

MAY 2022

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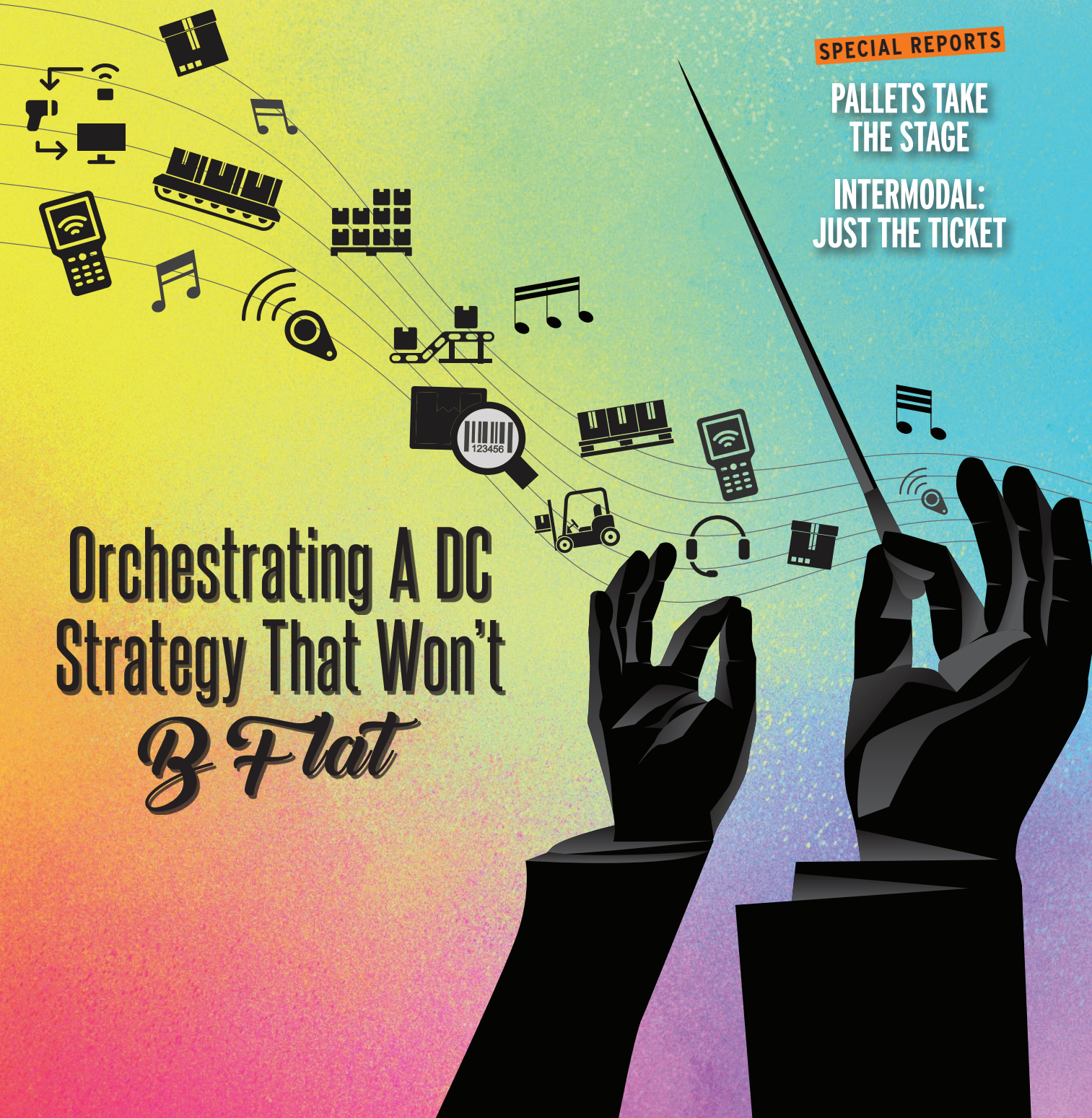
THE MAGAZINE FOR DEMAND-DRIVEN ENTERPRISES

## SPECIAL REPORTS

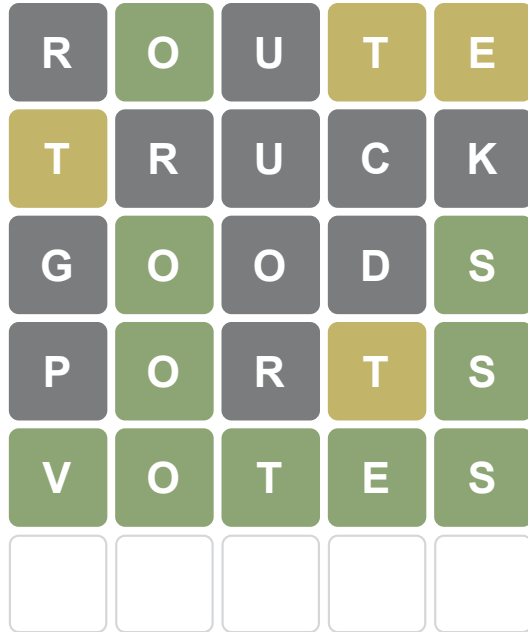
PALLETS TAKE  
THE STAGE

INTERMODAL:  
JUST THE TICKET

Orchestrating A DC  
Strategy That Won't  
*B Flat*



# Wordle



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# Info SNACKS

BITE SIZED SUPPLY CHAIN/LOGISTICS INFORMATION



## TIME TO UPDATE THAT RESUME

Here are 10 jobs expected to gain popularity in the workforce as early as 2025:

1. Data Detective
2. 3D Printing Engineer
3. AI Specialist
4. IT Service Broker
5. Sustainable Sourcing Manager
6. Personal Brand Manager
7. E-Commerce Broker
8. Startup Broker
9. Confidence Coach
10. Elderly Care Companion

—Thomas Insights

**70%**  
of retailers are actively trying to lower the cost of returns by addressing transportation and/or processing costs.

**42%**  
of retailers give their logistics/operations leaders final authority on selecting a returns transportation vendor

**only 25%**  
give operations leaders the same authority for selecting returns technology vendors

—Pitney Bowes BOXpoll survey of digital and omnichannel brands

**\$3.1 MILLION**

The average ransom payment that shipowners give to perpetrators of cyberattacks in the maritime shipping industry

—CyberOwl and HFW research

## The Incredible Bulk

**1 in 2**

large/bulky home deliveries are rescheduled

**Half**

aren't delivered on-time, even when rescheduled

**Early delivery**

doesn't always make the customer happy

**Brand loyalty**

becomes vulnerable when tracking isn't available

**Demand**

isn't going away

—DispatchTrack's Big and Bulky Last-Mile Delivery Report

"If Toyota has a secret weapon in managing and mitigating supplier interruptions, it might be this: With some exceptions, it has largely mapped out its entire supply chain, down through Tier 4 and Tier 5 suppliers."

—Automotive News



## DRIVER TAX CREDITS

Virginia Democratic Congresswoman Abigail Spanberger is co-sponsoring a bill encouraging more people to enter the industry and keep existing drivers on the job. The *Strengthening Supply Chains Through Truck Driver Incentives Act* would offer refundable tax credits to new truck drivers or people enrolled in a registered trucking apprenticeship. That credit would be up to \$10,000 and would last for two years. The bill would also create a \$7,500 refundable tax credit for truck drivers holding a valid Class A CDL who drive at least 1,900 hours during the year. It would also last two years.

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## 44

### ORCHESTRATING A DC STRATEGY THAT WON'T B FLAT

Distribution center technology and equipment working in harmony can keep any supply chain sharp. Here's how companies can conduct DC operations to make sure they work in concert.



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## 50

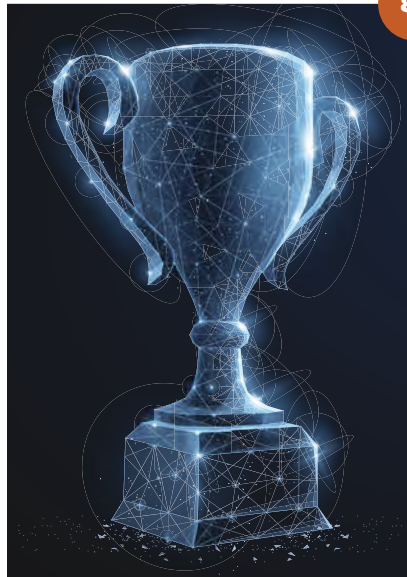
### TMS MUST-HAVES FOR A COMPETITIVE EDGE INSIGHT & TMS GUIDE

A transportation management system (TMS) can help companies navigate uncertain business conditions. This annual guide of top TMS providers and solutions will put you on the road toward improved transportation management and performance.

## 70

### SAY YES TO THE YMS INSIGHT & YMS GUIDE

Without proper management, yard pile-ups can lead to delays, fees, and a full shipment of stress. Find out how to maximize yard efficiency using this short list of leading providers to get the right solution for your yard operations.



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### AUTOMATION & MATERIALS HANDLING INNOVATIONS: AND THE AWARD GOES TO...

Let's hear it for these seven warehousing and materials handling innovations that take the crown for addressing e-commerce growth and labor shortage challenges.

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### INTERMODAL IS JUST THE TICKET

With rail facility and infrastructure upgrades nailed down and intermodal network improvements on track, these ports and sites are riding high on intermodal's advantages.

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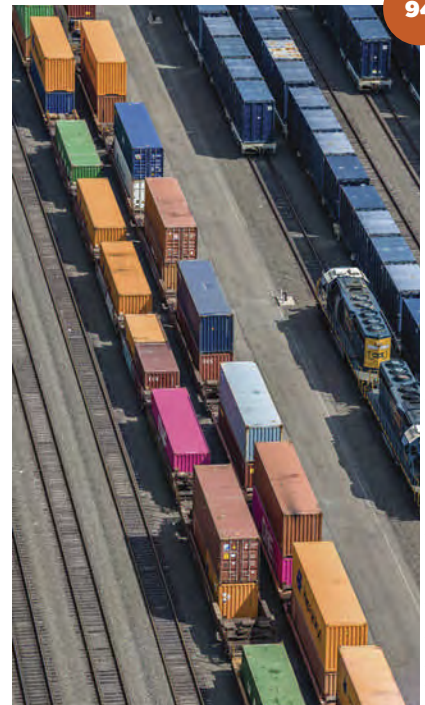
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### PALLETS: FRONT & CENTER

Playing a central role in the supply chain, the often-overlooked pallet is capturing the spotlight and evolving to keep up with rapidly changing demands. These pallet companies ensure standout performances.



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PHOTO: PORT OF NEW YORK AND NEW JERSEY

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*Manufacturers source springs for a multitude of products*

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*The Apex Exosuit takes 75 pounds of strain off workers' backs when they lift an object.*

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Rony Kordahi, chief operating officer with Parts Town, a distributor of restaurant equipment parts, makes sure the company at its core recognizes at the end of every transaction is the livelihood of a family, employee, and business.

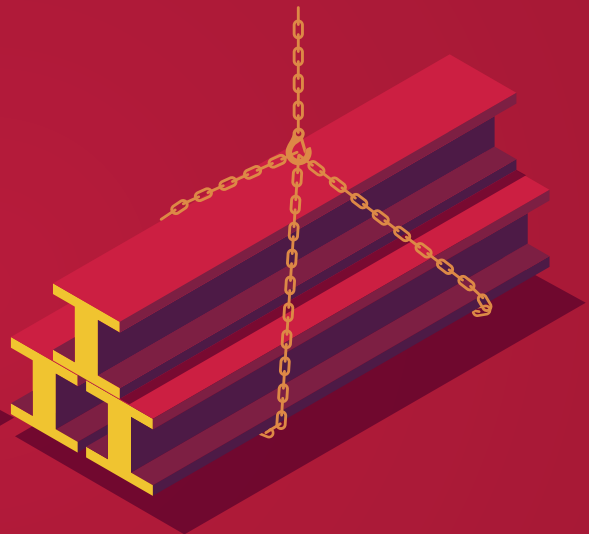
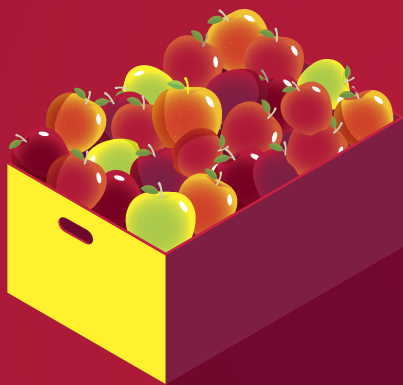
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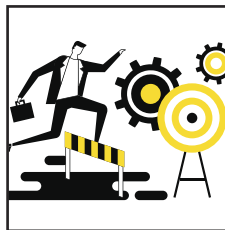
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## MORE NEWS ONLINE



### GIRDING FOR SUPPLY CHAIN TURMOIL

Companies can minimize disruption by implementing tools and best practices that will enable them to overcome transportation and technological hurdles. These include enhancing visibility within the logistics network, applying analytics, and expanding carrier networks.

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### WHY DISTRIBUTORS SHOULD MOVE TO THE CLOUD NOW

To cloud or not to cloud? Is the disruption of moving an ERP and other tools worth the benefits and rewards? Here's a look at some of the most compelling reasons to make the move to the cloud now.

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### HOW MANUFACTURERS CAN NAVIGATE GLOBAL SUPPLY CHAIN UPHEAVAL

Not only do advanced analytics reduce the supply of materials needed for a factory, but they also help to find alternative vendors for materials that are in short supply. Here's how industry 4.0 technologies can ease the burden on the global supply chain.

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PROVIDER  
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# CHECKING IN

## Reshoring? Not So Fast



Keith Biondo, Publisher

Many companies are on a path to reshore manufacturing and supply back to the United States for several reasons, including capricious actions such as the Shanghai lockdown; future pandemics; retaliatory actions that deliberately choke supply as a response to sanctions; rising cost of transport lift from the East; rising labor costs in China; monetary manipulation; intellectual property risks; squeezing container supply; saber-rattling and outright war. Some supplies, such as

lithium for batteries and microchips for everything, have only a few supply points, making reshoring efforts impractical in the short term.

To support companies looking to reshore manufacturing and supply to keep business from cratering, the U.S. Administration floated initiatives in February 2022 aimed at encouraging the reshoring trend. Mandating where private companies source and manufacture products is difficult even with a mix of incentives—subsidies, tax breaks, loan-guarantees and funding for R&D—to encourage them to bolster domestic supply chains.

But government efforts to spur reshoring are exactly wrong, say some global trade deep thinkers, especially considering that national policy created more headwinds in the past two years despite the incentives. For starters, there's an anti-transportation and manufacturing energy policy. Add overall inflation and dramatically rising domestic costs for manufacturing. Tax rates are not going down, either. Is an activist U.S. government intent on more regulations? Ya think? How about green policy costs? High over here, very low, if at all, over there. Then there's the labor issue, if you can get enough skilled workers.

The World Bank and the International Monetary Fund (IMF) are convinced that reshoring is not at all the answer to current and future supply chain disruptions. "Supply chain disruption will *not* be solved by reshoring," says the IMF report on reshoring. Global management consultant McKinsey & Company agrees, and combines reshoring with today's buzzword, "friendshoring" supply chains. Wait what?

"We could not get labor, we could not get raw material on time, and we decided, 'Let's go to Mexico,'" says Isaac Larian, CEO of MGA Entertainment, the maker of Little Tikes. MGA is keeping factories in the United States and in China but it recently opened two factories in Mexico and has another on tap.

Then there is the friendlier Mexico-U.S. relationship, significantly lower transportation costs, lower intellectual property theft risks, and easier border crossings. Some observers call the move to friendlier Mexico a "tidal wave."

Reshoring is not as attractive an option as it was two years ago. Unless U.S. policies and trade relationships change in the next few years, enterprise planners will slow-walk reshoring and fast-track friendshoring. ■

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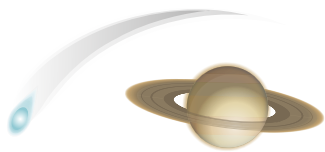
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# GOODQUESTION

Readers Weigh In

## What's the biggest supply chain silo?



The origin and destination offices for importers' supply chains are not simply adjacent silos, **they are orbiting planets.** Bring both sides together on a central supply chain management platform so they can work together in real time on the same shipment file.

**-Bryn Heimbeck**  
President, Trade Tech



**THE LACK OF A PLATFORM** that integrates data and provides visibility to volume, dwell, railcar availability and train bunching, and truck capacity and driver shortages.

**-Tom Martucci**  
Chief Technology Officer,  
Consolidated Intermodal Technologies

**DATA.** From suppliers not sharing data with producers to manufacturers not knowing when to ramp up or down staffing, the lack of good data or lack of access to it can hurt everything from productivity to shipping.

**-Carl Schweih**  
President and COO  
PeopleManagement,  
a TrueBlue company

### Transportation Void

**The biggest supply chain silo is transportation.** Providing transportation visibility across the supply chain including to customers, suppliers, and logistics partners opens up the silo.

**-Chris Jones**  
EVP, Industry and Services, Descartes

By far, with the impact on shipping from COVID issues, **transportation is the biggest silo to overcome.** With the 3G networks that so many electronic logs are configured for being decommissioned, until carriers are able to upgrade we could suffer a micro-shortage of capacity. It all depends on how agile the carriers are at upgrading to 4G. This is a silo that can only be toppled by proactive carrier engagement.

**-Brian C. Gaffney**  
Supply Chain Specialist, Natural Fiber Welding

Mature supply chains have developed sales and operations planning departments, but **transportation isn't typically involved.** Given variables like capacity volatility, unpredictable lead times, and product shortages, breaking down that silo could help shippers conserve resources and strategically plan for capacity needs.

**-Aaron Galer**  
SVP, Strategic Partners, Arrive Logistics

**THE DISCONNECT BETWEEN STRATEGIC PLANNING** and day-to-day tactical supply chain optimization. The functional areas that contribute to both ends should collaborate to make deliberate trade-offs to remain aligned overall with the big-picture strategy. Give enough latitude to respond to daily business needs—but without jettisoning strategic progress.

**-Troy Prothero**  
SVP, Product Management,  
Supply Chain Solutions  
Symphony RetailAI

**SALES AND OPERATIONS TEAMS** are often disconnected. Lacking a unified view of the customer leads to a weak, inconsistent customer experience—and lost sales. Customer relationship management software helps put everyone on the same page.

**-Mark Buman**  
Chief Revenue Officer, Magaya

**INEFFECTIVE PACKAGING MANAGEMENT** causes shortages, loss, expedited freight, and an overall poor performing supply chain. To break this silo, companies must look at their supply chain holistically and

implement a packaging and asset management system.

**-Mike Garcia**  
Market Manager - RPM  
ORBIS Corporation

**COMPLIANCE.** Despite impacting nearly every aspect of how goods are shipped (packaging, documentation, carrier selection, etc.), compliance responsibilities are often separated by business unit, function, or location. Establish reliable and repeatable processes across all divisions and locations and integrate compliance into other operational systems, including TMS, WMS, and ERP.

**-Mario Sagastume**  
VP Software & Customer  
Success, Labelmaster

**DATA FLOW THROUGHOUT THE SUPPLY CHAIN.** Embedding cross-functional metrics, dashboards, and (ideally) organization enables informed decision making, transparency, and value company-wide. The more teams know about the full value chain, the more successful each team will be.

**-Omer Abdullah**  
Co-founder and Managing Director  
The Smart Cube

**IN FORWARD LOGISTICS,** products are identified by universal product codes (UPCs). However, when a product is returned, there is no system to identify it. To break down this silo, I advocate for a reverse UPC classification structure based on specific conditions and accessories to facilitate faster refurbishment, accounting and reconciliation, and resale.

**-Scott Huddle**  
Chief Supply Chain Officer, goTRG

**LACK OF VISIBILITY ACROSS MODES** can create silos, especially for global shippers that combine ocean, air, intermodal, and over-the-road transportation. Working with a provider that offers technology and expertise across modes is critical to gaining visibility and ensuring exceptional service.

**-JJ Shickel**  
CEO, Omni Logistics

## Seeking Supplier Visibility

**Typically, each supplier tier** is siloed from the next, and most companies have low, if any, visibility beyond their first-tier suppliers.

**-Jeff White**  
Founder and CEO, Gravy Analytics

One of the biggest silos is **visibility to supplier value chains.** Transparency through the second and third tier of the supply chain provides valuable insights for serving customers.

**-Hemant Porwal**  
EVP-Supply Chain & Operations, Wesco International

**Supplier information lives in multiple locations** across an organization, many of which are poorly connected, creating data silos. The resulting challenges in visibility, risk, and spend put supply chain resilience at jeopardy. To move forward, an organization-wide commitment to supplier-centricity and master data management, built upon active supplier experience management, is crucial.

**-Anthony Payne**  
CMO, HICX

**THE LACK OF SHARED NETWORKS.** Collaboration up and down the value chain to drive business-critical process is still driven by antiquated systems that are incredibly manual or inflexible. Disruptive organizations are empowering agile teams to innovate their processes continuously while remaining connected.

**-Peter Rifken**  
Principal Solutions Consultant  
Quickbase

**TRADITIONAL LINEAR SUPPLY CHAINS** prevent companies from looking beyond the first tier, leaving the global flow of goods and materials vulnerable to disruption. A digital business network brings trading

partners together for better visibility and collaboration.

**-Tony Harris**  
SVP and Head of Marketing & Solutions  
SAP Business Network

**THE BIGGEST SILO IS BETWEEN PLANNING, PROCUREMENT, AND SOURCING.** Primarily driven by a lack of data transparency and integration, this is exacerbated by insufficient resources and unclear business processes. A digital supply chain platform that provides a single source of data and integrates business processes is the key to breaking down this silo.

**-Lachelle Buchanan**  
Director, Logility

### Have a great answer to a good question?

Be sure to participate next month. We want to know:

What pandemic-era innovation will have the greatest long-term impact on supply chains?

We'll publish some answers.  
Tell us at [editorial@inboundlogistics.com](mailto:editorial@inboundlogistics.com) or tweet us @ILMAGAZINE  
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[INSIGHT]

# DIALOG

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## Quick TIP

Leverage artificial intelligence in the warehouse by using automation to gain accurate and near real-

time visibility into inventory status and inventory-related events, while simultaneously reducing labor costs. This can be accomplished with advanced sensors and cameras combined with computer vision.

—K.G. Ganapathi  
Founder and CEO  
Vimaan

**Re. Good Question: How can retailers compete with the logistics dominance of the e-commerce behemoths?**

[bit.ly/ILGoodQuestion\\_0422](https://bit.ly/ILGoodQuestion_0422)

You offer the product, variety, and value they may not. It's about distancing and separation. Deep domain expertise within narrow product categories can be a clear advantage.

For instance, what professional expert are you going to call at an e-commerce behemoth like Amazon for product advice? Instead, Amazon relies on crowdsourcing reviews from buyers. And try getting advice on the best hardwoods for furniture building from Home Depot.

Better to consult with a specialist in that space. Position yourself and become such a specialist in your space to gain a competitive edge.

—Eric Allais  
President & CEO, PathGuide Technologies

**Re. Checking In: Twinning Your Supply Chain from Google**  
[bit.ly/supplychainTWIN](https://bit.ly/supplychainTWIN)

As digital twin technologies continue to expand into the end-to-end business cycle, logistics data will be paramount. Optimum product configurations can be identified by running simulations in a digital twin environment. If any part of a product is delayed due to supply chain constraints, digital twins allow manufacturers to identify alternative parts to get to market faster, and shippers that match these manufacturers' agility and can optimize capacity will thrive.

—Jay Marshall  
Global Head of Value Engineering  
Physna

## Fast TAKES

**On global supply chain disruption**

With the latest lockdowns in China, disruptions are putting new pressures on supply chains. When one node of a supply chain is impacted, it reduces the flexibility for systems to be able to respond. This creates a knock-on impact leading to congestion at ports, slower delivery times, and price increases for consumers.

—Douglas Kent  
EVP, Association for  
Supply Chain Management

**On the Administration's initiative to improve supply chain data flow: Freight Logistics Optimization Works (FLOW)**

One major challenge will be the data each participant shares will be delivered in various formats over different platforms. AI will need to be used strategically to transform documents and streamline process bottlenecks.

Take customs declarations, for example. Stakeholders must stay on top of processing the customs declarations, which originate many times as documents. Are they scanned in the cab, captured via a mobile app, or scanned at the depot? All are valid options, but speed and accuracy are key. How fast can you transform the text locked within a document into accurate and actionable process-ready data? FLOW is a needed and ambitious initiative, but participants need to be on the same technology pace.

—Bruce Orcutt  
SVP, ABBYY

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# 10 TIPS

## Optimizing the Last Mile

Complexities and constantly changing demands impact last-mile delivery. Since the pandemic, consumer demand and e-commerce volumes have surged, as delivery windows have shrunk. Businesses can address the challenges of the last mile with technology, along with these directives.

### 1 CREATE PLANNED ROUTES THAT MEET ALL OPERATIONAL CONSTRAINTS.

*Typical constraints for a last-mile route include delivery time windows, driver availability, historical pickup density, vehicle capacity, driver schedules, delivery location, and number of stops. Be aware of drivers' skills for operating certain vehicle types and work the plan around their Hours-of-Service restrictions.*

### 2 CONSIDER DELIVERY CONSTRAINTS.

The route plan should include constraints such as low bridges, type of roadway (gravel vs. paved), narrow passageways, time windows (dock only open a limited amount of time), and limited access at the delivery location, such as loading dock size and ramp availability for unloading packages. Knowing these types of constraints beforehand helps prepare the driver to make the best delivery possible.

### 3 UNDERSTAND DELIVERY REQUIREMENTS.

While Amazon set the stage for consumer expectations, few deliveries need to arrive within hours. Finding out what customers really want versus what they need can save money, both for the customer and your delivery operations. If a part needs to keep a production line going, the order needs quick delivery; a t-shirt can wait.

### 4 PREDICT CUSTOMER HANDLING TIMES.

Looking at historical data to predict dwell and delivery handling times creates the best stop sequence in routes without missing an appointment. This data-driven approach saves precious time and you can rapidly assign single or multiple pickups to the best drivers considering all operating constraints.

### 5 RE-SEQUENCE STOPS CONTINUOUSLY.

Re-sequencing stops continuously on a route plan ensures on-time service. If you get a new pickup for your driver, you can add this leg of the trip to their route plan,

but you must include time commitments and current traffic to ensure timely delivery.

### 6 SUPERIMPOSE REAL-TIME WEATHER DATA INTO YOUR ROUTE PLAN.

Route planners can glean valuable insights that help them adapt quickly to disruption. You can identify potentially impacted delivery points and create contingency plans around or away from the affected areas.

### 7 UTILIZE TELEMATICS, GPS, AND ELDS.

These technologies improve real-time location information so customers know exactly where the truck will bring their order

and whether the truck will be on time or delayed due to traffic. These devices allow planners to see in real time the actual route against the planned route so they can ensure that their plan is being followed and savings realized.

### 8 GIVE DISPATCHERS VISIBILITY.

Dispatchers need to see the overall pick up and delivery operation. If a driver will be late for a pickup or delivery, they can proactively alert the customer about the delay, reducing the volume of calls to your customer service organization.

### 9 USE HISTORICAL DATA FROM TELEMATICS.

This improves the transport plan continuously. If delays regularly occur at a specific customer site, you can identify the root cause and then solve the problem so it doesn't continue to happen.

### 10 COLLECT AND MEASURE KPIS.

*Key performance indicators (KPIs) include number of deliveries completed, percentage of missed deliveries, number of late deliveries, damage claims, delivery time, vehicle capacity utilization, number of complaints, and more to monitor operational efficiencies and improve service levels. You can also measure the number of hours a vehicle is in motion and divide it by the number of hours the vehicle is stopped to determine overall performance of shipment delivery.*

SOURCE: RAMBABU YADLAPALLI, PRODUCT MANAGER, ROUTEMAX BY HAULSUITE



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## RISKY BUSINESS

New research from Supplyframe confirms what we already suspected: The electronics supply chain continues to face high risk and is not likely to shed its woes in 2022.

Thanks largely to the never-ending increase in demand for semiconductor chips, coupled with supply chain hangovers from pandemic-related disturbances and new raw materials challenges relating to the Russia-Ukraine conflict, the grim outlook is here to stay for the foreseeable future, says the Supplyframe report. It also predicts three top risks for the electronics supply chain in 2022:

1. Component price increases due to materials shortages and manufacturing disruptions.
2. Longer lead times due to buffer inventory depletion.
3. Geopolitical rivalries between China and North America.

## BREADBOARD RAISES THE DOUGH

Breadboard, a timely startup providing software that digitizes the supply chain for electronics manufacturers, recently secured \$1 million in funding from Bienville Capital.

The new company, founded by CEO Zachary Feuerstein and CTO George Balayan, has created a solution that enables electronics manufacturers to generate instant quotes for their customers—which automates and speeds the lengthy RFQ process—and then organize the internal manufacturing and sourcing process.

The software helps manufacturers streamline RFQ delivery, automate bills of materials, calculate labor estimations, generate instant quotes, and process payments—and it is all customizable for each business. It also enables the manufacturer to seamlessly connect with suppliers and other supply chain partners.

As a result, Feuerstein and Balayan say, Breadboard users gain transparency into pricing, availability, and shipping times for all components.

With the urgent need for tools that aid in tackling supply chain concerns for manufacturers, Breadboard is well positioned for growth. The fledgling firm has also partnered with venture studio Fractal Software, which has supported the launch of more than 30 B2B software businesses.



## CAN WE SAVE THE SEMICONDUCTOR SUPPLY CHAIN?

Developing strategies to help strengthen the efficacy of the semiconductor supply chain is almost a national pastime at this point. Experts of all kinds have lent their brainpower to determining how to relieve ongoing supply chain pressures surrounding one of the most in-demand products on the planet. Renowned public policy organization The Brookings Institute is the latest to weigh in.

Instead of a focus on reshoring the semiconductor supply chain—an increasingly popular approach supported by recent legislation on Capitol Hill—the Brookings Institute espouses a two-pronged holistic approach to address semiconductor availability.

First, the United States should focus on deepening its high-tech collaboration with supply chain partners such as South Korea, Taiwan, or Europe. Second, the United States should amend immigration rules to permit more skilled workers to enter the country, augmenting the talent pool during a period of labor shortages and increasing the competitiveness of U.S.-based industry.

The Institute says these policies would help boost domestic production from 10-12% of the global market and increase supply chain resilience while minimizing potential efficiency losses from over-reliance on local manufacturing.

Its resistance to embracing reshoring as a solution centers around the excessive time it takes to build semiconductor manufacturing facilities, the likelihood that U.S. fabrication plants will not be profitable without government assistance, and ongoing labor shortages.



# EMBRACING JUST-IN-CASE LOGISTICS

The supply chain turmoil in the electronics industry has been particularly crushing for electronics manufacturing service (EMS) companies—the ones making goods for original equipment manufacturers. Because they sit in the middle of the supply chain, EMS firms feel the crunch from both sides.

The best way for EMS companies to thrive today, according to recent thought leadership from Forbes Technology Council, is to embrace “just-in-case” logistics, defined as “relying on their own warehouses, stocked with excess inventory, to prevent shortages not only in finished products but also for spare parts and components” by Andreas Bubbenzer-Paim, head of technology banking at Bank of the West/BNP Paribas.

Bubbenzer-Paim recommends EMS companies adapt using six tactical steps to get to a just-in-case approach:

**1. Encourage customers to shift away from placing frequent, smaller orders.** Instead, EMS companies should get their customers to place larger orders to improve chances of securing needed components. That way, EMS companies can, in turn, place their own larger, less-frequent orders with their suppliers.

**2. Use robotics and AI to help overcome supply chain inertia.** Automating manual processes and streamlining human-machine interactions can help reduce the pressure on supply chains, and couples well with just-in-case inventory buffers.

**3. Diversify across the globe.** Having financial partners with a presence in key countries and regions can help manufacturers stay ahead of disruptions and maintain supplier relationships.

**4. Consider reshoring.** Following the lead of giants like Samsung and Intel, EMS companies should consider building semiconductor factories in the United States to localize talent, recoup losses, and improve supplier-manufacturer relationships.

**5. Seek alternate financing mechanisms.** EMS companies with cash-flow difficulties may benefit from financing channels that don't require debt.

**6. Provide shorter payment terms to suppliers.** This helps ensure that suppliers are able to keep operating and providing the necessary components to the EMS industry.



# A PIVOT TO PENANG

Seeking to diversify beyond China for offshore manufacturing capabilities has been an ongoing strategy in the electronics sector—and Penang, Malaysia, is fast becoming a major player in the global semiconductor industry.

Embracing the area recently is TTM Technologies, a Santa Ana, California-based manufacturer of printed circuit boards (PCB), radio frequency (RF) components and RF microwave/microelectronic assemblies, which just broke ground on a \$130-million manufacturing plant in Penang.

TTM selected Penang based on the region's favorable conditions for investment and operating costs, customer proximity, and supply chain support. Penang was also attractive, the company notes, due to its well-established electrical and electronics industry ecosystem. Penang is now estimated to contribute approximately 8% of the global back-end semiconductor output, boasting a network of more than 3,000 local suppliers, according to economic development booster organization, InvestPenang.

“As an early-mover into Southeast Asia for the production of advanced technology PCBs, TTM is responding to our customers' needs for supply chain resiliency, regional diversification and growth capacity,” notes TTM President and CEO Tom Edman.

The new, highly automated plant will serve TTM's global commercial markets including networking communications, data center computing, and medical, industrial, and instrumentation. Being built on 27 acres of industrial land at Penang Science Park, TTM expects to be fully operational there by 2025.

## \$555.9 BILLION

TOTAL GLOBAL SEMICONDUCTOR INDUSTRY SALES IN 2021—THE HIGHEST EVER, AND 26.2% HIGHER THAN 2020.

—Semiconductor Industry Association

# READERPROFILE *as told to Karen Kroll*

## Parts and Parcels



**RONY KORDAHI** is chief operating officer with Parts Town, a distributor of restaurant equipment parts.

**RESPONSIBILITIES:** Supply chain planning, including purchasing and inventory management; program management office; e-commerce; distribution; operations; and sales to independent restaurant segment.

**EXPERIENCE:** Vice president, supply chain, logistics, customer care, UTC Climate Controls & Security; director and general manager, aftermarket, Lennox

International; chief technology officer, Heatcraft Australia & New Zealand; supply chain strategy manager, British American Tobacco; senior management consultant, Alexander Proudfoot; senior engineer, AstraZeneca.

**EDUCATION:** B.S.M.E., American University of Beirut; Master of Computer Integrated Manufacturing, University of New South Wales.

As soon as I earned my degree in mechanical engineering at the American University of Beirut, I packed my bags and bought a one-way ticket to Australia. I completed my master's degree in computer integrated manufacturing, a precursor to robotics, automation and mechatronics, at the University of New South Wales in Sydney.

Leaving my country was both difficult and exhilarating. Curiosity was the sustaining force. I was trying to find out more about the world, about me, about what I can do and where I fit.

### NEW PLACES, NEW POSITIONS

My first few jobs were engineering oriented: I designed robots and automated warehouse systems. I worked in different industries, including pharmaceuticals, consulting, mining, and manufacturing. I also worked in different countries, including Australia, New Zealand, Malaysia, Japan, and the United States. I learned something from each place and position.

I saw engineering as one piece of the supply chain. To satisfy my curiosity about how businesses and the world works, I wanted to get more involved in the entire supply chain, so I shifted career paths.

Built into our DNA at Parts Town is the recognition that at the end of every transaction is the livelihood of a family, an employee, or a business. We're a technology-driven company based on customer service obsession, innovation, a strong culture and passionate team, and operational excellence. We've disrupted the foodservice equipment industry in a positive and constructive way.

The secret sauce is how we bring these qualities and capabilities together through connectivity and collaboration with suppliers, manufacturers, and customers. It's making sure we have

strong, innovative algorithms and accurate inventory planning and purchasing processes, and that we can receive, put away, and ship to our customers with quality and reliability.

It's also ensuring our digital innovations empower our customers to find and track what they need, transact with us, and gain full transparency across the supply chain.

### PREPARED FOR A PANDEMIC

COVID was a serious challenge. Both independent restaurants and large chains had to scramble to figure out how to stay in business and safely serve their customers.

We were prepared, although the pandemic forced us to accelerate on all fronts. We'd been investing in our people and safety. Within one week,

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*Built into our DNA at Parts Town is the recognition that at the end of every transaction is the livelihood of a family, an employee, or a business.*

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everyone who could work remotely was set up with the technologies that allowed them to do so. In collaboration with our manufacturers, we'd invested in disruptive, digital technologies that enable operational excellence. This all served us extremely well.

Now we're back on the growth trajectory we had before the pandemic. I'm proud of our team and how we've tackled this so far.

Having lived in different countries and multiple states within the United States, I learned to appreciate diversity of thoughts, ideas, and traditions. Living different places gives you an appreciation for the importance of cultural richness. It opens you up to different views and provides a wider perspective.

That's important whether you're trying to manage a diverse customer, employee, or supplier base. For instance, you need to appreciate the way people in different countries value work versus personal time, to make sure your workforce moves with you as an organization, and gains what they need to be happy in their professional work. ■

### Rony Kordahi Answers the Big Questions

#### 1 What's the best leadership or supply chain advice you've received?

Listen and appreciate the challenges your customers and suppliers and *their* customers and suppliers face. Then figure out how what you do can make it easier for them to do business.

#### 2 If you could travel anywhere, and time and money weren't issues, where would you go?

There are so many places! If I had to pick one, I'd head back to Brazil. I enjoy the culture, and I'm a big soccer fan.

#### 3 If you could have one superpower, what would that be?

Eliminating world hunger, for sure.

#### 4 What kind of kid were you in high school?

I got in trouble. Nothing serious, but I wasn't a conformist and was easily distracted. I wanted to always do what I wasn't supposed to do. In the end, I think it worked out well.



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[IN FOCUS]

# NOTED

## The Supply Chain in Brief

### > GOOD WORKS

► **Atlantic Logistics** launched Atlantic Cares, a volunteer and philanthropy initiative. Throughout 2022, the company will contribute one dollar for every load of freight moved and send the funding each month to a different local nonprofit, including Feeding Northeast Florida, Seamark Ranch, Ronald McDonald House, and others.



► **CMA CGM Foundation**, the charitable arm of global shipping firm CMA CGM, is teaming up with Magic Systems Foundation to build an elementary school in Ivory Coast, Africa, that will welcome 200 children in fall 2022. The two foundations are committed to bringing high-quality educational facilities to under-resourced regions.

### > GREEN SEEDS

• **J.B. Hunt Transport Services** launched CLEAN Transport, a program to help customers offset carbon emissions based on lane-specific activity. J.B. Hunt provides participants with data showing the amount of carbon offsets needed to achieve a carbon-neutral shipment and to obtain carbon credits to support projects such as reforestation and clean power generation.



### > SEALED DEALS

• **DHL** was selected as the official logistics partner of the **Council of Fashion Designers of America**. The partnership aims to strengthen the global reach of fashion businesses around the world.

• **SIG plc**, a European supplier of specialized building materials, chose a last-mile delivery solution suite from **Descartes Systems Group**. As a result, SIG increased on-time-in-full deliveries by 10-15% and boosted the volume of deliveries by 25% using its existing fleet.

• Hawaii's largest grocery retailer, **Foodland**, chose **Symphony RetailAI**'s artificial intelligence-based solutions to modernize core retail activities including supply chain optimization, promotion planning, and store operations.



### > M & A

■ **Mediterranean Shipping Company (MSC)** finalized its acquisition of **Bolloré Africa Logistics**, which includes the firm's shipping, logistics, and terminals operations in Africa, as well as terminal operations in India, Haiti, and Timor-Leste.



■ Supply chain services firm **Agility** made an offer to acquire aviation firm **John Menzies LLC**. If approved, the merger will result in the largest airport services company in the world by the number of operating countries.

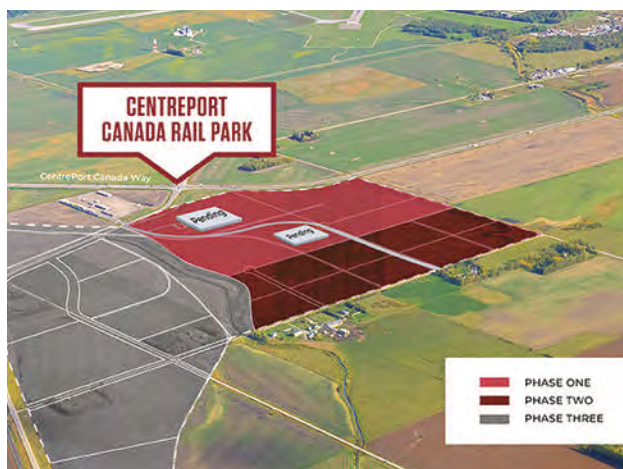
■ **Toyota Industries Corporation** acquired **Viastore Group**, a provider of intralogistics systems, in order to boost its offering of customer-specific solutions for product categories such as forklifts and automatic sorting systems.

■ **Hy-Tek Holdings**, a materials handling automation integrator, acquired two firms: **FASCOR**, a supply chain execution software solutions provider, and **Systems Integrator LCS**. The acquisitions will help Hy-Tek broaden its offerings in materials handling and integrated systems.

■ **STG Logistics** expanded its position in containerized logistics through the acquisition of **XPO Logistics'** intermodal division. The combined business offers drayage, transloading, warehousing, fulfillment, rail transportation, and final-mile distribution services.

> SHOVEL READY

■ Construction will begin in summer 2022 on *CentrePort Canada Rail Park*, a 665-acre rail-served industrial space with logistics infrastructure at CentrePort Canada, North America’s largest trimodal inland port and Foreign Trade Zone, located in Winnipeg and Rosser. The Rail Park will offer access to international air cargo services at CentrePort as well as an interstate at the Canada-U.S. border and the TransCanada Highway. It is also served by three Class 1 rail carriers connecting Canada, the United States, and Mexico.



> RECOGNITION

● **The Home Depot** honored **Ascend**, an Atlanta-based regional logistics provider, as the **2021 Truckload Carrier of the Year (Small Fleet Category)**. Ascend was selected for its skill in keeping up with the double-digit growth in freight volume the retailer has seen since the start of the pandemic.



● **Penske Logistics** earned a pair of **2021 Supplier of the Year** awards from its long-time customer **General Motors**. The two honors were in the lead logistics provider category for services provided in Mexico, and for dedicated delivery service efforts to transport service parts to GM dealerships in the United States.

> UP THE CHAIN

● Global supply chain management firm **AFFLINK** hired **Todd Gatzulis** as senior vice president of business development. Gatzulis joins the company after a long career at consumer products company Henkel/Dial. He will oversee AFFLINK’s supply chain and corporate sales functions.



● Discount grocery chain **Sav A Lot** appointed **Trey Johnson** as its new chief merchandising officer. Formerly a high-ranking supply chain and merchandising executive for The Save Mart Companies, Johnson will oversee merchandising, quality assurance, and retail partner/vendor relationships in his new role.

● **Arthur Verweij** joined **Printronix**, a manufacturer of industrial grade printing solutions, as the company’s global director, brand and customer development. Verweij, a 25-year veteran of the specialty printing industry, will work to develop the company’s global omnichannel marketing strategy.



● **Ginny Polach**, director of human resources for St. Louis-based Sunset Transportation, was named a **2022 Top Woman to Watch in Transportation** by the **Women in Trucking Association**. Polach was cited for her career accomplishments and efforts to promote gender diversity.



● **Made4net**, a provider of cloud-based warehouse and supply chain management solutions, was recognized by **Frost & Sullivan** with the **2021 Product Leadership Award** for the North American mid-market WMS market. The award is given each year to a company whose products offer innovative features and functionality and are gaining rapid market acceptance.

[IN FOCUS]

# TAKEAWAYS

*Shaping the Future of the Global Supply Chain*

## Consumers Want More Action on Sustainability

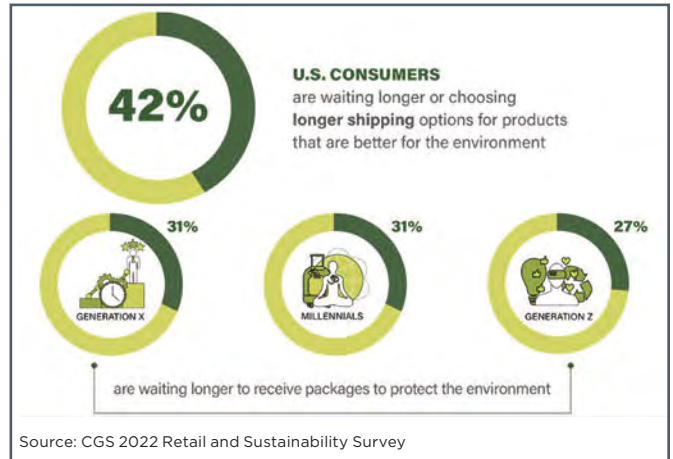
Sustainability took a back seat during the height of the pandemic in 2020, but is now in the driver's seat as a key ideal that consumers want their favorite brands to embrace, finds the 2022 Retail and Sustainability Survey from global business applications firm CGS. In fact, nearly half of respondents (42%) indicate they prefer sustainability over expedited shipping, saying they would choose to wait longer to receive goods from online suppliers more sustainably (see chart).

During the past three years, the report—which surveys 1,000 consumers ages 18-65—has shown an up-and-down pattern when it comes to the overall importance of sustainability in retail supply chains:

- In 2019, 70% of CGS survey respondents said that sustainability was “somewhat important” to them when purchasing apparel/footwear products.
- In 2020, that number dipped to 51%.
- In the 2022 survey, interest resurfaced to pre-pandemic levels: 79% of respondents believe that sustainability is “somewhat important” to “very important.”

Other key takeaways from the survey:

**Americans are being more intentional about shopping sustainably:** Despite inflation rates and global events, 68% of



respondents are in favor of paying more for sustainable apparel, and 18% are willing to pay up to 25% more.

**Consumers believe more steps can be taken on sustainability:** Only slightly more than one-third (34%) of respondents say brands offer enough transparency into their sustainability practices. When asked what environmental and social commitments brands should prioritize the most, 32% of respondents cite ethical labor practices.

**There's a generational difference in beliefs:** A majority of Gen Z (60%) and millennials (59%) would support a national/global law mandating sustainable practices, while only 37% of baby boomers are in support of such a law.

## Higher Transport Rates on the Horizon

Even without a crystal ball, it's not surprising that predictions from the April 2022 Cowen/AFS Freight Index center around higher prices. The main takeaway from the Index, a quarterly transportation snapshot with predictive pricing across multiple freight sectors, is that fuel surcharges, together with market forces, will push parcel and LTL rates to record highs, while truckload growth rate is expected to ease.

“Rising fuel prices are no secret,” says Tom Nightingale, CEO of AFS Logistics. “In a tight capacity market, carriers are responding with significantly higher fuel surcharges. Shippers should expect rising rates across the board, as those higher fuel surcharges join the usual suspects like capacity constraints, GRIs, firm pricing policies, and steep accessorial increases to intensify upward pricing pressure.”

The Index plots the implications for three different groups:

**Truckload shippers** are likely to continue rate-per-mile increases and will see ongoing cost-per-shipment growth in Q1 2022. (Early data, however, indicates truckload demand in 2022 will soften compared to 2021.)

For **LTL shippers**, significant increases to fuel-related costs are expected to continue due to disruptions to global oil supply and continued high demand, which has resulted in LTL carriers adjusting fuel surcharge tables.

Fuel surcharges are also in play in a big way for **ground/express parcel shippers**: the express parcel net effective fuel surcharge increased 24.7% in Q1 2022 (quarter over quarter). The express parcel index is forecast to grow from 0.8% in Q1 to 1.8% in Q2 2022, while the ground parcel index is expected to reach an all-time high of 24.6% in Q2 2022.



## Have you had any of the following experiences with a delivery in the past 3 months?



Source: Descartes Systems Group survey

## TAKEAWAYS

- Delivery is not satisfactory today.** Three out of four consumers experienced delivery problems in the past three months (*see chart*). Key complaints include:
  - Delivery arrived much later than expected: 26%
  - Delivery came at a different time than expected: 22%
  - Delivery time offered was longer than the consumer was happy with: 22%
  - Package was damaged: 20%
  - Package was left in an insecure location: 18%
  - Delivery didn't arrive at all: 16%
- Poor delivery damages consumers' perceptions.** 23% of consumers have not ordered from the retailer again, 21% lost trust in the retailer, and 16% told friends and families to avoid the retailer, due to a poor delivery experience.
- Customer expectations vary.** Security (32%), proof of delivery (30%), and tracking (27%) are all more important for the most expensive items; cost of delivery (23%) is more important for lower-cost goods.
- Environmental concerns influence buyer behavior.** 85% of those aged 18-24, and 75% of 25 to 34-year-olds, consider the environment when placing an order.

# E-Commerce: Delivering the Goods

After two years of aggressive growth due to the pandemic, e-commerce has become a purchasing method of choice across the globe. Fulfillment and delivery capabilities are key parts of the e-commerce experience, and consumer demands for what constitutes delivery satisfaction keep growing.

E-commerce retailers—and the carriers and last-mile delivery providers who serve them—face tremendous pressure to deliver orders on-time, damage-free, securely, and sustainably. That's the gist of a new study from Descartes Systems Group, which surveyed 8,000 consumers across Europe and North America to examine consumer purchase and delivery preferences and concerns.

Six top-level findings from the survey illustrate the ongoing growth in e-commerce and highlight the importance of delivery performance in determining consumer satisfaction:

- Online buying continues to grow.** 48% of respondents will make more e-commerce purchases in the future, up 13% pre-pandemic.
- It's all about convenience.** 54% of consumers cite convenience as a major reason for online purchases and deliveries. That's even higher for those aged 55+ (64%).

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## TAKEAWAYS



### YOU CAN'T TRANSFORM WHAT YOU CAN'T MEASURE

Sustainability has long been a buzzword in supply chain and logistics—and the challenge of how to truly determine if sustainability efforts are making an impact remains a key consideration.

A new survey confirms that supply chain and logistics executives are indeed struggling to measure their sustainability efforts effectively. Released by Google Cloud and commissioned by The Harris Poll, the study surveyed some 1,500 C-level and VP respondents across 11 industries, including supply chain and logistics.

The inability to reliably measure what works and what doesn't hampers sustainability efforts aimed at curbing emissions, reducing carbon footprints, and encouraging more ethical and sustainable business practices. The research also shows a troubling gap between how well companies think they're doing, and how accurately they're able to measure it.

Here's how responses from supply chain and logistics executives stack up:

- Only 10% of respondents are capturing the impact of programs that have been put in place (compared to 19% global average).
- Only 12% are acting on measurement findings to make their program stronger (compared to 17% global average).
- 65% of organizations have overstated their sustainability efforts (compared to 58% globally).
- 51% say their companies are making an effort to offset carbon footprint (compared to 45% global average).
- 49% conduct research into business partners to actively support green vendors (compared to 44% globally).

## Reshoring Now: Boom or Bust?

Sometimes, the numbers don't tell the whole story. That's the case with the 2021 Reshoring Index from global consulting firm Kearney. Released each year, the Reshoring Index tracks trends in manufacturing returning to the United States from the 14 Asian typical low-cost countries (LCCs) and regions where sourcing, production, and assembly have been offshored. Kearney's 2021 Reshoring Index found that US companies were relying even more heavily on manufacturing operations in LCCs: American imports of manufactured goods from the 14 LCCs totaled 14.5% of US domestic gross manufacturing output, up from 12.95% in 2020, resulting in a negative 2021 Reshoring Index of -154.

However, Kearney analysts see strong indications that attitudes and strategies about reshoring and nearshoring are changing. Thanks to the pandemic, trade wars and tariffs, and ongoing resulting supply chain disruptions, American companies are getting more serious about adopting expanded versions of reshoring, according to the Index.

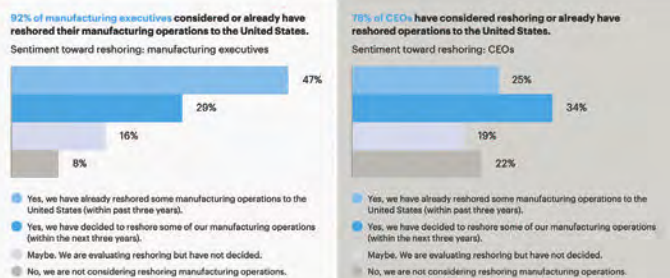
CEOs and manufacturing executives of American companies report a positive and growing sentiment for reshoring compared with last year, despite the continuing drop in the Reshoring Index. And, companies are seeking to invest in manufacturing assets in the United States and in Mexico, hoping to eventually build a manufacturing ecosystem here that could rival what exists in China.

The report also points to an evolving definition of reshoring, incorporating and leveraging models where, for example, components and materials supplies are nearshored and final automated assembly and testing is done in the United States.

Key findings from the survey include:

- 92% of executives express positive sentiments toward reshoring.
- 79% of executives who have manufacturing operations in China have already moved part of their operations to the United States or plan to do so in the next three years.
- Starting in Q4 2020, U.S. reliance on China diminished as the other Asian LCCs started to recover from the pandemic and American companies began to again diversify away from China as they had begun to do before the pandemic.

### Have you considered reshoring manufacturing operations to the United States?



## A New Fix for Broken Supply Chains?

Port delays and driver shortages have been making daily headlines of late. But there's a key piece of the transportation equation that hasn't been getting as much attention: Many trucks clogging dockyards and highways are moving at less-than-maximized capacity.

Delays, damage, and waste are inherent to less-than-truckload (LTL) and truckload (TL) shipping modes, finds new data from Drive Research and Flock Freight. It is these inefficiencies, and not just the labor shortage, that is breaking supply chains, the companies assert in a new report.

The report illustrates how often LTL and TL inefficiencies cause late delivery and increase shipping costs. In fact, of the 200 shippers surveyed, only one in seven were

highly satisfied with their current shipping process for mid-size freight. The inefficiencies stem from unoptimized trucking routes, time wasted in transloading, high damage rates, changing size restrictions, and accessorial charges, according to the survey.

Shared truckload (STL) solutions—where several shippers share trailer space in one multi-stop full truckload—may be the solution to mitigate the risks inherent in traditional shipping modes in order to maximize efficiency and cut costs, notes the report.

Freight sent via STL stays on the same truck during transit without transloading at shipping docks, which reduces damage risk. It also travels on technology-optimized routes that avoid hubs and terminals.

And, by reducing potential for shipping delays, shippers using STL can meet OTIF (on time in full) requirements and reduce fees. An increase in STL use could be one fix for broken supply chains, the study concludes.

## Finding Increased Revenue in Agility-Boosting Tech

While it's clear that pandemic-induced business disturbances and supply chain disruptions wreaked havoc on many businesses in 2021, a new survey from B2B software firm Cleo, conducted by Dimensional Research, brings to light a lesser-known finding: executives making investments in agility-increasing technology were able to *increase* revenue during the pandemic in 2021.

The study highlights the top supply chain and technology challenges facing businesses today and shows that respondents are prioritizing agility via integration technology in order to mitigate disruptions.

Here are the key findings from the survey:

### Business Threats & Resulting Concerns

- 68% of respondents report the pandemic was the greatest external threat to their business, followed by supply chain disruption (44%). Both groups say these threats were damaging to business partner relationships as well.
- 90% of companies say they replaced or terminated at least one business partner in 2021, citing:
  - Supplier problems (60%)
  - Manufacturing problems (50%)
  - Shipping problems (44%)
- 48% of businesses suspended or terminated two or more lines of business in 2021.

### Companies focused on business agility & integration technology investments to increase their revenue:

**71%** invested over \$100,000 in supply chain technologies

**35%** invested over \$100,000 in integration technologies



**93%**

focused on improving their business agility in 2021



**87%**

say supply chain investments mitigated business disruptions



**50%**

increased revenues by \$1M or more from improved agility

### Technology Investments

- 71% of respondents invested \$100,000 or more in supply chain technology in 2021; the investments were made largely to combat disruptions and business threats.
- 59% of those surveyed invested in integration technology as their primary method to respond to disruptions threatening their business, while 53% invested in back-office applications such as ERP, CRM, WMS, or TMS solutions.
- Business leaders from one in five companies (19%) state that increased agility resulting from investment in integration technology drove \$3 million or more in additional revenue in 2021. 50% report at least \$1 million in additional revenue and 73% saw increases of at least \$500,000.
- 99% of leaders report increased revenue because of agility-increasing technology investments.

# Transloading: The Answer to Consistency in the Global Supply Chain

*Transloading can boost productivity and keep the supply chain moving. Engaging a partner like Taylored Services that fully understands this process is a necessity in today's global market.*

Globalization has forced logistics companies to look closer than ever into the efficiency of their operations, and transloading has become a state-of-the-art solution for increasing productivity and keeping the supply chain moving.

Transloading is the process of utilizing more than one mode of transportation as goods move through the supply chain. This means a logistics manager must plan out a route that gets the goods to their destination as quickly as possible, while managing available considerations such as available portage, taxes or tariffs, and overall cost. At first glance, it may seem counterintuitive to move goods in this manner, but as the global market has grown, transloading has become the standard in supply chain logistics.

Almost every shipment domestically will involve a truck to unload goods at their final destination, but the route those goods take beforehand could be in the air, over the water, or by rail. Having a 3PL company that truly understands and manages each and every step of this process is key to the timely delivery of organic fruits and vegetables, dry goods, or any type of goods that are in high consumer demand.

As e-commerce emerges as the consumer's first choice for ordering goods, the need for transloading has become even more apparent. With the consumer having the ability to order almost anything directly to their front doorstep, logistics managers are faced with the fact that one mode of transportation simply is not a viable option to every destination. Transloading gives the supplier the ability to put their products into the hands of consumers in the most cost effective and efficient way possible.



Engaging a partner like Taylored Services, that fully understands this process, has the knowledge and experience in national transportation, dedicated trucking, drayage, brokerage, and intermodal is a necessity in today's global market. In addition to Taylored Services representing the gold standard in logistics management by offering high-quality, efficient solutions combined with massive volume discounts through their small parcel carrier partners, Taylored Services has recently expanded their award-winning operations with a new state-of-the-art 100,000-square-foot facility in Edison, NJ.

## FAST-PACED GROWTH

This recent update for the northeastern region is part of the company's national expansion plan for the company's fast-paced growth initiatives. Taylored consists of 18 total buildings across multiple, major U.S. ports and will now boast a footprint of over 4M sq ft. The company previously operated between Carteret, NJ, and Edison, NJ. The strategic choice of moving the offices adjacent to the already existing Edison 1 location will allow Taylored efficient communication and better management of client support between the two buildings.

Taylored has also just established its best-in class, tier 1 fulfillment operations in Savannah, GA. Over the past 10

years, Savannah has become one of the fastest growing major ports in the United States, making it a clear choice for distributors to include this into their location profile. As of 2021, the port was the fourth busiest seaport in the United States which made it a clear choice for the company's next location. This facility will bring an abundance of state-of-the-art technologies and fulfillment capabilities to the East Coast—providing an excess of 300,000 sq ft of space where it will facilitate transloading, crossdocking, and wholesale and retail distribution services. The company will pioneer a world-class, Koerber cloud-based warehouse management system at this location that will include advanced automation through Locus Robotics.

"This is an exciting time for our company's distribution expansion," VP of Distribution and Fulfillment Mike Letzter said. "It will allow us to provide our clients with speed-to-market services on the East Coast and broaden the company's national footprint for a tremendous competitive advantage in the industry."

Taylored Services' experience has given them valuable insight into store-bound freight optimization, allowing them to maximize each outbound shipment. They show your suppliers the best practices for preparing trucks and manage one of the largest cross-docks nationwide and move inventory quickly and efficiently through the supply chain.



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# What Does the Labor Shortage Mean for Your Supply Chain?

**Labor shortages exacerbate supply chain issues, creating a perfect storm for disruption. Here's why it's happening and what to do about it.**

**W**hile the pandemic gets the brunt of the blame for ongoing supply chain disruptions, the logistics and transportation labor shortage makes it increasingly difficult for companies to mitigate supply chain risk. The truck driver shortfall hit 80,000 drivers in 2021 and is expected to grow to 160,000 by 2030. Meanwhile, 61% of respondents to a Peerless Media survey reported hiring warehouse workers to address materials handling, logistics, and supply chain operational challenges. Among respondents, 45% also report hiring in transportation and logistics, while 42% are hiring warehouse managers to address these same issues.

## Where Have All the Workers Gone?

Despite this strong demand for logistics labor, many companies can't find the talent they need to remain fully staffed. Multiple causes contribute to the lack of supply chain labor, such as:

- **Changing priorities.** The pandemic has changed priorities for many American workers. For example, parents who once worked on site now need the flexibility to stay at home and supervise children when schools and daycares can't operate in person. Concerns about safety and changing priorities caused others to leave in-person jobs to pursue remote options.
- **COVID-19 deaths.** The coronavirus pandemic has been responsible for nearly one million U.S. lives lost. This tragedy has had wide-reaching implications, including contributing to the labor shortage.

- **Competition among industries.** According to the U.S. Chamber of Commerce, there are 10.9 million job openings and only 6.9 million available workers. The logistics and transportation sectors must compete with various other industries for workers, including retail, hospitality, and construction, among others.

## 5 Ways a Logistics Labor Shortage Hurts the Supply Chain

Labor shortages in all industries can directly impact local, regional, and global supply chains. For example, understaffing at a factory will cause production slowdowns, resulting in inventory stock-outs for distributors and retailers. However, in logistics, the shortage of available labor directly impacts the ability to move goods between parties.

Here are some impacts the labor shortage is having on the supply chain right now:

1. Without enough longshoremen and dockworkers, ships face delays getting unloaded at U.S. ports of entry.
2. An exodus of drayage drivers from the trucking industry has resulted in shipping containers sitting in ports much longer than they should.
3. The long-haul truck driver shortage has created capacity shortages among trucking carriers, making it difficult for shippers to move inventory from ports to distribution centers promptly.
4. Understaffed warehouses and distribution centers can't operate at



full capacity, creating delays that result in material or inventory shortages for manufacturers and retailers.

5. A dramatic rise in e-commerce sales volumes has made it difficult for understaffed fulfillment centers to keep pace with order fulfillment volumes.

The aforementioned examples are only some of the ways labor shortages exacerbate supply chain issues. Together, they create a perfect storm for supply chain disruption. To fight back against the logistics labor shortage, shippers must reevaluate hiring and retention practices, compensation packages, and work/life balance for employees.

Partnering with a third-party logistics (3PL) provider offers another alternative to ensure you have the staff you need to keep your inventory moving. A 3PL can help to stabilize your transportation capacity and staffing, even in tight labor markets.

.....  
**-By Robert Kriewaldt**



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 Phoenix Logistics  
 Robert@Phoenix3PL.com  
 phoenix3pl.com  
 920-915-9746

.....  
**About Phoenix Logistics. Strategic Real Estate. Applied Technology. Tailored Service. Creativity. Flexibility. These fundamentals reflect everything we do at Phoenix Logistics. We provide specialized support in locating and attaining the correct logistics solutions for every client we serve. phoenix3pl.com**

## Find the Right Robotics and Automation Fit for Your 3PL

**Choose the solution and vendor that can work hand in hand with you to analyze your objectives and design a solution that supports your needs. Here's how.**

**T**hird-party logistics companies and warehouses alike see the need for automation to improve operations, including making the move to autonomous mobile robots (AMRs).

To help 3PLs, greenfield and brownfield warehouses, and fulfillment centers properly evaluate AMRs, you need to understand the selection criteria along with questions that you should ask yourself and your potential vendors.

### Find the Right Solution

When it's time to automate your warehouse, your goal should be to find the right solution to the problem you're having, even if it's not an AMR. Your evaluation will most likely lead to choosing an AMR as a solution, but keep other options in mind. Start by looking at the problem you're trying to solve in your facility. It could include:

- Hiring and retaining skilled workers
- Trying to reduce costs
- Having to fulfill more orders in the space you currently have
- Needing to reduce cycle time

Once you've determined the problem, define your criteria for success, which could include worker retention; increased productivity; and the savings and ROI you'll receive with your chosen solution.

### OpEx or CapEx?

Investing in automation and robotics is a priority, but it also can be daunting from the perspective of your CFO. Find out if the solution you're choosing comes as an OpEx model or CapEx. Why? The industry is developing at a rapid pace. If you invest in a solution with a CapEx model, that means that you've committed to that solution for the lifetime of the



solution, which could be seven to 10 years, and the industry changes daily and the ROI can take a long time.

With an OpEx model, like Robots-as-a-Service (RaaS), ROI can be in months vs. years. And, because it's flexible, you can increase or decrease the number of bots you have at a time based on demand. When peak season comes around, simply add additional robots just for that timeframe to work in your facility to cover orders with your human associates.

### Market Changes

Along with the problem you want to solve and the financial aspect, you also need to be flexible for both peak seasons and the industry in general. There's no way to see what's going to happen five to 10 years down the road in technology and planning with the 3PL industry evolving as rapidly as it currently is. Instead, you need to be able to easily respond to any possibility and pivot quickly to market changes or else miss potential opportunities as, for example, other use cases come up.

### Where Will It Go?

As you're planning on adding robotics and automation to your facility, you need to precisely plan out where it

will reside. Consider if your facility has room for the technology itself. For example, where will you store and utilize the technology? Where will charging stations be set up?

When you're evaluating robotics and automation vendors, it makes a difference when your chosen provider has a supply chain DNA, because achieving optimal throughput requires more than plugging a solution into the new space.

The solution and vendor you choose should work hand in hand with you to analyze productivity and throughput objectives and design a solution that supports your needs and be a partner with you in achieving your goals quickly.

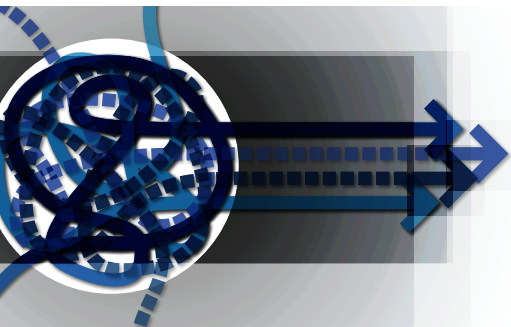
.....  
**-By Rick Faulk**



**CEO, Locus Robotics**  
 locusrobotics.com  
 844-562-8700

## 5 Tips for Finding the Right Retail Consolidation Solution

Using multiple vendors can leave you vulnerable to inefficiencies and higher transportation spend. Here's how to find the right consolidator for your business.



The planning and management that go into multivendor supply chains are an orchestration of many complex parts. The process for new and existing brands trying to get into big box retail requires close attention to detail, juggling multiple vendors, and managing numerous requirements for compliance.

Using multiple vendors can leave the shipper vulnerable to higher transportation spend, undependable delivery, and compromised customer relationships. It can be daunting.

The solution is letting an expert manage the process with a well-designed, customized retail consolidation program. Here are a few tips to help you find the right consolidator for your business.

### 1. Find the right transportation provider.

- Make sure the provider you are interviewing has a good track record and extensive experience in consolidation with major retailers.
- Is the provider currently working with any similar vendors or retailers? If they already have a good working relationship with some of the same contacts, this can be beneficial.

- Can they provide intermodal, truckload, LTL, managed solutions, cross-docking, and final mile solutions? Do they understand the required lead times for each? Be sure to ask what other value-added services are offered that can reduce overhead costs and turnaround times.

### 2. Harness the latest technology.

- Finding a provider that has the latest transportation and warehouse management systems, as well as onboard monitoring equipment for all their modes of transportation, is essential. Real-time visibility can help avoid problems, resulting in better vendor-, customer-, and carrier-relations by keeping everyone informed at all stages of the journey.
- New technology also helps avoid human error, including OS&Ds and unnecessary delays due to missing or unsigned paperwork.
- A top retail consolidator uses reporting and analytics to help forecast freight needs and monitor processes, as well as detect recurring issues for easy improvement.

### 3. Does the consolidator have a favorable compliance record?

On-time scheduling is one of the biggest hurdles for retail shippers. Meeting tight deadlines, following strict guidelines for appointment making, delivering, unloading and inspection require tenacious oversight. All these measures must be stringently executed and enforced to keep the wheels turning and costs

down. A sound and customizable retail consolidation program with managed solutions does just that.

### 4. Efficient use of capacity saves money.

Truckload shippers who end up paying for empty cargo space can benefit from a well-thought-out consolidation program. Less-than-truckload shipments and partial shipments are also prime targets for reaping the benefits of such a solution. Consolidation means better use of space in a trailer and less handling.

### 5. Strategic planning and execution are key.

Strategic planning, execution, and final on-time delivery are the ultimate goals of any retail consolidation plan. Doing so correctly can result in a more efficient order process, improved compliance metrics, and full end-to-end visibility that provides all stakeholders with great peace of mind.

These tips for finding a retail consolidation program can be the springboard for a more efficient, cost-effective, and scalable supply chain process.

—By Spencer Smith



VP, Consolidation & Warehouse Solutions - Account Management  
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# Omnichannel Commerce & Drop Shipping Fulfillment in the Retail Industry



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 MD Logistics  
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 317-838-8900

**Q** What is drop shipping?

**A** Drop shipping is the process of selling product and passing the sales order along to a third-party who then fulfills and ships the order to the consumer. The third-party logistics (3PL) provider fulfills the order on behalf of their client who sold their product on a third-party marketplace. Goods are often stocked at the 3PL's warehouse and shipped direct to the consumer, cutting out intermediary steps.

**Q** What should you consider in offering a drop shipping solution for clients?

**A** Implementing a drop shipping solution comes with its share of challenges for a 3PL provider, as these types of orders differ from a standard parcel shipment. Here's what to consider.

- **Order Acceptance.** Orders have to be able to be accepted from many different sources and translated into a "language" that both your WMS and team understand.
- **Quality & Branding Guidelines.** Client branding requirements must be upheld and maintained with every order that is fulfilled. These guidelines are maintained and updated appropriately by the seller of the goods.
- **Labeling for Distribution.** Labeling on drop shipments varies for a number of reasons. Employing a WMS which is able to store these requirements and print the applicable paperwork is key.

- **Collaboration & Cost Savings.** Drop shipping was built as a result of collaboration in the supply chain. There is an opportunity to realize and share potential cost savings with those closest to you in the supply chain process.

**Q** What are the benefits of utilizing a 3PL for drop shipping?

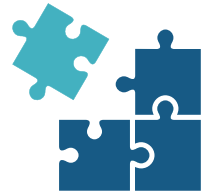
**A** A 3PL has a foundation in nimbleness, responding to the needs of their customers and the greater industry. Below are a few foundational benefits to utilizing a 3PL.

- **Flexibility.** At the core of every 3PL provider is the need to remain agile to the evolving needs of the industry and their client base. As your business needs grow, your 3PL is poised to evolve with you.
- **Knowledge.** A 3PL's experience and expertise in the industry have equipped their team with the knowledge and skill set to deliver the solutions to meet your business needs.
- **Technical Capabilities.** A 3PL provider has a WMS in place to handle the volume of orders that currently enter their warehouse for fulfillment. The WMS also has the capabilities to hold any branding, labeling, and packaging requirements.
- **Brand Representation.** Ensuring that your brand is represented cohesively from order placement to fulfillment to delivery, is of utmost importance to a 3PL provider.



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- Enterprise Scalability • Consulting • Inventory Management
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## Supply Chain Challenge? **SOLVED**

# Harness the Power of Plastic

Plastic Pallet Pros not only helps clients achieve sustainability goals, the pallet company provides a more cost effective solution, reducing clients' overall pallet spend.

### THE CHALLENGE

Plastic Pallet Pros is dedicated to eliminating misconceptions about plastic pallets. Through a unique customer service approach Plastic Pallet Pros is educating companies throughout North America about the power of recycled plastic pallets.

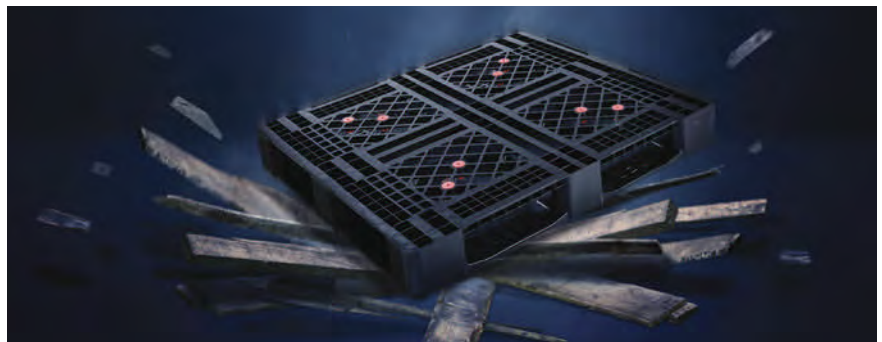
A major U.S. retailer reached out to Plastic Pallet Pros after encountering significant issues with both quality and availability of their wood pallets utilized in their distribution center. As with most companies in the United States today, there were some misconceptions about the cost of plastic pallets. They also had aggressive sustainability objectives with a very short turnaround time.

### THE SOLUTION

Plastic Pallet Pros was not only able to help them achieve a much more sustainable and green solution, they were able to provide a more cost effective solution, reducing their overall pallet spend, within the very tight time frame given.

There are nestable, rackable, and stackable plastic pallet solutions to suit every need. That's the power of plastic pallets.

The Plastic Pallet Pros complete approach to customer service means we do more than place orders, we work for solutions. Schedule an on-site consultation and get assistance with supply chain issues, cost per trip analysis, and ROI determinations. We don't want you to just use plastic pallets. We want you to understand plastic pallets are a better, greener option. Get your free consultation today by contacting Plastic



Pallet Pros so that you too can harness the power of plastic.

Industry confidence in plastic pallets is growing. While recycled plastic pallets used to be overlooked by their wood counterparts due to fear of cost, Plastic Pallet Pros, located in West Central Illinois, is opening up storage and shipping options for companies all across North America.

### CUSTOMER SERVICE APPROACH

One of the unique characteristics our clients experience when working with Plastic Pallet Pros is our approach to customer service. When customers call PPP looking for plastic pallets, our Pros provide more than a quote. We want to understand where your product is headed, which storage system you are utilizing, and what shipping methods your pallet will travel so that we are prepared to offer you more than a pallet; we want to offer solutions.

For example, when a domestic beverage company contacted PPP looking for help when facing wood pallet supply chain problems, our Pros worked to understand every nuance. Through collaboration we identified a domestic plastic pallet

manufacturer who could replicate the design specs of the former wood pallets.

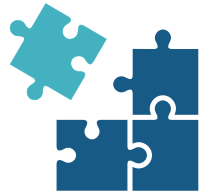
More importantly, PPP was there every step of the project ensuring that not only did our clients secure plastic pallets to suit their needs but their return on investment was lucrative.

And that is what makes working with Plastic Pallet Pros different. We are dispelling plastic pallet myths and working together with clients to make sure that when they need plastic pallets they receive the most efficient product that works in a system designed for ROIs. Experience the complete customer service you deserve and work with our team of Pros.



To learn more:  
bryon@plasticpalletpros.com (Bryon Robbins,  
Chief Operating Officer)  
sam@plasticpalletpros.com (Sam Dunham,  
Director, Operations)  
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## Supply Chain Challenge? **SOLVED**



# Key Ingredients for Efficiency: 3PL Partnership Delivers Multiple Benefits

By partnering with Hub Group, a major dairy and food ingredient company is finding the right capacity at the right time while using supply chain data to become more time- and cost-efficient.



### THE CHALLENGE

One of the oldest and largest dairy and food ingredient companies in the industry had several daily challenges that were impeding its supply chain. They needed a solution.

“We are a trading company as well as a dairy,” said the company’s logistics manager. “We buy and sell dry milk powder and bulk salted and unsalted butter from every major bulk co-op in the United States. We take hundreds of loads of powder and other refrigerated dairy products and ship them to over 40 warehouses throughout the United States. It is a very busy operation.” The logistics manager explained his biggest daily challenges were finding capacity, finding the time to do it all, and cutting costs.

In addition to frequent capacity issues, timing within an eight-hour window had become increasingly difficult. “We do a lot of quotes that don’t necessarily turn into tenders, but they take time to process. We do about 30 shipments a

day. In addition to that, I also do sales for the company. Finding the time to do it all is a daily challenge.”

In addition, the company faced extremely high transportation costs over the past 18 months. With escalating fuel prices and transportation costs, mitigating freight spend was a priority.

### THE SOLUTION

Hub Group assessed the needs and addressed the challenges of a complex supply chain by providing more efficient and reliable transportation management.

The company’s logistics manager confirms, “I talk to my 3PL sales representative frequently. When it comes to last-minute orders, I can count on Hub Group because they are very dependable. Even when capacity is tight, they can source the trucks I need. When my sales rep says he is going to cover a reefer load for me, he gets it moving. There is good trust there and that gives me peace of mind when I consider

whom I want to choose as a supply chain solutions provider. I know I can send a load over and forget about it. I know that if there is a problem my representative won’t wait to contact me. He sends me daily updates of all my shipments, when they are scheduled, if they’ve been picked up or if they’ve been delivered. I like the personal updates, but I also know that their TMS has real-time tracking so I can always access that as well.”

### THE RESULTS

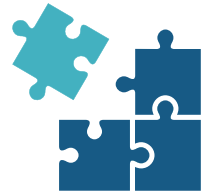
The company’s strong relationship with its 3PL has reaped multiple benefits. By choosing Hub Group, the company now is able to find the right capacity at the right time while using the data to be more efficient, saving time and costs. As a bonus, there is the trust and peace of mind that come from working with a solutions provider that not only understands the challenges but delivers customizable solutions to address the growing company’s needs. For more information, contact us at [www.hubgroup.com](http://www.hubgroup.com).



To learn more:  
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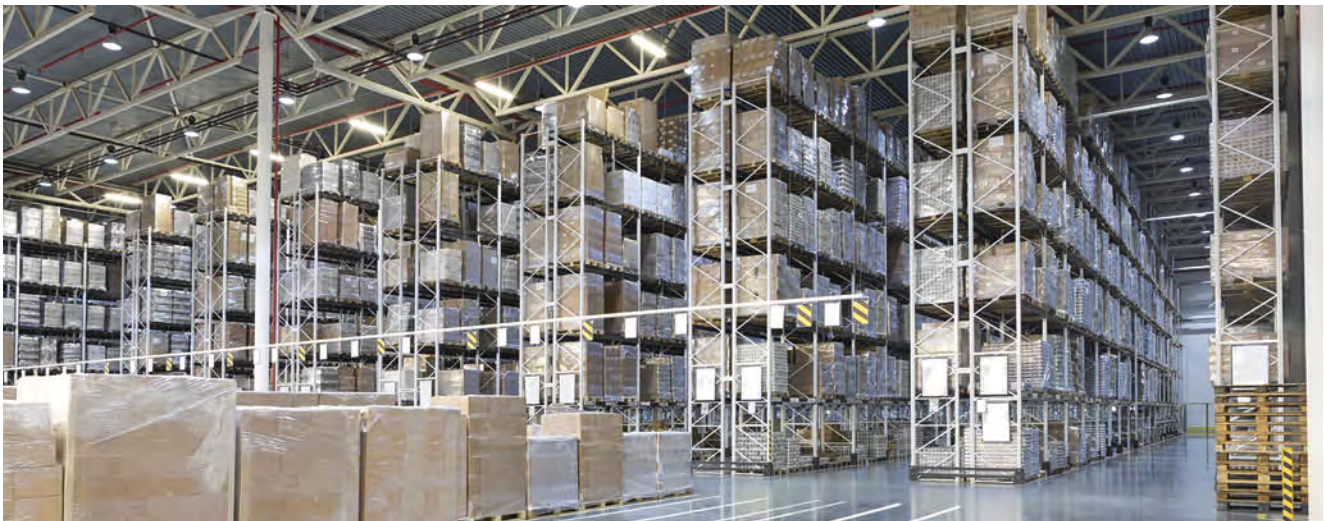
## Supply Chain Challenge?

# SOLVED



# Future-Proofing Tomorrow's Warehouses

Bar Code Direct modernized and optimized a large Fortune 500 retail warehouse, taking a three-pronged approach that yielded dramatic speed and productivity gains.



### THE CHALLENGE

Running a large retail warehouse has many challenges. Efficiency is critical. But as the years go by, it becomes difficult to keep up with the latest technology and processes to stay ahead of the curve. At Bar Code Direct we recently partnered with a longstanding international retail client to modernize their distribution facility, train their people to be more efficient, and streamline their operations.

### THE APPROACH

To accomplish this, we began by doing a comprehensive site analysis and discovered that the facility was running several different systems concurrently that were not designed to work together—including non-automated, paper-based systems and technology that was simply inefficient for the task at hand.

We took a three-pronged approach:

- We installed a new wireless backbone with a WAN failover connection.
- Brought in new hardware including tablets, wearables, handhelds, scanners, and GUI-based terminals.
- Developed a customized enterprise software solution to help everything work together seamlessly.

### THE TOOLS

- Zebra ET57
- Zebra WT6000
- Zebra TC77
- Zebra MC9300
- Zebra VC83
- Zebra DS3608 Scanners
- Soti
- Wavelink software

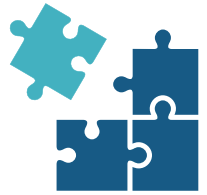
*“We helped increase speed and productivity by over 20%. Also, by arming the warehouse workers with a simplified, yet more powerful system we were able to help them increase their pick rates, and improve their bonus levels. Downtime was reduced by over 40% and the corporation’s upward growth trajectory continued to accelerate to record levels.”*

—Pete Grimes, V.P. Sales & Marketing  
and Chris Richardson, V.P. Customer  
Solutions, Bar Code Direct



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## Supply Chain Challenge? **SOLVED**

# New Multimodal Hub in Georgia Provides Supply Chain Solutions

Tradition Logistics' new facility in Savannah, Georgia, offers comprehensive supply chain and logistics solutions, from warehousing and inventory management to fulfillment and distribution.

### THE CHALLENGE

With many shippers diverting cargo ships from the Port of Los Angeles to Savannah, the Georgia Port Authority—the port in Savannah—is growing at a record pace. The port is already serving almost half of U.S. consumers and manufacturers. This rapid growth and shift in cargo requires freight and logistics companies to respond in order to keep up with demand.

### THE SOLUTION

With that in mind, Tradition Logistics is proud and very excited to announce the opening of a new facility in Savannah, Georgia. Sitting just 5 miles from the Port of Savannah, this 311,265-square-foot facility is perfectly positioned to serve customers bringing cargo into Georgia.

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**Tradition Logistics opened a new warehousing and fulfillment center in Savannah, Georgia, with direct access to regional interstate systems and service to Class-I rail CSX line. The 311,265-square-foot facility is located 5 miles from the Port of Savannah.**

include: kitting, sub-assembly, reverse logistics, crossdocking, e-commerce, and inventory management.

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rail network, Tradition Logistics' new Savannah facility is perfectly positioned to meet all your dock to distribution needs. Having all these services under one roof, means quicker turnaround times, which translates into reduced costs (demurrage and per diem), and less time waiting on your freight to hit the road.



To learn more:  
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[INSIGHT]

## IT MATTERS

by *Mark Balte*

EVP Supply Chain Innovation, Logility

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# Designing a Soft Goods Supply Chain

Forecasting demand for soft goods can be difficult because demand changes due to fashion trends, weather patterns, and other factors. But artificial intelligence (AI) and machine learning (ML) technologies are changing the way soft goods manufacturers and retailers manage their supply chains.

To understand why, let's look at the technologies in detail.

AI solutions help parse massive volumes of data from a wide range of sources that companies can then use to understand customer behaviors, supply chain fluctuations, and other business insights.

ML goes hand in hand with AI. It uses self-optimizing algorithms to imitate the way human beings learn. When used in combination with AI, ML empowers businesses of all sizes and across all industries to transform data into insights.

AI and ML enable demand forecasting models that track and analyze historical data to predict upcoming consumer demand cycles. Soft goods companies can use this insight to find ways to keep pace with customer requests year-round.

AI- and ML-based modeling enables soft goods businesses to identify and resolve supply chain roadblocks as well. Since these companies continuously capture data and insights, they can assess the state of their supply chain at any time and constantly explore ways to improve operations. This helps avoid supply chain

disruption, maximize productivity, and minimize operating costs.

In addition to using AI and ML-based modeling, soft goods companies can launch and maintain a successful supply chain by taking these steps:

### **1. Establish a "one-number" plan.**

One-number forecasting involves creating a plan based on a single operating number. The plan is demand-driven and gives a business the opportunity to make modifications if market conditions change. A one-number forecast can be beneficial for soft goods companies, since many factors can suddenly alter demand.

Use historical data to establish a one-number plan across your supply chain. Create plan goals and maintain flexibility. Assess the plan regularly and make changes as needed.

### **2. Monitor in-season performance.**

Soft goods companies commonly use complex spreadsheets for supply chain planning, but these lead to inaccuracies.

Track in-season performance of your supply chain to ensure you maintain a steady stock of in-season items that hit the

market with consumers. This also allows you to cut down on items that fail to meet consumers' expectations before stock-outs and markdowns are required.

**3. Use customer segmentation to your advantage.** The best soft goods supply chain plans are built with customer segments top of mind. Companies that segment customers and localize assortments are well-equipped to deliver the right products to the right consumers at the right time. They can accommodate customer requests as well.

Set up your customer segments based on preferred apparel and accessories and fine-tune your supply chain based on these segments. Over time, this will optimize your supply chain planning, sourcing, and replenishment strategies.

**4. Streamline S&OP.** Sales and operations planning (S&OP) helps soft goods companies determine how much merchandise is required to achieve their goals. Effective S&OP requires a business to account for its people, processes, and technologies.

It is crucial to use S&OP technologies that support integrated business planning and help develop processes that simplify supply chain operations. They also provide supply chain transparency to the point where different departments can work together to analyze data, generate insights, and find ways to help your business achieve its goals. ■



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[INSIGHT]

# SCFINANCE

by *Maureen Sullivan*

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## Managing Working Capital Amid Product Shortages

Distributors can't seem to catch a break. First they faced a liquidity squeeze when COVID-19 raged onto the scene, triggering a dislocation in the supply and demand for products. Now, as they enter the third year of the pandemic, distributors are grappling with wide-ranging shortages of goods and commodities across the supply chain that show no sign of abating.

The reasons for these shortages vary and are well-chronicled, but a critical question remains: How can distributors manage their strained working capital? To understand the alternatives at hand, let's examine what the current situation is forcing many distributors to do.

### RETHINKING INVENTORY MANAGEMENT

Product shortages are spurring an inventory management shift away from just-in-time (JIT) and toward just-in-case (JIC). Many distributors have abandoned their effort to minimize inventory—by which they reorder products only to replace the ones they've already sold—and are instead stockpiling products just in case they need them.

Underlying this shift is the realization that any cost savings and efficiencies achieved through lean inventory would be more than offset by lost sales opportunities due to the unpredictable

time it could take to replenish stock amid shipping delays and product scarcity.

We predicted the shift from JIT to JIC in 2021 when shortages began to percolate across supply chains globally. Yet even we have been surprised by the extent of the shift: Not only are products being hoarded, but also warehouse space.

As widely reported, logistics companies are devising new methods of dealing with a dearth of storage by choosing inland locations away from coastal ports—and by building multi-story warehouse facilities.

Inventory is now “in.”

### IMPLICATIONS FOR WORKING CAPITAL

The strategic decision to pursue JIC and increase buffer stock amid product shortages certainly has benefits, but it can also weigh on a company's finances.

Apart from the cost of maintaining additional storage capacity, JIC usually

entails longer inventory carry (the amount of time inventory is held on the balance sheet), longer inventory turn (the time it takes to clear the shelves through sales) and longer cash-conversion cycles until the items are finally paid for and monetized.

Consequently, many distributors who embrace JIC could find themselves making larger cash outlays to their suppliers while having to wait longer for repayment from the buyers to whom they sell their products. They thereby experience greater pressure on their working capital.

### OPTIMIZING WORKING CAPITAL

With the increase in inventory, distributors will look for levers to pull in order to reduce their cash conversion cycle as much as they can.

One strategy is to match their inventory turn with payables and receivables by trying, through negotiation with their counterparties, to extend the timing of payments they owe their suppliers when the number of inventory days goes up. But suppliers face similar liquidity pressures and may not be willing or able to accommodate later payments.

An alternative for distributors is to

*Logistics companies are devising new methods of dealing with a dearth of storage by choosing inland locations away from coastal ports—and by building multi-story warehouse facilities. Inventory is now “in.”*

enroll in a traditional supply chain finance program—assuming one is available to them—that would allow them to sell their receivables to a program provider (such as a bank) in exchange for immediate cash.

The program provider would then collect payment from the buyer at the later date in accordance with the payment terms established between the buyer and the distributor.

Yet given the high uncertainty

surrounding product availability, demand, inventory turn, and the pace at which inventories can be replenished, distributors must contend with variability in cash flow.

**ENTER DYNAMIC DISCOUNTING**

Fortunately, supply chain finance programs have been evolving to include options such as dynamic discounting, which gives a buyer the flexibility to choose when to pay its supplier in

exchange for a lower price or discount on the goods purchased. The “dynamic” component refers to the option to provide discounts based on the date of payments.

**UNEVEN SUPPLY/DEMAND A BENEFIT**

Dynamic discounting can work particularly well for uneven supply/demand patterns, which favor contractual payment terms that are more flexible and may help distributors increase their net income by optimizing their working capital.

Of course, there are also distributors who are resilient enough to withstand product shortages and the supply chain issues they’re causing. But those who are feeling the pinch will need to find solutions for husbanding their capital wisely in anticipation of continued shortages in the foreseeable future. ■

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[INSIGHT]

# VIEWPOINT

by *Brian C. Gaffney*

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## Driver Shortage: Don't Fall For It

The talking point that states the trucking industry is facing a driver shortage to explain the state of supply chain is a lie. Don't fall for it. There has been a "shortage" of drivers for well over 20 years so be sure you are getting honest answers when digging into your supply chain issues.

I left the trucking industry in 2011, when the Hours of Service (HoS) rules were a pending change to combat driver fatigue and give carriers the bargaining power they needed to force shippers and receivers to pay more money for keeping drivers idle at docks while they waited to load or unload.

The HoS failed to give that power, however, because the carrier would just be denied the chance to haul that freight ever again. Carriers gave in, and the same tune continues to play. Drivers receive minimal compensation for the time they sit; time that they cannot log as "off duty, not driving" or my favorite "off duty, sleeping" as I would nap until my truck was loaded.

Back then, my drive time would be suspended while in the sleeper, ready to use once my truck was finally loaded—and I was rested. Drivers today cannot do so, and when they are finally loaded, they must then hurry to make up for lost time.

The Department of Transportation claims that drivers who wait beyond the industry standard two-hour detention

window have a 6.2% increase in the possibility of a crash because they drive faster and pay more attention to the clock than the road, leading to about 6,500 crashes per year.

This doesn't consider the fatigue that sets in while in heavy traffic, trying to make the best of a 14-hour day in which nearly half that time can be wasted at a shipping dock. Drivers are not paid hourly, so they push it to get as many miles as possible, regardless of weather and traffic conditions, hoping to overcome the time they sit without compensation.

### WAGE GAP

This brings me to the next factor that is causing a "shortage." Commercial drivers license (CDL) holders find that by driving locally, they can make more money and spend time with family every day.

After I left the industry, I struggled to be seen as a logistics professional and at one point considered returning. I had been without a CDL for three years and carrier insurance companies no longer considered me an experienced driver.

The pay I was offered after school was the same pay I had made as a company driver in 1998.

Carriers are not willing to pay enough to retain the drivers they promise jobs to after school. The drivers become disillusioned and leave, causing more of the "driver shortage" falsehood to spread.

The industry has tried to keep paying less than they should by recruiting immigrants. They take advantage of people who are used to making less, to keep justifying the low pay. Now, the government that created the HoS rules is helping carriers pay lower wages by implementing an apprenticeship program that will allow 18-year-olds to train to become over-the-road drivers.

No increase in pay, and time away from friends and family will cause this driver pool to evaporate, without any thought to the root cause of the "shortage."

When a provider gives you the excuse that the driver shortage is causing all your supply chain woes, don't fall for it. The American Trucking Associations lobbyist group is working hard to keep the status quo. But until the laws are changed to allow drivers to rest whenever they need it (with ample parking available), and wages are increased to match the pay that is found outside the industry, with *all* time compensated, there will be a shortage of drivers willing to work under the current conditions, *not* a shortage of drivers. ■



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# Orchestrating A DC Strategy That Won't *B Flat*





## Distribution center technology and equipment working in harmony can keep any supply chain sharp.

By Karen Kroll

**D**istribution centers (DCs) should operate much like an orchestra, says Tom Moore, chief executive officer with AutoScheduler, which offers intelligent warehouse orchestration solutions. During a performance, each instrument plays in concert with the others.

It should be the same in a resilient, responsive distribution center. “You want everyone to do their part when they’re supposed to,” Moore says. For instance, when a truck loaded with products arrives at the dock door, employees should be ready and able to unload it.

Of course, distribution centers face constraints and challenges that differ from those facing musicians. They have a set number of dock doors and employees, and only so much space for inventory. The continued proliferation of stock-keeping units (SKUs) means it’s nearly impossible for even the sharpest humans to efficiently track all items, making automation increasingly essential. Labor and driver shortages and shipping delays add more obstacles.

In addition, store replenishment times have tightened and become more frequent, and more consist of split cases, as growing numbers of retailers use their stores to fill e-commerce orders, says Reuben Scriven, senior analyst with Interact Analysis.

Thoughtful operational changes and technology solutions can help distribution centers tackle current challenges, build resilience, and boost responsiveness.

A starting point is ensuring the facility's layout is as effective as possible, says Oleg Yanchyk, chief information officer and co-founder of Sleek Technologies, a freight procurement automation provider. Among other steps, this means assessing how to optimize the location of products and identifying ways to stage loads so drivers can efficiently drive in and out.

An engaged, productive workforce remains essential to most well-run, resilient distribution centers. While technology has become increasingly essential, few DCs are completely automated. In light of the tight labor market, operators need to focus on being a strong employer.

One way is simply to trust and respect workers and ask for their input before turning to outside consultants. "We often underestimate the people who are there every day," says Ron Liebman, head of the transportation, logistics, and supply chain management practice with McCarter & English. "They're logisticians, not just people in a warehouse."

Distribution center operators also want to consider technology's ability to make employees' jobs easier and more enjoyable, as well as its ability to automate processes. Technology can boost retention. For instance, autonomous mobile robots (AMRs) that work with employees (co-bots) can transport products, cutting walking time for employees.

Effective supplier management, including the ability to quickly switch between vendors, can also boost resilience within a distribution center. Given ongoing supply chain disruptions, distribution centers need "secondary, flexible options," Yanchyk says. If one supplier is unable to deliver, potentially delaying operations, another might come through.

Connecting purchasing and warehouse operations also can enhance

operations. If purchasing isn't buying in optimal quantities—perhaps because it lacks vital information—it's more likely to purchase too little, risking delays, or too much, hindering efficient operations.

Even once automation is introduced, most systems have some capacity limits. Distribution center operators need to identify the orders that will move to automation and those that will be handled manually. "You need both automation and coordination," Moore says.

### CROSS-DOCKING AND SCHEDULING

Just as airlines can ensure (most of the time, anyway) passengers will make connecting flights, distribution center operators need to coordinate their own operations with logistics. "To drive productivity, you need to increase the number of things that are cross-docked," Moore says.

This requires a detailed understanding of inventory placement and capacity, such as loaders and pickers. Schedules need to be synched, so items unloaded at one end can quickly ship out from the other, rather than sit on the dock or inside the distribution center.

A common challenge is timely replenishment of pick spaces. That's more likely to occur if activities within the warehouse are siloed and managed independently.

Instead, distribution center operators should be able to identify in advance, often using technology, when items will need replenishment. In addition to knowing inventory levels, this requires understanding the workload and schedule of the pickers.

Moreover, as retailers request more frequent shipments, the ability to wait days to unload a truck, because that's when it best fits within the center's schedule, is becoming more of a luxury. Instead, it's more common to have to unload immediately, or close to it, because the products are going out in several hours.

When information flows between shippers, manufacturers, and logistics providers, so each can identify the

actions it will take and when, resilience is enhanced. "Partnership is an overused term," says Kristi Montgomery, vice president of innovation, research and development with Kenco Logistics.

But the more all parties can work together, the more they can boost value and responsiveness. For instance, the sooner Kenco learns a shipper is expecting significant growth, the more quickly the 3PL can implement solutions and technologies to facilitate that growth. Given that some technology solutions currently measure lead times in months—or longer—timely notification becomes critical. "It's the whole concept of collaborative transparency," Kristi says.

Similarly, accurate, thorough data on the number of SKUs with which a shipper is working, along with requirements around packaging and labeling, are essential to forecasting labor requirements. This is another step to ensuring efficient throughput.

### VISIBILITY AND CONNECTIONS

Along with operational changes, a few technology solutions are proving key to resilient DC operations today. Artificial intelligence and machine learning can provide visibility to products, allowing for better decision making. Distribution centers operators who know an upcoming component will be delayed can hustle to find a substitute or shift processes to accommodate the delay.

Real time data exchanges between the warehouse and logistics operations, generally using API connections, also have become essential. While API is common in many customer-facing solutions, slower EDI or file transfer solutions still are common in back-end systems like demand planning, says Christopher Deck, founder and CEO of Deck Commerce, a provider of a cloud-based order management system. That can hinder responsiveness.

"The name of the game is speed with respect to transferring data from one system to another," Deck says.

Technology also needs to facilitate communication across sales channels. "Siloed distribution practices create



blind spots that often leave available inventory on the shelves when demand swings do occur,” says Keith Brereton, director of client services with Tecsys, a supply chain management software company.

Supply chains need to recognize how markets are converging: Warehouses are fulfilling individual customer orders in addition to supplying retailers, while stores are picking, packing, and shipping like mini warehouses. Factor in drop shipping, click and collect, return logistics, and 3PL partnerships, and a technology layer that optimizes and distributes across channels becomes indispensable.

### COLLABORATION AND CONNECTION

Flexibility is another component of distribution center resilience, and that’s driving interest in autonomous mobile robots (AMRs). “Retail changes all the time,” says Gary Allen, vice president of supply chain excellence with Ryder. Technology needs to be able to manage that variability.

Robots often are better at handling high numbers of SKUs than fixed systems, such as automated storage and retrieval systems (ASRS). They tend to be less expensive, as well.

Robots also can accommodate tighter turnaround times on orders. That has become critical, as delivery deadlines on retailers’ orders continue to shrink, including on truckload orders.

Another benefit: AMRs can work within existing DC infrastructures and relatively easily scale to meet peaks in demand. “AMRs have been the technology that’s made the biggest impact,” says Adrian Kumar, global head of operations science and analytics with DHL Supply Chain.

Because collaborative robots receive information from the warehouse management system and then work with humans to execute operations, it’s often possible to double productivity, Kumar says. For instance, the robot may have a screen that shows a picture of the item to be picked and the quantity. In addition, it will stop in front of the pick location,



PHOTO: SYNERGY

## CHANGING KEYS: MAKING THE SWITCH TO DIRECT SELLING

Transitioning from business-to-business to direct-to-consumer (D2C) fulfillment is an increasingly important competitive edge for manufacturers, sellers, and third-party logistics providers.

The initial change is in basic philosophy. Most providers go from worrying about bulk servicing thousands of units on palletized loads to managing the throughput time of thousands of orders requiring additional touches for picking and packing.

Several factors come into play when transitioning to a D2C model without exponentially increasing costs. The physical layout of your pick zones maximizes the space and creates an efficient picking environment for your associates, while choosing the right storage solution for commodities should allow for products and markings that are easily visible.

Inventory management is critical too, because having clean receipt, put away, replenishment, and cycle count processes in place keeps order fulfillment streamlined, efficient, and accurate.

Understanding the profile of the inventory that you are shipping is also important. For example, monitoring the velocity of products and utilizing that data in the slotting process will make your picking process operate more efficiently by reducing the pick path and distance for operators.

There is no way around implementing some level of technology to be a competitive D2C fulfillment operation. At the very foundation, a functionally rich warehouse management system seamlessly manages e-commerce’s fluctuating demands.

Also, it’s much easier to expand your automation solutions when you start with the right baseline efficiency. Then you’re not redefining your entire process to accommodate a new technology, which can be extremely time-consuming and expensive. It’s better to find solutions that modulate well, so that you are simply enhancing your efficiency with additional tech.

In short, having the right mindset, tools, and solid plan allows for an optimized process and smooth transition for the organization and its ops team.

– *By Brian Kirst, VP Sales & Business Development, Synergy NA, SnapFulfil WMS*

so pickers can easily see where the items they need are.

In contrast, employees trying to navigate a warehouse using radio-frequency guns usually need to understand an aisle numbering scheme like 10-03-04-08, or Aisle 10, Bay 3, Level 4, Slot 8—hardly intuitive or easy to learn. “A co-bot can help guide the associate to the location quicker,” Kumar says.

This capability helps explain the growth forecast for the market for the AGV and AMR market. Research firm LogistIQ predicts it will top \$18 billion by 2027, with a growth rate of about 24% for AGVs and 43% for AMRs.

The pandemic and related supply chain delays highlighted the risks of slashing or, in some cases, eliminating safety stocks. At the same time, amassing quantities of all products can be expensive and unwieldy. For key movers or critical products like medical devices, keeping safety stock nearby often is critical.

One cost-effective way to do this is through brokered warehouses, Liebman says. Computer platforms match companies with extra warehouse space across the country so they can store, for instance, 300 pallets for three months.

Visibility and connectivity enable the application of data analytics, another factor in building resilience. Technologies like machine learning and artificial intelligence can leverage data to predict demand weeks out, based on a range of factors. Instead of looking only at sales history, it's now possible to consider social media, weather, and real-time sales data and then marry all the information together, Montgomery says.

A system can also assess how potential disruptions will impact demand and in what SKU categories, so retailers and distribution centers can adjust operations.

Digital twins can facilitate what-if and scenario planning, Montgomery says. This entails using data to create a digital version of the supply chain today and asking it to assess various scenarios:



**Wireless headsets connected to a warehouse management system allow workers to perform tasks hands-free.**

What happens if shipping ports shut down on the West Coast? What if a hurricane hits production facilities in Los Angeles?

Based on the analysis, the distribution center can optimize safety stock levels and the locations used to store different SKUs.

### **SELF-DISTRIBUTION, VERTICAL INTEGRATION, MFCs**

Some industries, like healthcare, have seen significant adoption of the self-distribution model as a way to gain “centralized, comprehensive control of their supply chains, from source to patient,” Brereton says.

As TechTarget explains, in a self-distribution model, companies purchase goods directly from their manufacturers, store products in their own warehouses and transport them through their own networks, cutting out the middleman.

“By altering their distribution management processes and going directly to manufacturers, health systems are able to buy strategically while safeguarding against bottlenecks at third-party distributors,” Brereton adds.

Because last-mile facilities like micro-fulfillment centers are increasingly replenished with individual items in addition to pallets, traditional

upstream filling activities are moving downstream, Scriven says. He provides an example: a supplier ships T-shirts to large distribution center, where they're unloaded and put into totes. From there, the T-shirts, still in the totes, move to a last-mile fulfillment center.

“Loading the totes is done upstream, where rents are lower,” he says. “When shipping items downstream, they're already pre-loaded.”

### **DEMOCRATIZATION OF TECHNOLOGY**

Not only is technology playing an increasingly vital role in many distribution centers, but the “democratization of technology,” is allowing even smaller operators to implement it, says Bill Denbigh, vice president of product marketing for Tecsys.

For instance, while voice picking systems have been around for years, they previously required separate terminals and systems, that together often cost well into six figures. Now, most industrial mobile devices are based on the Android operating system. Warehouse management system (WMS) vendors are able to build voice prompts into their solutions simply by utilizing standard Android API calls.

Modern WMS solutions increasingly offer voice as a way to drive user efficiency, rapid system adoption, and user compliance, or following what the system says to do, he adds.

Down the road, blockchain or distributed ledger technology likely will gain greater adoption. “It can facilitate better demand planning because of the openness and transparency along the supply chain, and the removal of latency periods between partners,” Montgomery says. The lack of government standards has been a big factor in holding back implementation so far, she adds.

Openness, transparency, and immediacy help build resilient distribution operations that can anticipate disruptions and respond even before they occur.

“Like hockey great Wayne Gretzky, they can skate to where the puck will be,” Moore says. ■

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# TMS MUST-HAVES FOR A COMPETITIVE EDGE

**A transportation management system (TMS) – a logistics platform that leverages technology to help businesses plan, manage, and optimize the physical movement of inbound and outbound goods – can help companies navigate uncertain business conditions and boost performance.**

**By Karen Kroll**



**T**he list of challenges in the transportation market seems to grow longer almost daily: rising fuel costs, proliferating distribution channels, ongoing capacity and driver constraints, increasingly complex and global supply chains, and heightened customer expectations for faster delivery times and robust tracking information.

That's prompting many organizations to look "for better ways to keep products moving reliably around the world, reduce fuel consumption, evaluate carrier rates and eliminate empty miles through options such as backhauls and pool distribution," says Nick Wilson, vice president of product marketing with MercuryGate International, a provider of transportation management solutions.

A transportation management system (TMS) can help companies navigate these conditions and boost performance. A TMS is a logistics platform that leverages technology to help businesses plan, manage, and optimize the physical movement of incoming and outgoing goods. Like many technology solutions, today's TMS solutions often provide greater functionality at lower cost than their predecessors, allowing a wider range of businesses to benefit from them.

The market changes underway have heightened demand for certain TMS capabilities.

**Visibility.** In the early years of the TMS market, the goal was a “glass pipe” to see inventory at all times, says Jordan Kass, president of managed services for TMC, a division of C.H. Robinson. Now, this capability is table stakes. Shippers expect to monitor inventory throughout its journey, including when it’s in transit.

**Efficient, reliable connectivity** has also become critical, as it makes it possible for shippers and carriers to obtain updates in close to real time, Kass says. They then can quickly act to, for instance, mitigate the impact of a delayed shipment.

**The ability to automate business processes** has also become more important, says Kenneth Sherman, president of IntelliTrans, which offers a SaaS-based TMS.

The increase in supply chain disruptions has driven up the number of exceptions among shipments. To effectively handle them, companies need to automate as many processes as possible, so they have the resources to easily identify and handle exceptions.

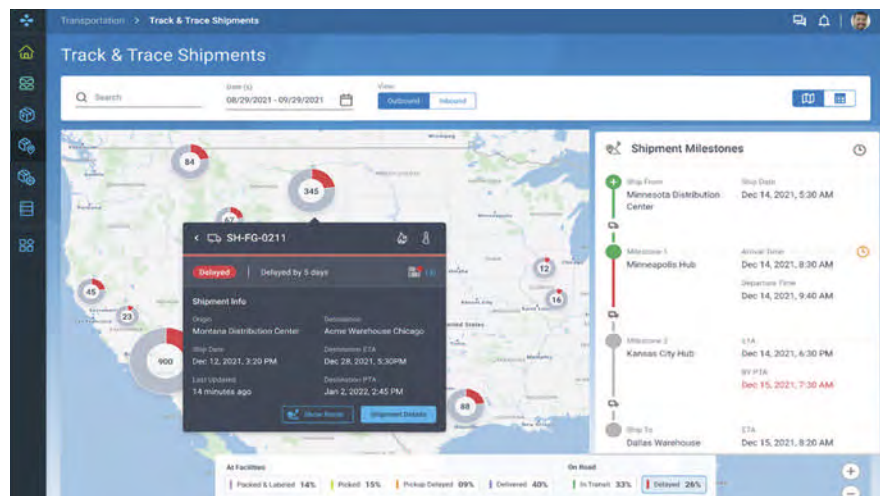
**Inbound logistics.** Shippers also are more interested in getting involved in the management of the inbound side of their supply chains. “If you don’t get the raw materials or empty containers, nothing will be going out,” Sherman says.

### TODAY'S TMS TECHNOLOGY

TMS technology is changing to meet these demands. It’s becoming more real-time, more predictive, more automated, and more visible, Kass says.

One sign of this is the shift from the early- to mid-2000s, when many TMS solutions connected to customers’ enterprise resource planning (ERP) systems and to carriers via electronic data interchange (EDI). Shipment updates and other information might transmit hourly or daily.

Today, most TMS solutions connect through application programming interfaces, or APIs. Updates typically



**TMS solutions, such as the one offered by Blue Yonder, manage both inbound and outbound transportation, track and trace shipments, and provide real-time visibility and advanced routing and container optimization based on real-time inventory, orders, and resource availability.**

occur several times per hour. The speedier updates allow for more informed decisions. In addition, it becomes possible to layer in predictive analytics, and more accurately forecast delays.

The shift to cloud-based, software-as-a-service (SaaS) TMS solutions simplifies deployment and reduces upfront and ongoing maintenance costs, says Chris Martin, vice president, shipper solutions, with Trimble Transportation, a provider of transportation solutions. SaaS platforms also typically are easier to integrate with other IT systems.

Some systems have been developed just for the small-business market, Kass says. Not only are they less expensive, but they often can be implemented without extensive IT support.

Companies that operate internationally can more easily find a unified technology platform that covers much of the globe. In the past, many organizations would have to “stitch together of patchwork of TMS solutions,” Kass says. That makes it difficult to reach one version of the truth.

Similarly, current TMS solutions are better able to manage today’s more complex supply chains, which often include multiple transportation modes, different geographies, and changing distribution channels. “A company should be able to leverage the TMS to solve evolving challenges and not limit

business decision-making based on the functionality of the TMS,” Wilson says.

### SMARTER TMS SOLUTIONS

More TMS solutions incorporate tools that boost their intelligence. For instance, the TMS market is making greater use of artificial intelligence to increase efficiencies and reduce costs within shipper and 3PL operations, says Kate Leatherbury, director of domestic transportation solutions with Gebrüder Weiss.

By leveraging the Internet of Things (IoT) TMS solutions can monitor light, temperature, and location as goods are in transit. This helps ensure the integrity of each shipment. Say an IoT device detects light in the trailer after it has been sealed. That may indicate tampering or theft.

Companies also are looking for cost savings on freight management and ways to simplify their workflows, regardless of freight mode, Martin says. This is driving interest in TMS platforms that can provide options to source capacity, as well as control costs and service levels.

In another shift, more TMS systems design routes that allow drivers to return home at night more often, says James Peck, vice president and solutions advisor with Blue Yonder, a digital supply chain and omnichannel fulfillment company.

*Continued on page 54*

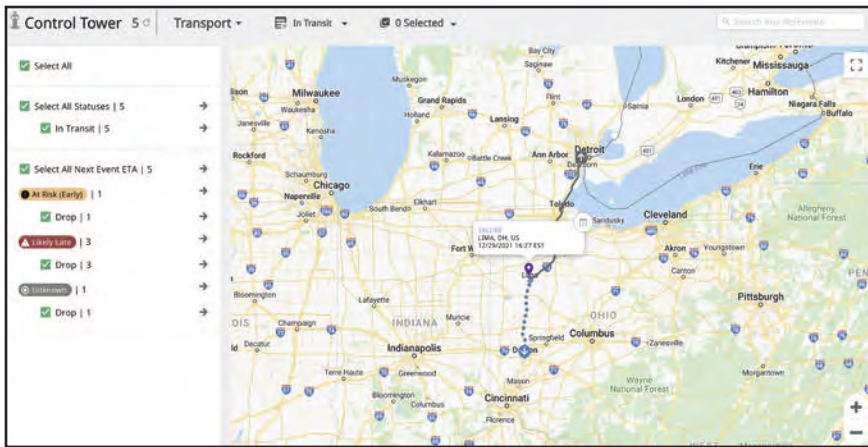


# 10 TIPS FOR CHOOSING A TMS

Given the large number of options available, it is critical to determine the best transportation management system (TMS) based on your operation's unique needs. The goal is to maximize potential before making a decision.

- 1. Establish your business goals.** Gather key internal stakeholders to identify current business challenges, areas of opportunity, and goals to determine how a TMS solution can best support. There is no one-size-fits-all TMS. Prioritize finding a solution that checks the boxes on your non-negotiables.
- 2. Look to the future.** Because no business can predict what will happen next, look for a TMS that offers a modular approach that is flexible enough to grow alongside your operations. This will enable you to scale and add new capabilities as needed in the future.
- 3. Determine your budget.** Understand the fixed costs and contract structure associated with a TMS. Based on your needs, you may have to factor in additional budget to cover enhancements. If you are debating between insourcing or outsourcing, consider costs and resources. Could a third-party logistics provider manage your day-to-day TMS work for less cost than what you can do internally?
- 4. Understand implementation.** A critical factor that will make or break the success of a TMS is the implementation process. Ask about a TMS vendor's implementation, dedicated resource team and the skill set of those executing. Typically, the implementation process for a large-scale company takes 6 to 12 months based on the complexity of the operations and system integrations.
- 5. Assess enterprise integrations.** Are you planning to integrate the TMS with your enterprise resource planning and accounting systems that manage your daily operations? What about your warehouse management system that handles the daily flow of orders? Look for a TMS vendor with the expertise to integrate with your current systems smoothly and successfully.
- 6. Strategize carrier connectivity.** Some TMS providers enable you to leverage their pre-existing connectivity with hundreds of carriers while others expect you to manage that on your own. If you choose to do it in-house, the cost of an internal IT team to oversee carrier connectivity could be more than what a TMS provider charges.
- 7. Create a freight audit and payment plan.** While some companies prefer to handle it internally or through a separate third-party vendor, many TMS solutions offer real-time freight auditing and payment. For instance, a TMS can provide an automated audit of freight invoices against contracted rates and the ability to authorize carrier payment to streamline the process.
- 8. Evaluate data analytics and reporting capabilities.** Because the main purpose of a TMS is to gain access to data to make informed business decisions, evaluating its analytics and reporting capabilities is key. While a TMS can provide a significant volume of data, you also need to consider how to integrate that information into other parts of your business along with your enterprise-wide reporting tools.
- 9. Determine your transport modes.** The business rules and routing for a large volume e-commerce and parcel shipper can significantly differ from shipping less-than-truckload and full truckload. The same can be said for domestic vs. international requirements. Ensure your TMS can support all your transport needs as some have more sophisticated capabilities than others.
- 10. Consider additional fleet and trucking needs.** Do you have a dedicated fleet or trucking assets that you also need to manage within the TMS? As many companies have their own trucks and drivers, determine if the TMS needs to support your ability to manage equipment, drivers, and more.

—Jeff McDermott, Senior Vice President of Transportation Management, GEODIS in Americas



**Control tower functionality and analytics within MercuryGate's TMS enable users to identify at-risk loads and quickly take action to meet delivery requirements. That capability can help shippers make decisions when fulfilling orders or planning other activities across the full network, including within the final mile.**

*Continued from page 52*

As part of this effort, the system might rework routes to minimize wait time, benefiting both drivers and the company. “A TMS can handle all sorts of business rules to help drive changes,” Peck says.

Given the continued growth in e-commerce, more shippers are looking to manage last- or final-mile and parcel logistics operations from within their TMS. Providers of TMS solutions might collaborate with last-mile specialists to provide visibility and optimize transportation plans across first, middle, and last miles.

Another result of the boom in e-commerce sales is increased interest in native parcel capabilities, Wilson says. These allow companies to evaluate parcel delivery options and identify ways to drive efficiencies and performance.

Many companies also are working to reduce their carbon dioxide emissions. Increasingly, TMS solutions will allow them to assess delivery modes against the emissions generated, Wilson says. They can choose the most environmentally-minded option, while also considering costs and meeting service agreements.

Dynamic price discovery (DPD) capabilities streamline the process of identifying a carrier for a specific load by providing real-time access to market rates. Rather than manually try to find the best rate, the solution reaches out to

the carrier networks and marketplaces to access prices in real time, Peck says. Shippers then can make more informed load-tendering decisions.

#### **MORE PARTNERSHIPS**

The ways in which shippers are purchasing TMS solutions is changing as well. For instance, some shippers want just one or a few features from within a TMS, such as the ability to create three-dimensional models of loads, Peck says.

Some TMS vendors separately offer components of their larger TMS solution. These often can be deployed more quickly and at lower cost.

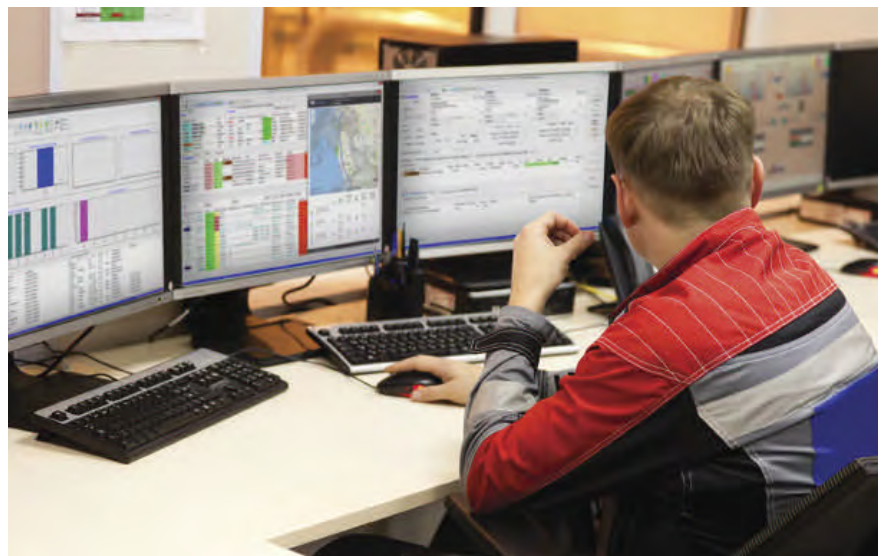
At the same time, many shippers also want to connect their TMS to other solutions, like a warehouse management system (WMS), so they can leverage a broader range of information. Unifying these logistics operations also means that organizations can handle exceptions further in advance, when more corrective options are possible.

Looking ahead, “the prevalence of ecosystems that provide a one-stop shop” is likely to grow, Kass says. Technologies like artificial intelligence, predictive analytics, and visibility will converge, he predicts. TMS solutions will converge with other technologies, such as autonomous vehicles (AVs). This should reduce the driver bottleneck and increase safety.

Leveraging machine-to-machine communication between a TMS and an AV could help reduce the carbon footprint, Kass says. Eventually, it’s likely that TMS solutions also will be used to manage drone deliveries.

Until recently, TMS solutions had been deployed primarily as an execution platform. While that’s still critical, companies today expect more. And, they’re finding it.

“Users will look to their TMS for long-term planning and procurement, network insights, supply chain optimization, and end to end visibility,” Martin says. ■



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# TMS GUIDE 2022

RECENT SUPPLY CHAIN DISRUPTIONS HAVE RAISED INTEREST IN TRANSPORTATION MANAGEMENT SYSTEMS (TMS). A VARIETY OF SOLUTIONS – FROM CLOUD-BASED, ON-DEMAND, WEB-HOSTED APPLICATIONS TO TRADITIONAL LICENSING INSTALLATIONS, OVER THE ROAD, ON THE RAIL, CONTAINERIZED, OR PARCEL – ARE AVAILABLE FROM TMS VENDORS AND SERVICE PROVIDERS WHO ARE EXPANDING THEIR OFFERINGS TO MEET YOUR UNIQUE BUSINESS REQUIREMENTS.

BECAUSE THE CHOICES CAN BE OVERWHELMING, *INBOUND LOGISTICS* OFFERS THIS ANNUAL GUIDE OF SOME TOP TMS PROVIDERS AND SOLUTIONS THAT CAN PUT YOU ON THE RIGHT ROAD TOWARD IMPROVED TRANSPORTATION MANAGEMENT AND PERFORMANCE.

## **3Gtms**

[www.3Gtms.com](http://www.3Gtms.com)

203-567-4610

**PRODUCT:** 3Gtms

**PLATFORM:** Cloud based

**DESCRIPTION:** 3G is cloud-based end-to-end transportation management software for omnichannel shippers, 3PLs, and brokers providing real-time management of the full order-to-settlement process. 3G features include quote management; rating, routing and optimization; load execution; track-and-trace capabilities and financial settlement and audit.

## **3rdwave**

[www.3rdwave.co](http://www.3rdwave.co)

416-510-8800

**PRODUCT:** 3rdwave iTMS

**PLATFORM:** Cloud based

**DESCRIPTION:** Provides end-to-end control of international transportation management. Manages ocean, air, and truckload shipments throughout the shipment lifecycle. Provides fully integrated freight contract management, freight auditing, freight booking, SKU level in-transit visibility, and port control and monitoring.

## **4flow**

[www.4flow.com](http://www.4flow.com)

313-777-8300

**PRODUCT:** 4flow iTMS

**PLATFORM:** Licensed to user (installed locally), cloud based

**DESCRIPTION:** Integrates supply chain optimization and transportation management—from strategic design to tactical planning and daily execution. Manages complex logistics operations including network design, multimodal transportation planning, sourcing, route management, 3D load building and freight invoicing. Works as a stand-alone product or embedded into 4flow's managed services.

|||||

## Acuitive Solutions

[www.acuitivesolutions.com](http://www.acuitivesolutions.com)

704-847-4997

**PRODUCT:** Global Transportation Management Software

**PLATFORM:** Cloud based

**DESCRIPTION:** Replaces emails and spreadsheets with rule-based workflows that allow supply chain partners to collaborate and manage shipments in real time and without the shipper's direct involvement.

|||||

## AFS Logistics

[www.afs.net](http://www.afs.net)

877-242-3383

**PRODUCT:** AFSmartTMS

**PLATFORM:** Cloud based

**DESCRIPTION:** Manages freight, tracks deliveries, searches for better rates, and dynamically captures critical shipment data including delivery metrics, exceptions, and more.

|||||

## Agistix

[www.agistix.com](http://www.agistix.com)

888-244-7849

**PRODUCT:** Agistix

**PLATFORM:** Cloud based

**DESCRIPTION:** Supports rating, bidding, auto-tendering, document automation, and real-time tracking for multi-leg and multi-mode shipments globally. Supports inbound, outbound, and third-party shipments and data constructs from order to invoice.

|||||

## ALC Logistics

[www.alclogistics.com](http://www.alclogistics.com)

800-282-3246

**PRODUCT:** AlchemyTMS

**PLATFORM:** Cloud based

**DESCRIPTION:** Addresses transportation demands including multi-pick/multi-drop, change orders, spot bids, and appointment scheduling by simplifying processes involved in managing supply chain networks. Can be integrated with existing ERP, order entry, and financial systems to provide operational efficiency, visibility, and accountability.

|||||

## Aptean

[www.aptean.com](http://www.aptean.com)

855-411-2783

**PRODUCT:** Routing & Scheduling Paragon Edition

**PLATFORM:** Licensed to user (installed locally), cloud based

**DESCRIPTION:** Includes features that help create optimized daily plans, conduct strategic planning and improve execution of live operations.

|||||

## ARTC Logistics

[artc-logistics.com](http://artc-logistics.com)

732-213-5081

**PRODUCT:** CalcRate

**PLATFORM:** Licensed to user (installed locally), hosted on the vendor's website, cloud based

**DESCRIPTION:** Multimodal rate engine with API capability. Integrates with multiple enterprise resource planning systems. Provides rating, shipment consolidation, tracking and tracing and advanced analytics.

|||||

## ARTEMUS Transportation Solutions

[www.artemus.us](http://www.artemus.us)

866-744-7101

**PRODUCT:** ARTEMUS Customs System

**PLATFORM:** Cloud based

**DESCRIPTION:** Provides cargo reporting to the United States, Canada, Japan, and Panama as per each country's customs requirements. Also provides customs clearance for U.S.-bound cargo.

|||||

## AscendTMS

[www.TheFreeTMS.com](http://www.TheFreeTMS.com)

813-681-5000

**PRODUCT:** AscendTMS

**PLATFORM:** Cloud based

**DESCRIPTION:** Provides complete control over daily freight movements. No contracts are needed and all training and support is free.

|||||

## Axele

[www.axele.com](http://www.axele.com)

833-462-9353

**PRODUCT:** Axele TMS

**PLATFORM:** Cloud based

**DESCRIPTION:** An intelligent TMS to help truckload carriers find better loads, increase profits, and grow business. Connects to load boards, maps, accounting systems, electronic logging devices, and market rates. Features track/trace, a mobile app, live dispatch board, analytics, and smart trip planning.

|||||

## Blue Yonder

[www.blueyonder.com](http://www.blueyonder.com)

833-532-4764

**PRODUCT:** Transportation Management System

**PLATFORM:** Licensed to user (installed locally), hosted on the vendor's website, cloud based

**DESCRIPTION:** Manages end-to-end business processes from modeling and planning to last-mile delivery. Offers visibility into inbound and outbound transportation needs, along with supplier and carrier collaboration tools, to deliver a comprehensive assessment of opportunities available across the entire supply chain network.

|||||

## BlueGrace Logistics

[www.mybluegrace.com](http://www.mybluegrace.com)

800-697-4477

**PRODUCT:** BlueShip

**PLATFORM:** Cloud based

**DESCRIPTION:** Puts supply chain management and optimization into the hands of any shipper. Offers self-service tools such as instant quoting, scheduling, address books, product catalogs, and shipment tracking.

|||||

## BluJay Solutions

[www.blujaysolutions.com](http://www.blujaysolutions.com)

866-584-7280

**PRODUCT:** Transportation Management

**PLATFORM:** Cloud based

**DESCRIPTION:** Single-workflow SaaS TMS enables process automation and collaboration among trading partners, with visibility and AI for freight moves across multiple transportation modes. True single-instance multi-tenant cloud platform provides insights to benchmarking and best practices to enable cost savings and improve customer service.

|||||

## Blume Global

[www.blumeglobal.com](http://www.blumeglobal.com)

781-263-0200

**PRODUCT:** Blume Logistics

**PLATFORM:** Cloud based

**DESCRIPTION:** A holistic operating platform for international and domestic transportation management that unites visibility with action. Enables users to orchestrate, optimize, and observe the movement of goods, and reroute shipments if a problem arises. Allows users to manage logistics execution from sourcing to last-mile delivery.

|||||

## Camelot 3PL Software

[www.3plsoftware.com/solutions/tms](http://www.3plsoftware.com/solutions/tms)

704-554-1670

**PRODUCT:** Excalibur

**PLATFORM:** Cloud based

**DESCRIPTION:** Provides real-time tools to improve transportation execution with lower costs, higher productivity, and higher levels of customer service. Can be configured to meet a wide range of requirements.

|||||

## Carrier Logistics

[www.CarrierLogistics.com](http://www.CarrierLogistics.com)

914-332-0300

**PRODUCT:** FACTS

**PLATFORM:** Licensed to user (installed locally), cloud based

**DESCRIPTION:** A comprehensive freight management solution driving every aspect of a trucking company's needs—dispatching, freight bill entry, mobile data communications, call logging, general ledger, EDI transactions, and cross-docking.

|||||

## Centerboard

[www.centerboard.com](http://www.centerboard.com)

855-946-4739

**PRODUCT:** WIN by Centerboard

**PLATFORM:** Cloud based

**DESCRIPTION:** Neutral, shipper-centric solution offering affordable access to critical features for shippers. Real-time data gives the entire supply chain access to a single point of truth on how to move goods most quickly and cost-effectively.

|||||

## Centrade

[www.centrade.io](http://www.centrade.io)

651-379-3050

**PRODUCT:** Centrade

**PLATFORM:** Cloud based

**DESCRIPTION:** Networked business platform offering next-generation supply chain visibility, collaboration, and performance. Complies and adheres to uniquely defined operating procedures.

|||||

## ClearDestination

[www.cleardestination.com](http://www.cleardestination.com)

866-498-4491

**PRODUCT:** JFleet

**PLATFORM:** Cloud based

**DESCRIPTION:** Dispatching software for truckload and LTL carriers and delivery companies includes dashboard and reporting functionalities to track processes from dispatch to invoicing. Other functionality includes billing and payroll, GPS tracking, route planning and optimization, fleet maintenance, and load optimization.

## ClearTrack Information Network

[www.cleartrack.com/clarity](http://www.cleartrack.com/clarity)

615-877-4400

**PRODUCT:** Clarity Shipment and Order Visibility

**PLATFORM:** Hosted on the vendor's website, cloud based

**DESCRIPTION:** Automates the collection, monitoring, and measurement of shipment and order activities across trading partners, transportation modes, and logistics service providers. Empowers organizations to proactively detect and resolve problems while maintaining a predictable flow of goods across the supply chain.

## CT Logistics

[www.ctlogistics.com](http://www.ctlogistics.com)

216-267-2000

**PRODUCT:** CT TranSaver

**PLATFORM:** Hosted on the vendor's website, cloud based

**DESCRIPTION:** Provides global rate quotes from multiple carriers in all modes; least-cost analysis; automated shipment execution; real-time status information; reporting, searching, and data mining.

## CTSI-Global

[www.ctsi-global.com/tms](http://www.ctsi-global.com/tms)

888-836-5135

**PRODUCT:** Honeybee TMS

**PLATFORM:** Hosted on the vendor's website, cloud based

**DESCRIPTION:** Streamlines transportation planning, execution, and visibility management. Integrates with external platforms and the CTSI-Global logistics ecosystem: strategic data, freight audit and payment, and consulting expertise such as rate negotiation and modeling.

## DAT Solutions

[www.dat.com](http://www.dat.com)

800-728-7305

**PRODUCT:** DAT Broker TMS

**PLATFORM:** Licensed to user (installed locally), hosted on the vendor's website, cloud based

**DESCRIPTION:** Complete system designed exclusively for freight brokers. Enables moving more freight with fewer people. Operations and accounting in one system eliminates redundant entries. Analytic and automation tools maximize efficiency and profits.

## Descartes Systems Group

[www.descartes.com/home](http://www.descartes.com/home)

519-746-8110

**PRODUCT:** Descartes TMS

**PLATFORM:** Cloud based

**DESCRIPTION:** Synchronizes transportation operations, controls costs and enhances service through features such as contract management, load planning and optimization, execution, and freight audit. Provides extended capabilities for multimodal operations, including parcel shipping, real-time visibility, private fleet, dock scheduling and yard management, and pool/retail distribution.

## DigitalShipper

[www.digitalshipper.com](http://www.digitalshipper.com)

651-348-4080

**PRODUCT:** DigitalShipper Enterprise

**PLATFORM:** Licensed to user (installed locally), cloud based

**DESCRIPTION:** Seamlessly integrates with host systems to fully automate rating and shipping processes for small parcel and LTL. Out-of-the-box features include customized business rules, order consolidation, advanced rate shopping, and carrier service optimization.

## E2open

[www.e2open.com](http://www.e2open.com)

866-432-6736

**PRODUCT:** E2open Transportation Management

**PLATFORM:** Licensed to user (installed locally), cloud based

**DESCRIPTION:** Enables real-time visibility, reporting, and collaboration for domestic and global shippers. Lets users easily select carriers, modernize booking and automatically flag incorrect payments to increase productivity and profitability while reducing freight costs and delays.

## Echo Global Logistics

[www.echo.com](http://www.echo.com)

800-354-7993

**PRODUCT:** EchoTMS

**PLATFORM:** Cloud based

**DESCRIPTION:** Leverages AI, machine learning, and load-matching algorithms to create a flexible and effective system for shippers, carriers, and managed transportation companies.

## Fortigo

[www.fortigo.com](http://www.fortigo.com)

512-372-8884

**PRODUCT:** Fortigo TMS

**PLATFORM:** Cloud based

**DESCRIPTION:** Automates, optimizes, and audits logistics decisions to help reduce costs, improve customer satisfaction, and increase profitability. Fits seamlessly into established supply chain software. Optimizes logistics processes, minimizes ship-to-order times, and streamlines collaboration with logistics providers.

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## Freight Management Inc.

[www.freightmgmt.com](http://www.freightmgmt.com)

714-632-1440

**PRODUCT:** FMI All Access

**PLATFORM:** Cloud based

**DESCRIPTION:** Full management quoting, tendering, tracking, image retrieval and customized reporting suite. Can be customized to each company's needs.

## FreightCenter

[www.freightcenter.com](http://www.freightcenter.com)

800-716-7608

**PRODUCT:** FreightCenter TMS

**PLATFORM:** Cloud based

**DESCRIPTION:** Immediately sources capacity, equipment, and carrier rates in one central portal. Seamless shipping management simplifies and streamlines freight shipping and improves customer service. Users can track shipments via SMS text with real-time status updates.

## Freightgate

[www.freightgate.net](http://www.freightgate.net)

714-799-2833

**PRODUCT:** logisticsCloud

**PLATFORM:** Cloud based

**DESCRIPTION:** Integrates seamlessly with transport carriers, freight forwarders, 3PLs, and NVOCCs. API enables logistics providers to seamlessly integrate data and cloud-based database management systems for tracking business resources such as accounting AR/AP, inventory, and production capacity along with purchase orders, sales, scheduling, booking, and RFP bid/quotation management.

## FreightPOP

[www.freightpop.com](http://www.freightpop.com)

949-454-4602

**PRODUCT:** FreightPOP

**PLATFORM:** Cloud based

**DESCRIPTION:** Helps manufacturers, distributors, and retailers manage the freight shipping lifecycle through invoicing, label printing, and tracking carriers in transit. Multiple ways to shop rates; track inbound, outbound, and ocean shipping; and optimize processes. Integrates with most order management systems.

## Freightview

[www.freightview.com](http://www.freightview.com)

913-353-6188

**PRODUCT:** Freightview

**PLATFORM:** Hosted on the vendor's website, cloud based

**DESCRIPTION:** Online freight management platform that streamlines quoting, booking, tracking, and reporting processes. Centralized visibility improves management of carrier relationships and negotiated rates.

## GlobalTranz

[www.globaltranz.com](http://www.globaltranz.com)

866-275-1407

**PRODUCT:** GlobalTranz TMS

**PLATFORM:** Cloud based

**DESCRIPTION:** Provides a control tower view of shipments across all transportation modes, with immediate access to GlobalTranz's network of 50,000+ truckload carriers and 120+ local, regional, and national less-than-truckload carriers.

## Highway 905

[www.highway905.com](http://www.highway905.com)

908-874-4867

**PRODUCT:** Transportation Management System

**PLATFORM:** Cloud based

**DESCRIPTION:** Focuses on optimizing transportation processes and costing, with real-time freight rate management, smarter carrier selection and load consolidations, automated freight invoice audits, and real-time visibility into all operational performance metrics. Scalable and customizable with a flexible costing structure.

## Info-X

[infox.com](http://infox.com)

646-915-0333

**PRODUCT:** Info-X Web Based TMS

**PLATFORM:** Cloud based

**DESCRIPTION:** Digital platform helps shippers with quotes, bookings, and cargo tracking. Covers air and ocean imports/exports, domestic transportation, warehouse and purchase order management, compliance, and robotics.

## Intellect Technologies

[www.intellectech.com](http://www.intellectech.com)

609-454-3170

**PRODUCT:** Intellect eFreight

**PLATFORM:** Hosted on the vendor's website, cloud based

**DESCRIPTION:** Global solution for freight forwarders, NVOCCs, and 3PLs. Supports unlimited number of offices and users. Comprehensive management of all transport modes; direct connection to customs, carriers and customers through API/EDI messaging; WMS/CFS with barcode scanning; track-trace; customer portal; sales CRM; and purchase order management.



## IntelliTrans

[www.intellitrans.com](http://www.intellitrans.com)

806-603-9175

**PRODUCT:** IntelliTrans CarrierPoint

**PLATFORM:** Hosted on the vendor's website, cloud based

**DESCRIPTION:** Provides shipment execution and visibility across rail, truck, intermodal, barge, and ocean shipments. Features shipment visibility, invoice auditing and payment, analytics, contract management, load planning, dispatch, and a mobile app.

## Johanson Transportation Service

[www.johansontrans.com](http://www.johansontrans.com)

800-742-2053

**PRODUCT:** Arriviture

**PLATFORM:** Cloud based

**DESCRIPTION:** Offers end-to-end visibility and tools to manage freight activities, including rate quotes, comparing pricing and route times, orders, tracing, load optimization, shipping documents, analytics reports, and accounts payable. Carriers can find loads, enter equipment and tracing details, create routes, check mileage, report issues, and view accounting.

## Kenco Logistics

[www.kencogroup.com](http://www.kencogroup.com)

800-758-3289

**PRODUCT:** Kenco TMS Lite

**PLATFORM:** Cloud based

**DESCRIPTION:** Empowers small to mid-sized shippers with the technology, resources, and competitive rates needed to effectively manage transportation networks and disruptions—all through a single point of contact.

## Korber

[www.koerber-supplychain.com](http://www.koerber-supplychain.com)

605-203-0605

**PRODUCT:** K.Motion TMS

**PLATFORM:** Licensed to user (installed locally), cloud based

**DESCRIPTION:** An automated, integrative TMS for carriers and brokers, supporting end-to-end execution for planning, operating, reporting, and track and trace.

## Kuebix, a Trimble Company

[www.kuebix.com](http://www.kuebix.com)

800-220-8610

**PRODUCT:** Kuebix TMS

**PLATFORM:** Cloud based

**DESCRIPTION:** Modular, cloud-based solution allows companies to obtain an optimized TMS for their business and create a truly connected supply chain. Kuebix's community consists of 25,000+ shippers and carriers from Trimble's network of 1.3 million commercial trucks.

## LOG-NET

[www.LOG-NET.com](http://www.LOG-NET.com)

732-758-6800

**PRODUCT:** LOG-NET

**PLATFORM:** Licensed to user (installed locally), hosted on the vendor's website, cloud based

**DESCRIPTION:** Integrated SaaS solution that enables global transportation management, order management and distribution management. Supports collaboration and integration with suppliers, transportation providers, internal applications, and enterprise resource planning systems.

## LogiFlow Services

[www.logiflow.com](http://www.logiflow.com)

630-484-0150

**PRODUCT:** LogiFlow

**PLATFORM:** Cloud based

**DESCRIPTION:** Transportation intelligence platform that optimizes the end-to-end planning, execution, and financial settlement of the transportation process. Order/item foundation, intuitive interface, and advanced business intelligence tools provide granular visibility and insight to execution and cost throughout the supply chain.

## Logistix Solutions

[www.logistixsolutions.com](http://www.logistixsolutions.com)

571-426-5951

**PRODUCT:** ProLogix Transportation Optimization

**PLATFORM:** Licensed to user (installed locally)

**DESCRIPTION:** Optimizes LTL/FTL freight transport, routing and scheduling, modes, carriers, and vehicles based on rates, orders, and customer service requirements. Powerful algorithms generate multi-stop truckload, consolidated LTL, and private fleet routes and schedules that save money, miles, vehicles, and drivers.

## Logistyx Technologies

[www.logistyx.com](http://www.logistyx.com)

877-755-2374

**PRODUCT:** Logistyx TME

**PLATFORM:** Licensed to user (installed locally), cloud based

**DESCRIPTION:** Designed for parcel shipping. Combines advanced business intelligence and a global network of 550+ carrier integrations to provide carrier compliance, predictive analytics, and tracking to enable on-time delivery and increase profits per shipment.

## Logiware

[www.logiwareinc.com](http://www.logiwareinc.com)

770-667-0311

**PRODUCT:** Logiware

**PLATFORM:** Hosted on the vendor's website, cloud based

**DESCRIPTION:** Designed for forwarders and NVOCCs to handle ocean, air, and truck shipments from end to end. Helps keep shipments on schedule, improves profitability, and raises customer service levels through complete visibility and collaboration.

## Logix Grid Technologies

[www.logixgrid.com](http://www.logixgrid.com)

997-109-4859

**PRODUCT:** Logix Platform

**PLATFORM:** Licensed to user (installed locally), cloud based

**DESCRIPTION:** Manages logistics, e-commerce, first-mile pickup and last-mile delivery along with supply chain business across the globe. API integrations with 150+ brands including DHL, FedEx, UPS, and others.

## Made4net

[www.made4net.com](http://www.made4net.com)

201-645-4345

**PRODUCT:** RoutingExpert

**PLATFORM:** Licensed to user (installed locally), hosted on the vendor's website, cloud based

**DESCRIPTION:** Helps plan smarter routes faster. Advanced routing algorithms and unlimited flexible, user-defined business constraint rules can help users stay on top of transportation operations. Includes a fully customizable billing and payment solution.

## MagicLogic Optimization

[www.magiclogic.com](http://www.magiclogic.com)

206-274-6248

**PRODUCT:** Cube-IQ

**PLATFORM:** Licensed to user (installed locally), hosted on the vendor's website, cloud based

**DESCRIPTION:** Advanced load planning software for pallets, containers, trucks and trailers, functioning as a plug-in for other TMS solutions via APIs.

## Manhattan Associates

[www.manh.com](http://www.manh.com)

678-597-6754

**PRODUCT:** Manhattan Active Transportation Management

**PLATFORM:** Cloud based

**DESCRIPTION:** SaaS TMS can be extended without impacting regular updates. Applied intelligence empowers real-time distribution planning and optimization for better, faster operational decisions. Pre-connected visibility, load board, and carrier network partners included.

## MPO

[www.mpo.com](http://www.mpo.com)

646-520-0841

**PRODUCT:** Transportation Management System

**PLATFORM:** Cloud based

**DESCRIPTION:** Streamlines and optimizes logistics order flows via planning (rating, routing, mode selection), execution (real-time visibility and exceptions management), financials (invoicing and auditing), and analytics (KPIs and dashboards). Optimizes inbound, outbound, and return orders, converging inventory, order, and transportation management.

## MVMNT

[www.mvmnt.io](http://www.mvmnt.io)

708-829-0498

**PRODUCT:** MVMNT

**PLATFORM:** Cloud based

**DESCRIPTION:** Completely free and reimagined TMS designed to enhance day-to-day operations of a traditional transportation management solution. Manages everything from procurement to payments all in one place—with total visibility throughout.

SPONSORED

## nVision Global

[www.nvisionglobal.com](http://www.nvisionglobal.com)

770-474-4122

**Product:** IMPACT TMS

**Platform:** Cloud based

**Description:** IMPACT TMS provides management and visibility of all global shipments, including inbound supplier shipments using its purchase order management module and outbound shipments across all shipment modes. nVision Global's API and EDI processes are designed to seamlessly integrate customers' ERP, carriers, and suppliers. The solution is supported by its dedicated spot quote platform, a configurable shipment approval process, automated rating/routing and tendering, and customs document generation and integration (BOL, commercial invoice, labels, and manifests). This solution and service is easily integrated with the other solutions and technologies that nVision Global offers such as freight audit and payment, freight claims, business analytics and freight rate procurement.

# nVision Global®

Next Generation Logistics

www.DynamicsTMS.com
847-963-0007

PRODUCT: Dynamics TMS

PLATFORM: Licensed to user (installed locally), hosted on the vendor's website, cloud based

DESCRIPTION: Complete enterprise transportation management planning and execution suite that enables effective and efficient business decisions. Can be quickly deployed to manage a single company or multiple divisions.

Nulogx

www.nulogx.com
905-486-1162

PRODUCT: TMS Online

PLATFORM: Hosted on the vendor's website, cloud based

DESCRIPTION: A hosted solution that supports all the activities necessary to manage and execute the full lifecycle of the transportation process.

Nuvocargo

www.nuvocargo.com
917-521-5157

PRODUCT: Nuvocargo

PLATFORM: Cloud based

DESCRIPTION: All-in-one digital platform focused on U.S.-Mexico cross-border trade. Creates transparency in the shipping process and layers services such as customs brokerage, cargo insurance, and supply chain finance.

Odyssey Logistics & Technology

www.odysseylogistics.com
855-875-0681

PRODUCT: Odyssey Global Logistics Platform

PLATFORM: Licensed to user (installed locally), hosted on the vendor's website, cloud based

DESCRIPTION: Designed to manage day-to-day transactional logistics processes. Proprietary technology gives users the process, automation, real-time data and information necessary to make sound, long-range decisions and overcome inefficiencies and oversights.

Omnitracs

www.omnitracs.com
888-627-2716

PRODUCT: Omnitrac One

PLATFORM: Licensed to user (installed locally), cloud based

DESCRIPTION: A set of applications that enables drivers to increase visibility, transparency, and productivity; reduce operation costs; improve density and consolidation of deliveries; be nimble with real-time changes to pick-ups and deliveries; and simplify work streams.

One Network Enterprises

www.onenetwork.com
866-302-1936

PRODUCT: Intelligent Logistics TMS

PLATFORM: Hosted on the vendor's website, cloud based

DESCRIPTION: Provides end-to-end multiparty logistics planning, scheduling, and execution capabilities from sourcing to invoicing, across all modes and services. Includes real-time tracking, advanced analytics, and exception management. Integrates to order and warehouse management. AI and machine learning autonomously detect and resolve logistics-related issues.

Oracle

www.oracle.com/logistics
800-392-2999

PRODUCT: Oracle Transportation Management

PLATFORM: Cloud based

DESCRIPTION: Manages all transportation activity throughout the global supply chain, enabling users to run logistics operations more efficiently, reduce freight costs and optimize service levels.

PCS Software

www.pcssoft.com
833-415-9500

PRODUCT: PCS Software

PLATFORM: Cloud based

DESCRIPTION: AI-driven, unified transportation logistics platform for shippers, carriers, and brokers. Simplifies and optimizes day-to-day logistics operations and unlocks strategic data-driven insights for greater control, profitability, and competitive advantage.

Pierbridge

www.pierbridge.com/transtream
508-630-1220

PRODUCT: Transtream

PLATFORM: Licensed to user (installed locally), cloud based

DESCRIPTION: Enterprise multi-carrier parcel management solution powers supply chain applications and solves critical business problems. Deployed on-premise or accessed from the cloud. Automates parcel planning and execution for shippers of all sizes.

## Primus Intellectual Solutions

[www.shipprimus.com](http://www.shipprimus.com)

866-441-8188

**PRODUCT:** ShipPrimus

**PLATFORM:** Hosted on the vendor's website, cloud based

**DESCRIPTION:** Specifically geared for 3PLs, 4PLs and brokers. Provides an API-driven platform to rate shop, dispatch, track, and POD LTL, FTL and small package shipments electronically direct to carriers. Allows efficient and automated management of shipments, customers, vendors, and billing.

## Princeton TMX

[www.princetonmx.com](http://www.princetonmx.com)

800-435-4691

**PRODUCT:** Princeton TMX

**PLATFORM:** Hosted on the vendor's website, cloud based

**DESCRIPTION:** End-to-end solution—from shipment building to rating, tendering, scheduling, payment and reporting—for industrial shippers. Enables companies to automate, streamline and optimize truck, rail, LTL, intermodal, ocean, and barge processes.

## ProShip

[www.proshipinc.com](http://www.proshipinc.com)

414-302-2929

**PRODUCT:** Multi-Carrier Shipping Software

**PLATFORM:** Licensed to user (installed locally), cloud based

**DESCRIPTION:** Platform designed for high-volume parcel shipping. Offers multiple shipping methods. Helps boost sales and manage shopping cart shipping expectations. Outbound LTL, rate shopping, carrier compliance, and an omnichannel distribution strategy.

## QAD Precision

[www.precisionsoftware.com](http://www.precisionsoftware.com)

312-239-1630

**PRODUCT:** QAD Precision Transportation Execution

**PLATFORM:** Licensed to user (installed locally), cloud based

**DESCRIPTION:** Global, multi-carrier shipping solution designed to manage both inbound and outbound shipments. Provides centralized control and visibility throughout the shipment execution process. From one system, users can rate, route, produce labels, manifest and manage levels of service for any shipment mode.

## Ramco Systems

[www.ramco.com/logistics](http://www.ramco.com/logistics)

609-620-4800

**PRODUCT:** Ramco TMS

**PLATFORM:** Licensed to user (installed locally), cloud based

**DESCRIPTION:** Empowers logistics service providers to digitize their entire operations, including booking, trip planning, hub management, delivery, POD, and invoicing.

## RateLinx

[www.ratelinx.com](http://www.ratelinx.com)

480-801-5500

**PRODUCT:** ShipLinx

**PLATFORM:** Cloud based

**DESCRIPTION:** Global, multimodal TMS that includes small parcel natively, giving users a full transportation and data management solution. Carrier compliance, data integration, and no professional service fees.

## SaaS Transportation

[www.web.saastransportation.com](http://www.web.saastransportation.com)

901-832-2401

**PRODUCT:** SaaS Transportation

**PLATFORM:** Cloud based

**DESCRIPTION:** For 3PLs, freight payment companies, and shippers. Uses API, EDI and contract management technology to integrate with hundreds of trading partners. Automates the entire LTL lifecycle from quoting/carrier selection to shipment execution and visibility to final delivery and settlement.

## Shipwell

[www.shipwell.com](http://www.shipwell.com)

512-333-0898

**PRODUCT:** Shipwell

**PLATFORM:** Cloud based

**DESCRIPTION:** Combines transportation management, visibility, and an integrated partner network in one simple and responsive platform that scales as a business grows.

## Softeon

[www.softeon.com](http://www.softeon.com)

703-833-2848

**PRODUCT:** Softeon TMS

**PLATFORM:** Cloud based

**DESCRIPTION:** Manages complex transportation needs with strong parcel shipping functionality and support for private fleets and dynamic routing.

## SwanLeap

[www.swanleap.com](http://www.swanleap.com)

608-709-8050

**PRODUCT:** SwanLeap

**PLATFORM:** Cloud based

**DESCRIPTION:** Mode-agnostic global TMS platform provides real-time interconnectivity of the entire supply chain. Cloud architecture enables scalability according to business needs.



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## Tecsys

[www.tecsys.com](http://www.tecsys.com)

800-922-8649

**PRODUCT:** Tecsys Elite TMS

**PLATFORM:** Licensed to user (installed locally), cloud based

**DESCRIPTION:** Enables strategic transportation planning and execution for common carrier or proprietary courier fleets. Helps organizations achieve the dependability, transparency, and efficiency of a world-class distribution courier throughout the entire chain of delivery—from orders and drivers to fleets and routes.

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## TMC, a Division of C.H. Robinson

[www.chrobinson.com](http://www.chrobinson.com)

800-967-9619

**PRODUCT:** Navisphere

**PLATFORM:** Cloud based

**DESCRIPTION:** A single-instance technology platform that serves all modes and regions. Provides global visibility, mode/route optimization, shipment tender, freight payment, language and currency capabilities, and business intelligence.

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## TransAmerica Express Logistics

[www.transamericaexp.com](http://www.transamericaexp.com)

916-543-1704

**PRODUCT:** TransAmerica Express TMS

**PLATFORM:** Cloud based

**DESCRIPTION:** Versatile logistics management solution created to provide businesses with enhanced route plans, quick execution, and unrestricted accessibility.

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## Translogistics

[www.translogisticsinc.com](http://www.translogisticsinc.com)

610-280-3210

**PRODUCT:** ViewPoint 2.0

**PLATFORM:** Cloud based

**DESCRIPTION:** Accommodates multiple transportation modes including LTL and TL. Features dynamic metrics/reporting and tracking. Offers the ability to quote shipments, retrieve POD documents and tender freight directly to carriers.

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## Transportation Insight Holding Company

[www.tiholdco.com](http://www.tiholdco.com)

770-509-9611

**PRODUCT:** Beon Shipper

**PLATFORM:** Cloud based

**DESCRIPTION:** Streamlines shippers' efforts into one digital platform to gain visibility, speed, and control. Enables smarter shipping through access to 80,000+ carriers while saving money, delivering efficiencies and driving best practices throughout the organization.

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## TransportGistics

[www.TransportGistics.com](http://www.TransportGistics.com)

631-567-4100

**PRODUCT:** TGI:TMS

**PLATFORM:** Licensed to user (installed locally), hosted on the vendor's website, cloud based

**DESCRIPTION:** Provides simple, incremental solutions to improve, monitor, and enforce compliance among partners. Reduces, uncovers and avoids excessive costs through planning, execution, and analytics.

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## Trimble Transportation

[transportation.trimble.com](http://transportation.trimble.com)

866-914-5299

**PRODUCTS:** TMW.Suite, TruckMate, Innovative TMS

**PLATFORM:** Licensed to user (installed locally), cloud based

**DESCRIPTION:** TMW.Suite serves as the end-to-end business growth platform for commercial and private carriers, brokers, 3PLs and other transportation enterprises. TruckMate is a comprehensive dispatch, operations, and accounting system. Innovative TMS is a comprehensive order-to-cash solution with fully integrated accounting and other back-office tools.

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## URoute

[www.uroute.net](http://www.uroute.net)

313-600-5308

**PRODUCT:** UROUTE

**PLATFORM:** Cloud based

**DESCRIPTION:** Interactive and shipper-focused. Strictly providing software only to UROUTE shippers allows an unbiased freight procurement network. Also offers data-driven analytics, automated optimization, e-bill audit and freight appointment scheduler.

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## Varsity Logistics

[www.varsitylogistics.com](http://www.varsitylogistics.com)

650-392-7979

**PRODUCT:** Varsity Logistics

**PLATFORM:** Licensed to user (installed locally)

**DESCRIPTION:** Plug-and-play, multi-carrier shipping solution built for the IBM platform with native, seamless integration with ERP or warehouse management systems.

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# SAY YES TO THE YMS

COMPANIES SOMETIMES OVERLOOK HOW IMPORTANT THE YARD IS TO THEIR SUCCESS. WITHOUT PROPER MANAGEMENT, FACILITATED BY A YARD MANAGEMENT SYSTEM (YMS), PILE UPS CAN LEAD TO DELAYS, FEES, AND A FULL SHIPMENT OF STRESS.

BY CHRIS CAVALLO





**F**ifteen trucks are stuck in line at a company's yard gate, waiting for the gate operator to manually instruct them where to go. Warehouse forklifts idle impatiently in each of the five loading docks, all completely empty of trailers. While truckers honk in vain to avoid detention fees, foremen explain to superiors that their priority shipments will be late, despite the cargo being right outside the building.

Improper yard management is an all-too-common issue that leads to costly delays and at worst, a loss of customer trust. Companies can solve many of these issues, and may even profit further, with the help of a dedicated yard management system.

### WHAT IS A YMS?

A yard management system (YMS) is a software or application that orchestrates the efficient movement of yard equipment (trucks, trailers, employees, materials) through the area around a facility. Most warehouse management systems (WMS) have basic YMS functionality, but more demanding work calls for more robust solutions. A dedicated YMS acts as a bridge between transportation and warehousing, and it tracks asset locations, collects performance data, and optimizes workflow across a yard.

### HOW DOES A YMS WORK?

A YMS works between the transportation management system (TMS) and the WMS to manage inbound and outbound events through the yard. A YMS offers key features such as asset visibility, task optimization, dock scheduling, gatehouse management, TMS/WMS integration, demand planning, real-time communication, and data collection. These features decrease latency and increase smooth operation of assets, and provide users with real-time feedback on shipping schedules, truck locations, and other information to streamline yard management.

### WHY A YMS?

Manufacturers, distributors, and/or warehouse managers may consider a YMS for a few reasons:

- Yards span multiple locations, where it is impossible to manually collect real-time information.
- Inefficiencies like miscommunication or bottlenecks detract from the bottom line.
- Third-party logistics (3PL) providers and other supply chain parties request shipping updates and other real-time information related to the yard.

### THE YMS ADVANTAGE

A YMS generates value in the following five areas:

**1 SELF-CHECK-IN AT GATE**  
Drivers know the headache of arriving to a yard, only to find a long line. Poorly managed gate systems bottleneck

both receivers and carriers, causing unnecessary delays and detention charges. A YMS automates the gate process, where drivers self-check-in using their smartphone. After passing a set geo-fence, drivers are guided by their device to exactly where they need to be and are given site-specific information for dropping off their trailer.

### 2 AUTOMATED DOCK SCHEDULING SYSTEM

Multiple shipments arriving at once cause gate congestion and warehouse throughput issues. An automated schedule for drivers, where carriers choose when to arrive at their convenience based on the master schedule, can minimize these problems. Automated scheduling not only smooths inbound and outbound traffic, but also provides a set time for drivers to arrive and leave without worrying about unforeseen delays.

### 3 SYSTEM-DIRECT TRAILER MOVES

Trailer moving is a sore spot in dock operations—a lack of strategy leads to congestion and delays in priority shipments. A YMS solves this issue with a process-driven trailer moving order, where trailer moves are optimized based on loading location and deadline. In complex operations where there are multiple loading locations for trailers, a yard management system also ensures partially loaded trucks are not lost in the move.

### 4 REAL-TIME NOTIFICATIONS

Trailer detention fees occur when a trailer dwells for too long in/around the yard beyond its grace period; these fees pile up once delays accrue. Carriers must be quickly notified of their available equipment, otherwise these fees apply and create an unproductive and time-wasting situation. A yard management system not only organizes received trailers to minimize detention time, but it also provides real-time notifications to carriers and other interested parties when equipment is available.

### 5 OPTIMIZED TASK MANAGEMENT

Yard truck operations are the most costly expense in yard management. A haphazard yard truck operation has significant downstream effects and results in missed service commitments, or even a loss of valued partners. Automating task-management processes using self-learning algorithms and data collection allows a YMS to eliminate unnecessary moves, and can assign moves to specific drivers based on previous performance. The enhanced efficiency enables the yard to serve the business at a lower cost and reduces time investment, all without active input from users.

The return on investment for yard management technology tools is often more than justifiable. A company investing in yard operation technology not only optimizes current capabilities, but also future-proofs the business for growth and expansion. ■

# 2022 YMS GUIDE

HERE'S A SHORT LIST OF LEADING YMS SOLUTIONS PROVIDERS TO HELP START YOUR SEARCH.

## C3 Solutions

[WWW.C3SOLUTIONS.COM](http://WWW.C3SOLUTIONS.COM)

514-315-3139

**PRODUCT:** C3 Yard

**DESCRIPTION:** Empowers yard managers by providing visibility to both yard assets and shipments, increasing gate throughput, reducing dock congestion, optimizing door utilization, and automating yard driver task assignment.

## Cypress Inland Corporation

[WWW.YARDVIEW.COM](http://WWW.YARDVIEW.COM)

303-781-3430

**PRODUCT:** YardViewPro yard management software

**DESCRIPTION:** Augments yard management by taking into account specific industry, cataloging container contents and locations, assigning dock scheduling and yard driver tasks, performing recorded gate control, and enhancing visibility for all users.

## Descartes Systems Group

[WWW.DESCARTES.COM](http://WWW.DESCARTES.COM)

519-746-8110

**PRODUCT:** Descartes YMS

**DESCRIPTION:** Yard management and trailer tracking software that offers real-time visibility into trailer content and locations, enables effective planning, tracks asset movements, maintains an audit trail, and collects data for improvements.

## Exotrac

[WWW.EXOTRAC.COM](http://WWW.EXOTRAC.COM)

212-989-0171

**PRODUCT:** YardTrac Pro and Lite

**DESCRIPTION:** Real-time YMS delivers comprehensive functionality and speed while minimizing detention costs. Web and mobile applications suited to any vertical in the supply chain.

## FourKites

[WWW.FOURKITES.COM](http://WWW.FOURKITES.COM)

888-466-6958

**PRODUCT:** Dynamic Yard

**DESCRIPTION:** Enables businesses to use artificial intelligence to manage daily operations throughout the yard, including gate operations, task assignment, trailer inventory management and more.

## IntelliTrans

[WWW.INTELLITRANS.COM](http://WWW.INTELLITRANS.COM)

800-603-9175

**PRODUCT:** YardRunner

**DESCRIPTION:** Manages rail yards with increased levels of integration and visibility. Users find information they need with querying, reporting, and interactive map features.

## Koerber

[WWW.KOERBER-SUPPLYCHAIN.COM](http://WWW.KOERBER-SUPPLYCHAIN.COM)

800-328-3271

**PRODUCT:** K.Motion YMS

**DESCRIPTION:** Enables users to track yard inventory and trailers to increase visibility of assets. Addresses dock door scheduling for faster trailer turns and strategic staging by trailer type.

## Made4net

[WWW.MADE4NET.COM](http://WWW.MADE4NET.COM)

201-645-4345

**PRODUCT:** Made4net YardExpert

**DESCRIPTION:** Uses rule-based automation to track pertinent information for trailers, manages yard on where to move assets and who should be assigned to handle them. Facilitates check in and wait times, schedules and prioritizes dock assignments.

## One Network Enterprises

[WWW.ONENETWORK.COM](http://WWW.ONENETWORK.COM)

866-302-1936

**PRODUCT:** One Network Yard Management System

**DESCRIPTION:** Provides real-time, gate-dock-gate visibility of equipment and inventory. Schedules, executes, and audits loads synchronized to warehouse, dock-door scheduling and demand priorities.

## Overhaul

[WWW.OVER-HAUL.COM](http://WWW.OVER-HAUL.COM)

800-203-1649

**PRODUCT:** Asset Manager

**DESCRIPTION:** Provides real-time asset and in-yard visibility, giving yard and fleet management teams greater control over their assets, whether in-transit or stationary.

## Sentier Systems

[WWW.YARDCOMMANDER.COM](http://WWW.YARDCOMMANDER.COM)

866-503-4823

**PRODUCT:** Yard Commander

**DESCRIPTION:** An affordable, fully functional, easy-to-use YMS that offers full visibility to assets in the yard and at docks, reports, history of transactions, and alerts.

## Yard Management Solutions

[WWW.YARDMANAGEMENTSOFTWARE.COM](http://WWW.YARDMANAGEMENTSOFTWARE.COM)

800-766-6197

**PRODUCT:** Yard Management Solutions

**DESCRIPTION:** Easy to learn, simple to use scalable YMS that replaces manual tracking methods. Includes real-time map, dock scheduling, reefer management, live analytics, integrations, and more.

## Zebra Technologies

[WWW.ZEBRA.COM](http://WWW.ZEBRA.COM)

262-960-6108

**PRODUCT:** MotionWorks Yard

**DESCRIPTION:** Tracks and monitors assets through the yard to synchronize yard operations, loading docks, and gate check-in and check-out. Uses automation along with barcoding and RFID to ensure a safe, secure and efficient yard.

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# PALLETS: FRONT AND CENTER

Playing a central role in the supply chain, the once-overlooked pallet is capturing the spotlight and evolving to keep up with rapidly changing demands and expectations. These pallet companies ensure standout performances.



**P**allets are so ubiquitous and modest in what they do that they can easily be overlooked amid the bells and whistles of the supply chain, particularly as the environment around them grows increasingly sophisticated and high-tech. Still, the supply chain depends on pallets—most products cannot be shipped between manufacturers, distribution centers, and retailers without them—and at no time has that been more apparent than during the supply chain disruptions that accompanied the pandemic.

“Until 2020, pallets were the most under-appreciated thing in the supply chain for a long time,” says John Vaccaro, president of Bettaway Supply Chain Services. “They were taken for granted. There have to be pallets for every load, every container, every truck, but they still have been overlooked.”

Pallet shortages caused by surges in e-commerce-fueled consumer demand for products reminded everyone of pallets’ essential nature. The pallet shortage brought heightened attention to the industry and made pallets more than “a second or third thought,” Vaccaro says.

“They’d always been there, readily available, but the shortage shined the spotlight on them,” Vaccaro says. “For the first time, when there weren’t enough pallets, everyone realized how important they were because you can’t ship a load if you don’t have a pallet to put beneath it.”

### **ONGOING ADJUSTMENTS**

The surge in demand that accompanied the pandemic led to adjustments that have endured for the pallet industry and the supply chain at large.

For instance, Jeff Pepperworth, president and CEO of iGPS Logistics, says many of his company’s retail partners found that their main suppliers were unable to keep up with demand, driving them to secondary and tertiary suppliers.

For pallet suppliers, that meant extending their network and pallet availability to manufacturers that they may not have had relationships with prior to COVID. Now, some of those secondary suppliers have retained their foothold with the retailers who turned to them in a pinch and the partnerships have deepened.

“Those suppliers were key early on at the onset of the pandemic, and they’ve remained key as we’ve moved a couple of years down the road,” Pepperworth says. “They’ve led to some very strong relationships.”

Throughout, pallet suppliers such as iGPS worked hard to respond to their customers’ needs, no matter how difficult the task.

“We were focused on making sure that our customers had enough pallets to keep up with the demand,” Pepperworth says.

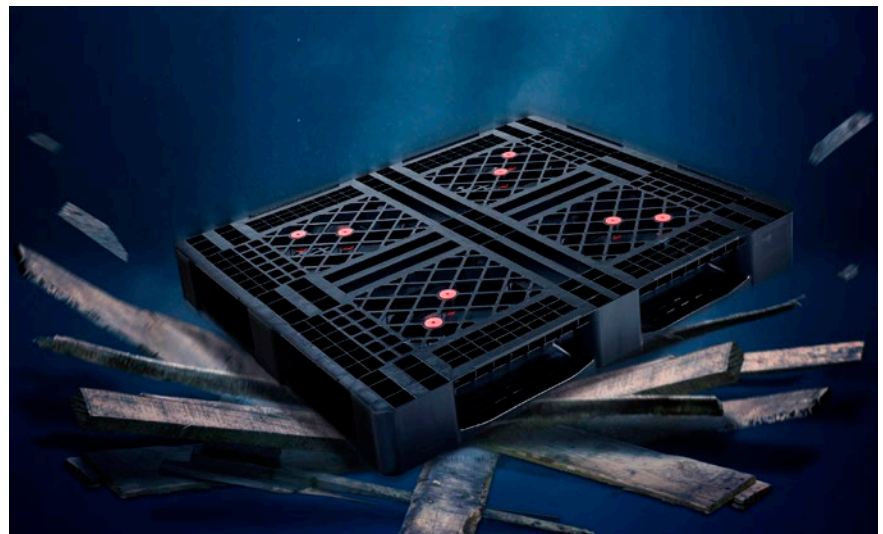
For pallet suppliers, that meant keeping a close eye on forecasts and ordering trends to anticipate the market and ensure customers always had sufficient pallets in their inventories to keep products moving.

### **TURNING TO TECHNOLOGY**

Technology tools that can help anticipate customer needs in the supply chain became particularly coveted for the support they could provide trying to decipher the signs of what lay ahead. No one wanted a lack of pallets to bring trade to a standstill or even hold up deliveries one extra day in an e-commerce-driven environment that has raised customer expectations for rapid delivery of orders. Many pallet manufacturers upped production as much as they could.

Against the backdrop of high demand, wood pallets have faced ongoing cost challenges caused by stiff competition for lumber with other industries, such as furniture and construction.

Meanwhile, plastic pallets have seen price pressures in 2022 due to rising oil prices. For many who need



**Plastic Pallet Pros provides new, used, and recycled plastic pallets to businesses throughout the United States. Placing an emphasis on customer service, the pallet supplier takes the time to understand customers’ operations to provide optimal solutions.**



## **PALLETS: FRONT AND CENTER**

the pallets, however, the high costs are understandable in the current climate—and the pressing need makes them more likely to pay without pause.

“This is the first time since I’ve been in the industry that companies are accepting the increases in pallet costs the way that they are,” says Bryon Robbins, chief operating officer of Plastic Pallet Pros.

Although pallets remain relatively low-tech, they increasingly play a role in supply chain connectivity by being equipped with RFID tags, barcodes, and other technologies. The addition of these smart technologies gives pallets a larger role to play in the widespread push to end-to-end visibility of shipments.

### **NEW NORMAL FOR PALLETS**

The concept of a new normal that permeates so much of business and life extends to the pallet industry. For instance, growing emphasis on

environmental responsibility across industries means companies expect their pallet companies to play an active role in improving the sustainability of their supply chain.

“There’s a big trend away from the send-it-and-forget-it mentality and more toward determining how to get the maximum use and life out of this product,” says Sam Dunham, director of operations, Plastic Pallet Pros. “That is a more sustainable option.”

In addition, the widespread labor shortage that has affected every corner of the supply chain has led to increased adoption of automation in manufacturer facilities and distribution centers that appears likely to continue to grow.

For automation to work in that environment, pallets must be reliable and consistent for the robotic tools that handle them.

“We’re in a dynamic phase of explosion in automation,” Pepperworth says. “The pandemic has shown us that the necessity

of workers and laborers can be a challenge, and that has forced a lot of companies to move to automating their environments.”

In light of that changing environment, here are some standout players in the pallet industry that are leading the field in meeting the supply chain’s complex, evolving challenges.

### **IGPS EMBRACES ITS PROMINENT PLACE AS AN INDUSTRY LEADER IN SUSTAINABILITY**

For iGPS Logistics, sustainability is far from anything new. The Florida-based company, which provides plastic pallet pooling solutions throughout the United States, has long placed a distinctive emphasis on environmental responsibility, ensuring that it is ingrained into the organization’s culture.

“Sustainability has been a part of our mission and business model since the beginning,” says Jeff Pepperworth, president and CEO.

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## **PALLETS: FRONT AND CENTER**

iGPS pallets are 100% recyclable. When a pallet reaches the end of its useful life, iGPS regrinds it and makes a new one. The company recycled more than 32 million pounds of plastic into pallets in 2021. The result is an infinite life cycle loop—“cradle to cradle,” Pepperworth says—that keeps waste to a minimum.

### **A COMMITMENT TO SUSTAINABILITY**

The company’s commitment to sustainability aligns with the growing emphasis on environmental responsibility in the supply chain field. “We see tremendous engagement from our customers right now,” Pepperworth says.

Customers also appreciate that iGPS plastic pallets are lighter than their wood-block counterparts. “That not only makes our pallets safer and easier for workers to manage, but they’re also lighter when being shipped,” Pepperworth says.

“Each pallet also is encoded with RFID chips that can be scanned throughout their journey,” he adds. “That not only gives us visibility to the pallets, but it also gives our customers visibility into their supply chains.”

In addition, because iGPS pallets are lighter than wood-block pallets, trucks loaded with them carry less weight on the road—leading to lower fuel needs. The company estimates the use of its pallets kept approximately 28 million pounds of greenhouse emissions out of the atmosphere last year.

The ongoing shift to automation has made the uniformity of iGPS’s plastic pallets a particularly appealing asset.

“Our pallets are very consistent and uniform,” Pepperworth says. “They don’t swell up, they don’t absorb moisture, and they don’t have any kind of nails or splinters. They flow through automation equipment easily and that is becoming a big topic right now as more operations move to automation.”

A central component of iGPS’s offerings is its iDepot model. Retail stores that receive pallets and become



**iGPS Logistics recycled more than 32 million pounds of plastic into pallets in 2021. In addition, because iGPS pallets are lighter than wood-block pallets, trucks loaded with them carry less weight on the road—leading to lower fuel needs.**

iDepots sort and inspect iGPS pallets and have them ready for shipment to the next user, which streamlines logistics.

### **EFFICIENCY AND OPTIMIZATION**

Introduced in 2008, iDepots have led to new levels of efficiency and optimization within the supply chain for participants, leading to lower costs and reduced deadhead miles, Pepperworth says.

“We shortened the work-in-process timeline and that became a tremendous benefit, not only to retailers getting product faster but also to manufacturers having pallets sent directly back to them so they could utilize them in their system,” he says. “It eliminates a transportation leg in the journey of a pallet, creating an efficient closed-loop ecosystem.”

Today, the iDepot retail network is stronger than ever.

“As we see surges in the marketplace, or in demand, we can partner with those retailers to essentially become a node of the network,” Pepperworth says. “We’ve grown to well over 200 participating retail locations nationwide, and it has become an effective model for the entire pallet industry.”

### **ORBIS: REUSABLE PLASTIC PALLETS FOR EVERY STEP IN THE SUPPLY CHAIN**

As businesses increasingly embrace sustainability and search for efficiencies and cost savings throughout their supply chain, more shippers are turning to reusable plastic pallets to protect their products, says Michael Del Vecchio, product manager at ORBIS. Reusable plastic pallets, which can be recycled and reprocessed into new packaging solutions at the end of their usefulness, are sustainable, efficient, and durable, and have high weight capacities and a long service life.

“The durability of reusable plastic pallets allows them to make many trips through the supply chain before being recycled, representing great savings over wood pallets on a cost-per-trip basis,” Del Vecchio says. “Eliminating corrugated packaging and wood pallets also reduces waste.”

ORBIS’s reusable plastic pallets are particularly versatile, protecting products during production, assembly, processing, storage, and distribution for a wide variety of industries, including those that need their pallets to meet strict requirements.





# MORE THAN A PALLET.

This looks like a simple plastic pallet. But it's so much more than that — **it's a critical component of a more sustainable and optimized supply chain.**

The 100% recyclable iGPS plastic pallet is lighter, cleaner, and more durable than wood. It's rackable, trackable, and compatible with all standard material-handling equipment.

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## PALLETS: FRONT AND CENTER



**ORBIS provides solutions, services, and expertise to create an effective reusable packaging program to meet supply chain needs. Its reusable plastic pallets allow for seamless integration with both manual and automated materials handling equipment.**

A full-service provider, ORBIS specializes in offering the solutions, services, and expertise to create an effective and sustainable reusable packaging program that meets the unique needs of supply chains.

### MEETING DIVERSE REQUIREMENTS

ORBIS provides a comprehensive selection of styles and footprints, resulting in the largest offering of plastic pallets in the industry, according to Del Vecchio. The Wisconsin-based company's pallets are manufactured to meet diverse application requirements, and ORBIS offers many different material features including X-ray compatibility, and metal detection, and ocean-bound plastic. They are also FDA-compliant and FM-approved.

"The all-plastic construction of reusable pallets makes them hygienic and easy to clean," Del Vecchio says. "This is especially important for industries such as food and beverages and pharmaceuticals where maintaining cleanliness in production is imperative.

"Certain reusable pallets are also manufactured in FDA-compliant plastic, adding to their hygienic benefits," he adds.

One of ORBIS's newest pallets, the

40 x 48 Odyssey, provides stability and durability with approximately 36 times the lifespan of a whitewood stringer pallet. In testing from the Virginia Tech Center for Packaging and Unit Load Design, the Odyssey plastic pallet completed 400 cycles without failure, while the wood pallet's average failure was 11 cycles.

ORBIS's reusable plastic pallets are designed to handle the demands associated with the growing use of automated supply chain processes. Reusable plastic pallets allow for seamless integration with both manual and automated materials handling equipment.

"As companies try to meet increased demand, automation will become an even more important tool for scaling their operation as it helps to streamline processes and save on labor costs in a competitive market," Del Vecchio says. "Reusable pallets provide dimensional consistency and repeatable performance for all types of automated systems including conveyors, AS/RS, eye-readers and more.

"Plastic pallets also eliminate the possibility of loose boards, broken boards, or exposed nails that can ultimately lead to automated system downtime as well as

damaged products," he says. "Additionally, sensors can easily read their standard sizes and smooth surfaces, leading to operational efficiencies throughout the supply chain."

Ultimately, because of their litany of benefits, ORBIS's reusable plastic pallets are seeing a sustained surge in interest.

"More and more companies today recognize that reusable plastic pallets are an economic, environmental, and efficient alternative to wooden pallets or skids," Del Vecchio says.

### PALLETTRADER DEBUTS AS THE WORLD'S FIRST ONLINE PALLET MARKETPLACE

The idea made so much sense that John Vaccaro couldn't believe someone else hadn't already thought of it. When Vaccaro, president of New Jersey-based Bettaway Supply Chain Services, first began to develop the project three years ago, he told hardly anyone, worried that the idea would leak and someone would get there first.

The idea was PalletTrader, the world's first online pallet marketplace. Influenced by everything from eBay and Etsy to LinkedIn and the DAT Load Board, PalletTrader is a sophisticated yet user-friendly e-commerce solution designed for everyone associated with the buying and selling of pallets.

### FILLING A GAP

Set to launch this summer, PalletTrader will fill a key gap in the marketplace that had gone unnoticed, but that seems rich with potential, particularly during a time when the pallet market has been so heated.

"It provides a new platform for buying and selling pallets where there clearly was a need for one," Vaccaro says, noting that the "white wood" pallet market for which PalletTrader is designed has some 500 million units in circulation.

PalletTrader is not meant to replace anyone or anything. It simply offers a new option for pallet businesses to consider—a true online marketplace for buying and selling pallets. The site will



Seventy-five percent of consumers expect businesses to support efforts to stop climate change. With reusable plastic packaging, you get a supply chain solution that not only reduces waste but also increases product protection, hygiene and material handling efficiency. Don't let the brown box hold you back from achieving **A Better Way** for your business. Switch to reusable packaging for a more sustainable supply chain with ORBIS®.



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## PALLETS: FRONT AND CENTER

be suited for all manners of transactions, and anyone can join.

“The beauty of it is it will be a fit for all sizes and varieties of buyers and sellers in the pallet marketplace,” Vaccaro says, ranging from large and mid-sized companies with national footprints to mom-and-pop businesses and individual operators.

### A PLATFORM FOR EVERYONE

“I like the idea of creating a platform for everyone, taking down all the veils and just connecting buyers and sellers—everything is going to be between them,” Vaccaro says. “It allows for the creation of instant connections online, and it brings market connectivity to pallets that hasn’t been there before.”

Those who use the site will have an array of tools to manage their activity in the pallet marketplace, including email tracking notifications for pallets. PalletTrader will offer both public and private markets for its users to manage. Users who prefer to manage their transactions privately can create their own networks within PalletTrader where trades take place with selected partners.

For instance, if your company has a relationship with three local pallet depots and you want to broadcast your pallet needs only to them, you can manage it all via a private exchange with those depots.

Bettaway’s 35 years of operation in the supply chain and close relationships in the pallet industry will help them build PalletTrader in a way that a tech company from outside the industry could not, Vaccaro says. Bettaway can tailor the site and how it works to the specific needs, preferences, and behaviors of those navigating the pallet market every day.

PalletTrader users pay a monthly fee of \$79 and a 1.5% fee for each transaction, but Vaccaro says the company will waive the monthly fee for new users for the first six months

while the site gains traction.

“I believe in getting everybody in on this at the beginning and getting rolling with it,” Vaccaro says. “We’re creating a business network and a social network, knocking down barriers in the process. I’m excited to see what happens.”

### PLASTIC PALLET PROS TAILORS SOLUTIONS TO CUSTOMERS’ UNIQUE NEEDS

When a large retailer reached out to Plastic Pallet Pros looking for a specific pallet at a specific price, the team at the Illinois-based pallet supplier could have simply taken the order. “Quite frankly, it was a high price,” says Bryon Robbins, sales manager.

That would not have been good for the customer, however, and for Plastic Pallet Pros, what’s best for the customer is what drives their decisions.

“It was the wrong pallet for their

needs, and we couldn’t let that happen,” Robbins says. “It wasn’t the right answer for them, and our objective is always to find the right solution for our customers.

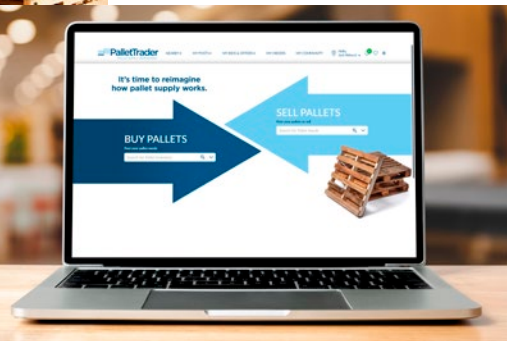
“Too many companies are quick to take an order without taking the time to consider if it’s what the customer actually needs,” he adds. “We’re going to find the best product to fit the customer’s situation and needs, and we’re going to go the extra mile to do it.”

As part of that commitment to tailoring services to their clients, Plastic Pallet Pros places a nonnegotiable emphasis on customer service, explains Sam Dunham, director of operations. That means not only being vigilant about answering the phone and returning messages, it also means making free visits to client and prospective client facilities to understand their operations inside and out so that Plastic Pallet Pros team members can provide the best possible solution for their circumstances.

### A PROPENSITY FOR PLASTIC

Plastic Pallet Pros increasingly sees customers turn to plastic pallets for an array of reasons. For instance, Dunham notes that more companies are moving to a closed loop pallet system—a system that allows them to retrieve their pallets to use repeatedly or to use internally.

“This system allows companies to fully realize the benefit of a much more durable plastic pallet,” Dunham says. “The



**Bettaway’s 35 years of operation in the supply chain and close relationships in the pallet industry helped the company build the PalletTrader platform in a way that a technology company could not. PalletTrader, a new online pallet marketplace, was influenced by everything from eBay and Etsy to LinkedIn and the DAT Load Board.**

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## **PALLETS: FRONT AND CENTER**

average wood pallet lasts five to eight trips while you can expect to get between 150 and 200 trips from a quality plastic pallet.”

In addition, Robbins says, plastic pallets are worth the extra upfront cost for one-way shipping needs in an open loop due to the “true cost” of using plastic iterations.

“Plastic pallets weigh less than wood,” Robbins says. “This makes them easier for employees and customers to handle.

“They also reduce weight on the truck, which can increase the amount of product you can ship as well as reduce freight costs,” he adds. “If you use a nestable plastic pallet, you fit as many as 2,370 empty nestable 48 x 40 pallets in the same amount of space you need to store 540 empty wood pallets.

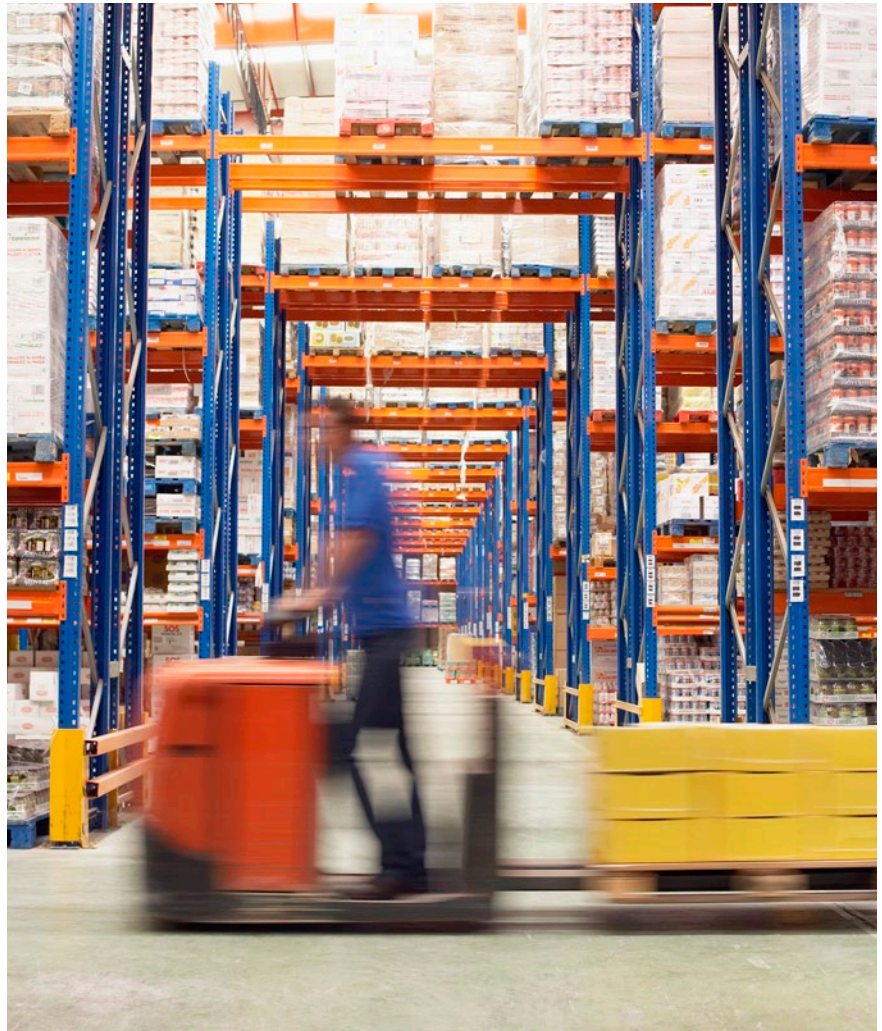
“Also, they look better and customers often end up using the pallet themselves and see more value than a wood pallet,” Robbins says. “There is also less chance of product damage.”

Companies are turning to plastic pallets in an effort to be more sustainable. Companies recognize that using 100% recycled plastic pallets that last 40 times longer than wood and that will be recycled again when their usefulness ends is “a sustainable solution that helps them achieve their environmental goals,” Dunham says.

### **PNEUMATICO MAKES BUILDING YOUR OWN PALLETS A FLEXIBLE, AFFORDABLE OPTION**

Few companies consider the possibility of building their own pallets. When they do, however, they discover a straightforward, cost-effective solution that can be a particular blessing for businesses that require custom or large pallets on short notice.

Pneumatico nailing machines are a proven, reliable opportunity to build your own pallets, and the company is fast gaining clients around the world. In the past five years, Pneumatico, a brand of Polish-based Airfix, has installed its pallet-making machines for customers in Austria, Germany, France, Italy, Ireland,



**Investing in pallets should align with a company's overall supply chain strategy, taking into account the full life-cycle return on investment.**

the Czech Republic, Slovakia, Croatia, Belgium, Sweden, the Netherlands, Poland, Israel, and the United States. Clients include manufacturers, logistics companies, and pallet manufacturers.

The popularity of Pneumatico’s machines can be attributed to several factors, including that they are easy to use and provide operators with newfound flexibility at an affordable rate, explains Bartosz Wojciechowski of Pneumatico USA.

Pneumatico machines allow an operator to build standard or custom pallets in either block or stringer format, including large pallets up to 130 inches wide. Building your own pallets with a Pneumatico machine can be done on a compact footprint and requires only a few minutes for changeovers.

One of the most appealing benefits

that Pneumatico machines provide is that they allow companies to build their pallets on short notice. Wojciechowski says lumber, labor and freight challenges have led to high prices and longer delivery times for pallet companies facing high demand from their customers.

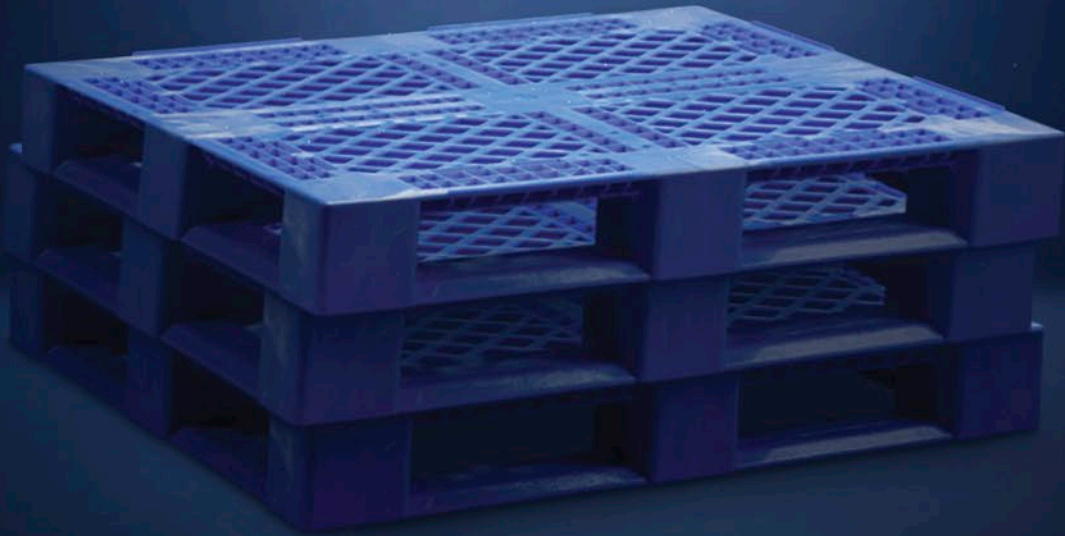
### **SUPPORTING MANY ADVANTAGES**

Pneumatico’s clients, on the other hand, can build their own pallets on demand, a boon for a variety of businesses, such as those who frequently encounter an immediate need for custom, large, or block pallets.

“A lack of pallets when you need them can result in shipping delays and a poor customer experience,” Wojciechowski says. “No pallets and shipping delays can also mean that those products consume valuable



**PLASTIC**  
**PALLET PROS**



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## **PALLETS: FRONT AND CENTER**

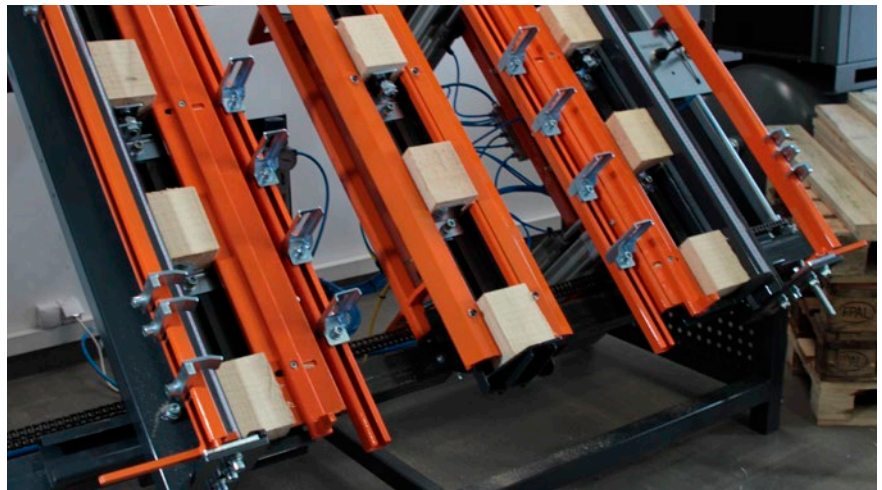
warehouse space, requiring costly multiple handlings and increasing the likelihood of damage.”

The increasing price of pallets in recent years has particularly affected buyers of large pallets and modest orders of custom pallets, which are not as attractive to pallet producers focused on more economical longer runs on automated pallet nailing lines, Wojciechowski says.

“By building your own pallets on a Pneumatico pallet machine, you avoid the pallet company markup,” says Wojciechowski, who notes the average payback period for a Pneumatico machine is approximately six to 12 months.

“And if you have any underutilized labor hours due to the ebbs and flows of your business, they can be utilized for pallet building,” he adds.

Custom pallets, in particular, have long been a challenge for pallet buyers due to the inconvenience they cause



**Pneumatico nailing machines are a proven, reliable opportunity to build your own pallets. Pneumatico is fast gaining clients around the world and has installed its machines for customers in Austria, Germany, France, Italy, and the United States, among others.**

pallet companies, who typically either decline to build them or quote the job at a high rate.

“Pneumatico is perfect for businesses facing that challenge,” Wojciechowski says. “Our machines can be changed over in mere minutes to build stringer or block pallets, as well as standard

pallets that are not often available from U.S. manufacturers, such as Euro-pallets and CP pallets.”

Businesses facing a pallet supply crunch can work with Pneumatico to explore if the “build your own” approach can address their pressing pallet needs. ■

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# **Pallet Problems Stalling Your Deliveries?**

# **MAKE YOUR OWN PALLETS!**

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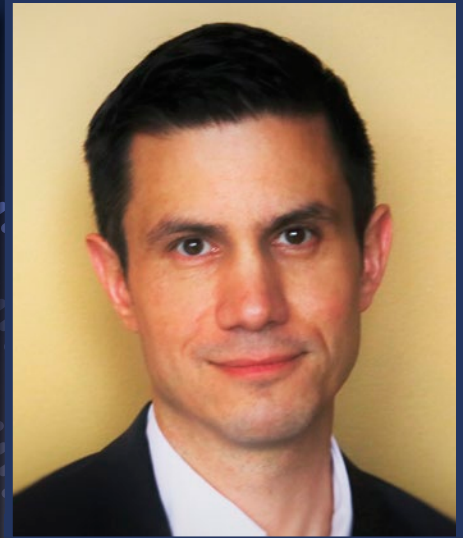
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**AUTOMATION & MATERIALS HANDLING INNOVATION**

# **AND THE AWARD GOES TO...**



**Let's hear it for these seven warehousing and materials handling innovations that take the crown for addressing e-commerce growth and labor shortage challenges.**

**By Sandra Beckwith**

**M**obile robot sales spiraled upward in 2021, with 100,000 automated mobile robots (AMRs) and automated guided vehicles (AGVs) shipped globally. That's nearly 70% more shipped than the year before, reports Interact Analysis.

“By 2025, this figure will be nearly 700,000,” adds Ash Sharma, managing director at the research firm.

Much of the warehouse innovation spurred by steady e-commerce growth and a warehouse worker shortage has focused on AMRs and AGVs because they let facilities add automation quickly and affordably. But innovation is happening in other aspects of materials handling, too. For example, companies that provide more conventional materials handling equipment such as conveyors, totes, and pallets are also innovating to help brands meet demand as efficiently as possible.

“Mobility, manipulation, and storage are all being disrupted by technology right now,” says Erik Nieves, CEO of Plus One Robotics, a 3D and AI-powered vision software maker.

The innovation in nearly every aspect of automation and materials handling has generated a new class of warehouse MVPs. Here are seven outstanding achievements.



### **BEST ROBOT VISION**

Parcel sorting robots designed to help packages reach their destinations as quickly as possible are more powerful and accurate than ever, thanks to software that learns as it goes with artificial intelligence (AI).

Warehouses have traditionally relied on humans to make real-time sorting decisions that require “singulation”—the ability to see items as distinct from others. But as developers and manufacturers invest in higher-level vision software, robots can take over those tasks.

For example, Kindred Powered by Ocado Group recently introduced

INDUCT, an AI-powered robotic system designed to automate the small parcel induction process. It uses the firm's proprietary continuous-learning software to pick, maneuver, and place items onto a moving belt or tilt sorter.

Like humans, the software and robots get better at their jobs as they gain experience. They also share what they learn at one installation with INDUCT robots at other locations.

“We're one of the few companies in the AI-powered smart robotics space to deploy reinforcement learning algorithms in real world settings,” says Marin Tchakarov, CEO of Kindred. “Our systems learn how to be faster, better, and smarter by trial and error, literally. Then we consolidate that learning and pass it on to the entire fleet.”

Because of this, the system's speed improved 17% year-over-year from 2020 to 2021. For the same reason, the more robots the company deploys, the better the system gets for all users.

“The collaboration this created has been tremendous with respect to existing customers hosting other companies to show the specific deployments at their sites,” Tchakarov adds.

While Kindred provides both the hardware and software for its AI-enhanced robots, software maker Plus One Robotics collaborates with robot manufacturers such as recently announced partner Tompkins Robotics.

The companies are teaming up to offer an automated picking solution that combines Plus One Robotics 3D and AI software with the Tompkins Robotics tSort system.

Recent vision innovations are significant, says Nieves, because they mean that robotic arms can finally perceive, manipulate, and grasp objects similar to how people can.

“What they needed was vision and 3D vision specifically because you have to know the depth and height of items

when picking them,” he says. That requires cameras, sensors, and software.

People are still better at this than robots, Nieves says, so his company provides remote human support when a robot is stumped. “Crew chiefs” monitor robot activity and respond when the system alerts them to a problem.

“It’s a call center turned on its head,” he says. “Usually, customers call an 800 number with a problem and a chat bot answers. In this case, our robots call people.”



### **MOST INSPIRING CROSS-COMPANY COLLABORATION**

After piloting Ambi Robotics’ AmbiSort parcel sorting system in its Ontario, California, e-commerce hub, Pitney Bowes recently announced it is adding more than 60 of the robots to eight of its 17 e-commerce hubs across the country, with plans to expand to the remainder later. The robots are used in last-mile parcel sortation before sacks are delivered to U.S. Postal Service facilities.

The Ontario pilot was part of the shipping and mailing company’s Collaborative Innovation Program that explores emerging technology and its potential impact on the company’s logistics operations. “We helped build out that solution as partners, providing information about what was working and what wasn’t, and how to improve the software and solution,” says Stephanie Cannon, senior vice president and head of global platform and network at Pitney Bowes.

After the system was finalized, the partners installed eight sortation systems and eight robots in Pitney Bowes’ Stockton, California, e-commerce hub. Now fully operational, it will serve as the prototype for subsequent installations.



### **MOST AFFORDABLE ROBOTICS SOLUTION**

Robots as a service (RaaS) is a subscription model that allows companies to lease robotic equipment rather than purchasing it outright. The RaaS market is expected to grow from \$12.6 billion in 2020 to more than \$41.3 billion by 2028, reports Coherent Market Insights.

A RaaS agreement makes the \$23 million Pitney Bowes/Ambi Robotics deal possible. “We’re expanding rapidly, with many other facilities we need to open or build out,” says Cannon. “It takes a lot of capital to build out the concrete, and RaaS lets us preserve our capital for network expansion.”

At Kindred, RaaS is the norm. “That is something that we have been doing since the beginning on our quest to make it as simple and as flexible as possible for our customers to adopt this incredibly nascent technology into their operations,” says Tchakarov. “The customer pays as they go.”



### **MOST FLEXIBLE CONVEYORS**

Package sorting innovation extends beyond robotics, however, to decidedly low-tech conveyors. LogistiQ, a new subsidiary of LEWCO, a unit-handling conveyor maker founded more than 100 years ago, now offers a modular portable roller conveyor. MechLite allows e-commerce centers to quickly install sorting capacity in smaller spaces than is possible with traditional conveyor systems.

“We can provide similar sorting capacity in footprints as small as 600,000 square feet with an install time that is four to six weeks instead of 12 months, giving companies enormous capacity very quickly,” says Al Sparling, business development manager.

He cites a recent situation when a large parcel customer lost a facility to tornado damage. “We received the purchase order on Tuesday and the following Tuesday they were sorting packages in a new building,” he says.

*Continued on page 92*



**Modular portable roller conveyors from LogistiQ allow e-commerce centers to quickly install sorting capacity in smaller spaces than is possible with traditional conveyor systems.**



# ROBOTS TAKE A HIKE

Spencer Earle had already been talking to robotics vendors about adding automation to the evo e-commerce warehouse before COVID-19 up-ended the marketplace. Earle, vice president of supply chain at the Seattle-based outdoor lifestyle retailer with products ranging from snowboards to bicycle seats to camping tents, saw the pressure that seasonal surges placed on employees and knew it would only get worse.

The last quarter of the year is particularly intense. A robust winter sports business combined with strong holiday sales means that about half of the company's retail sales happen from October through December. Black Friday is especially brutal, generating 10% of annual sales in just five days.

"Without automation, the only way for us to scale has been to add more people, and that has obviously been a challenge lately," Earle says. "Whether we add people or not, peak season puts a tremendous amount of stress on our permanent employees."

What's more, the shift to e-commerce caused by COVID-19 lockdowns had an especially big impact on evo, as more people embraced outdoor recreation. "With COVID e-commerce growth and social distancing added, it was hard to figure out how we were going to handle everything," he adds.

It was time to take action. With apparel and other smaller items accounting for about half the picks daily, the company added a

person-to-goods Locus Robotics picking solution coupled with Körber's warehouse management system. Designed to reduce picker travel and increase picking productivity and accuracy, the system went live in just 53 days.

"It was a successful implementation that exceeded our expectations because nobody thought everything would work on the first day, but it did," Earle says.

With a 200% pick rate increase—from 30 to 35 per hour to 100-plus per hour—the return on investment was just over one year. And with a robots-as-a-service model, evo scales up for peak periods, then reduces the number of robots deployed when volume drops.

More automation is in the works, too. The brand's 165,000-square-foot warehouse is adding another 65,000 square feet by expanding into recently vacated space in the current facility. "We're working with a consulting firm to develop a Geek+ goods-to-person solution for the expanded space," says Earle. Combined with a new conveyor system, it will increase overall capacity by 250% with fewer people while boosting the picking rate another 200%.

Adding automated processes is about more than efficiency and meeting customer expectations, though. "This lets us treat our permanent employees properly and not overburden them during this current environment when it's difficult to staff up," Earle adds.

Continued from page 90



### **STRONGEST, MOST UNIFORM TOTES AND PALLETS**

Other low-tech innovations include plastic-molded products such as totes, containers, and pallets that feature consistent dimensions so they integrate easily with high-speed systems. ORBIS Corporation's new Odyssey plastic pallets, for example, are designed for newer racking systems.

"Rackable plastic pallets optimize storage and offer dimensional consistency for automated equipment, but they also help reduce product damage because there are no nails poking out or chipped corners that cause products to fall off," says Alex Hempel, the company's senior director, retail supply chain. They also offer a more sustainable alternative to wooden pallets.



### **MOST INGENIOUS SAFETY WEARABLES INSIGHT**

When industrial safety wearables company StrongArm Technologies noticed that 60% of a client's inexperienced peak-season warehouse workers left their jobs or were terminated within the first 90 days, they examined the wearables data for insights.

"While the assumption was that these people were not cut out for this work, we saw the complete opposite," says Sean Petterson, CEO and founder.

By comparing pick data information from tenured workers to that of the new

hires, the firm discovered that new people were lifting at a rate that was four times faster. They were, in fact, working as fast as they could to get a permanent position. But when some felt they were failing or were afraid of getting hurt, they quit.

StrongArm recommended letting trainees learn and improve at a slower pace. "On one side of the warehouse, we had a much slower-running conveyor belt that enabled new hires to get a feel for tasks," Petterson says. "Then slowly, we ratcheted that up until the safety scores of the group leveled off to a safe point." As a result, the company helped ease its worker shortage by increasing new hire retention by 45% while reducing injury rates.



### **SMARTEST FORKLIFTS**

At The Raymond Corporation, forklifts are evolving in ways that allow pickers to improve picking efficiency and accuracy. "We're adding features that incorporate the truck into the warehouse management system so the operator doesn't have to figure out where to go next," says David Norton,

vice president of customer solutions and support. "The truck automatically takes them to the next pick face."

Options such as zoning and positioning give operators a more efficient way to get to the next pick, making it easier for them to focus on their picking, not where they are within the facility or aisle.

The company is working to make its materials handling equipment even smarter. At the Rochester Institute of Technology (RIT), a team of Raymond Corporation-funded researchers is looking at how fork truck groups can work together in autonomous ways to complete a set of tasks.

"We're focusing on localization and navigation—sensors and sensing equipment so a vehicle knows where it is, where other vehicles are, and how it will avoid vehicles and make decisions along the way to reach its destination," says Michael Kuhl, professor of industrial and systems engineering.

The industry needs this type of research among different equipment providers, as well. "There's little interoperability between manufacturers," notes Sharma of Interact Analysis. "A forklift from one company can't yet talk to a picker from another and coordinate. The world needs more partnerships between industry vendors."

Perhaps that will be the next big innovation. ■



Shipping and mailing company Pitney Bowes entered a robots-as-a-service deal with Ambi Robotics to add more than 60 robots to its e-commerce hubs across the country.

# FOUR REASONS WHY MOBILE ROBOTS ARE THE INDUSTRIAL TREND

Here are four reasons why mobile robotics are becoming the industrial trend for warehouse automation, according to IDTechEx's *Mobile Robotics in Logistics, Warehousing and Delivery 2022-2042* report.

**1 Installation.** Fixed automation may take months to install and commission, usually involving building large racks and long conveyors. The installation is always labor-consuming and costly and sometimes is not done by the automation system providers themselves.

While some mobile robots such as AGVs are dependent on fixed navigation infrastructure, the additional installation is just to set up laser reflectors, magnetic tapes, inductive wires, and barcodes/QR codes, which is easier and quicker. Hence, the installation time for AGV systems typically takes only 2-6 weeks.

For autonomous mobile robotic units, the installation can be even quicker as robots only need to be shown around the facilities and no additional change to the environment is needed. Also, other software initialization can usually be completed remotely or on the cloud.

The shorter installation time also causes less impact on daily operations when initializing mobile robotic systems.

**2 Cost and ROI.** A large amount of up-front capital is required to implement fixed automation. But it takes only one-third that cost for mobile robots. Installing, maintaining, and powering fixed automation also cost more than mobile

robots. The ROI for mobile robots is about 1-2 years; fixed automation, it can be 5-10 years.

**3 Flexibility.** Changing fixed automation can potentially cost more money and time than installation, and may halt the whole production or operation. Mobile robotic systems are more flexible. Even though AGVs need infrastructure support, changing a fleet's tasks only requires re-arranging markers like QR codes or magnetic tapes, which is easier than re-installing fixed automation.

Because AMRs do not need any supporting infrastructure and are even more flexible they are suitable for agile material handling or production lines. And the mobile robotic system occupies less or negligible space in warehouses, enabling a more complex and flexible material flow route.

**4 Scalability.** Once fixed automation is installed, it is hard to scale its size or capability. But a mobile robot fleet size can be easily scaled enabling companies to cope with demand peaks (e.g., Black Friday) cost-effectively by only scaling the capability during certain times.

Although mobile robots can work all day with a few breaks for charging, they are only able to carry a relatively limited load for each task. But fixed automation can continuously transport materials seamlessly. So, in large warehouses, mobile robots may not be as efficient as fixed automation for high-volume material flows. But mobile robots can always be utilized together with fixed automation to optimize warehousing processes.

## TECHNOLOGY COMPARISON - MOBILE ROBOTICS VS. FIXED AUTOMATION IN WAREHOUSING

Advantages  
Disadvantages

### Mobile Robots

### Fixed Automation



It usually can take 2 – 6 weeks to install AGV/Cs, For AMRs the installation time can be shorter.

#### Installation

Fixed automation usually takes months to be installed and to commission. The installation is also very labor-consuming.



The overall cost of implementing mobile robots should be much less than that of fixed automation. And the maintenance and operation cost should be lower.

#### Cost

A large amount of up-front capital is required to implement fixed automation. Installation, maintenance and powering also cost more. But final return on investment will be higher in the long term.



The productivity per day should be much higher than manual operation. But the efficiency is not comparable to that of fixed automation.

#### Efficiency

The fixed automation allows continuous material transportation, but the capacity of mobile robots is highly restricted with the size of fleet. So the efficiency of fixed automation should be much higher.



Mobile robotic systems are much more flexible than fixed automation. Even though AGV/Cs need the support of infrastructure, changing of the infrastructure is much easier than re-installing fixed automation.

#### Flexibility

Usually not flexible. Changing the configuration can cost more money and time.



The fleet size can be easily scaled up and down.

#### Scalability

Once the fixed automation is installed, it is hard to scale the size or capacity.



Source: IDTechEx, *Mobile Robotics in Logistics, Warehousing and Delivery 2022-2042*

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# INTERMODAL IS JUST THE TICKET

With rail facility and infrastructure upgrades nailed down and intermodal network improvements on track, these ports and sites are riding high on intermodal's advantages.



The pandemic, along with consumers' shift to purchasing more goods than services over the past two years, has changed the normal ebb and flow of intermodal volumes, says Joni Casey, president and CEO of the Intermodal Association of North America (IANA). International and domestic loads were uncharacteristically low at the end of 2019 and into the spring of 2020. Following stimulus legislation, however, volumes took off for the rest of 2020 well into 2021.

Total North American intermodal volume rose 3.6% in 2021, IANA reports, halting the declines of the previous two years. Business was uneven, however, rising 15.4% in the first half of the year before dropping 6.4% in the second half, as terminal congestion, severe weather, and labor and equipment shortages took a toll.

Intermodal transportation refers to containerized products that travel via two or more transport modes. Often, shipments start and/or end on a truck or ship, and then shift to rail for the middle portion of the journey.

While intermodal is sometimes perceived as more complicated than other types of transportation modes, it's "as straightforward as any other mode these days," says David Fisher, executive director with the Transportation & Supply Chain Institute at the University of Denver. "Big shippers have used intermodal since inception. They do so for obvious reasons: reliability, stable cost, and capacity."

Intermodal can be somewhat slower than over-the-road (OTR) shipments, but the variability is typically about one to two days, says Sean Maharaj, managing director in the logistics practice of consulting firm, AArete. The lower cost of intermodal when compared to trucking often more than offsets the longer time, he adds.

In addition, shipment damage and/or theft is rare, Maharaj says. Intermodal shipments pass through frequent checkpoints, providing tracking data.

"Overall, intermodal has made strides in improving service through enhancements of facilities, tracks, and technology," he adds, noting that shippers have started to see it as an indispensable option in the logistics toolbox.

That has become even more true over the past few years, as truck capacity has been constrained due to driver and equipment shortages. One train can carry the loads of approximately 280 trucks, according to a Stephens, Inc. report. What's more, rail is about four times as fuel efficient as trucking, the report notes.

#### MEETING INTERMODAL CHALLENGES

Intermodal transportation, like most supply chain operations, has been challenged over the past few years. During the post-pandemic surge, it ran out of capacity, as high demand and lower velocity "vaporized supply," says Lawrence Gross, president and founder, Gross Transportation Consulting.

Once congestion builds, it's hard to dig out absent a break in volume. This time, volume never tailed off. Transportation workers "got behind and never could catch up," Gross says.

The intermodal "pipeline" is only as strong as its weakest link, Casey notes. The links continue to change, based on a range of factors, including terminal and warehouse capacity, inland congestion, increased equipment dwell and turn times, and the return of empty containers.

"Despite ongoing challenges, the system is working, just not as smoothly as it could," she adds.

Shippers can take steps to boost intermodal service. To start, consider the distance the shipment will travel,

Maharaj says. Intermodal tends to work best with routes of about 700 miles or more.

Load choice is another consideration. Shipments of raw materials tend to be suited for intermodal, because they're typically not subject to immediate sale, and can afford longer transit times at lower cost.

It also makes sense to try to align shipments with rail schedules, and when possible, to time the quote process to avoid the typical fourth quarter peak season. Shippers also want to keep in mind "potential weight-dimension imbalances that could affect rail-to-road compliance," Maharaj says.

"Efficient transfers from container terminals to the transloading facility equates to improved product distribution," says Raul Alfonso, executive vice president and chief commercial officer with Port Tampa Bay in Florida.

Strong, collaborative partnerships are key as well. Fisher recommends choosing intermodal partners that offer visibility, on-time performance, cost stability, problem-solving and issue mitigation, and solid communication.

Similarly, the best shippers "don't overcommit to volume as a lever to gain more capacity, they don't run an auction every time the market contracts by a few points, they don't have unrealistic expectations, and, most importantly, they communicate," he says.

“It is essential that both parties up their game in terms of total communication,” Fisher says. “Transactional communication and relationship management need to increase to ensure both parties get what they need from their relationships.”

Timely and accurate data is key to fluid intermodal operations, as indicated by the various data initiatives that both the private and public sectors have launched, Casey says. To date, however, what’s been missing is a cohesive, coordinated effort to meld the information collected—either by mode and/or region—and create a comprehensive North American freight transportation data initiative.

That’s changing, with “an unprecedented level of cooperation aimed at creating new capacity, supported by 2021’s bipartisan infrastructure bill,” Casey says.

One example is the launch in late 2021 of the Federal Maritime Commission’s (FMC) Maritime Data Infrastructure initiative.

The initiative will “focus on identifying data constraints that impede the flow of ocean cargo and add to supply chain inefficiencies. It also aims to establish data standards and best practices for data access and transmission essential for a reliable and stable ocean transportation system,” according to an FMC release.

## LOOKING AHEAD

Given increased cargo flows, intermodal will continue to play a vital role in transportation. “All modes—including rail, truck, and barge—are levers we will rely on,” says Michael Bozza, assistant director, commercial development, with the Port Authority of New York and New Jersey.

Among the factors driving intermodal growth will be capacity build out, technology advancements, and ongoing truck driver and equipment shortages, among other factors. All of these will lead many shippers to consider intermodal.

“Intermodal still represents a powerful tool for any shipper seeking to employ a sound logistics strategy,” Maharaj says.



**Port Tampa Bay handles more than 33 million tons of cargo annually and encompasses more than 5,000 acres, making it Florida’s largest port in terms of tonnage and area. As part of the recent expansion of its container terminal facilities, Port Tampa Bay added 13,000 linear feet of rail, allowing for on-dock intermodal service.**

“While challenges exist, the collective commitment of intermodal stakeholders to address their piece of the supply chain and work with their partners will provide resiliency once the current unprecedented volumes of freight start to temper,” Casey says.

## PORT TAMPA BAY: RIDING HIGH ON LONG-TERM GROWTH PLANS

Florida continues to rank as one of the most rapidly growing states in the United States. An estimated 1,000 people move into the Sunshine State each day, while every year, about 200,000 new households are created, boosting demand for new homes, home improvement and construction materials, food products, and other consumer goods.

Within Florida, about half the population calls the Tampa Bay region and the nearby Highway I-4 corridor home. “Port Tampa Bay has planned for this growth and has in place the infrastructure needed to grow as the population continues to surge,” says Raul Alfonso, executive VP and CCO.

It’s Florida’s largest port in terms of tonnage, handling more than 33 million tons of cargo annually, as well as area—the port encompasses more than 5,000 acres. Because terminals extend for miles, shippers largely avoid the congested gates and long lines seen at other ports.

What really sets Port Tampa Bay apart is the diverse nature of the cargo it handles, including bulk, breakbulk and containerized cargo, along with energy products, building materials, consumer goods, and food and beverage products.

“Having such diversified lines of business results in strong financial performance, allowing the port to invest in facilities to meet the growing demand,” Alfonso says.

In addition, more than 400 distribution centers, spanning 380 million square feet, dot the Tampa Bay/Orlando area. “In the past few years, this region has emerged as Florida’s distribution hub, home to the largest concentration of DCs in the state,” Alfonso says.

As the closest port to serve this region, Port Tampa Bay allows importers and exporters to enjoy substantial savings in drayage costs, as drivers can make multiple round-trip deliveries per day to the nearby distribution centers. Moreover, expanded global container services, including direct services from Asia, as well as new services from Latin America, offer importers and exporters a supply chain solution that’s more efficient than what’s often available at other, more congested ports, Alfonso adds.

As part of the recent expansion of its container terminal facilities, Port Tampa Bay added 13,000 linear feet of rail, allowing for on-dock intermodal service.



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“This ready infrastructure presents a great opportunity for port customers to reach other out-of-state markets via the intermodal network and is a huge opportunity for port users to balance their traffic flows,” Alfonso says.

Port Tampa Bay recently worked closely with an ocean carrier to facilitate the successful launch of a new service that calls at a state-of-the-art cold storage warehouse. The facility spans 135,000 square feet and offers more than 6,300 racked pallet positions, on-site fumigation services, 148 reefer plugs, and an adjacent berth served by two dedicated mobile harbor cranes.

The Tampa Bay/I-4 Corridor region is the hub for Florida’s grocery and food and beverage sectors. Companies moving perishable products can see substantial savings, Alfonso says. In addition, competitive northbound backhaul trucking rates allow the port to efficiently serve the carrier’s import and export customers beyond Florida.

Port Tampa Bay continues to build on its current offerings. Later in 2022, among other projects, construction will begin on a 77,000-square-foot rail-served transload warehouse adjacent to the intermodal rail network and the container terminal.

The port also will add a third deep-water berth, three gantry cranes, and a new gate complex. And unlike many ports, Port Tampa Bay has land for expansion.

“Together with our tenants, Port Tampa Bay continues to invest in expanding capacity, so tenants and users can confidently implement their long-term growth plans,” Alfonso says.

## PORT AUTHORITY OF NEW YORK AND NEW JERSEY: ELEVATED VOLUMES, ELEVATED SERVICE

More than 13 million people live within a one-hour drive of the Port of New York and New Jersey, and more than 46 million are within four hours. “We have unequalled access to major North American markets,” says Michael Bozza, assistant director, commercial development.

And within 50 miles of the port lie one billion square feet of warehousing and distribution space.

The largest port on the U.S. East Coast, the Port of New York and New Jersey handled a record 8.9 million twenty-foot equivalent units (TEUs) of cargo in 2021. In preparation for future growth, it has completed a Port Master Plan that provides a framework to handle forecasted growth of up to 17 million TEUs by 2050.

Along with container shipments, the port is one of the largest in the United States for automobiles, moving about 450,000 in 2021. A number of bulk commodities, including salt, juice, and food-grade oil, also regularly pass through the port. The port serves all major ocean carriers and is the first call for 75% of the ships that come to the port, Bozza says.

The Port’s ExpressRail network is a \$600-million program with dedicated rail facilities and additional support track and rail yards for the port’s major container terminals. It provides capacity for 1.5 million rail lifts each year, as well as efficient on-dock rail service.

The port’s intermodal network handled 709,000 rail lifts in 2021. Often, customers can access their rail containers before the ship even leaves the terminal. “Intermodal is a key element of our growth strategy,” Bozza says.

Also critical to the Port Authority’s strong performance, particularly over the past few years, has been its Council on Port Performance (CPP). Originally formed in 2015, it’s composed of all major stakeholders, including representatives from terminal operators, railway systems, customs, labor, trucking, and the Port Authority.

The actions taken by CPP members was a primary reason the port didn’t need to shut down, even briefly, during the pandemic. “This group has been instrumental in building business relationships to tackle the issues we’re facing,” Bozza says.

For instance, a subgroup of the CPP that focuses on the rail networks collaborated with terminal operators to open additional destinations and alleviate congestion.

The skill and dedication of the port’s workforce has also driven performance, even as volumes have skyrocketed, Bozza says. Many employees have been working six days each week to keep port terminals and warehouses open into the evenings and on weekends. “We have a dedicated cadre of workers who are committed to improving our service and infrastructure,” he adds.

With cargo volumes continuing to remain elevated, intermodal rail



**The Port of New York and New Jersey—the largest port on the U.S. East Coast—handled a record 8.9 million TEUs of cargo in 2021. The port’s intermodal network handled 709,000 rail lifts in 2021. More than 46 million people live within four hours—giving the Port of New York and New Jersey unrivaled access to major North American markets.**



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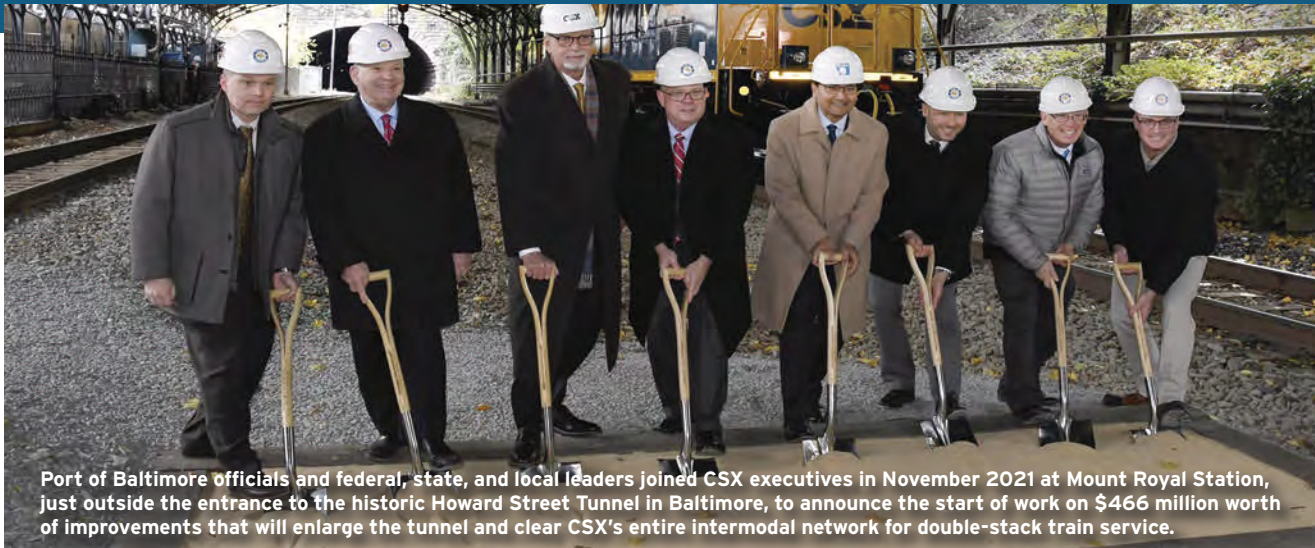
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Port of Baltimore officials and federal, state, and local leaders joined CSX executives in November 2021 at Mount Royal Station, just outside the entrance to the historic Howard Street Tunnel in Baltimore, to announce the start of work on \$466 million worth of improvements that will enlarge the tunnel and clear CSX's entire intermodal network for double-stack train service.

will remain a vital tactic for moving them, Bozza says. The Port Authority's Port Master Plan also contemplates the addition of inland ports—inland terminals connected to the seaport by road or rail—to boost capacity.

Several attributes allow the Port Authority to stand out: its access to millions of consumers, numerous terminal and transportation options, expansive warehouse and distribution space, and quality of service.

“Together, they make us an unrivaled choice for people shipping goods,” Bozza says.

## MARYLAND PORT ADMINISTRATION: IMPROVEMENTS STACK UP

Late in 2021, Maryland Governor Larry Hogan broke ground on the \$466-million Howard Street Tunnel Expansion project. This will reconstruct the 126-year-old freight rail tunnel to accommodate double-stacked container trains traveling to and from the Helen Delich Bentley Port of Baltimore. The project is expected to generate 6,550 construction jobs and an additional 7,300 ongoing jobs from increased business at the port.

Among other changes, the project will improve vertical clearance at the Howard Street Tunnel and at 21 other locations between Baltimore and Philadelphia. This will allow for double stacking, in which two shipping containers are stacked and transported on top of each other. The Howard Street Tunnel, which is owned

by CSX, will be reconstructed to provide an additional 18 inches of clearance.

“Freight rail is an essential link in the nation's supply chain,” said Greg Slater, secretary of the Maryland Department of Transportation. “This investment strengthens that link for generations.”

While the project had initially been estimated to cost between \$1 billion and \$4 billion, advances in construction technology cut the estimated price tag significantly, according to the announcement. In addition, the proposed project will avoid significant disruption to surrounding communities.

These enhancements will build on the Port of Baltimore's history as one of the top ports in the United States in several sectors, including automobiles. In fact, in 1963, the Port of Baltimore handled the entry of the first Volkswagen Beetle.

Since then, it's attracted additional auto cargo and now handles the majority of Ro/Ro cargo on the East Coast. One reason is its low damage rate. The port's Ro/Ro Rodeo works with manufacturers to educate workers on the unique handling requirements of each vehicle type. The 200 acres of pavement available at Dundalk Marine Terminal also helps ensure the port can efficiently handle rising volumes of Ro/Ro cargo.

The Port of Baltimore also specializes in handling forest products. Balterm, its forest products terminal, offers 1.1 million square feet of warehouse space and is one of the leading handlers of imported forest products in the United

States. Employees receive extensive training in the requirements of the forest products industry.

When measured in tonnage, most cargo that moves through the Port of Baltimore is containerized. Its Seagirt Marine Tunnel, one of the most efficient container terminals in the country, offers a berth that's 50 feet deep, as well as 11 cranes, including four Neo-Panamax cranes that can reach across 22 containers. It can move 40 containers per hour.

Several other features distinguish the Port. NAVIS, its electronic terminal management planning and control system links truck drivers, freight forwarders, customs brokers, stevedores and others, streamlining communication. The e-modal trucker check enhances security.

The Port of Baltimore is 150 miles farther inland than other Mid-Atlantic ports, cutting the distance between manufacturers, customers, and the port. The port offers on-dock rail service to two Class 1 rail carriers, offering direct connections to midwestern states, and is within an overnight drive to two-thirds of the U.S. population.

The port is also near Interstate 95—“the main street of the East Coast,” says spokesperson Richard Scher—as well as Interstate 70. The convenient highway connections make it easy for trucks to efficiently come and go, he adds. Approximately 250 trucking companies connect the port with numerous regions across North America. ■



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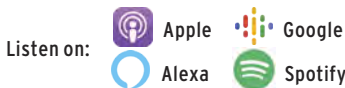
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### IN TODAY'S BUSINESS CLIMATE, JUST HOW SUSTAINABLE IS SUSTAINABILITY?

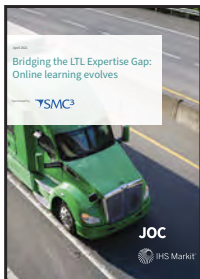
Guest: Jason Traff, Co-founder and President, Shipwell

The average company's supply chain accounts for 90% of its greenhouse gas emissions. Despite its vital importance in the supply chain, sustainability still proves to be a difficult milestone to hit. Jason Traff, co-founder and president of Shipwell, explores how software, visibility, and other innovations can increase sustainability efforts without sacrificing value for stakeholders.

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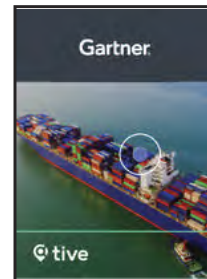


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PODCAST



Lewie Pugh

**TRUCKING: NEW NORMAL, SAME CHALLENGES**

*Guest: Lewie Pugh, Executive Vice President, OOIDA*

Despite the increased spotlight on supply chain and logistics, today's truckers still face many of the same challenges to their industry. As capacity shortfalls and high turnover continue to hamper company operations, owner-operators keep up the fight for better working conditions across the board. Lewie Pugh, executive vice president of the Owner-Operator Independent Drivers Association, shares some of his ideas on how to get more truckers back on the road.

[bit.ly/Ooida422PD](https://bit.ly/Ooida422PD)

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[IN FOCUS]

# SPOTLIGHT

*Wearables and hands-free solutions*

> **Apex Exosuit:** This 3-pound suit from HeroWear takes 75 pounds of strain off workers' backs every time they lift an object. It supports and assists the lower-back muscles primarily involved in repetitive lifting and bending activities. With no motors or batteries, the wearable device is non-powered, relying on an elastic assistance that does not need to be recharged each work day.



> **Handheld SP500X:** The new Handheld SP500X ScanPrinter is designed to streamline package handling. Using the mobile scan-and-print device, workers can scan barcodes, send the information and receive instructions via WiFi, and print directly on packages in seconds. Lightweight and low-profile, the device can handle high volumes and varying package sizes.

> **Honeywell 8675i:** This compact wearable scanner from Honeywell can read even damaged or low-quality barcodes. Featuring FlexRange technology, it provides expanded scan distance, offering an alternative to bulkier handheld devices. The scanner has been optimized for ergonomics: height off of the finger has been minimized and user-contact surfaces are designed for comfort and easy adjustment.



> **Kinetic Reflex:** The wearable Kinetic Reflex device reduces the incidence of workplace injuries by automatically detecting unsafe postures and providing workers with real-time feedback whenever a high-risk motion occurs. Over time, workers can use Reflex to improve their biomechanics, resulting in fewer injuries. Safety managers can view risk data in the Kinetic dashboard.



> **Zebra WS50:** The new WS50 is Zebra's first all-in-one Android-based wearable computer, offering data capture capabilities and an integrated speaker and microphone. It includes a small display, WiFi, and an imager or camera, supporting hands-free workflows, such as picking, sorting, loading, and put away. The WS50 wearable computer offers the option of three different wearable styles including back of the hand, wrist, or on the fingers.



> **StrongArm Flex:** The clip-on IoT wearable device from StrongArm provides real-time feedback to help keep warehouse workers safer. Flex features light, sound, and haptic (vibration) alerts to let workers know how they are doing in real time to reduce ergonomic strain and musculoskeletal injuries. As part of the SafeWork system, the sensor also collects data that provides insights to supervisors.



> **Rufus Labs WorkHero:** This productivity-as-a-service solution includes workforce analytics software, wearable technology, and support. The wearable barcode scanner is modular, allowing warehouse workers to choose their ergonomic preference by sliding the scanning module into a ring, glove, or palm scanner attachment.

> **ProGlove LEO:** At 1.23 ounces, ProGlove's LEO is a hands-free barcode scanner that handles up to 4,000 scans per battery charge and loads within one hour. LEO (which stands for lightweight, expenses eliminated, over-the-air updates) can process 1D and 2D barcodes between a range of 6 inches to 2.3 feet and can connect to Insight, ProGlove's industry analytics solution.



[IN FOCUS]

# INBRIEF

## New Services and Solutions

### >TRANSPORTATION

> **Alaska Air Cargo** is adding two Boeing 737-800 aircraft to its dedicated freighter fleet serving Alaska. The two converted aircraft come from Alaska Airlines' passenger fleet. The planes will be converted from their passenger configuration to all-freight aircraft and are expected to re-enter service as freighters in 2023, nearly doubling Alaska Air Cargo's total freighter lift capacity.

> The transatlantic ZIM Container Turkey service (ZCT) from **ZIM Integrated Shipping Services** became a weekly service starting in mid-May, providing an enhanced connection between Turkey and the U.S. East Coast. Now with a weekly fixed-day frequency, the ZCT calls on Mersin, Yarimca, Aliaga, Tangier, New York, Norfolk, and Savannah.

### >SERVICES

> **Dayton Freight Lines**, a provider of regional less-than-truckload (LTL) transportation services, moved its South Bend location to a new facility in Elkhart, Indiana. Located four miles north of the old service center, the new build sits on 30 acres with 88 doors and an 80-foot-wide dock. It offers 12,000 square feet of warehouse space with a 24-foot-high clearance.

> The new OTTO Lifter from **OTTO Motors** can pick up and drop off pallets autonomously. Equipped with safety sensors, the autonomous forklift works alongside people, vehicles, and existing infrastructure in dynamic environments, improving safety in warehouses and facilities.



> **DHL Supply Chain** now offers on-demand packaging solutions to make shipments more cost-effective and environmentally friendly. The AI solution OptiCarton helps optimize the filling volume of boxes from an existing, pre-configured set of cartons and can suggest the splitting of an order into several consignments to make individual shipments more cost-effective or reduce their carbon footprint.

> **Penske Truck Leasing** constructed a new facility in Fontana, California, to better serve its customer base in the area, as well as provide capacity for new customers. At this location, Penske offers truck rental, full-service truck leasing, and contract truck fleet maintenance.

### >PRODUCTS



> ORBIShield protective dunnage from **ORBIS** is designed to protect unique vehicle parts during transit, assembly, and storage using a variety of foam, rigid, and fabric materials. The PolySilk nonwoven center

fabric (*pictured*) is ideal for soft divider sets, hanging bags used for lightweight parts, and protection for extra-delicate Class-A components, chrome, and painted parts.

> Motorized roller (MDR) conveyors from **Ultimation Industries** operate with 24-volt DC power and use motorized rollers within the conveyor frames to move products. They use zero pressure accumulation, which means loads continue moving along the MDR conveyor until they get close to (but do not touch) the product unit in front, ensuring there are no gaps in the assembly line.

> NexSys iON lithium-ion batteries from **EnerSys** for lift truck fleets are manufactured with

high-performance cells to provide high energy capacity in a smaller footprint. With their modular construction, they can be customized to power and fleet demands and can reduce carbon dioxide emissions and water consumption.

> **Siemens Logistics** introduced a space-saving version of its Visicon singulator, which processes large volumes of parcels in various shapes for sorting operations. Utilizing an AI-based vision system, the Visicon Compact system performs package singulation in small spaces. It singulates up to 7,000 consignments per hour, preparing them for the sorting process.

## >TECHNOLOGY

> Supply chain risk management software provider **Avetta** launched a subcontractor management solution within the Avetta One platform. The solution gives users visibility into their connected suppliers' subcontractors that may pose hidden risks.

> Supply chain visibility platform **project44** introduced Yard Solutions, a set of dock, yard, and asset management capabilities designed to automate yard operations from a single platform. project44's Yard Solutions suite includes slot booking, yard visibility, and yard management.

> **Descartes Systems Group** integrated its ShipRush multi-carrier parcel and

LTL shipping solution with its suite of e-commerce warehouse management systems. This integration allows customers to improve their warehouse and shipping performance through a unified solution.

> **FourKites**, provider of a real-time supply chain visibility platform, unveiled Sustainability Hub, a suite of analytics tools to provide better visibility into resource consumption and waste generation. Through the platform, companies can input their sustainability goals and track saved emissions; benchmark progress against industry averages; and drill down into load-level details to pinpoint opportunities for optimization.

> Retailers can now use the Freight Intel analytics dashboard to view and analyze data such as shipping trends, damage percentages, net losses, and average transit times. Part of Freight Club, an end-to-end freight shipping platform from **Cymax Group Technologies**, the dashboard provides real-time assessment of carrier performance.

> **Magaya** launched Quote Automation by Magaya, an AI-powered inland freight quote automation solution, which automates the process of receiving quote requests, gathering rates from multiple carriers, and preparing, formatting, and sending quotes. Quote Automation by Magaya can save an estimated 15 minutes on average per quote.



> The In-Sight 2800 series vision system from **Cognex** can be trained to perform classification and sorting tasks with no programming required. In-Sight's EasyBuilder interface guides users through the application development process to set up jobs. Tools can be used individually for simple jobs or chained together for more complex logic sequences.



> **CEVA Logistics** opened a contract logistics warehouse in Jundiá, Brazil. The facility features 37 docks and a storage capacity of 38,000 pallets. The company's LATAM contract logistics management team is now located on-site.

# CALENDAR

# Logistics Events 2022

Connect with industry peers, join thought-provoking discussions, and discover the future of supply chain.



## JULY 15-16, 2022

FORT WAYNE, IN

### Expedite Expo

[expediteexpo.com](http://expediteexpo.com)

Learn about the latest expedite trucking industry news, equipment, career opportunities, and products designed for expedite owner-operators and drivers. Dedicated workshops meet the needs of every type of attendee, from fleet owners to CEOs.

JUNE 27-29, 2022  
SAN DIEGO, CA

### Connections 2022

[smc3connections.com](http://smc3connections.com)

Connections 2022, an SMC<sup>3</sup> event, explores emerging trends, current challenges, and innovations in today's modern, complex supply chain. Industry experts and thought leaders dissect the current state of the industry and provide predictions for the remainder of 2022. The event blends informative panels and keynotes with ample networking opportunities.

AUG 31-SEPT 1, 2022  
PHILADELPHIA, PA

### Home Delivery World

[bit.ly/HomeDelivery22](http://bit.ly/HomeDelivery22)

This conference and exhibition for global last-mile logistics delves into innovative solutions for retailers, grocers, CPGs, and 3PLs facing challenges across the supply chain, from warehousing to fulfillment. Covering everything from route optimization and reverse logistics to grocery delivery, parcel spend, and white glove service, this is the premier event for the e-commerce retail supply chain.

SEPT 6-8, 2022  
HERNDON, VA; ALSO VIRTUAL

### Supply Chain Insights Global Summit

[bit.ly/global\\_SC\\_summit](http://bit.ly/global_SC_summit)

The event brings together technologists, consultants, and 3PLs on an invitation-only

basis to explore how companies can better plan for supply chain 2030. While only 40 participants are invited for the in-person conference, the online experience is open to all registrants and offers digital transformation case studies as well as networking and brainstorming sessions.

SEPT 18-21, 2022  
NASHVILLE, TN

### CSCMP Edge 2022

[www.cscmpedge.org](http://www.cscmpedge.org)

The Council of Supply Chain Management Professionals conference and exhibition provides more than 100 sessions spanning the end-to-end supply chain, giving attendees the opportunity to curate their own agendas. The event also lets participants view demonstrations, equipment, systems, and technologies that provide cutting-edge solutions to a wide range of supply chain challenges.

SEPT 27-29, 2022  
HOUSTON, TX

### Breakbulk Americas

[americas.breakbulk.com](http://americas.breakbulk.com)

Breakbulk Americas draws Houston's oil and gas stakeholders as well as industry professionals from the United States, Canada, Mexico, Central and South America and those from around the world interested in projects throughout the region. Delivering timely information and sparking lively discussion, the event explores

current challenges and effective strategies in the project cargo industry.

SEPT 29-30, 2022  
BOSTON, MA

### LogiPharma

[logipharmaus.wbresearch.com](http://logipharmaus.wbresearch.com)

LogiPharma brings together the top minds in life sciences and healthcare supply chain, logistics, distribution, planning, IT, quality, and sourcing to share emerging best practices. Join more than 200 global supply chain leaders in pharma, biotech, and medtech, and transform your supply chain organization to thrive in the new normal. Deep-dive panels, fireside chats, and interactive sessions let attendees benchmark their current strategy, while shaping the future of the industry.

OCT 7-8, 2022  
VIRTUAL

### Supply Chain Digitalization 2022

[supplychain-conference.com](http://supplychain-conference.com)

The Supply Chain Digitalization Conference creates opportunities to boost profitability and sharpen strategies to maximize efficiency in supply chain transformation. The conference brings together the supply chain, transportation, and logistics sectors under one roof. Topics include emerging digitalization technologies and leveraging digitalization to optimize processes and reduce costs.

OCT 10-12, 2022  
CHICAGO, IL

### Parcel Forum

[parclforum.com](http://parclforum.com)

Join parcel shipping and distribution supply chain professionals to learn how to streamline your warehousing operations and delivery models to remain competitive in an evolving landscape. Learn how to ship more packages, more cost effectively, as the industry undergoes tremendous change.

JAN 30 - FEB 1, 2023  
LAS VEGAS, NV

### Manifest

[manife.st](http://manife.st)

This gathering of industry leaders, innovators, and investors provides networking opportunities and a lineup of speakers including more than 250 thought leaders. Discover the future of logistics technology and the players transforming the industry. Understand the mindset of the industry and gain a better grasp of where the market is heading.

FEB 19-22, 2023  
ORLANDO, FL

### LINK2023

[bit.ly/LINK2023\\_RILA](http://bit.ly/LINK2023_RILA)

The Retail Industry Leaders Association conference gathers executives in the retail supply chain to network and learn from each other through case studies, best practices, and expert thought leadership.

*These in-person events were scheduled to proceed as of press time.*

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# SPRINGS HAVE SPRUNG

Springs are fundamental to modern life—your car, your pens, your home, and so much more rely on springs to function. The demand for springs remains high in nearly every industry, and manufacturers must find a constant and reliable source of springs for their products.

## SPRINGING UP

The wire & spring manufacturing market size by revenue is \$10.2 billion as of 2022, and is expected to increase 3.7% this year.

## LOGISTICS RIDES ON SPRINGS

Industrial machinery, transportation equipment, airplanes, trains, and other durable goods manufacturers are key markets for springs—every truck, railcar, ocean liner, and port relies on springs to operate.

## HOME-SPRUNG SPRINGS

There are 1,000+ companies in the wire & spring industry, with 924 businesses in the United States as of 2022. California (110 businesses), Illinois (103 businesses) and Texas (85 businesses) are home to the largest number of wire & spring manufacturing businesses.

## CAR SPRING SALE

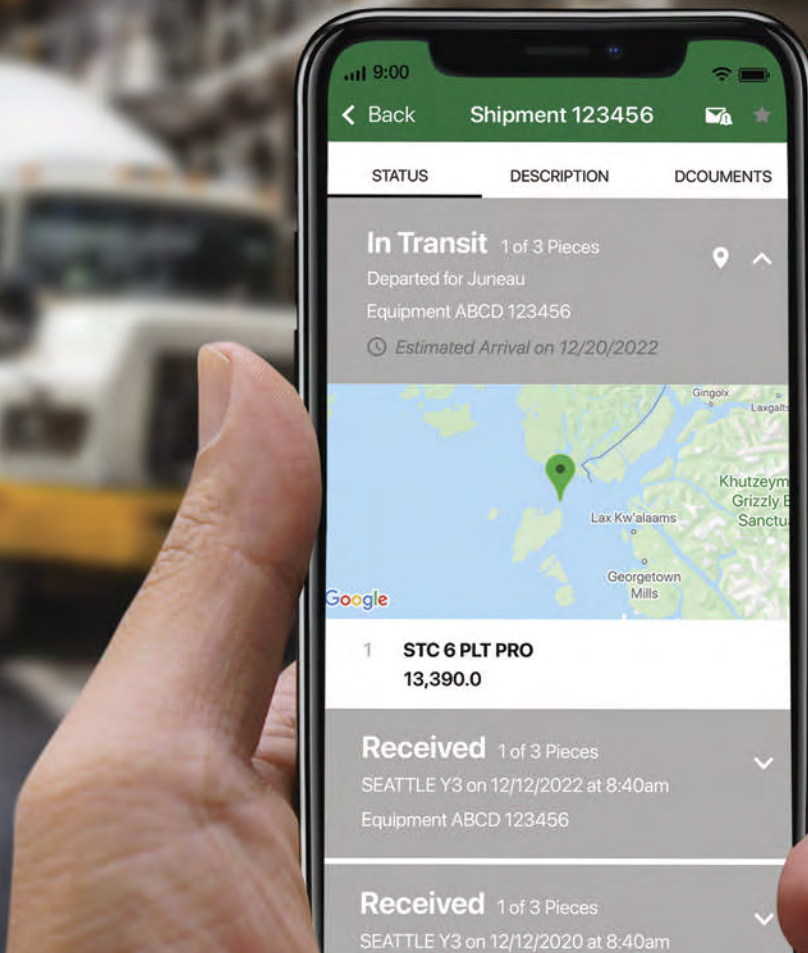
The average car has 350+ torsion springs, none of which are used in the suspension system.

**Sources:** IBISWorld, MarketResearch.com, Transparency Market Research

## THINGS WITH SPRINGS

Check out these common products with springs that you might not expect:

- Mattresses and furniture
- Smartphones
- Monitors/TVs
- Refrigerators, ovens, and microwaves
- Watches
- Exercise equipment
- Retractable pens/pencils
- Guitars, pianos, and other instruments
- Garage doors
- Nearly every kind of button



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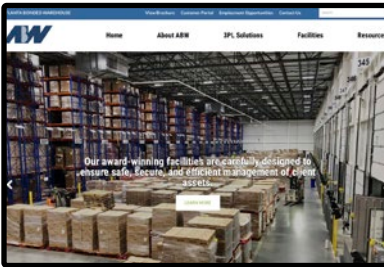
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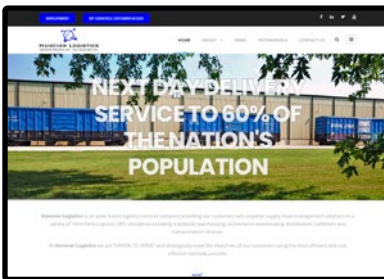
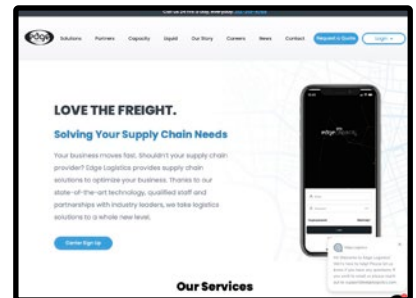


**ATLANTA BONDED WAREHOUSE • [www.atlantabonded.com](http://www.atlantabonded.com)**

Atlanta Bonded Warehouse (ABW) has been providing public and contract food-grade, temperature controlled distribution services for 70 years. ABW is a leader in providing integrated asset-based logistics solutions for the food, pharmaceutical, household durables, and CPG industries. Our goal is total customer satisfaction through continuous innovation in technology and in best practices by focusing on teamwork, integrity, and accountability, all in a safe working environment.

**EDGE LOGISTICS • [www.edgelogistics.com](http://www.edgelogistics.com)**

CAPACITY by Edge Logistics is a freight-matching platform that provides an easy, accessible way for Edge carriers to book and bid on loads, view shipments, process payments, and much more. With its simple, user-friendly interface, CAPACITY speeds up carriers' booking and bidding processes giving carriers the time to focus on business.

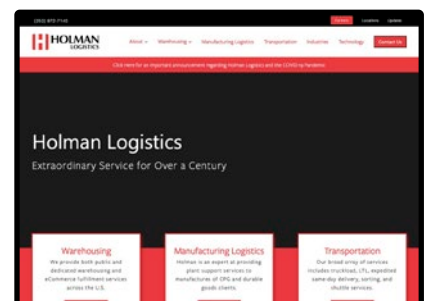


**HANOVER LOGISTICS • [www.hanoverlogistics.com](http://www.hanoverlogistics.com)**

Hanover Logistics is an asset-based logistics services company providing superior supply chain management solutions in a variety of third-party logistics (3PL) disciplines, including warehousing, distribution, fulfillment, and transportation services. Hanover Logistics is equipped to expertly handle various types of logistics services, including: freight brokerage, food/grocery storage and distribution, intermodal/cross-dock services, warehousing solutions for a variety of products (AIB certified, food grade), and general transportation management including truckload, LTL, and container hauling services.

**HOLMAN LOGISTICS • [www.holmanusa.com](http://www.holmanusa.com)**

Holman Logistics offers both multi-client and dedicated warehousing and distribution services across the U.S. They are expert plant support service providers to manufacturers of CPG and durable goods clients, working collaboratively with customers to help facilitate production inside manufacturer-owned plants, mills, and facilities at all levels of the manufacturing process. They also offer a broad array of transportation services including truckload, LTL, expedited same-day delivery, sorting, and shuttle services.



**IN THIS SECTION:  
3PLs**

**3PLs**

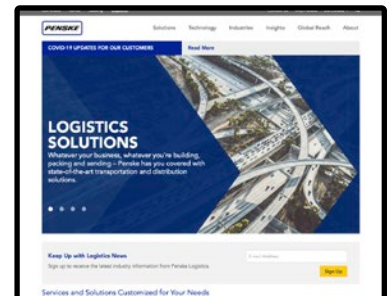


**METRO PARK WAREHOUSE • [www.mpwus.com](http://www.mpwus.com)**

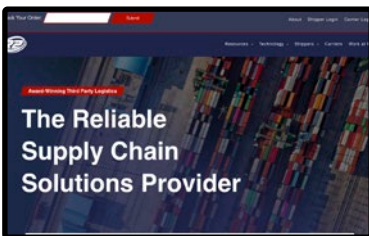
Metro Park Warehouse is a full-service 3PL offering 2 million square feet in Kansas City of modern food-grade warehousing space, including air-conditioned & medical temperature-controlled space with licensed beverage & med/vet/pharma distribution, AIB Superior rating, and 5 rail facilities, all open to reciprocal switching. We also provide in-house local & regional trucking transportation and value-added services such as retail store displays, kitting, labeling and light assembly. Contact Metro Park to gain the competitive edge.

**PENSKE LOGISTICS • [www.penskelogistics.com](http://www.penskelogistics.com)**

Penske Logistics is an award-winning logistics services provider with operations in North America, South America, Europe, and Asia. Our products and services range from dedicated contract carriage and distribution center management to transportation management and fully customized solutions. No matter what your needs or industry, Penske Logistics engineers supply chain solutions that deliver business results like boosting productivity, improving service, and shrinking carbon footprints. Call us today at 1-800-529-6531 to learn more.



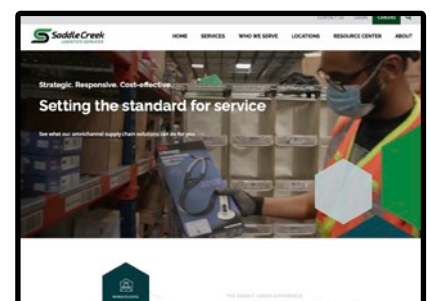
**R2 LOGISTICS • [www.r2logistics.com](http://www.r2logistics.com)**



Founded in 2007, R2 Logistics is a national provider of transportation services and logistics solutions. As a third-party logistics (3PL) company, we provide access to thousands of contracted transportation providers. With offices located across the United States, we are able to provide your company with any possible over-the-road shipping need nationwide, including Mexico and Canada. Backed by game-changing technology and our culture for Reliable Service and Relentless Passion, we've built a strong reputation as an industry leader.

**SADDLE CREEK LOGISTICS • [www.sclogistics.com](http://www.sclogistics.com)**

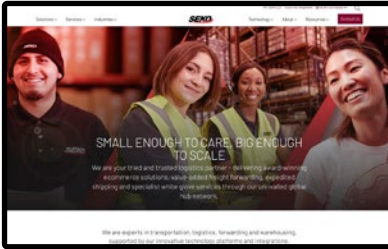
Saddle Creek is an omnichannel supply chain solutions company providing a variety of integrated logistics services, including omnichannel fulfillment, warehousing and transportation. Our custom solutions leverage advanced operational methods and sophisticated technologies to help retailers, manufacturers and e-commerce companies get products where they need to be quickly, cost-effectively and seamlessly. For more information, visit [www.sclogistics.com](http://www.sclogistics.com).





**IN THIS SECTION:**  
**3PLs - Barcode/RFID**

**3PLs**

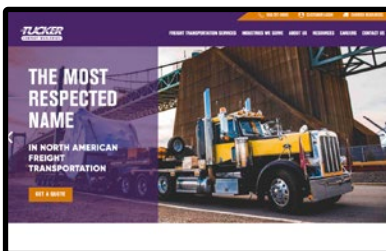
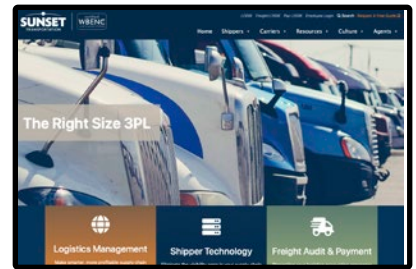


**SEKO LOGISTICS • [www.sekologistics.com](http://www.sekologistics.com)**

SEKO prides itself on a commitment to customer service, whether it's a 2 a.m. pickup for a critical industrial part for a plant that is 4,000 miles away, or the cost savings achieved from proactive communication with your vendors overseas. SEKO offices have the knowledge and expertise to expedite or to consolidate, depending on your need. From Hong Kong to Amsterdam, SEKO knows how to serve its clients. As a non-asset-based third-party logistics provider, SEKO has the flexibility to meet your supply chain needs using a variety of modes and carriers.

**SUNSET TRANSPORTATION • [www.sunsettrans.com](http://www.sunsettrans.com)**

Sunset Transportation isn't just another 3PL. We are driven by the right-size fit for each business, using all levels of global and domestic supply chain resources and services. Our culture allows customers to be part of the Sunset community, while offering advanced TMS solutions, reporting, and shipment reliability. Our approach is simple: through analysis of historical shipping data, we identify opportunities for optimization, service improvement, and technology enhancements. Sunset is the right size 3PL for your business.



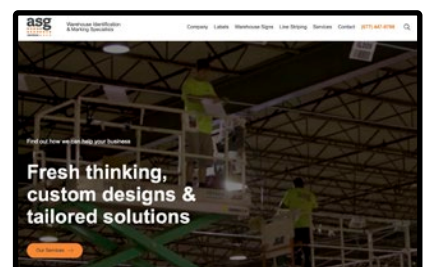
**TUCKER COMPANY WORLDWIDE • [www.tuckerco.com](http://www.tuckerco.com)**

Experiencing truckload capacity problems? Tucker Company Worldwide provides unlimited truckload equipment—from dry vans to flatbeds, refrigerated to specialized equipment. Experiencing problems implementing an inbound freight management program? We get the job done, under budget, and fully controlled. Tucker Company Worldwide operates one of America's oldest freight brokerages. We are ISO-Certified. We co-founded the TIA. We are active members of NITL, TIA, SC&RA, TAPA, NDTA, and QualifiedCarriers.com. Our customers choose Tucker because we're freight experts.

**BARCODE/RFID**

**ASG SERVICES • [www.asgservices.com](http://www.asgservices.com)**

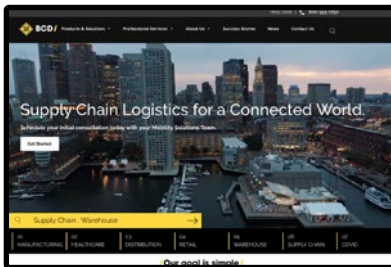
ASG Services is a warehouse identification and marking specialist. We manufacture custom warehouse labels and warehouse signs in Atlanta, Georgia while providing fully managed installation services and warehouse striping solutions throughout the United States, controlled centrally from our head office.



IN THIS SECTION:

## Barcode/RFID - Bulk: Liquid-Dry

### BARCODE/RFID

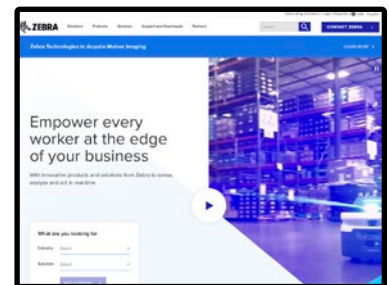


#### BAR CODE DIRECT • [www.barcodedirect.com](http://www.barcodedirect.com)

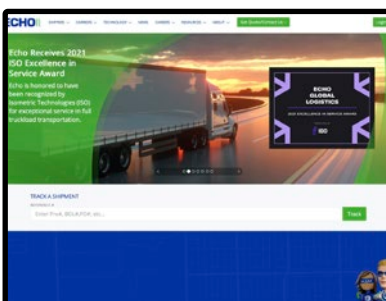
Bar Code Direct (BCD) develops custom enterprise wireless mobile computing and barcode systems for supply chain, retail, healthcare, and hospitality. Their solutions can help manage inventory, increase labeling accuracy, increase efficiency, strengthen security, and streamline data collection. BCD's experienced, nationwide team of supply chain and labeling experts also work daily to find the best solutions and help navigate through supply chain disruptions.

#### ZEBRA TECHNOLOGIES • [www.zebra.com](http://www.zebra.com)

You may be choosing a barcode scanner, but what you're acquiring are scanning abilities. The ability to scan dirty, damaged barcodes, survive harsh work environments and streamline day-to-day management. Zebra anticipates every challenge so you can scan anything, anywhere, no matter what. Capture data with unmatched abilities developed and continuously refined by a partner with more than 50 years of field-proven innovation, delivering options for every purpose and price point. No more issues. No more surprises. Just consistent scans.



### BROKERAGE SERVICES



#### ECHO GLOBAL LOGISTICS • [www.echo.com](http://www.echo.com)

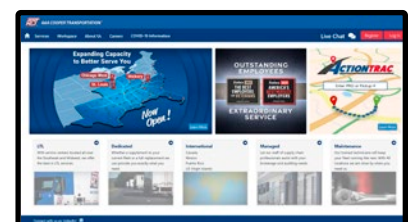
Echo Global Logistics, Inc. (Nasdaq: ECHO) is a provider of technology-enabled transportation and supply chain management services. Echo maintains a proprietary, web-based technology platform that compiles and analyzes data from its network of more than 50,000 transportation providers to serve its clients' needs. Offering freight brokerage and managed transportation services across all major modes, Echo works to simplify the critical tasks involved in transportation management.

### BULK: LIQUID-DRY

#### AAA COOPER TRANSPORTATION • [www.AAACooper.com](http://www.AAACooper.com)

AAA Cooper Transportation has provided safe and efficient transportation solutions for more than 65 years. With 70 plus strategically located service centers, we give individual attention to your transportation needs. Services include Less-than-Truckload, Dedicated Contract Carriage, Managed Services, International, and Fleet Maintenance.

AAA Cooper Transportation is committed to the long-term sustainability of the environment. It continues to implement processes that will make the world a better place to live for generations to come. Visit our website to learn more.



**IN THIS SECTION:**

**Bulk: Liquid-Dry - Dedicated Contract Carriage**

**BULK: LIQUID-DRY**



**LYNDEN • [www.lynden.com](http://www.lynden.com)**

Over land, on the water, in the air—or in any combination—Lynden has been helping customers solve transportation problems for almost a century. Operating in such challenging areas as Alaska, Western Canada and Russia, as well as other areas around the globe, Lynden has built a reputation of superior service to diverse industries.

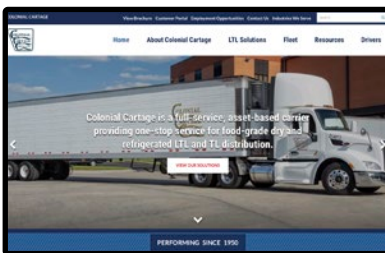
**CHEMICAL LOGISTICS**

**LYNDEN • [www.lynden.com](http://www.lynden.com)**

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**COLD STORAGE**



**COLONIAL CARTAGE CORPORATION • [www.colonialcartage.com](http://www.colonialcartage.com)**

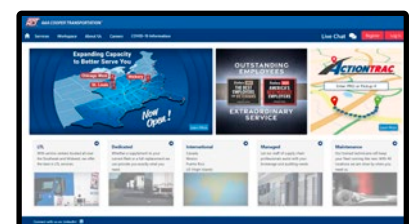
Colonial Cartage Corporation, the in-house carrier for Atlanta Bonded Warehouse, is a full-service asset-based carrier providing food-grade, dry and refrigerated TL, LTL, and pool distribution services for over 64 years. Colonial provides weekly scheduled temperature-controlled LTL delivery to all points in the Southeast, Midwest, Southwest, and Great Plains, as well as truckload and plant support services throughout its service area from its Atlanta terminal. Colonial's services include cross dock, consolidated order selection (bulk picking), and inbound consolidation to outbound cross-dock.

**DEDICATED CONTRACT CARRIAGE**

**AAA COOPER TRANSPORTATION • [www.AAAcooper.com](http://www.AAAcooper.com)**

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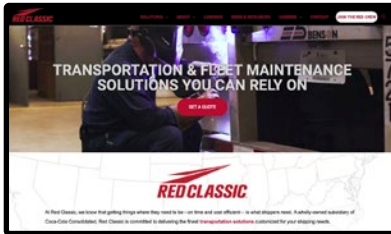
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**IN THIS SECTION:**

**Dedicated Contract Carriage - E-Commerce**

**DEDICATED CONTRACT CARRIAGE**



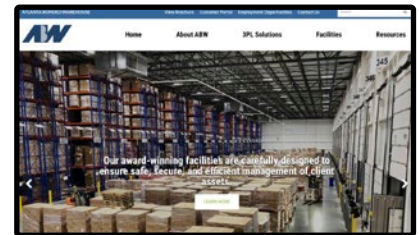
**RED CLASSIC • [www.redclassic.com](http://www.redclassic.com)**

Red Classic is a safety-focused provider of transportation, logistics and fleet maintenance solutions and a wholly-owned subsidiary of Coca-Cola Consolidated. Based in Charlotte, NC, we provide asset-based truckload services, dedicated transportation solutions and full-service logistics covering the continental U.S. and Canada. We also provide commercial fleet maintenance services through 65+ dedicated shops and a mobile maintenance fleet. Contact us at 866-768-8809 or visit our website.

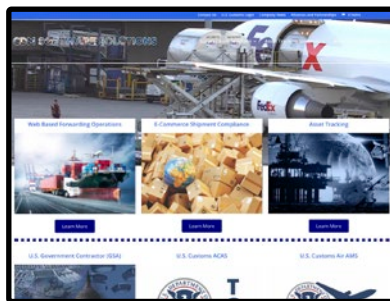
**DISTRIBUTION CENTER MANAGEMENT**

**ATLANTA BONDED WAREHOUSE • [www.atlantabonded.com](http://www.atlantabonded.com)**

Atlanta Bonded Warehouse (ABW) has been providing public and contract food-grade, temperature controlled distribution services for 70 years. ABW is a leader in providing integrated asset-based logistics solutions for the food, pharmaceutical, household durables, and CPG industries. Our goal is total customer satisfaction through continuous innovation in technology and in best practices by focusing on teamwork, integrity, and accountability, all in a safe working environment.



**E-COMMERCE**

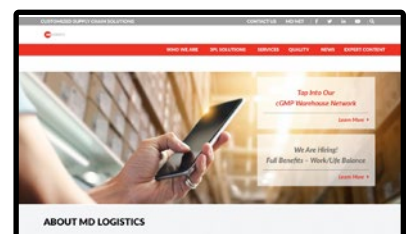


**CDM SOFTWARE SOLUTIONS • [www.s-c-technology.com](http://www.s-c-technology.com)**

CDM Web Freight is a true global web-based freight forwarding and NVOCC solution. Key benefits include CDM Shipment Flow where export shipment data—documents, compliance details, tracking—from an origin forwarder easily transfers to an import shipment of the destination forwarder. Other benefits—in multiple languages (English, Japanese, Simplified Chinese, Spanish, French and German)—include shipment compliance for US, Canada, EU, UK, Japan, Israel and South Africa; as well as air and ocean carrier integration. CDM Web Freight also includes cutting-edge technologies such as RFID, IoT, and Blockchain to further enhance the product offering.

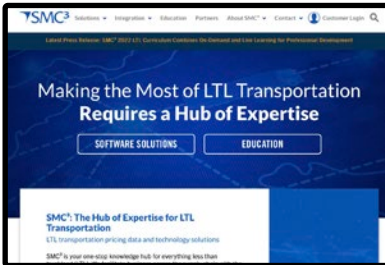
**MD LOGISTICS • [www.mdlogistics.com](http://www.mdlogistics.com)**

MD Logistics is a full-service provider of specialized logistics services focusing on fixtures, furniture, and equipment projects—and the special disciplines associated with those projects. MD Logistics manages the logistics component of all types of store projects, including new stores, remodels, and program rollouts. Specific transportation modes and services include conventional trailerload, air-ride blanket-wrap trailerload, hybrid LTL, merge-in-transit service, and, most importantly, time-definite service.



**IN THIS SECTION:**  
**Education - Freight Forwarding**

**EDUCATION**



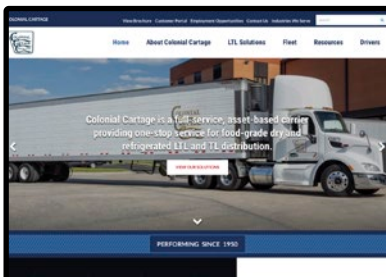
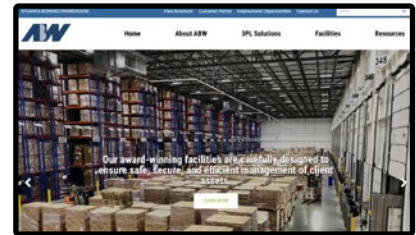
**SMC<sup>3</sup> • [www.smc3.com](http://www.smc3.com)**

SMC<sup>3</sup>—the leading provider of freight transportation technology data and solutions—delivers the only integrated suite of intelligent technology data solutions geared toward the less than truckload and truckload industries. As an leader in both transportation software innovation and supply chain education, more than 5,000 North American shippers, carriers, logistics service providers and freight-payment companies rely on SMC<sup>3</sup>'s sophisticated LTL base rates, content, and expert bidding tools to make the best business decisions, achieve higher returns on their transportation investments, and meet the dynamic demands of the market.

**FOOD LOGISTICS**

**ATLANTA BONDED WAREHOUSE • [www.atlantabonded.com](http://www.atlantabonded.com)**

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**FREIGHT FORWARDING**

**LYNDEN • [www.lynden.com](http://www.lynden.com)**

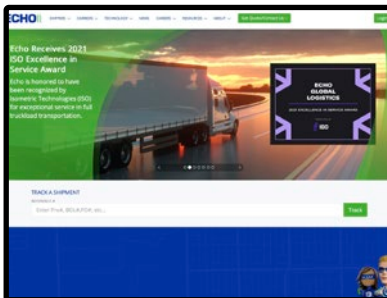
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IN THIS SECTION:

## Freight Marketplace - Global Logistics

### FREIGHT MARKETPLACE



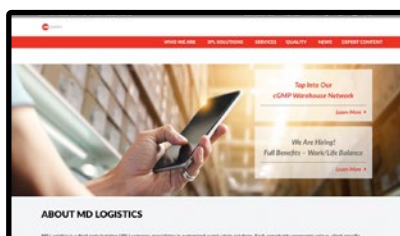
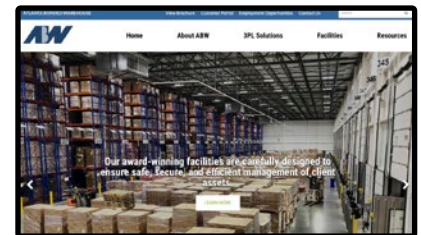
#### ECHO GLOBAL LOGISTICS • [www.echo.com](http://www.echo.com)

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### FULFILLMENT

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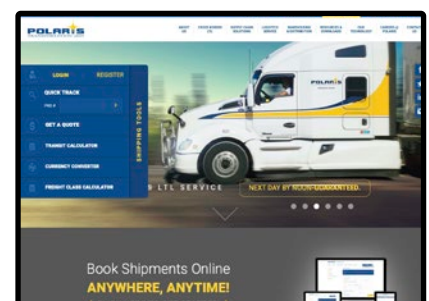
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### GLOBAL LOGISTICS

#### POLARIS TRANSPORTATION GROUP • [www.polaristransport.com](http://www.polaristransport.com)

Polaris Transportation Group is best known for scheduled LTL service between Canada and the United States. Polaris specializes in the shipment of dry goods, but it also has developed complementary transportation services including: specialized movement of trade show displays and exhibits, third-party cross-border and domestic freight management, cross-border and domestic intermodal service, expedited ground and air service, and global air and ocean freight forwarding.



**IN THIS SECTION:**

**Global Logistics - Logistics IT**

**GLOBAL LOGISTICS**



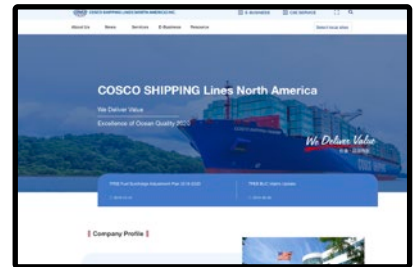
**SUNSET TRANSPORTATION • [www.sunsettrans.com](http://www.sunsettrans.com)**

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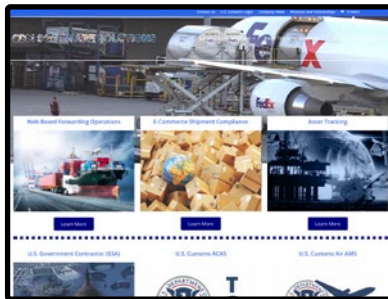
**INTERMODAL**

**COSCO SHIPPING LINES (NORTH AMERICA) • [na.coscoshipping.com](http://na.coscoshipping.com)**

COSCO Shipping brings the highest quality of ocean cargo transportation services to every corner of the globe, with one of the largest, newest and "greenest" fleets making frequent and timely calls to the busiest ports worldwide. COSCO Shipping delivers your containerized cargo quickly, economically and securely, interfacing with rail, road, barge, air and more, with advanced equipment and technology leading the way to absolute supply chain efficiency. And, there is no other ocean carrier who knows China better.



**LOGISTICS IT**



**CDM SOFTWARE SOLUTIONS • [www.s-c-technology.com](http://www.s-c-technology.com)**

CDM Web Freight is a true global web-based freight forwarding and NVOCC solution. Key benefits include CDM Shipment Flow where export shipment data—documents, compliance details, tracking—from an origin forwarder easily transfers to an import shipment of the destination forwarder. Other benefits—in multiple languages (English, Japanese, Simplified Chinese, Spanish, French and German)—include shipment compliance for US, Canada, EU, UK, Japan, Israel and South Africa; as well as air and ocean carrier integration. CDM Web Freight also includes cutting-edge technologies such as RFID, IoT, and Blockchain to further enhance the product offering.

**SMC<sup>3</sup> • [www.smc3.com](http://www.smc3.com)**

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IN THIS SECTION:

Logistics IT - Oil/Gas/Energy Logistics

## LOGISTICS IT



### TRANSPORTGISTICS • [www.transportgistics.com](http://www.transportgistics.com)

TransportGistics is a global, multi-product and services company that provides market-leading, simple, incremental solutions for transportation management and logistics functions within the supply chain. Our web-based solutions enable customers to source, procure, and execute transportation services; enable collaboration; reduce costs; improve processes; identify hidden costs of transportation; improve vendor compliance routing guides; improve Supplier Relationship Management; monitor vendor performance; improve shipment visibility; generate automatic, status-driven alerts; and monitor carrier performance with respect to time in transit, service failure, and billing.

## MATERIALS HANDLING

### ENGINEERING INNOVATION • [www.eii-online.com](http://www.eii-online.com)

Engineering Innovation specializes in designing customized automated workflow solutions for the mailing and shipping industry, in direct response to the needs of the market. Using expertise in postal and parcel automation design, Engineering Innovation develops products that work for any size fulfillment, returns, and mailing operation, and is dedicated to providing cutting-edge products that offer automated processing, maximum postage savings, and excellent service and support.



## MULTI-MODAL



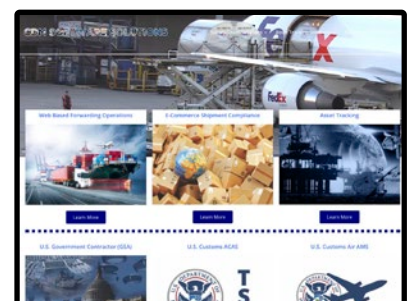
### LYNDEN • [www.lynden.com](http://www.lynden.com)

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## OIL/GAS/ENERGY LOGISTICS

### CDM SOFTWARE SOLUTIONS • [www.s-c-technology.com](http://www.s-c-technology.com)

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**IN THIS SECTION:**  
**Pallets - Pallets**

**PALLETS**

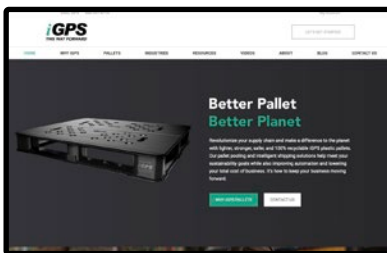
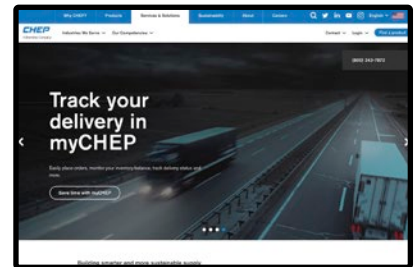


**BETTAWAY • [www.bettaway.com](http://www.bettaway.com)**

Bettaway Pallet Systems was designed as a more effective alternative to traditional pallet programs. Its pallet inventory management system provides customers with a national single source for supply, retrieval and tracking, and its 20 years of pallet management experience was instrumental in the development of software and systems that allow Bettaway to efficiently supply, retrieve, and repair millions of pallets every year.

**CHEP • [www.chep.com](http://www.chep.com)**

CHEP issues, collects, conditions, and reissues more than 300 million pallets and containers from a global network of service centers, helping manufacturers and growers transport their products to distributors and retailers. Combining superior technology, decades of experience, and an unmatched asset base, CHEP handles pallet and container supply chain logistics for customers in the consumer goods, produce, meat, home improvement, beverage, raw materials, petro-chemical, and automotive industries.



**iGPS LOGISTICS • [www.igps.net](http://www.igps.net)**

iGPS Logistics is North America's only pooler of 48 x 40 plastic pallets. iGPS pallets generate measurable savings in transport, reduced product damage, and other operational efficiencies. The world's only multi-use pallet to receive NSF Food Equipment Certification, iGPS' platform is a major advance in supply chain hygiene—a platform that can easily be cleaned. Contact us at 1-800-884-0225 or visit [www.igps.net](http://www.igps.net)

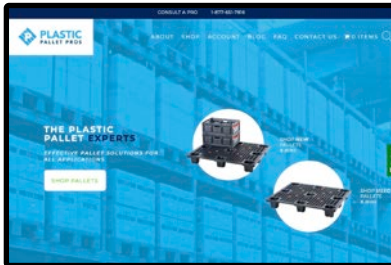
**ORBIS CORPORATION • [www.orbiscorporation.com](http://www.orbiscorporation.com)**

ORBIS Corporation offers plastic bins and plastic containers for food and beverage, environmental, industrial, or storage and distribution. ORBIS experts analyze their customers' systems, design a solution, and execute a reusable packaging program to help world-class customers move their product faster, safer and more cost-effectively. Using life-cycle assessments to compare reusable and single-use packaging, ORBIS also helps customers reduce their overall environmental impact.



**IN THIS SECTION:**  
**Pallets**

**PALLETS**



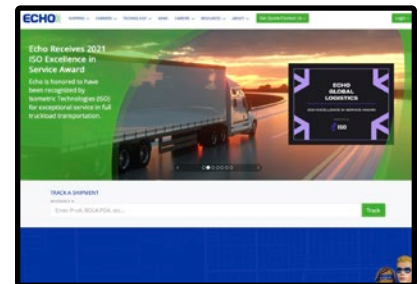
**PLASTIC PALLET PROS • [www.plasticpalletpros.com](http://www.plasticpalletpros.com)**

Plastic Pallet Pros provides a variety of plastic palleting solutions for customer-driven needs. Their plastic pallet categories include bulk bins, economical pallets, nestle pallets, reachable pallets, stackable pallets, export pallets, used pallets, special order/custom pallets, and more. Plastic Pallet Pros not only sources their materials from recycled plastics, but they also provide pallet buy-back services for true closed-loop sustainability.

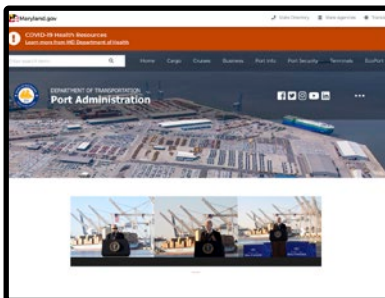
**PARCEL**

**ECHO GLOBAL LOGISTICS • [www.echo.com](http://www.echo.com)**

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**PORTS**

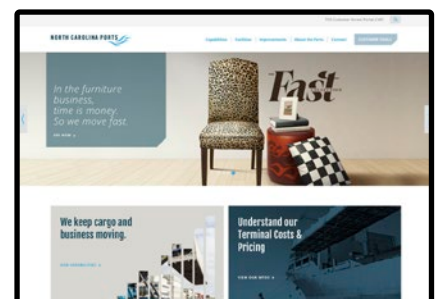


**MARYLAND PORT AUTHORITY • [mpa.maryland.gov](http://mpa.maryland.gov)**

Located in the nation's third-largest consumer group, the Port of Baltimore has an impressive array of distribution locations, with more on the way. As an import destination from China, the most cost-effective and quickest way to tap this affluent market is by bringing your cargo direct to Baltimore, where you will be greeted with world-class efficiency and customer service. Find out more at [www.marylandports.com](http://www.marylandports.com).

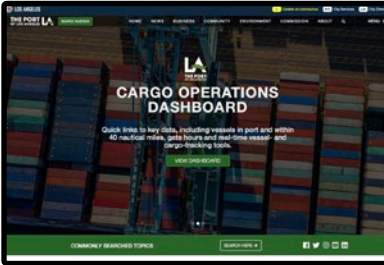
**NORTH CAROLINA PORTS • [www.ncports.com](http://www.ncports.com)**

North Carolina Ports offers port locations in Wilmington and Morehead City, along with a rail hub at Charlotte Inland Port. Our customer-focused approach means shippers receive excellent communication and customized service. Our customers experience the fastest turn times on the East Coast. And our expanding storage capabilities allow us to accommodate more customers than ever.



**IN THIS SECTION:**  
**Ports - Project Logistics**

**PORTS**

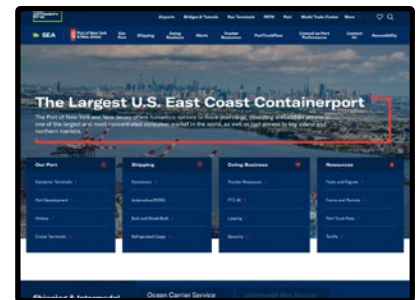


**PORT OF LOS ANGELES • [www.portoflosangeles.org](http://www.portoflosangeles.org)**

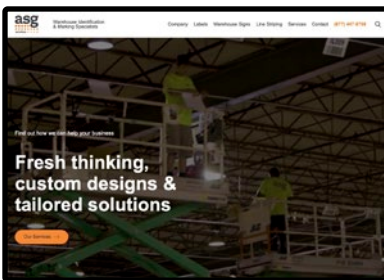
The Port of Los Angeles is the busiest container port in the United States, sustaining its rank as number one for over two decades with record volumes for containerized trade. An industry linchpin, the Port is an established leader of maintaining an efficient, sustainable supply chain, and a trailblazer in modernization and cybersecurity, taking a leadership role in adopting new technologies to improve the reliability, predictability, and efficiency of the flow of cargo across global seaborne trade. Both competitive and collaborative, the Port of Los Angeles serves as an economic bellwether and the premier international trade gateway of Southern California.

**PORT OF NEW YORK & NEW JERSEY • [www.PortNYNJ.com](http://www.PortNYNJ.com)**

The Port of New York and New Jersey is the largest port on the East Coast and gateway to one of the most concentrated and affluent consumer markets in North America. With access to more than 134 million consumers within 250 miles of the Port, our network of terminals, rail and roadways ensure that cargo moves efficiently, cost effectively and in a way that is environmentally sustainable.



**PRINTING SOLUTIONS**



**ASG SERVICES • [www.asgservices.com](http://www.asgservices.com)**

ASG Services is a warehouse identification and marking specialist. We manufacture custom warehouse labels and warehouse signs in Atlanta, Georgia, while providing fully managed installation services and warehouse striping solutions throughout the United States, controlled centrally from our head office.

**PROJECT LOGISTICS**

**LYNDEN • [www.lynden.com](http://www.lynden.com)**

Over land, on the water, in the air—or in any combination—Lynden has been helping customers solve transportation problems for almost a century. Operating in such challenging areas as Alaska, Western Canada and Russia, as well as other areas around the globe, Lynden has built a reputation of superior service to diverse industries.



IN THIS SECTION:

Rapid Response Logistics - Robotics

## RAPID RESPONSE LOGISTICS



**LYNDEN • [www.lynden.com](http://www.lynden.com)**

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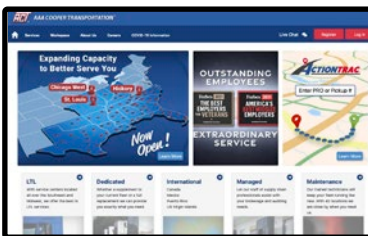
## REAL ESTATE

**MERICLE COMMERCIAL REAL ESTATE SERVICE • [www.mericle.com](http://www.mericle.com)**

Mericle Commercial Real Estate Services has developed more bulk industrial space and fully prepared sites than any other private developer along Pennsylvania's I-81 Corridor. Mericle has a wide variety of space available—all with ceiling clear heights in excess of 30 feet and all located immediately adjacent to an interstate. Mericle lists many 3PLs and 13 of the nation's top e-commerce fulfillment companies among its numerous tenants and clients. All of Mericle's available industrial properties can be reviewed at [www.mericlereadytogo.com](http://www.mericlereadytogo.com).



## RETAIL LOGISTICS



**AAA COOPER TRANSPORTATION • [www.AAACooper.com](http://www.AAACooper.com)**

AAA Cooper Transportation has provided safe and efficient transportation solutions for more than 65 years. With 70 plus strategically located service centers, we give individual attention to your transportation needs. Services include Less-than-Truckload, Dedicated Contract Carriage, Managed Services, International, and Fleet Maintenance. AAA Cooper Transportation is committed to the long-term sustainability of the environment. It continues to implement processes that will make the world a better place to live for generations to come. Visit our website to learn more.

## ROBOTICS

**LOCUS ROBOTICS • [www.locusrobotics.com](http://www.locusrobotics.com)**

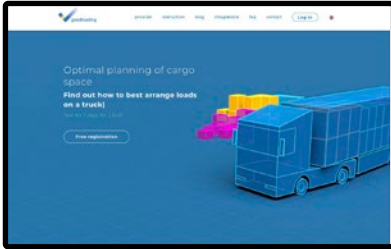
Locus Robotics' innovative autonomous mobile robots make it easy to optimize your warehouse operation, and respond to e-commerce volume growth and seasonal peaks while giving you control over your labor costs. LocusBots operate safely alongside people, making them more efficient and effective compared to traditional order fulfillment systems. Workers are able to fulfill more orders with less labor without the need to reconfigure or disrupt your warehouse.



IN THIS SECTION:

Shipping Software - Supply Chain Mgmt/Optimization

SHIPPING SOFTWARE



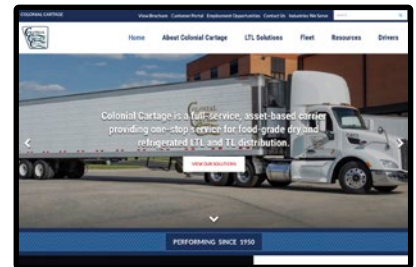
**GOODLOADING** • [www.goodloading.com](http://www.goodloading.com)

Goodloading is an application for optimal loading planning. Algorithms will show the best arrangement of loads in order to maximize the space of your trailer or container. Thanks to Goodloading, the planner can work faster and more efficiently than with traditional methods. This application has many functions such as planning several semi-trailers at the same time, calculating LDMs and the possibility of sending the finished project to the person responsible for loading.

SMARTWAY

**COLONIAL CARTAGE CORPORATION** • [www.colonialcartage.com](http://www.colonialcartage.com)

Colonial Cartage Corporation, the in-house carrier for Atlanta Bonded Warehouse, is a full-service asset-based carrier providing food-grade, dry and refrigerated TL, LTL, and pool distribution services for over 64 years. Colonial provides weekly scheduled temperature-controlled LTL delivery to all points in the Southeast, Midwest, Southwest, and Great Plains, as well as truckload and plant support services throughout its service area from its Atlanta terminal. Colonial's services include cross dock, consolidated order selection (bulk picking), and inbound consolidation to outbound cross-dock.



SUPPLY CHAIN EXECUTION



**SMC<sup>3</sup>** • [www.smc3.com](http://www.smc3.com)

SMC<sup>3</sup>—the leading provider of freight transportation technology data and solutions—delivers the only integrated suite of intelligent technology data solutions geared toward the less than truckload and truckload industries. As an leader in both transportation software innovation and supply chain education, more than 5,000 North American shippers, carriers, logistics service providers and freight-payment companies rely on SMC<sup>3</sup>'s sophisticated LTL base rates, content, and expert bidding tools to make the best business decisions, achieve higher returns on their transportation investments, and meet the dynamic demands of the market.

SUPPLY CHAIN MGMT/OPTIMIZATION

**SMC<sup>3</sup>** • [www.smc3.com](http://www.smc3.com)

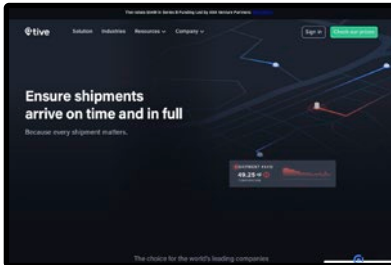
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IN THIS SECTION:

## Supply Chain Visibility - TMS

### SUPPLY CHAIN VISIBILITY



**TIVE • [www.tive.co](http://www.tive.co)**

Ensure shipments arrive on time and in full with TIVE's Tracker and Application software. These solutions capture real-time shipment data and manage products throughout the entire shipping process, providing real-time visibility on things like temperature, condition, and location. This data is also used in detailed reports to identify improvement opportunities, specify shipment constraints, and notify customers when delays arise.

### TMS

**ARTC LOGISTICS • [www.artc-logistics.com](http://www.artc-logistics.com)**

ARTC Logistics has been providing shippers with advanced transportation management software and third-party logistics services since 1964. All its products and services are designed to improve your efficiency, accuracy, record-keeping, control and auditability as well as to lower your freight costs. For a free study to show how you can cut costs, improve customer service, and streamline your business, visit the website today.

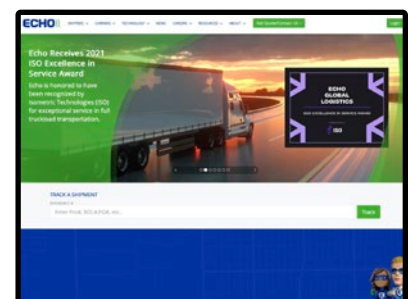


**CT LOGISTICS • [www.ctlogistics.com](http://www.ctlogistics.com)**

Since 1923, organizations have leveraged CT Logistics to provide global freight audit & payment and transportation management solutions. Partner with CT to design and implement customized supply chain and rate management solutions. CT's Business Intelligence platform provides global spend visibility and data analysis using SOCII and ISO 9001:2015 certified processes. Services also include: Shipment Execution, Bid Management, Shipment Planning and Execution Software, and Professional Services for consulting and advising.

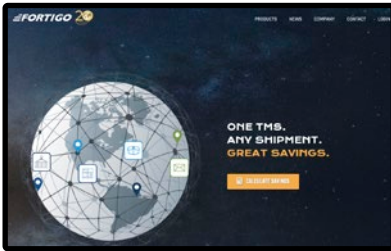
**ECHO GLOBAL LOGISTICS • [www.echo.com](http://www.echo.com)**

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**IN THIS SECTION:**  
**TMS - TMS**

**TMS**

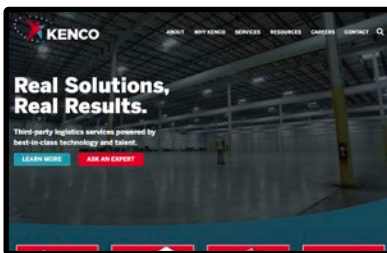
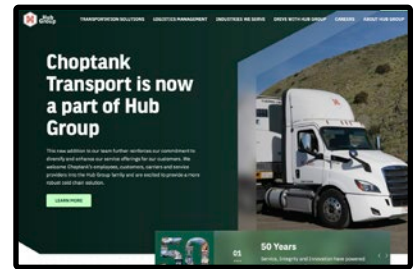


**FORTIGO • [www.fortigo.com](http://www.fortigo.com)**

Fortigo’s team of experts specializes in logistics optimization and enterprise web-based software. For companies seeking to reduce costs, improve customer satisfaction, and increase profitability, Fortigo automates, optimizes, and audits logistics decisions. Fortigo plugs into established supply chain applications and provides rapid return on investment by optimizing and deploying closed-loop logistics processes, minimizing ship-to-order times and streamlining collaboration with logistics providers.

**HUB GROUP • [www.hubgroup.com](http://www.hubgroup.com)**

Hub’s extensive service network—built over many years—enables it to provide innovative transportation solutions that are versatile, flexible, and designed to deliver maximum efficiency. With this advantage, Hub Group is able to collaborate with customers daily to help them meet their transportation challenges. With intermodal, highway, and logistics transportation offerings, the Hub Network is your single provider—coast to coast, border to border. Visit the website to learn what Hub can do for you.

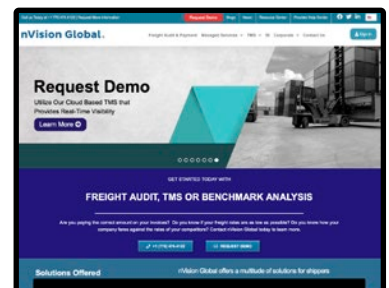


**KENCO • [www.kencogroup.com](http://www.kencogroup.com)**

Adding value to your bottom line? That’s the mission of Kenco. For more than 50 years, Kenco has guided some of the most demanding supply chains in the world. Kenco’s convergence approach can help you streamline your supply chain and bring a greater return on assets and investments. Kenco invites you to visit this website so that you might get to know its services. Then, contact Kenco so that you might truly understand its unique strategic advantages.

**nVISION GLOBAL TECHNOLOGY SOLUTIONS • [corporate.nvisionglobal.com](http://corporate.nvisionglobal.com)**

nVision Global is an industry leader in providing configurable logistics services and solutions for customers around the world, enabling them to optimize their supply chain and gain access to critical data. We offer a full suite of logistics services and solutions that allow for end to end shipment and supply chain management and visibility. Our solutions include a global, multi-modal TMS application, international freight audit and payment, loss & damage/overcharge/service failure claims management, as well as industry-leading logistics analysis solutions.



**IN THIS SECTION:**  
**TMS**

**TMS**

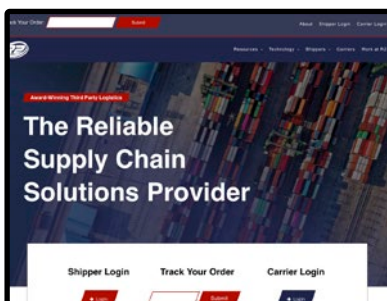
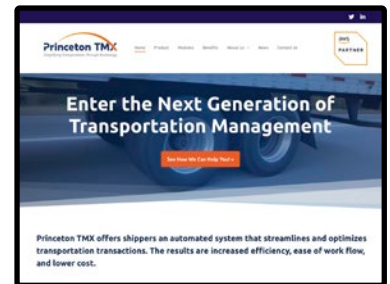


**ODYSSEY LOGISTICS & TECHNOLOGY • [www.odysseylogistics.com](http://www.odysseylogistics.com)**

Odyssey Logistics & Technology Corporation (Odyssey) combines deep industry expertise with leading technology to provide multimodal logistics management services to the chemical industry and other process manufacturers. Odyssey enables clients to outsource any part of their logistics processes to achieve savings through reduced transportation and infrastructure costs, measurable customer service and process improvements, and improved data quality and management. Odyssey is a leader in intermodal with expertise in liquid food, chemicals, and metals transport.

**PRINCETON TMX • [www.princetontmx.com](http://www.princetontmx.com)**

Princeton TMX offers a transportation management solution utilizing the most modern software available. It empowers shippers to focus their resources on exceptions, while providing management with the tools to better analyze and minimize transportation expenses. Princeton TMX products are offered as a Software as a Service (SaaS) solution. These solutions are integrated with customers' systems to create a seamless experience for users. Princeton TMX's software modules are configurable to meet customers' specific business requirements.



**R2 LOGISTICS • [www.r2logistics.com](http://www.r2logistics.com)**

Founded in 2007, R2 Logistics is a national provider of transportation services and logistics solutions. As a third-party logistics (3PL) company, we provide access to thousands of contracted transportation providers. With offices located across the United States, we are able to provide your company with any possible over-the-road shipping need nationwide, including Mexico and Canada. Backed by game-changing technology and our culture for Reliable Service and Relentless Passion, we've built a strong reputation as an industry leader.

**TRANSPORTGISTICS • [www.transportgistics.com](http://www.transportgistics.com)**

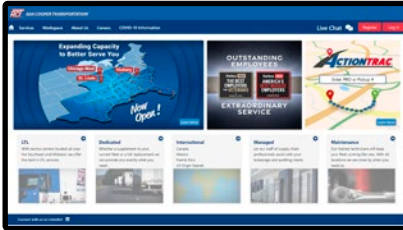
TransportGistics is a global, multi-product and services company that provides market-leading, simple, incremental solutions for transportation management and logistics functions within the supply chain. Our web-based solutions enable our customers to source, procure, and execute transportation services; enable collaboration; reduce costs; improve processes; identify hidden costs of transportation; improve vendor compliance routing guides; improve Supplier Relationship Management; monitor vendor performance; improve shipment visibility; generate automatic, status-driven alerts; and monitor carrier performance with respect to time in transit, service failure, and billing.





**IN THIS SECTION:**  
**Transportation**

**TRANSPORTATION**

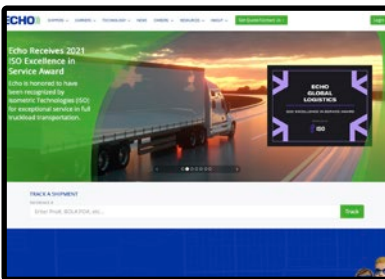
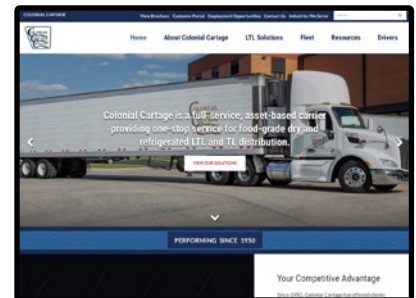


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**IN THIS SECTION:**  
Transportation

**TRANSPORTATION**



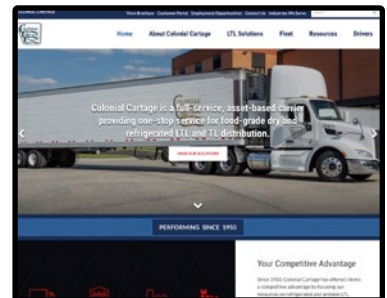
**SUNSET TRANSPORTATION • [www.sunsettrans.com](http://www.sunsettrans.com)**

Sunset Transportation isn't just another 3PL. We are driven by the right-size fit for each business, using all levels of global and domestic supply chain resources and services. Our culture allows customers to be part of the Sunset community, while offering advanced TMS solutions, reporting, and shipment reliability. Our approach is simple: through analysis of historical shipping data, we identify opportunities for optimization, service improvement, and technology enhancements. Sunset is the right size 3PL for your business.

**TRANSPORTATION MGMT/FREIGHT MGMT**

**COLONIAL CARTAGE CORPORATION • [www.colonialcartage.com](http://www.colonialcartage.com)**

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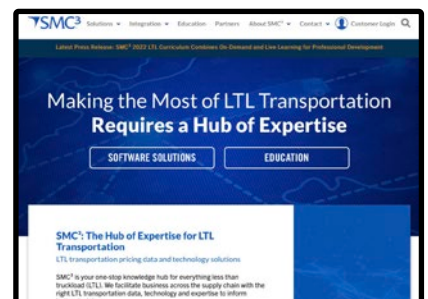


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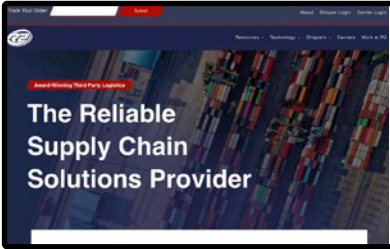
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IN THIS SECTION:  
Trucking - Trucking-LTL

TRUCKING

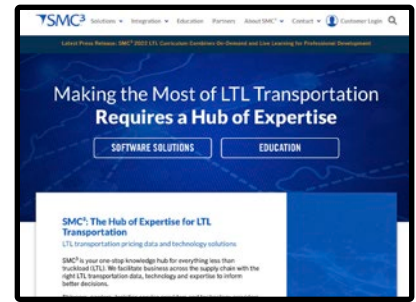


**R2 LOGISTICS • [www.r2logistics.com](http://www.r2logistics.com)**

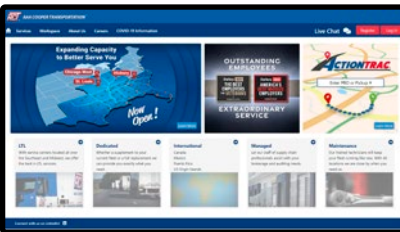
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TRUCKING-LTL

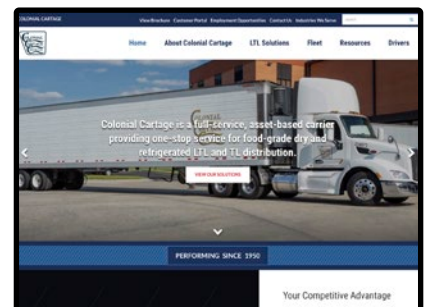


**AAA COOPER TRANSPORTATION • [www.AAACooper.com](http://www.AAACooper.com)**

AAA Cooper Transportation has provided safe and efficient transportation solutions for more than 65 years. With 70 plus strategically located service centers, we give individual attention to your transportation needs. Services include Less-than-Truckload, Dedicated Contract Carriage, Managed Services, International, and Fleet Maintenance. AAA Cooper Transportation is committed to the long-term sustainability of the environment. It continues to implement processes that will make the world a better place to live for generations to come. Visit our website to learn more.

**COLONIAL CARTAGE CORPORATION • [www.colonialcartage.com](http://www.colonialcartage.com)**

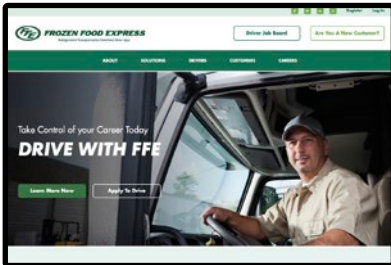
Colonial Cartage Corporation, the in-house carrier for Atlanta Bonded Warehouse, is a full-service asset-based carrier providing food-grade, dry and refrigerated TL, LTL, and pool distribution services for over 64 years. Colonial provides weekly scheduled temperature-controlled LTL delivery to all points in the Southeast, Midwest, Southwest, and Great Plains, as well as truckload and plant support services throughout its service area from its Atlanta terminal. Colonial's services include cross dock, consolidated order selection (bulk picking), and inbound consolidation to outbound cross-dock.



IN THIS SECTION:

Trucking-LTL - Trucking-LTL

**TRUCKING-LTL**

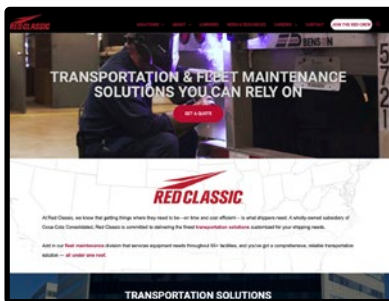


**FROZEN FOOD EXPRESS • [www.ffeinc.com](http://www.ffeinc.com)**

Frozen Food Express strives to be the leader in the temperature-controlled LTL market. As an asset-based carrier we leverage our core competencies in refrigerated transportation and storage to provide customers with the highest levels of service. We offer both frozen and cooler capacity in state-of-the-art dual temp trailers. We are proud to lead the way in technology that monitors and reports temperatures at every point along the cold chain. We strive to deliver a great customer experience and perform with honesty, integrity, and a sense of urgency to deliver on what we promise.

**SMC<sup>3</sup> • [www.smc3.com](http://www.smc3.com)**

SMC<sup>3</sup>—the leading provider of freight transportation technology data and solutions—delivers the only integrated suite of intelligent technology data solutions geared toward the less than truckload and truckload industries. As an leader in both transportation software innovation and supply chain education, more than 5,000 North American shippers, carriers, logistics service providers and freight-payment companies rely on SMC<sup>3</sup>'s sophisticated LTL base rates, content, and expert bidding tools to make the best business decisions, achieve higher returns on their transportation investments, and meet the dynamic demands of the market.



**RED CLASSIC • [www.redclassic.com](http://www.redclassic.com)**

We are Red Classic, a safety-focused provider of transportation, logistics and fleet maintenance solutions and a wholly-owned subsidiary of Coca-Cola Consolidated, the nation's largest Coca-Cola bottler. Based in Charlotte, NC, we provide asset-based truckload services, dedicated transportation solutions and full-service logistics covering the continental U.S. and Canada. We also provide commercial fleet maintenance services through 65+ dedicated shops and our mobile maintenance fleet. To learn more, contact us at 866-768-8809 or [info@redclassic.com](mailto:info@redclassic.com) or visit our website at [www.redclassic.com](http://www.redclassic.com).

**SMC<sup>3</sup> • [www.smc3.com](http://www.smc3.com)**

SMC<sup>3</sup>—the leading provider of freight transportation technology data and solutions—delivers the only integrated suite of intelligent technology data solutions geared toward the less than truckload and truckload industries. As an leader in both transportation software innovation and supply chain education, more than 5,000 North American shippers, carriers, logistics service providers and freight-payment companies rely on SMC<sup>3</sup>'s sophisticated LTL base rates, content, and expert bidding tools to make the best business decisions, achieve higher returns on their transportation investments, and meet the dynamic demands of the market.



IN THIS SECTION:  
Vendor Compliance

## VENDOR COMPLIANCE

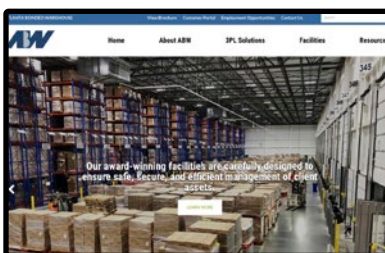
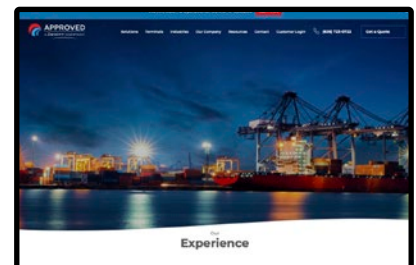
**TRANSPORTGISTICS** • [www.transportgistics.com](http://www.transportgistics.com)

TransportGistics is a global, multi-product and services company that provides market-leading, simple, incremental solutions for transportation management and logistics functions within the supply chain. Our web-based solutions enable our customers to source, procure, and execute transportation services; enable collaboration; reduce costs; improve processes; identify hidden costs of transportation; improve vendor compliance routing guides; improve Supplier Relationship Management; monitor vendor performance; improve shipment visibility; generate automatic, status-driven alerts; and monitor carrier performance with respect to time in transit, service failure, and billing.

## WAREHOUSING

**APPROVED FREIGHT FORWARDERS** • [www.approvedforwarders.com](http://www.approvedforwarders.com)

Since 1991, Approved has been dedicated to the unique shipping needs of the Hawaii and Guam trades, and provides freight forwarding throughout the mainland U.S. Approved accommodates all types of commodities and all sizes of freight. Its highly trained logistics experts use advanced technology to tailor shipping solutions that fit your specific requirements. Approved works hard to ensure that your shipment arrives on time and intact, and keeps you updated every step of the way. To learn more about Approved's freight and logistics solutions and competitive rates, visit the website.

**ATLANTA BONDED WAREHOUSE** • [www.atlantabonded.com](http://www.atlantabonded.com)

Atlanta Bonded Warehouse (ABW) has been providing public and contract food-grade, temperature controlled distribution services for 70 years. ABW is a leader in providing integrated asset-based logistics solutions for the food, pharmaceutical, household durables, and CPG industries. Our goal is total customer satisfaction through continuous innovation in technology and in best practices by focusing on teamwork, integrity, and accountability, all in a safe working environment.

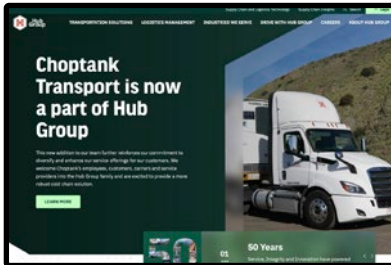
**HOLMAN LOGISTICS** • [www.holmanusa.com](http://www.holmanusa.com)

Holman Logistics offers both multi-client and dedicated warehousing and distribution services across the United States. They are expert plant support service providers to manufacturers of CPG and durable goods clients, working collaboratively with customers to help facilitate production inside manufacturer-owned plants, mills, and facilities at all levels of the manufacturing process. They also offer a broad array of transportation services including truckload, LTL, expedited same-day delivery, sorting, and shuttle services.



**IN THIS SECTION:**  
Warehousing - Warehousing

**WAREHOUSING**



**HUB GROUP • [www.hubgroup.com](http://www.hubgroup.com)**

Hub's extensive service network—built over many years—enables it to provide innovative transportation solutions that are versatile, flexible, and designed to deliver maximum efficiency. With this advantage, Hub Group is able to collaborate with customers daily to help them meet their transportation challenges. With intermodal, highway, and logistics transportation offerings, the Hub Network is your single provider—coast to coast, border to border. Visit the website to learn what Hub can do for you.

**KOCH LOGISTICS • [www.kochlogistics.com](http://www.kochlogistics.com)**

Koch Logistics is a strategic logistics partner who can store and ship freight around the world, across the country, and anywhere else in-between. Services include international maritime shipping, LTL shipping, intermodal, air/expedite, final mile deliveries, import/export, retail support, supply chain management, distribution warehousing, and much more.

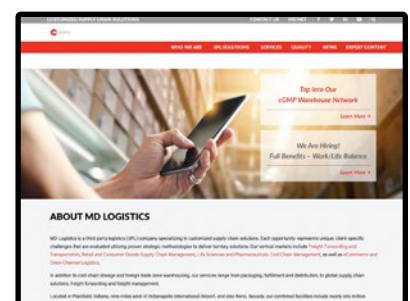


**LYNDEN • [www.lynden.com](http://www.lynden.com)**

Over land, on the water, in the air—or in any combination—Lynden has been helping customers solve transportation problems for almost a century. Operating in such challenging areas as Alaska, Western Canada and Russia, as well as other areas around the globe, Lynden has built a reputation of superior service to diverse industries.

**MD LOGISTICS • [www.mdlogistics.com](http://www.mdlogistics.com)**

MD Logistics is a full-service provider of specialized logistics services focusing on fixtures, furniture, and equipment projects—and the special disciplines associated with those projects. MD Logistics manages the logistics component of all types of store projects, including new stores, remodels, and program rollouts. Specific transportation modes and services include conventional trailerload, air-ride blanket-wrap trailerload, hybrid LTL, merge-in-transit service, and, most importantly, time-definite service.



**IN THIS SECTION:**  
**Warehousing**

**WAREHOUSING**

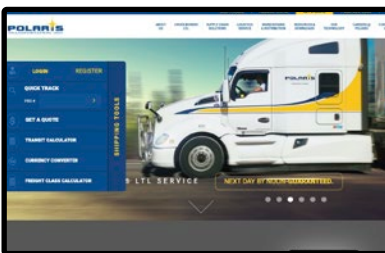
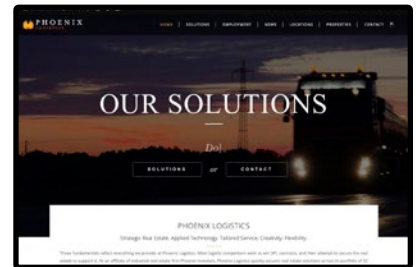


**METRO PARK WAREHOUSE • [www.mpwus.com](http://www.mpwus.com)**

Metro Park Warehouse is a full-service 3PL offering 2 million square feet in Kansas City of modern food-grade warehousing space, including air-conditioned & medical temperature-controlled space with licensed beverage & med/vet/pharma distribution, AIB Superior rating, and 5 rail facilities, all open to reciprocal switching. We also provide in-house local & regional trucking transportation and value-added services such as retail store displays, kitting, labeling and light assembly. Contact Metro Park to gain the competitive edge.

**PHOENIX LOGISTICS • [www.phoenix3pl.com](http://www.phoenix3pl.com)**

Strategic Real Estate. Applied Technology. Tailored Service. Creativity. Flexibility. Phoenix Logistics provides specialized support in locating and attaining the correct logistics solutions for every client we serve. Most competitors work to win contracts before securing real estate. As an affiliate of industrial real estate firm Phoenix Investors, we quickly secure real estate across its portfolio or leverage its strength to acquire real estate to meet our clients' needs.



**POLARIS TRANSPORTATION GROUP • [www.polaristransport.com](http://www.polaristransport.com)**

Polaris Transportation Group is best known for scheduled LTL service between Canada and the United States. Polaris specializes in the shipment of dry goods. But it also has developed complementary transportation services including: specialized movement of trade show displays and exhibits, third-party cross-border and domestic freight management, cross-border and domestic intermodal service, expedited ground and air service, and global air and ocean freight forwarding.

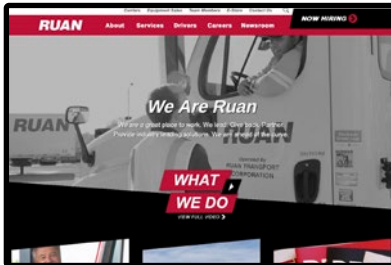
**PORT OF TAMPA • [www.porttb.com](http://www.porttb.com)**

Tampa/Hillsborough County boasts some of the highest-rated international and domestic shipping facilities in the nation. Strategically located on Florida's west coast, the Port of Tampa is easily linked to rapidly expanding markets in Central and South America, and beyond the Panama Canal. The port also provides ship building, maintenance, and repair. To learn more about these services, point your browser to the port's website.



**IN THIS SECTION:**  
Warehousing

## WAREHOUSING

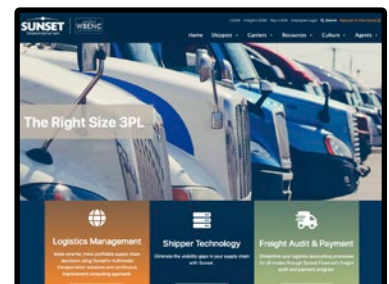


**RUAN • [www.ruan.com](http://www.ruan.com)**

With Ruan, you can take advantage of door-to-door shipping solutions without the hassles and overhead associated with owning and operating your own fleet of trucks. We have more than 5,200 employees operating, servicing and coordinating some 3,400 power units and 5,600 trailers out of more than 100 locations throughout the continental United States. But you get more than just drivers and equipment—we become an extension of your team, advocating for your bottom line. Find out why the right partner can drive costs out of your supply chain. Call 866-RUAN-NOW or visit [ruan.com](http://ruan.com).

**SUNSET TRANSPORTATION • [www.sunsettrans.com](http://www.sunsettrans.com)**

Sunset Transportation isn't just another 3PL. We are driven by the right-size fit for each business, using all levels of global and domestic supply chain resources and services. Our culture allows customers to be part of the Sunset community, while offering advanced TMS solutions, reporting, and shipment reliability. Our approach is simple: through analysis of historical shipping data, we identify opportunities for optimization, service improvement, and technology enhancements. Sunset is the right size 3PL for your business.

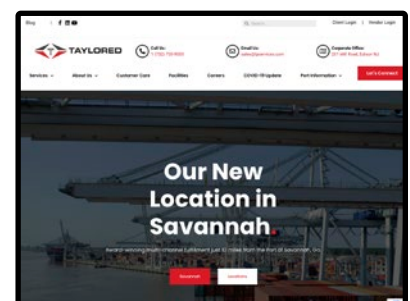


**SYMBIA LOGISTICS • [www.symbia.com](http://www.symbia.com)**

As a privately held family business with over 150 years of combined experience, the Symbia Logistics team has provided facility-based supply chain support to a variety of industries including sporting goods, apparel, dry grocery, health and beauty, aerospace, chemical, industrial goods, kitting, and direct-to-consumer fulfillment services. The Symbia Executive Team has been developing customized solutions and processes for logistics clients since 1989. We consistently exceed customer expectations and establish long-term partnerships.

**TAYLORED SERVICES • [www.tayloredservices.com](http://www.tayloredservices.com)**

At Taylored Services, we look at your business as if we were a box moving through your supply chain. Our goal: to provide a comprehensive array of fulfillment services that best fit your business needs. Award-winning retail experts. Strategically located bi-coastal facilities. Expertise in wholesale and retail distribution. Best-in-class systems and technology. A full range of logistics services including: drayage management, transload, DC bypass, crossdock, case distribution, unit fulfillment (B2B, B2C, Digital), and value-added distribution solutions (repacking, reticketing, point of purchase, display assembly, inserts and labeling, returns). Visit [www.tayloredservices.com](http://www.tayloredservices.com) or contact [sales@tpservices.com](mailto:sales@tpservices.com)





**IN THIS SECTION:**  
**Warehousing**

**WAREHOUSING**

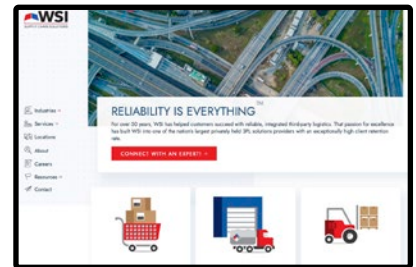


**TRADITION TRANSPORTATION COMPANY • [www.traditiontrans.com](http://www.traditiontrans.com)**

Tradition Transportation provides the best OTR, regional, and local hauling and transportation services to all customers. Tradition Transportation has over 200 experienced and caring drivers supported by a team of dedicated and knowledgeable planners and dispatchers, ensuring freight arrives safely and on time, every time. Tradition offers a variety of leasing options including long-term, short-term, and subleasing options on trucks and trailers, where customers can purchase or lease equipment from Kenworth, Peterbilt, and Freightline and other leading names.

**WSI (WAREHOUSE SPECIALISTS, LLC) • [www.wsinc.com](http://www.wsinc.com)**

Reliability is everything. At WSI, that has been our approach to integrated logistics and supply chain solutions for over 50 years. Our promise of Condition, Count & Time ensures accurate, timely, and sound performance—every time. Recognized as one of the top 3PL providers in North America, WSI delivers custom solutions for warehousing/distribution, fulfillment, transportation, import/export, information technology, and customer support services. Depend on WSI for increased efficiency, reduced costs, and absolute reliability.



**WMS**



**CAMELOT 3PL SOFTWARE • [www.3plsoftware.com](http://www.3plsoftware.com)**

A market leader since 1987, Camelot 3PL Software provides Warehouse Management Systems (3PL WMS) exclusively for third-party logistics warehouses to streamline their operations, eliminate costs and increase service levels. Offering cloud (SaaS) and on-premise solutions, Camelot's highly configurable solutions are ideal for small, medium and enterprise-level warehouses.

**YARD MANAGEMENT**

**YARDVIEW • [www.yardview.com](http://www.yardview.com)**

YardView is a web-based yard management system that is easy to learn and simple to use for operations personnel. Managing yard inventories, movements, appointments, drivers, carriers, time-related events, and other yard activities can be difficult. YardView works for any size operation. YardView is experienced with helping operations become more effective. YardView gets everyone on the same page. The benefits of a software program to help manage these processes are proven and can be realized by your operation. Contact our experts to discuss how we can translate what you are doing now into a more efficient system.



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