify a contracted owner-operator as an independent contractor for purposes of California law," **explains** the American Trucking Associations. "That test states that an [independent contractor] must:

- **Be free from the control of the hiring entity;**
- **Perform work outside the usual course of the hiring entity's business; and**
- **Be customarily engaged in an independent trade or occupation.**

" The second prong presents the greatest challenge for trucking companies, since owner-operators arguably perform the same line of work as motor carriers. Owner-operators who are classified as employees under this ABC test (and whose relationships with motor carriers do not satisfy the business-to-business exemption) will be covered by the substantive requirements of California labor and employment law."

What does this mean for the trucking industry? "AB5 could fundamentally reshape the way carriers and drivers do business in California and it could be a sign of things to come throughout the rest of the country," according to Coyote Logistics. As the company explains in a blog post:

> *Motor carriers operating in California now have to either reclassify thousands of drivers that are currently operating as independent contractors to employees, or fundamentally change the way the two parties interact. As full-time employees, trucking companies are obligated to do things like provide benefits and pay payroll tax for them.*
>
> *For that portion of the driver base, it is now much more expensive to use owner-operators and affected drivers have much less flexibility in choosing their work (many independent contractors work part time under contract with a trucking company and part time on their own). This way of life will likely vanish in California under AB5.*
>
> *What happens in California — as the largest state economy in the U.S. and home to the busiest North American port — has the potential to spread to other states (or even federally).*

Depending on when and how strictly California enforces AB5 on the trucking sector and whether other states adopt similar measures, this could have a significant impact on capacity and costs, which will ultimately impact shippers too.

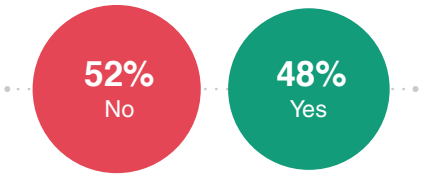
Freight Fraud: A Growing Problem

"There's a surge of malicious actors engaging in illegal activity, registering with FMCSA [the Federal Motor Carrier Safety Administration] as carriers and perpetrating fraud, theft and holding freight hostage in situations without any legal consequences," said Jeffrey Tucker, the CEO of Tucker Company Worldwide, at a **hearing before the U.S. House Transportation and Infrastructure Committee** in January 2024. "While this is obviously an economic problem, hurting consumers and businesses alike, it also raises safety and security concerns."

According to CargoNet, there was a **59% increase in cargo theft events** in the third quarter of 2023 compared to the third quarter of 2022.

> **"Much of the increase is due to ongoing shipment misdirection attacks, a kind of strategic cargo theft in which actors use stolen motor carrier and logistics broker identities to obtain freight and misdirect it from the intended receiver so they could steal it. In total, thieves stole over $31.1 million in shipments in the third quarter of 2023."**

Have you experienced cargo theft or other type of freight fraud in the past 12 months?



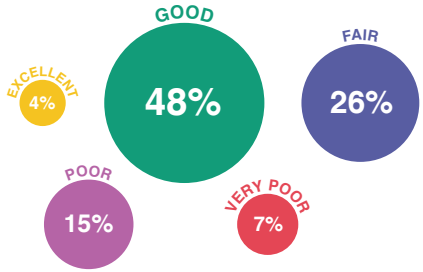
Source: *April 2024 Indago survey of 27 qualified and validated supply chain and logistics executives from leading manufacturing, retail and distribution companies.*

The press release adds that "Documented strategic cargo theft events increased 430% year-over-year and theft of a loaded conveyance such as a full trailer increased 4% year-over-year… CargoNet also recorded a significant increase in the 'other' category, which combines several categories of reports like identity theft complaints, hostage loads, late shipment complaints and other kinds of criminal intelligence records."

In an **April 2024 Indago survey**, 48% of the member respondents said that they have experienced cargo theft or other type of freight fraud in the past 12 months.

Almost half the respondents characterized their processes/efforts to prevent freight fraud as either "Fair" (25%), "Poor" (15%), or "Very Poor" (7%). Only 4% characterized them as "Excellent."

How would you characterize your processes/ efforts to prevent freight fraud?



Source: *April 2024 Indago survey of 27 qualified and validated supply chain and logistics executives from leading manufacturing, retail and distribution companies.*

The Federal Motor Carrier Safety Administration announced in April 2024 that it is establishing a team to deal with freight fraud. As John Gallagher **reported** in FreightWaves, "The Federal Motor Carrier Safety Administration's Registration Fraud Team will work in the agency's registration office to focus solely on assisting those who have been victims of registration fraud at the agency as well as identifying measures to help prevent it." This follows the alert on **"Broker and Carrier Fraud and Identity Theft"** that FMCSA issued in January 2024.

As quoted in the FreightWaves article, Ken Riddle, director of FMCSA's Office of Registration, stated, "We've heard from every corner of the industry about how bad fraud is right now and the one thing we've heard loud and clear is, 'How can FMCSA help?' We took that very seriously, so we're looking at every way that we can help mitigate it."

"We haven't even begun to think about mitigating freight fraud, which could introduce substantial risk as we scale," said one Indago supply chain executive. Here are some other comments members submitted:

"We have had a couple of 3PL trailers broken into at truck stops. A few cases of frozen food products have been stolen, which puts the entire shipment into question. We are considering additional security options (e.g., padlocks, bolt seals, etc.)."

"Freight fraud has become a much more top of mind issue in the past couple of years, unfortunately."

"Fictitious pick-ups need to be combated better, as well as opportunistic employee theft rings. On a couple occasions, trucks have been stolen during delivery, but these have been very quickly recovered and perpetrators identified thanks to the telematics system."

Technology also plays an important role in combating freight fraud, including telematics, real-time freight visibility and other solutions such **Transporeon's Trust Center**, where carrier profiles "can be created with all the necessary documents, licenses, approvals and certificates needed to operate as a trusted and compliant partner on the network."

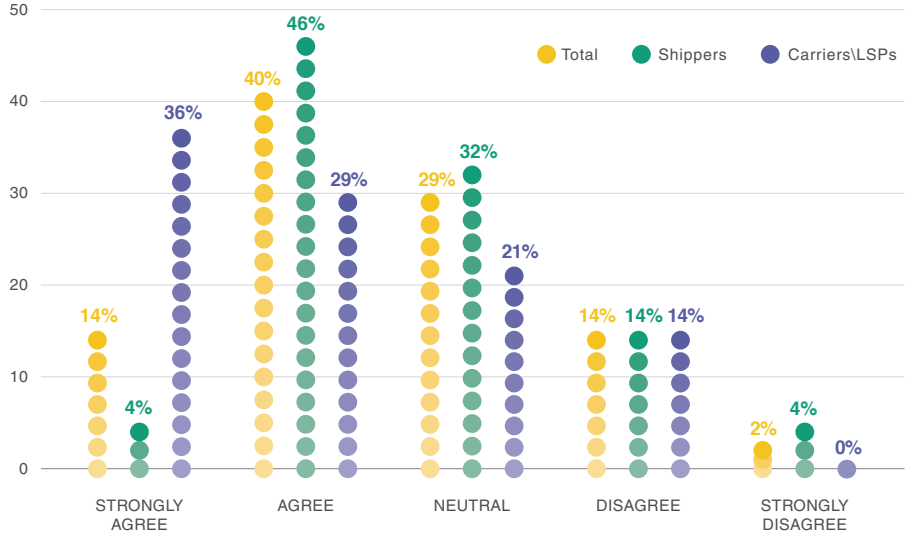
04

Responding Quickly, Intelligently and Effectively to Whatever Happens Down the Road

In a May 2024 survey, we asked Indago members and Transporeon's shipper and carrier community, "Do you agree or disagree with the following statement: We have everything we need in terms of people, processes and technology to respond quickly, intelligently and effectively to whatever happens in the freight transportation market in the months ahead?"

54% of the respondents either "Agreed" (40%) or "Strongly Agreed" (14%) with the statement. The remaining 46% were either "Neutral" (28%) or they "Disagreed" (14%) or "Strongly Disagreed" (2%) with the statement. A greater percentage of the carriers/LSPs surveyed said they agreed or strongly agreed with the statement compared to the shippers surveyed.

Do you agree or disagree with the statement: We have everything we need in terms of people, processes and technology to respond quickly, intelligently and effectively to whatever happens in the freight transportation market in the months ahead?

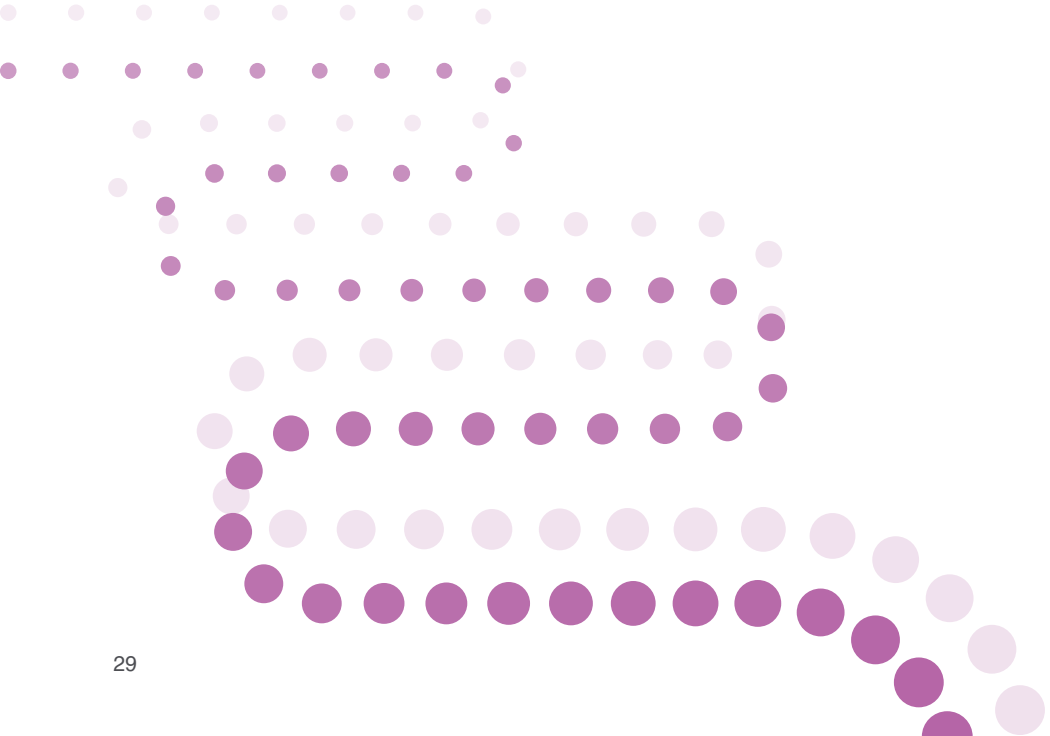


Source: *May 2024 Indago survey of 42 qualified and validated supply chain and logistics executives from 28 leading manufacturing, retail and distribution companies and 14 carriers/logistics service providers.*

These results suggest that many companies still have gaps in their people, processes and/or technology that limit their ability to respond quickly, intelligently and effectively to whatever happens in the freight transportation market down the road.

One area that requires more action is collaboration. In an **October 2022 Indago survey**, for example, almost all the respondents either "Strongly Agreed" (71%) or "Agreed" (25%) that for companies to address the supply chain challenges they face more effectively moving forward, they will have to collaborate more with their suppliers, customers, carriers, logistics service providers and other trading partners.

A key enabler of collaboration are transportation management platforms. As highlighted in **Transportation Pulse Report 2021**, transportation management platforms are the business equivalent of Facebook and LinkedIn; industry networks that connect shippers, carriers, logistics service providers and other stakeholders with each other, enabling them to communicate, collaborate and execute business processes in more efficient, scalable and innovative ways.



There are many things that define a platform solution, but here are four important elements:

- **Connected Network** of shippers, carriers, logistics service providers and other trading partners. Instead of companies creating hundreds or thousands of one-to-one connections with their trading partners, they make a single connection to the platform, where their trading partners and thousands of other companies are also connected.

- **Interoperable Applications** accessible to all parties on the network. In the case of a transportation platform, this includes Real-time Freight Visibility (including visibility to greenhouse gas emissions), Transportation Management (spanning the full lifecycle from procurement through freight audit) and Yard Management capabilities (including dock scheduling).

- **Automated Intelligent Execution.** That is, the ability for transactions and workflows to be executed automatically (across platform applications and trading partners) by leveraging real-time data, optimization, machine learning, artificial intelligence (AI), Natural Language Processing (NLP), predictive algorithms and robotic process automation (RPA) capabilities.

- **Network-Based BI & Analytics.** With tens of thousands of shippers, carriers and other trading partners connected to a single platform, processing millions (or billions) of transportation transactions annually, transportation management platforms enable network members to compare their performance to others in their industry or the broader market. It also enables them to become more data-driven in their decision making by giving them access to Big Data in transportation, putting that data into context via KPIs and benchmarking metrics and providing data visualization tools to more quickly identify trends and opportunities for improvement.

Collectively, these platform elements break down the silos that currently exist between trading partners, processes and applications. They also help overcome the barriers to collaboration to eliminate waste (e.g., empty miles), reduce costs (e.g., detention fees) and reduce greenhouse gas emissions.

Powered By The Network

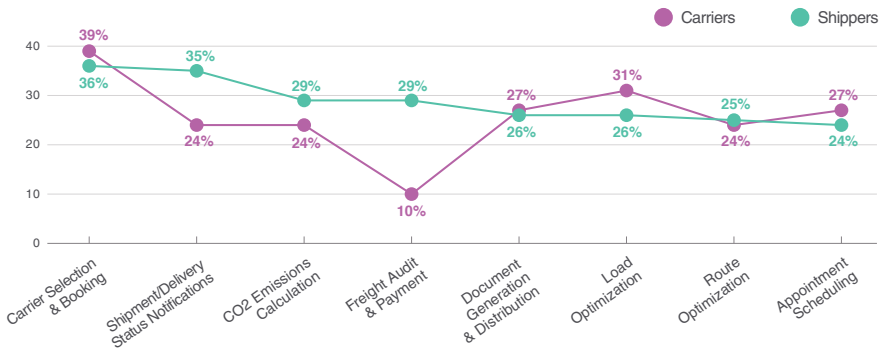
What "network effects" are possible when you have a large community of shippers, carriers, logistics service providers and other trading partners connected and transacting on a common platform?

We have highlighted many examples in **past reports**, including our **Transportation Pulse Report 2024**. Below we highlight several capabilities that are particularly important today, along with some case study examples.

Smarter Ways of Matching Loads with Capacity

In an October 2023 survey of Indago members and Transporeon's shipper and carrier community, "Carrier Selection & Booking" was picked as the biggest opportunity for automation in transportation management today, selected by 39% of the 216 survey respondents, which included Shippers, Carriers, Logistics Services Providers and Others.

Where are the biggest opportunities for process automation in transportation management today? Select 1-3 responses.



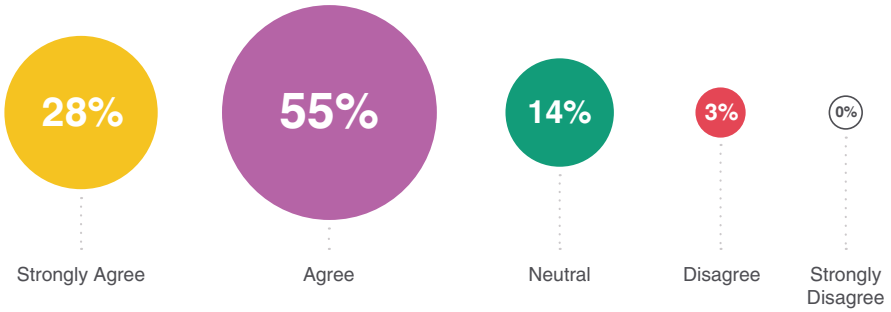
Source: *October 2023 Indago survey of 133 qualified and validated supply chain and logistics executives from 84 leading manufacturing, retail and distribution companies and 49 carriers/logistics service providers.*

"Carrier Selection & Booking" includes both strategic and spot procurement. In recent years, shippers have been taking a more strategic approach to spot procurement.

For example, in a **September 2022 Indago survey**, 83% of the respondents "Agreed" (55%) or "Strongly Agreed" (28%) that their contract vs. spot mix for moving loads will be more dynamic moving forward. More than a third of the respondents (41%) anticipated using the spot market more moving forward, with 31% expecting to use it more by choice than by forced necessity -- that is, to rate shop or cover low-volume lanes, instead of using it to cover loads rejected by contracted carriers.

Do you agree or disagree with the following lessons learned from the past two years related to transportation management?

The spot vs. contract mix will be more dynamic moving forward



Source: *September 2022 Indago survey of 29 qualified and validated supply chain and logistics executives from leading manufacturing, retail and distribution companies.*

Therefore, it's not surprising that there has been a lot of focus and innovation by transportation platform providers in enabling smarter and more efficient ways of matching loads with capacity.

AUTONOMOUS PROCUREMENT

Transporeon's **Autonomous Procurement** is one example. Autonomous procurement **uses AI and machine learning, coupled with applied behavioral science, to develop carrier profiles and price predictions**. This opens the door to a variety of smart tendering strategies. For example, instead of asking carriers to bid on a load tender, the platform can present the tender to a select number of carriers (based on their profiles) along with an offered (predicted) price — with each carrier potentially receiving a different price based on their profile. If none of the initial carriers accept the tendered load at the offered prices within a defined timeframe, then the platform can initiate additional tendering rounds as needed, determining which carriers to invite next, what prices to offer them and the duration of each round.

Anheuser-Busch is a great case study on the benefits of Autonomous Procurement. Prior to 2021, the company used an approach of dynamic sequential tendering combined with e-auction through its transportation management system (TMS). At 4pm each day, a dedicated team would review all spot bids, make awards to selected carriers and move the loads into execution. This method served Anheuser-Busch well for many years, but in early 2021, with truckload spot costs soaring and more volume falling out of contract, the company's process for securing spot freight capacity began to show its limitations.

ANHEUSER-BUSCH BY THE NUMBERS

100-200
loads per day

Average number of spot loads processed daily

5-10
spots bids per load

Average number of bids received on a daily basis Pre Autonomous Procurement Implementation

100%
increase in spot volume from 2020 to 2021

2021 volatility

500-2000
spot bids per day

Source: Transporeon Anheuser-Busch Case Study

Anheuser-Busch implemented a pilot program in January of 2021, during which half of the loads were submitted at random into its standard process and the other half was run through Transporeon's Autonomous Procurement platform. Over a 45-day period, Anheuser-Busch was able to directly contrast Transporeon results against benchmark prices and validate the experience of having their freight flow autonomously without intervention from its team. The company also closely tracked the reaction of its carrier base -- that is, see how they would respond to offers in real-time as opposed to allocating capacity at the end of the day.

By taking the Autonomous Procurement approach, **Anheuser-Busch achieved double-digit savings on spot costs, reduced the number of FTEs required to manage exceptions from 3+ to 1 and greatly reduced the amount of time spent per load (among other benefits).**

THE RESULTS

3-5 FTEs → to one FTE managing exceptions

Team size reductions

2+ hours a day → to a short daily results review

Team size reductions

10+%

Direct reduction on spot rates

Source: Transporeon Anheuser-Busch Case Study

According to the Anheuser-Busch's Director of Truck & Rail, "[Smart Tendering] helps us provide more freight to carriers. Some carriers will look at spot boards first thing in the morning, some will look at midday and some carriers will at night. The Transporeon solution enables them to work within their schedules and provides real-time notifications when freight is available."

The use of Autonomous Procurement also benefits Logistics Service Providers. RPM Logistics is a **good example**. The company, with operations in North America (including Mexico and Canada) and Europe, specializes in finished vehicle and freight transportation. It delivers thousands of units per month and uses Autonomous Procurement to match its customers' shipping needs with available capacity. According to John Perkovich, RPM's Chief Operating Officer:

"Autonomous Procurement is a bit like a marketplace where carriers can browse our available shipments. To be honest, it's a game changer. Carriers can click 'book' and accept with confidence that they'll get the RPM service promise with each shipment they take – that's not happening anywhere else in the industry. And in response to shipper requests, we can say yes to more, with confidence that we've got the tools in place to handle volume without needing to hire more resources. Autonomous Procurement will help us to quadruple our growth in the next five years."

FREIGHT MARKETPLACE

You can find Excel spreadsheets in every nook and cranny of supply chain management. This is particularly true in transportation procurement. Fortunately, many companies are learning (often the hard way) that spreadsheets and manual processes are not going to work any more, at least if they want to remain competitive. Simply put, the traditional freight procurement process is very time-consuming and labor intensive, for both shippers and carriers.

Although some transportation management systems (TMS) have freight procurement capabilities, most were not designed from a "network effect" perspective. In other words, they lack the ability to tap into a large community of connected carriers, especially small and midsize providers that represent the majority of the market. Many also still depend on emails and spreadsheets to gather and share bid information. Considering that many shippers are now conducting "mini-bids" throughout the year, the ability to simplify and automate the freight procurement process is more important than ever.

This is where the power of network-based solutions comes in. One example is Freight Marketplace, which Transporeon launched in Europe in September 2023 and will be expanded to the North American market in the future. As described in the press release:

Freight Marketplace unites carriers and shippers 'under one roof' to do business based on their specific needs, capabilities and requirements. It taps into Transporeon's extensive network of 1,400+ shippers and 158,000+ carriers globally for instant scale, creating a definitive catalog of buyers and sellers. Freight Marketplace uses advanced algorithms to simplify negotiations and optimize the procurement process.

A key feature is the ability for carriers to create their own profiles which shippers can review when they search for new partners. Carriers can include a variety of information in their profiles, including business history, company and fleet size, vehicle types (including alternative fuel options like electric trucks), services, available locations, preferred routes, licensing and registration and insurance coverage.

These profiles, which will include verification capabilities in the background, such as AI tools to verify the authenticity of carrier documents (e.g., licenses, certificates), are important in establishing trust with shippers, especially since freight fraud, as discussed earlier, is a growing problem.

Another notable feature is that shippers are able to negotiate with carriers on a variety of factors beyond price, such as capacity, sustainability and transit times. In the case of sustainability, for example, a carrier might quote a higher rate on a given lane, but score more favorably from a carbon emissions standpoint because they're using a more environmentally-friendly vehicle. Shippers are able to take this into consideration when making their awarding decisions and they might choose to go with the higher-cost carrier on that lane if it helps them achieve their own sustainability goals.

Compared to the traditional approach of sending Excel spreadsheets back and forth to many carriers via email, then spending hours aggregating and analyzing the responses, this network-based approach is easier, faster and more scalable. **Shippers and carriers are able to prepare and respond to tenders more quickly and with less labor involved**, which is particularly important now that procurement engagements are being conducted more frequently throughout the year.

DYNAMIC ROUTING GUIDES

The vast majority of shipments are executed with contracted carriers -- that is, with carriers that are part of a routing guide with negotiated rates and volume commitments. These routing guides are the output of strategic procurement engagements and they have historically been static -- that is, they don't change until the next strategic procurement cycle.

Unlike most contracts, however, transportation contracts are non-binding, meaning a carrier can reject a load tender for a variety of reasons. For example, when freight volumes are high and capacity is tight, tender rejection rates tend to go up, especially if contracted rates are significantly below spot market rates.

What happens when all contracted carriers in a routing guide reject a load? Many shippers still "dial for diesels" -- that is, they pick up the phone and call a bunch of carriers to see who can pick up the load. Others manually post their loads on load boards and wait to see if a match occurs. Needless to say, these approaches are highly inefficient and costly.

For example, users of network-based transportation management platforms can automatically (and almost instantaneously) retrieve real-time rates from carriers and brokers on the network. This can be done after all contracted carriers have rejected a load, or upfront to compare current rates with those in the routing guide. The platform can then tender the load based on shipper-defined business rules and preferred tendering strategy (e.g., sequential tender to a prioritized group of carriers/brokers vs. a broadcast tender to a large group of carriers/brokers). Once the tender is accepted, the transportation management platform then automates the booking process without any human intervention.

In short, considering that the transportation market is highly dynamic and cyclical, the days of "setting and forgetting" your routing guide are over (at least if you want to remain competitive). Moving forward, **companies that leverage real-time market intelligence to continuously analyze market conditions and make adjustments to their routing guides as necessary will be in the best position to control costs, secure capacity and meet customer service expectations.**

In recent years, however, shippers have started to adopt routing guides that are more dynamic in nature -- that is, they change in response to market conditions, carrier performance, lane changes and other factors. This has been enabled by advancements in APIs, data science, machine learning and AI.

Enhanced Visibility

Transportation management platforms enable more timely, accurate and complete visibility to orders, shipments, inventory, deliveries, invoices, status updates and many other supply chain processes and events

This enhanced visibility is enabled, in part, by making it easier for "the long tail" of small carriers, logistics service providers and other trading partners to connect and transact electronically (using APIs, web services and mobile devices, for example) instead of relying on emails, spreadsheets and faxes.

Real-time visibility to in-transit shipments is an important component of transportation management platforms. There are many ways to convert this visibility into business benefits, as this supply chain executive from a leading chemical company commented:

"The data we're getting has been hugely successful. It allows us to analyze the in and out times at our shipping locations as well as our customer locations. We've embarked on a demurrage project to look at where we're having inefficiencies in our loading and delivery processes, causing us to waste a truck driver's time. We're also using the data to manage our carriers. By having actual minute-by-minute arrival times for our carriers, we're able to accurately measure their on-time delivery performance, see which carriers are performing well and which ones aren't and as a result we've awarded more business to those superior-performing carriers."

Real-time visibility also facilitates exception management. For example, if the updated estimated time of arrival (ETA) now shows that a shipment will arrive later than originally planned, specific workflows can be executed automatically, such as sending an alert to the customer notifying them of the delay and the new ETA. If the shipment is heading to a warehouse, dock appointment schedules can get updated automatically, as well as warehouse labor assignments and tasks.

Another important benefit of real-time visibility for carriers and logistics service providers is that it enables them to optimize their capacity utilization, which increases their revenue per transport.

Marco Pace, Sales Director at Mesaroli Group, a leading logistics service provider, offered this perspective on the value of real-time visibility:

“Thanks to Transporeon’s Visibility Hub we were able to detect bottlenecks in our processes and decrease the waiting times at our sites. We gained full transparency on our operations and minimized check calls. That gave us a competitive advantage, because we could focus on growing our operations and improving customer relations.”

Sustainability

Transportation is one of the largest sources of greenhouse gas emissions for most companies

Therefore, having the ability to measure and report the CO2 emissions of shipments -- and using that data during mode and carrier selection -- will become increasingly important. In fact, in a July 2023 **Indago survey**, most of the respondents (60%) believe that it will be either "Extremely Important" (22%) or "Very Important" (38%) for transportation management solutions to have sustainability related capabilities in the next few years; only 6% said it will be "Not important at all."

In the next few years, how important will it be for transportation management systems to have sustainability related capabilities such as considering CO2 emissions in mode/ carrier selection?

Source: *July 2023 Indago survey of 32 qualified and validated supply chain and logistics executives from leading manufacturing, retail and distribution companies.*

Not surprisingly, leading transportation management platforms are already starting to add sustainability capabilities to their solutions. For example, as highlighted earlier, Transporeon's Freight Marketplace enables shippers and carriers to consider CO2 emissions (among price, volume and other factors) in their negotiations. Shippers can prioritize low-emission options if they wish, while carriers can showcase their efforts in reducing emissions.

Another way that transportation management platforms can support sustainability efforts is by enabling collaborative shipping opportunities between companies. By leveraging big data and matching algorithms, the system can identify shippers that have compatible freight and lanes to create repeatable and reliable dedicated routes, continuous moves, or backhauls.

This is a win for all parties: shippers get high-service capacity at below-market pricing and carriers increase their asset utilization and replace empty miles with revenue-generating ones.

Data-Driven Decision Making

Transportation Management Platforms serve as the foundation for data-driven decision making.

By creating a connected network of shippers, carriers and other trading partners and processing millions of transportation transactions annually, network-based platforms are repositories of Big Data in transportation. When you layer business intelligence, analytics, artificial intelligence, machine learning and visualization tools on top of this data, you open the door to new insights about the transportation market and your operations. These insights, in turn, help you to make more informed decisions on what actions to take to reduce costs, improve service, mitigate risks and achieve sustainability objectives.

For example, as highlighted earlier, Autonomous Procurement is able to develop price predictions using AI, machine learning and behavioral science. Shipper TMS solutions can access these predicted spot market rates through an API integration.

Shippers can use this information to decide whether to move a load using the spot market if the prediction is lower than their contract rates, or move it with a contracted carrier if the prediction is higher than their existing contract rates. This is an example of a Dynamic Routing Guide in action.

05

The Road Ahead

What can shippers and carriers expect in the second half of 2024 and beyond?

Another Peter Drucker quote sums it up best: "The only thing we know about the future is that it will be different."

The nearshoring trend, with more manufacturing and sourcing moving to Mexico or back to the United States, will reshape transportation networks, which will increase shipments and capacity requirements in certain lanes and decrease them in others. This will be further impacted if more companies move away from China, especially if the threat of war between China and Taiwan continues to increase or relations between the United States and China worsen. Tesla, for example, "has told suppliers to start building components and parts outside of both China and Taiwan by as early as next year due to rising geopolitical uncertainties," **according to Nikkei Asia.**

The types of trucks transporting goods in the years ahead will also be different. Although several new laws and regulations aimed at phasing out diesel-powered trucks are currently being challenged in courts, **we will start seeing more electric and hydrogen powered trucks on the roads moving forward** -- probably not as quickly as proponents would like, but their use will certainly increase over time. Without any technological breakthroughs, the much higher cost of battery-powered electric trucks, as well as their range and capacity limitations compared to diesel-powered trucks, this transition will present many challenges to both carriers and shippers.

Another difference: having the ability to measure and report the CO2 emissions of shipments and using that data during mode and carrier selection, will become increasingly important.

Also, freight fraud will likely become more sophisticated and continue to grow in the years ahead, but we'll also see shippers, carriers, logistics service providers and the FMCSA addressing this problem with more focus and resources than in the past.

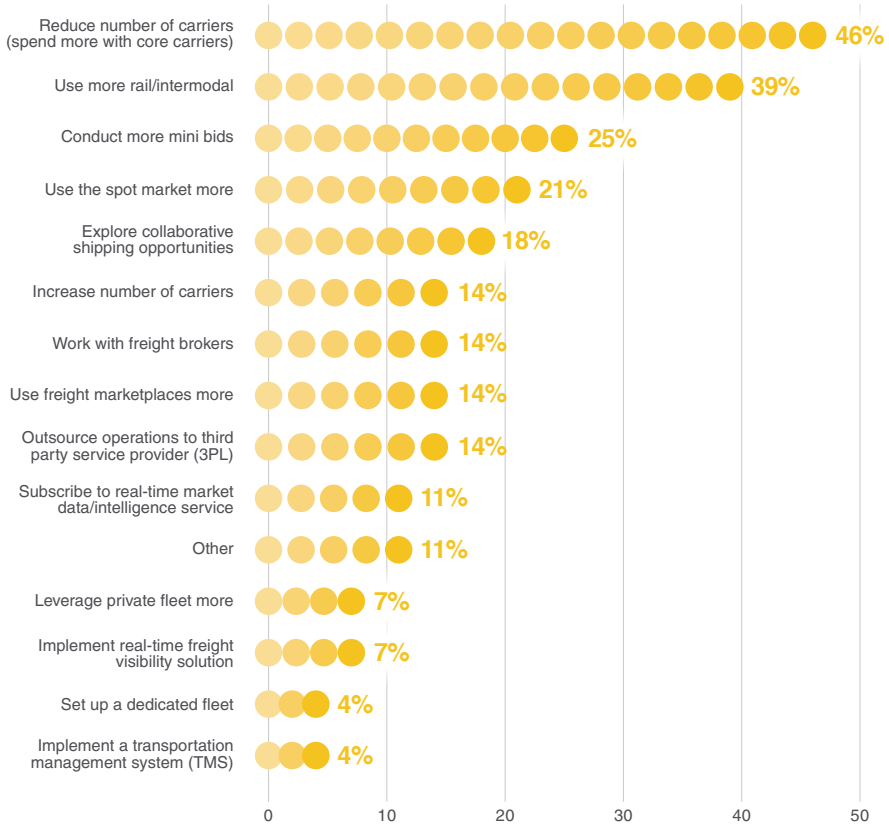
"The freight market is, as usual, feast or famine," commented a Supply Chain Director at a leading plastics manufacturing company in our May 2024 survey. "The supply-demand imbalance will always eventually correct itself."

In other words, while it is difficult to predict exactly when it will happen, **shippers and carriers both know that the pendulum will eventually swing in the other direction again**, toward a market with increased freight volume, tighter capacity and higher rates.

What actions do shippers and carriers plan to take in the second half of 2024 to better manage/control their transportation costs and operations?

Topping the list for shippers in our survey was “Reduce number of carriers (spend more with core carriers),” which was selected by 46% of the shipper respondents.

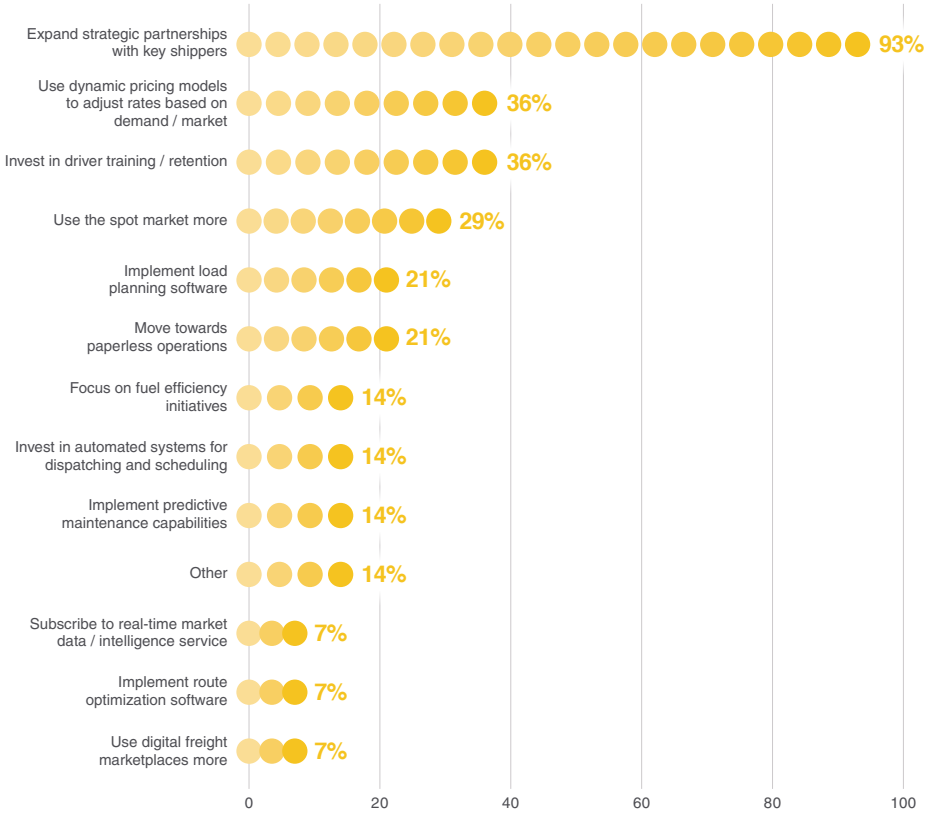
What actions do you plan to take in the second half of 2024 to better manage/control your transportation spend and operations? Check all that apply.



Source: *May 2024 Indago survey of 28 qualified and validated supply chain and logistics executives from leading manufacturing, retail and distribution companies.*

The top choice for carriers/LSPs was similar: "Expand strategic partnerships with key shippers," which was selected by 93% of the carrier/LSP respondents.

What actions do you plan to take in the second half of 2024 to better manage/control your transportation costs and operations? Check all that apply.



Source: *May 2024 Indago survey of 14 qualified and validated supply chain and logistics executives from leading carriers/logistics service providers.*

Simply put, shippers and carriers plan to focus on strengthening their core relationships moving forward -- along with using more rail and intermodal, using the spot market more, conducting more mini-bids (in the case of shippers), investing in driver training and retention, using dynamic pricing models to adjust rates based on demand and market conditions (in the case of carriers).

This is where transportation management platforms and "the power of the network" come in.

They enable smarter ways of matching loads with capacity by leveraging AI, machine learning, behavioral science and other capabilities; they provide more timely, accurate and complete visibility to orders, shipments, deliveries, status updates and other supply chain processes and events, which reduces check-in calls, truck turnaround times and detention costs; they help shippers and carriers meet their sustainability goals by enabling them to consider CO2 emissions in their negotiations and by helping them identify collaborative shipping opportunities to create repeatable and reliable dedicated routes, continuous moves, or backhauls; and they provide shippers and carriers with data and market insights to inform their decisions on what actions to take to reduce costs, improve service, mitigate risks and achieve sustainability objectives.

When you look at the road ahead from a "power of the network" perspective, there is actually nothing "blah" about it.

Adrian Gonzalez
President of Adelante SCM,
Founder of Talking Logistics

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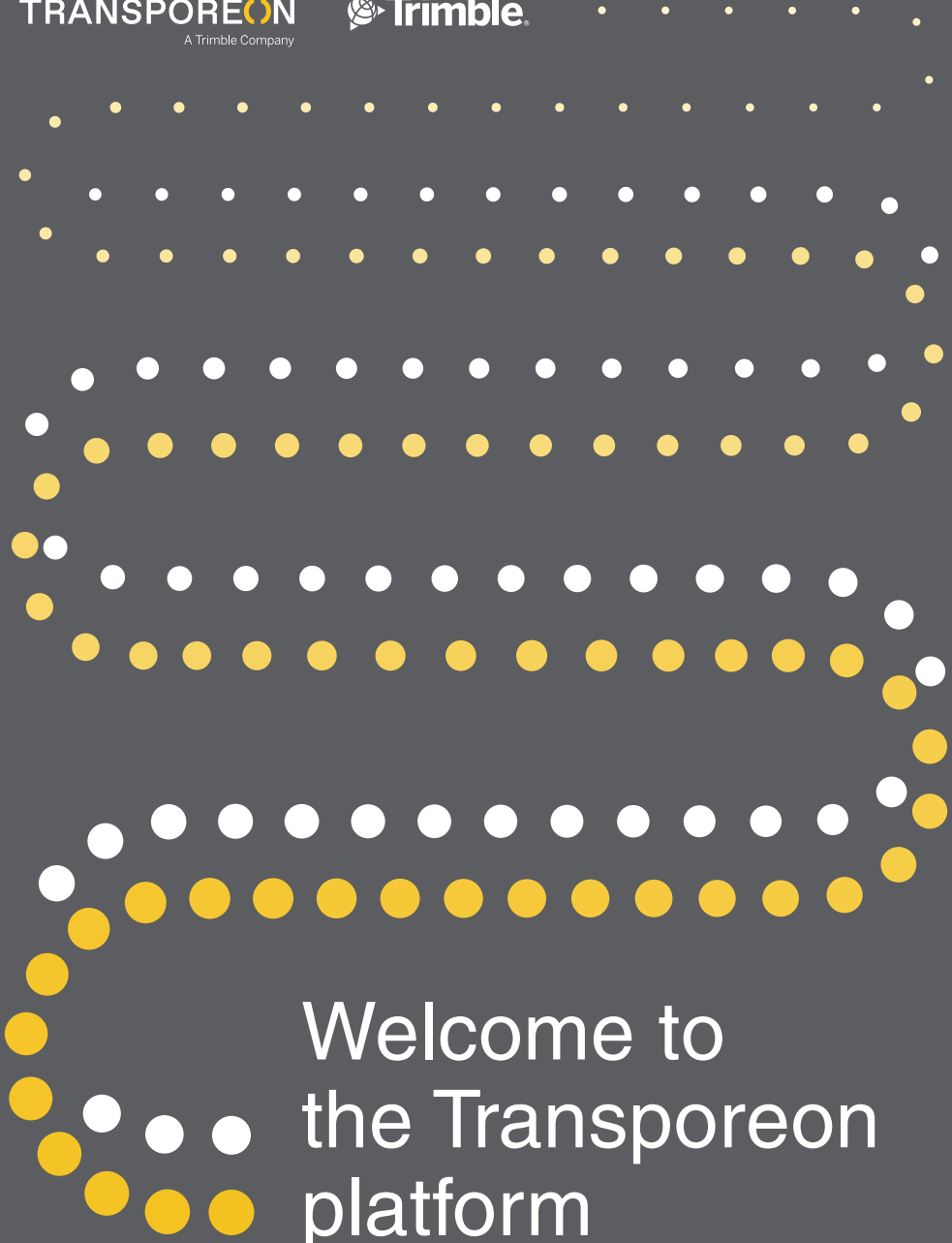

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