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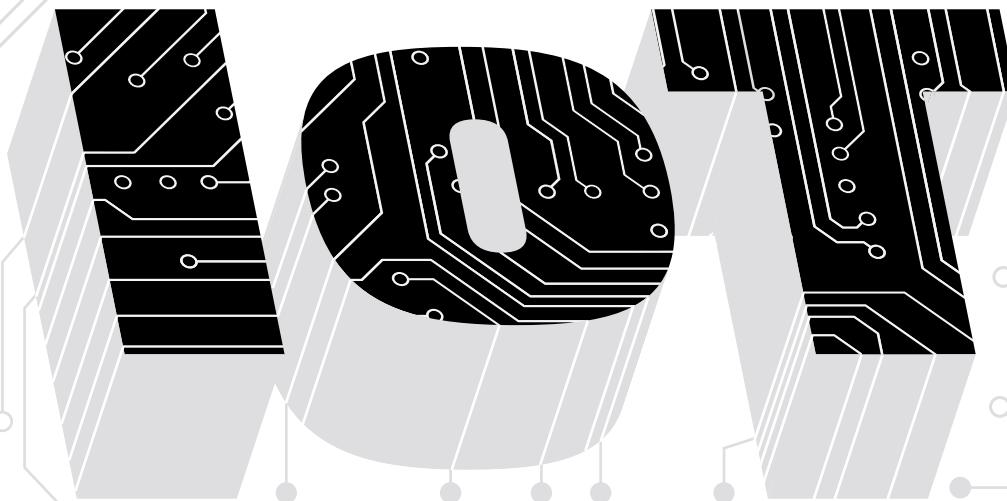
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THE MAGAZINE FOR DEMAND-DRIVEN LOGISTICS • APRIL 2017

ANNUAL TECHNOLOGY ISSUE



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*Business Continuity Institute and Zurich Insurance Group, 2014 Supply Chain Resilience Survey

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ONLINE EXCLUSIVES



The Shipping Wars Have Begun bit.ly/Shipping_Wars

Spencer Moore, Executive Vice President, Speed Commerce

Walmart halted its ShippingPass delivery service in exchange for free two-day shipping—signaling its latest move against Amazon. But the e-commerce race is not only about these retail giants. Here's what small and mid-size retailers can do to stay in the game.



Industry's Struggle to Define TMS bit.ly/DefineTMS

Mitch Weseley, Chief Executive Officer, 3Gtms

With no standard terminology in an already complex industry, it's not surprising that many TMS buyers have trouble identifying the differences between solutions and selecting the one that best fits their needs. Use this advice to cut through the confusion.



Latest Trends in Weighing Technology bit.ly/WeighingTrends

Steven Prince, Transportation Manager, LeanCor Supply Chain Group

Selecting effective weighing systems can boost supply chain operations. It's time to look at the latest developments and what supply chain professionals should consider when purchasing weighing technology.

LOGISTICS IT RESOURCES

Find a Logistics IT Company bit.ly/IT_DST

The Logistics IT Decision Support Tool allows you to select the information technology characteristics that match your needs, then generates a list of companies with those capabilities.

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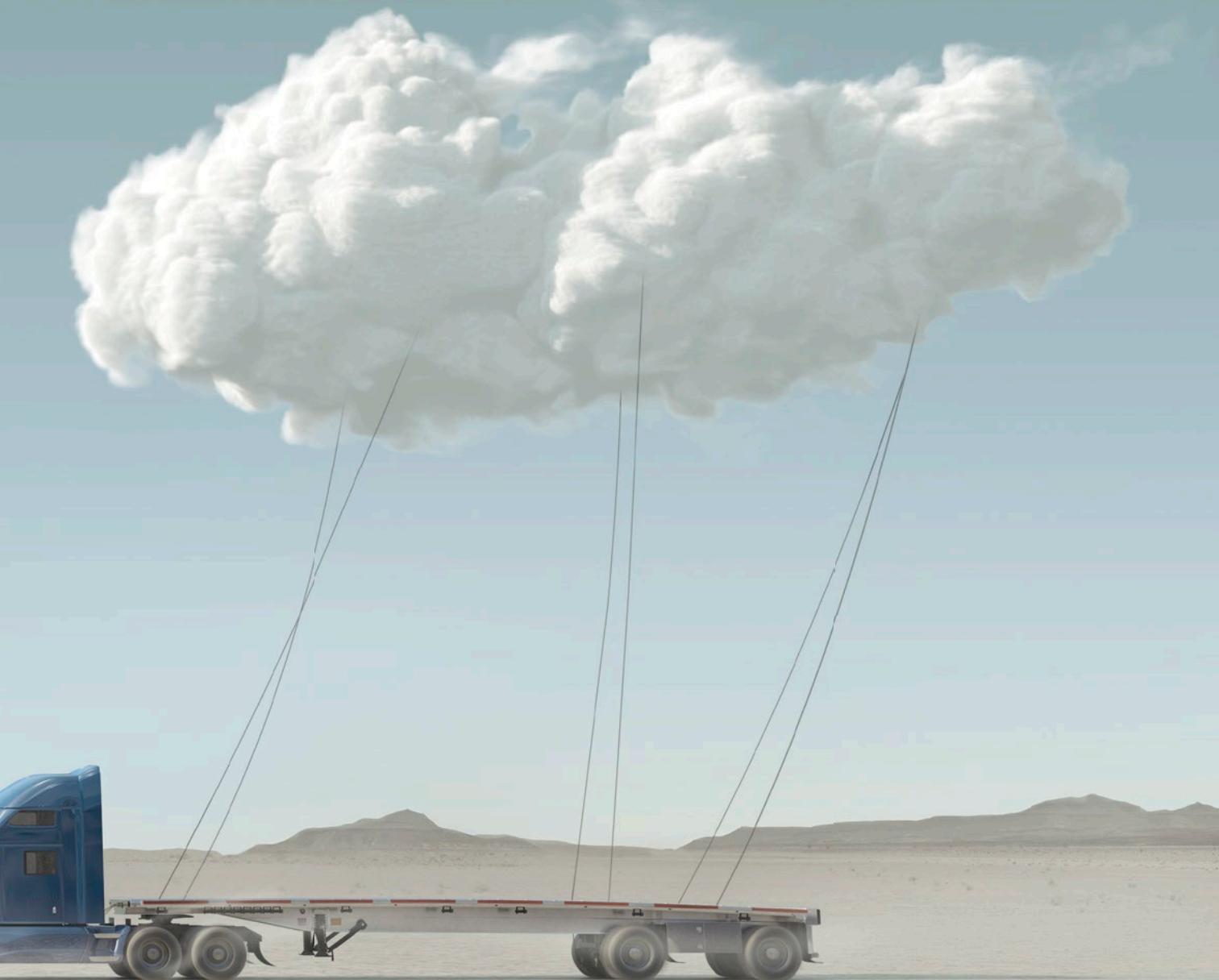


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CHECKING IN

Felecia Stratton

by Felecia Stratton | Editor



We've Been Together for 35 Years

This month marks my 35th anniversary of serving readers as editor of *Inbound Logistics*. That milestone gave me reason to look back while developing and editing the content for this annual logistics technology issue.

Three decades ago, logistics technology primarily consisted of typewriters, pens and pencils, ledgers, paper maps, and hand-typed bills of lading and invoices. Critical information frequently existed only inside the minds of key employees. A drone was a black-and-yellow striped insect or a boring person, the cloud was a weather phenomenon, the web was something a spider lived in, and a mobile solution was a picking cart with wheels.

And just like in logistics, publishing technology has evolved as well. When I began at *Inbound Logistics*, we were solely a print publication. Today, we publish across numerous channels—web, digital, tablet/smartphone, apps, social media, and more—any way the reader wants it.

No matter what the channel, I've worked hard over these past decades to ensure that *IL's* content coincides with the non-stop technological revolution that continues to bring vast and lasting changes to how you match supply to demand, and manage your logistics and supply chain. For example, the Internet of Things (IoT) connects every computer, mobile device, container, and package to the cloud in ways that were inconceivable to traffic managers and procurement specialists three decades ago. You can get a take on how the IoT is impacting supply chain management in our feature article on page 68.

Today, shippers and consumers alike can track packages and shipments in real time. Manufacturers can 3D-print highly specialized components on demand at a moment's notice. Software solutions populate their own online dashboards and present them to users in easy-to-read formats. Yard and warehouse management systems guide pickers and forklift drivers strapped with wearable technology to the exact location of any item in stock. On-board trucking systems help fleet managers evaluate driver performance and monitor vehicle conditions. Stakeholders across the supply chain use software to plan loads, organize warehouses, pick and pack shipments, and provide end-to-end supply chain visibility. The world has truly become a warehouse.

And that's just what's happening now. The near future will bring even more drastic changes. I am proud of the role *Inbound Logistics* plays in providing need-to-have information to help you navigate this new world, and I can't wait to see what changes the next 35 years will bring.

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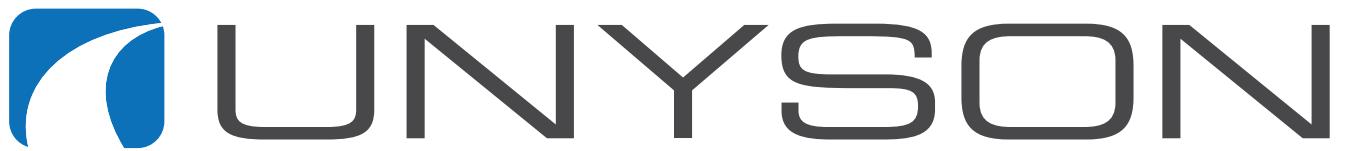
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SOUNDBITE



“The logistics and supply chain field is dynamic, fast-growing, and ripe with opportunity. And yet, women are underrepresented. As a people-powered business, we believe that supporting young women who seek to study and ultimately join our industry is a win for employers, their customers, and the students themselves. Forging women’s advancement starts by giving women more opportunity in the classroom.”

– **JILLIAN LEE**, vice president of human resources, AFN, a third-party logistics provider, which launched scholarship programs for women at Indiana University’s Kelley School of Business and Michigan State University’s Eli Broad College of Business, starting with the 2017 fall semester.

IN EXCHANGE

Using Network Optimization Technology to Enable Your Lean Supply Chain

Companies need to frequently reevaluate their supply chain networks. With network optimization software, they can examine the total supply chain—from manufacturing and suppliers through warehouses and distribution centers, all the way to distributors and end customers. bit.ly/optimizeyourSC

Jeanine Manning

This is an excellent article on how shippers can use technology, transportation expertise, and advanced analytics to tap into the area of their supply chain that houses 80 percent of their supply chain costs.

Have you evaluated your supply chain recently?



TWITTER HASH IT OUT

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The Bionic Warehouse: Combining the right tools with the right people produces super-human results. bit.ly/bionicwarehouse

WBS Group @WBSGroup_Ltd

No matter how much technology you bring into a warehouse, it takes people—working hard and smart—to make the operation succeed.

READER EMAIL

Good Question: Who would be on your Mount Rushmore of transportation and logistics visionaries?

bit.ly/logisticsrushmore

A good friend passed along a copy of your “Mount Rushmore of Logistics/Transportation Visionaries” piece, and it was so nice to see my father, L. L. Rodberg, recognized as a piece of the rock—27 years after his passing.

Larry was a great guy and someone I wish everybody could have met. He was a tough act to follow, but after 30 years

in our own custom packaging business, all four of his kids have tried our best to mimic his leadership style.

Since many manufacturers have left California, and the United States in general, we have worked to transition our business and focus on inbound materials from Asia bound for the retail club stores: blister packs, sealing equipment, etc. Never thought we would be here. We will read your magazine as I’m sure we can learn something more about the inbound supply chain.

Tom Rodberg, President,
Eden Outsource

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Good Question...

READERS WEIGH IN

What movie/TV show/song title best describes your job?

"A Hard Day's Night" by the Beatles. It perfectly sums up my job because helping build a company in such a fast-paced industry inherently has its difficulties, which usually have me working long days that turn into nights. I enjoy my job and love the complex nature of the business, but I can confidently say each day is harder than the last.

Brendan Isaacson
Director of Operations
HaulHound

"Pure Grinding" by Avicii. That's what is required to get the job done.

Laurie Skelton
MTO Inventory Coordinator
The Brick

The Right Stuff—probably one of the greatest movies of the 80s. It's about Chuck Yeager and the first Mercury astronauts including John Glenn, Alan Shepard, Gordon Cooper, and Virgil "Gus" Grissom—hands down one of my favorite movies. For starters, the title reminds me of the team I am surrounded with, but also the plot has some interesting parallels. Our team has a strong vision and we know what our destination is. We have a lot of challenges ahead that will require courage, teamwork, and leadership. Just like in the movie, we will probably have to push the envelope.

William Goodgion
President
Ascent Global Logistics

Fast and Furious! Considering the rapid rate at which our industry evolves, in addition to exponential advancements in technology and automation, it is crucial to keep pace with industry trends.

Tom Poduch
Director of Logistics Design
Transervice Logistics

"World Turning" by Fleetwood Mac because our main goal every day is to ensure supply chain challenges never get in the way of our clients' business goals. In short, we have to keep their world turning.

Jordan Mock
Director of Global Logistics
AGT Global Logistics

"With a Little Help from My Friends" by the Beatles. Because you can't do this job without your colleagues.

Andrew Nichols
Head of Procurement
Tungsten Network

HAVE A GREAT ANSWER TO A GOOD QUESTION?

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

IoT: How do you think it will affect your job? And how soon?

We'll publish some answers.

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It's All an Allusion

Our LinkedIn followers pick the flick or set the tune for their working lives:

Cast Away

I try to keep customers happy, even when the worst happens.

"Working Man" by Rush

Yes, I'm workin' all the time.

Run Lola Run

It's a hectic life when it comes to supply chain management.

Planes, Trains and Automobiles

Because you have to get it there.

Man vs. Wild

We're pitted against the elements.

Groundhog Day

Delivering—over and over again.

The Office

Workday wackiness aside, we move paper.

"Welcome to the Jungle" by

Guns N' Roses

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10 TIPS

STEP-BY-STEP SOLUTIONS



Optimizing Your Distribution Center Site

Maximizing the efficiency of your distribution center (DC) site requires strategic planning and ongoing analysis. Stan Krawitz, executive vice president, founder, and head of Canada for real estate advisory firm Savills Studley, offers these tips to help you get started.

1 Select a site location with labor pool availability in mind. When selecting a DC site, it is critical to choose a location with a workforce that has the education and experience required to run your facility properly.

2 Align facility layout with inventory management operations. There should be a fluid flow from inbound inventory all the way to outbound staging and transportation. Consider the processes taking place within the facility when determining the location and proximity between areas.

3 Install the right lighting. Not all areas of a DC use light in the same way. Consider operations within the facility when selecting lighting systems. Cost-saving practices include installing timers that ensure lights are only used when needed, as well as using LED bulbs that minimize energy usage.

4 Ensure adequate space in staging bays. Take an organized approach to creating space for the outbound process. Allow for 50 feet of space from the dock to give employees enough room to stage for shipment.

5 Find and install proper racking. To maximize flow efficiency, the type, location, and density of racking should align with inventory carrying, pick practices, and order characteristics. Consider the product's needs and how you take it off the rack.

6 Refine pick strategy regularly. Business changes with each season and order. Being able to stay on top of order characteristics is critical to long-term efficiency. Conduct an inventory optimization study regularly and utilize data analytics.

7 Create transportation efficiencies. Schedule simultaneous outbound shipments to maximize your resources and utilize your transportation network efficiently. Increase visibility within a network and optimize the flow of goods by establishing advanced shipping notifications from the point that the purchase order is placed.

8 Consider crossdocking. Designate a particular area of the facility for staging or holding inventory based on your outbound requirements. Incorporate a strategic role for the crossdocking system to play within the warehouse ecosystem. This creates operational efficiencies inside the facility and increases speed to market.

9 Incorporate automation. Robotics and advanced retrieval systems can minimize labor costs and maximize work output. The supply of industrial robots will reach 400,000 units by 2018 and grow by a rate of 15 percent annually, according to the International Federation of Robotics.

10 Set up an area to test operations improvements. Before rolling out processes to improve operations, test the idea on a smaller scale to cultivate data and make necessary adjustments. When encountering issues such as quality control and returns, determining and executing solutions can be complex. Fine tuning strategies in a smaller designated area allows for maximizing efficiency before rolling out solutions across the entire facility. ■

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LEADERSHIP

*Conversations With
The Captains of Industry*

By Merrill Douglas



Jeff Silver
CEO, Coyote Logistics

Photo courtesy of Dominick Reuter

No Shortcuts to Success

TO HEAR JEFF SILVER TELL IT, THE secret to his success as a logistics leader sounds simple: He was the right person in the right place at the right time.

“I came into the industry just after it had been deregulated, with a bit of IT knowledge and capability,” says Silver, CEO of Coyote Logistics, a third-party logistics (3PL) provider that UPS acquired in 2015. “I could look at things with a clean slate and from a systems perspective at a time when nobody was doing that.”

Of course, success stories are never simple. Silver recently gave *Inbound Logistics* a closer look at how he leads and where Coyote is headed.

IL: As an undergraduate at the University of Michigan, you majored in economics. What brought you into the logistics sector?

It was pure luck. The summer before my senior year, I did an internship in Paris, programming in Pascal, and then I spent the first semester of senior year at the University of Copenhagen in Denmark. I came back to the United States with no idea what I wanted to do with my life. Fortunately, a friend was working with Paul Loeb, who had started American Backhaulers (ABH). Loeb offered me a job at \$16,000 per

year, which I thought was great. I figured I'd stay there for one year and then go back to Europe or go to law school. But I never left.

IL: How did you get from there to founding Coyote Logistics in 2006?

We sold ABH to C.H. Robinson at the end of 1999. I worked for them for 18 months, and then left. While I sat out my five-year non-compete agreement, I earned an MBA at Michigan and a Masters in engineering from MIT. I hadn't planned to go back into the industry, but as my non-compete ran out, I realized two things: I couldn't find another industry with as much potential as ours, and not much had changed during my time away.

I started Coyote because I wanted to do things completely differently. I wanted to commit to moving every load we took, rather than hitting the 80 percent or worse average service level that pervaded the industry at the time. The only real way to do that was to start my own company.

IL: How do you motivate people, promote your objectives, and cultivate talent at your company?

Hire the best, smartest people you can, and lead them by example. To hire the best of the generation that has entered the workforce in the past decade, it's imperative to provide the right work atmosphere, to listen to employees, and especially to provide a scenario where they can believe in what they're

working for. At Coyote, our motto has always been to do things the right way every time, no matter who is looking. No shortcuts. No hiring our competitors' employees and using their customer lists or screenshots of their software.

Also, I have always been willing to do every job in the company until I could find someone who was better at that role; then I was willing to leave it in their hands. Delegating to the right person is the most liberating thing you can do as a leader. Control freaks always have a hard time getting businesses to grow larger than the span of their control.

IL: How has Coyote, and your role in it, changed since the company became part of UPS?

As we sold the company, I moved my chief financial officer Jonathan Sisler into the role of president. He and his team have done a great job running the company, which has allowed me to spend a great deal of time learning about the much bigger, broader organization that is UPS.

I've been amazed by the UPS facilities and the people who work in them across the globe, and by the absolute commitment to their mission that the 430,000 "UPSers" display every day. It's funny how little importance outsiders—the analysts who look at the company from outside and the startups trying to find a way to compete—place on this core company attribute. Coyote works by the same principles.

Startups that claim they can move freight without any people have no idea about the heart and soul of a business, and how customers appreciate and reward that spirit with more business.

IL: What are the most difficult challenges your customers face these days, and how does Coyote help?

Since the economic collapse in 2008 and 2009, every one of our customers has been trying to do more with less. We have been helping them not only by moving freight expertly, at the prices we've committed to, but more and more by providing consulting services. We do that largely through our Collaborative Transportation group, led by Chris Pickett. Now, as part of UPS, we are able to offer global solutions covering all modes, including freight forwarding, customs clearance, and dedicated contract warehousing.

IL: What projects top your agenda at Coyote right now?

Automation is at the head of the list. Over the past several years, the ability to use the latest technologies to eliminate non-value-added tasks from our employees' workloads has become paramount. What exactly we plan to implement is top secret. But we look at this from the perspective of new competitors that have sprung up. We ask: If we were a new company today, would we still do this task? And if we would, how would we do it in the most efficient possible way, while remaining committed to our promises to customers?

This plan is not different from what we have already tried to do. But with the rapid advance of inexpensive technological capabilities, the opportunity has been magnified immensely.

IL: How do you like to spend your time outside of work?

My wife and I have seven children. Enough said. ■

Tough Decisions, Exciting Prospects

"In a rapidly growing business, one of the hardest things a leader has to do is acknowledge that some original team members, who helped you lead at the beginning, are not the right people to help you lead at scale," says Jeff Silver. "Dealing with the emotional impact of finding them smaller jobs that they will still be happy doing, or being willing to let them move on, is critical for the organization and for them. But it is always difficult."

Much easier for Silver is naming the two things that make him happy and excited to head for work in the morning. "First, if you hire great people and they are working on important projects, it's a pleasure to be around them," he says. "Second, I love to win. Even now, when many of our competitors have ramped up their service to meet ours or come close, we continue to win by offering that service combined with great people and technology services, and now with the global, integrated abilities of UPS."



Valerie Young is vice president of global supply chain services and operations with 3M. She has held this position since 2016.

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Director of manufacturing and supply chain, business services director, Lean Six Sigma director, vice president of international supply chain, all with 3M.

EDUCATION.

B.A., Business Administration, St. Catherine University, St. Paul, Minn., 1984.

Valerie Young: 2020 Vision

I AM RESPONSIBLE FOR 3M'S SUPPLY CHAIN BUSINESS transformation effort. We're redefining our planning model, manufacturing systems, and logistics and distribution models. For instance, how do we more effectively receive a customer order? How do we conduct demand, supply, and production planning?

Previously, when 3M invested in a country, we went deep. We invested in sales, manufacturing, and research and development, and got a real sense of market activity. We then created products to meet that market need.

That strategy was effective for decades. But today, we're asking if we can look across countries to reduce complexity and right-size supply chains. We're doing this to better serve our markets and customers, improve service and cost efficiency, and free cash flow conversion.

One area of focus is regionalizing supply chains with Centers of Expertise (COEs) to reduce complexity and amplify operational impact. Our newest, largest, and most capable center is the EMEA (Europe, Middle East, and Africa) COE in Switzerland. During its four years of operation, we've improved safety performance, quality, and efficiency with Lean Six Sigma savings of up to 85 percent.

We're also looking hard at our distribution and plant footprint. Are we set up for the future? We're still

The Big Questions

When you're not at work, what do you like to do?

Ski with my family. The grandeur of the mountains grounds me. You realize you're pretty small in the whole scheme of things.

If you could have dinner with anyone in the world, who would you choose?

Bryan Stevenson, author of *Just Mercy*, and director of the Equal Justice initiative. Not only did he impact individual lives, he impacted a community and the justice

system. His book made me ask how I can have the same impact.

If you had \$1 million to start a philanthropic effort, what would you do?

Food pantries support many in our community. However, some have an overage of food that might go in the garbage, while others don't have enough food. I'd create a stronger network for sharing food—another way supply chain can improve lives.

on this journey, but expect to remove \$100 million of inventory from our supply chain by 2020, among other benefits, as we optimize our supply chain footprint.

To ensure a successful transformation, we focus on talent. We want to double the pipeline of our diverse talent, and give our team great development opportunities. We use Lean Six Sigma as one of our top leadership development opportunities; it's part of our DNA.

Once the team is in place, the next

step is helping people through the change. We need strong leadership to articulate our vision and understand its impact. This requires training and support.

I'm passionate about mentoring not only people within 3M, but also high school students, through the Best Prep organization. We exchange emails on college choices, resume writing, interviewing, and other topics. The students challenge my thinking. It's almost like reverse mentoring.

In 2016, I received the STEP Award from the Manufacturing Institute for Women in Manufacturing. This recognizes women for leadership, inspiring young people to pursue manufacturing careers, and engaging women. To be recognized was extremely gratifying.

We all can work to provide high school students more exposure to supply chain and the value society gets from it. In 3M, we talk about how we help every company, every home, and every life. Supply chain is a big part of that. ■



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NOTED

THE SUPPLY CHAIN IN BRIEF

SHOVEL READY



Burriss Logistics, a provider of public refrigerated warehousing and freight consolidation services, purchased a 55-acre property at 350 King Mill Road in McDonough, Ga. The company will build a 250,000-square-foot public refrigerated warehouse with 28,000 pallet positions, and an attached office on the property. Construction is expected to be completed in January 2018.

GREEN SEEDS



Automotive supplier **NEUE HALBERG-GUSS (NHG)** now has a carbon-neutral international supply chain thanks to **Yusen Logistics**. Under the agreement, the 3PL moves engine blocks from the

manufacturer in Germany to the production plant of a leading U.S. car manufacturer, based in Moraine, Ohio. Yusen also provides a closed-loop supply chain back to Germany for the reusable packaging media. The solution is based around rail and sea transport—only 31 miles of the total distance traveled is over-the-road—and includes a significant investment in returnable plastic pallets.

m&a



Deutsche Transport Compagnie Erich Bogdan GmbH & Co. KG (DTC) was

acquired by transport and logistics company **Gebrüder Weiss**. Soon to be integrated into the Gebrüder Weiss network as a wholly owned subsidiary, DTC specializes in national and international road transport, warehousing and contract logistics, project logistics and customs, and air and sea transport. The integration of DTC enables Gebrüder Weiss to expand its network in Europe.



Ocean shipping electronic marketplace **INTTRA** acquired **Avantida**, which manages empty containers for ocean carriers. This move marks INTTRA's entry into landside container logistics, which provides additional

value for shippers, as industry experts estimate that empty container positioning costs the ocean shipping industry up to \$20 billion—or approximately 40 percent of handling costs—annually.

UP THE CHAIN



Veteran supply chain professional **Richard Kelly** was tapped by electronics manufacturing services provider **MC Assembly** as its new vice president of supply chain. Kelly is responsible for expanding MC Assembly's network of partners and improving supply chain solutions for customers.

GOOD WORKS

The **Lirhanzo Children's Village**, an orphanage and school in Chikombedzi, Zimbabwe, received more than 2,000 school supplies from **Jupiter Systems**, which designs and manufactures handheld computers and provides field data collection solutions. Juniper Systems shipped the load of supplies to the school, which currently has 250 students, at the end of 2016. The company plans to continue efforts by setting up a GoFundMe account and collecting additional donations to send to the village.



SEALED DEALS

XPO Logistics signed a long-term agreement with **Gower Furniture**, a supplier of kitchens to the UK trade and retail sectors. Under the contract, XPO Logistics provides Gower with an estimated 2,000 timed, full-load deliveries to customer distribution centers annually, as well as more than 8,000 multi-drop deliveries to more than 150 UK branches. XPO has invested in a dedicated fleet of new tractors and trailers equipped with tracking technology to trace orders, monitor equipment, and analyze fuel use.



Delhaize America selected **RELEX Solutions'** supply chain planning systems to forecast and replenish perishable categories within its distribution centers. Delhaize America operates supermarket brands Food Lion, with more than 1,000 stores in the southeastern United States, and Hannaford, which has 181 stores across New England and New York. The RELEX technology helps Delhaize America enhance product freshness, forecasting, and inventory management at its distribution centers.

recognition



Accuride's **Mary E. Blair**, senior vice president, supply chain management, was named by the Manufacturing Institute as a recipient of its **Women in Manufacturing STEP (Science, Technology, Engineering and Production) Ahead Award for 2017**. The STEP Ahead

Awards, now in their fifth year, recognize women who have demonstrated excellence and leadership, and represent all levels of manufacturing, from the factory floor to the C-suite.



Sam's Club, a membership wholesale club, recognized **Saddle Creek Logistics Services** as its **2016 3PL Service Provider of the Year** in the 25th year of their working relationship. Sam's Club acknowledged Saddle Creek's outstanding performance in a number of metrics, including having three DCs ranked in the top seven Operations Index rankings out of the 25 dry DCs in the Sam's Club network; execution and support for new club openings; proactive communications to ensure disaster relief support during flooding, hurricane, tornado, and winter storm events; and consistency with operational metrics achievement and financial performance to budget.

G.I. Jobs magazine named transportation firm **J.B. Hunt Transport Services** a **2017 Top 100 Military Friendly Employer** for the 10th consecutive year. J.B. Hunt ranked eighth out of companies with an annual revenue of more than \$1 billion.

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TRENDS

SHAPING THE FUTURE OF LOGISTICS



Warehouses Eye Robots

by Jason McDowell

To better serve customers and remain globally competitive, warehousing and logistics providers are continuing to evaluate robotics solutions. While robotics technology has already made an economic impact on the manufacturing sector, it is now starting to transform supply chain operations to be faster, safer, and more productive. The demand for robots, and the supply of matured robotic solutions to optimize logistics processes, have created a tipping point that could lead to widespread acceptance and presence of robots in warehouses and logistics operations, according to a new report from Tractica.

Worldwide warehousing and logistics robot unit shipments will increase from 40,000 in 2016 to 620,000 units annually by 2021, according to Tractica. The market

intelligence firm estimates that global market revenue for the sector reached \$1.9 billion in 2016 and anticipates that the market will continue to grow rapidly

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over the next several years, reaching a market value of \$22.4 billion by the end of 2021.

“The warehousing and logistics robot market is experiencing strong growth, with many prominent companies

showing greater confidence in new robotics technologies that could yield a return on investment in less time than it took a few years ago,” says research analyst Manoj Sahi.

Mobile robot platforms and

industrial robot manipulators will be the segments to drive the largest market growth during the forecast period, Sahi adds, followed by shuttle automated storage and retrieval systems, and gantry robots.

U.S. Infrastructure Still at the Bottom of the Class

Every four years, the American Society of Civil Engineers (ASCE) issues an Infrastructure Report Card that thoroughly analyzes and grades U.S. infrastructure in the form of a school report card. In 2013, the United States was at risk of failing its infrastructure class, squeaking by with a grade of D+.

In 2017, after four years to hit the books and earn some extra credit, the ASCE has reevaluated America’s grade. Anyone involved in transportation or supply chain won’t be surprised that the

D+ held firm, considering the United States has scored a D or D+ every year since the report’s inception in 1998. If the United States was in high school, its graduation would be in question.

Continued lack of investment only makes the problem worse with each evaluation. The dollar amount required to get ahead of our crumbling infrastructure, and bring the average to a B, rises with each report, this time climbing from \$3.6 trillion in 2013 to \$4.6 trillion. This leaves a gap of about

\$2 trillion between planned public-private funding and required investment over the next 10 years.

The ASCE predicts dire consequences for failing to close that gap. In its related study, *Failure to Act: Closing the Infrastructure Investment Gap for America’s Economic Future*, it cites the largest issues: \$3.9 trillion in losses to the U.S. gross domestic product by 2025, \$7 trillion in lost business sales, and 2.5 million lost jobs by 2025.

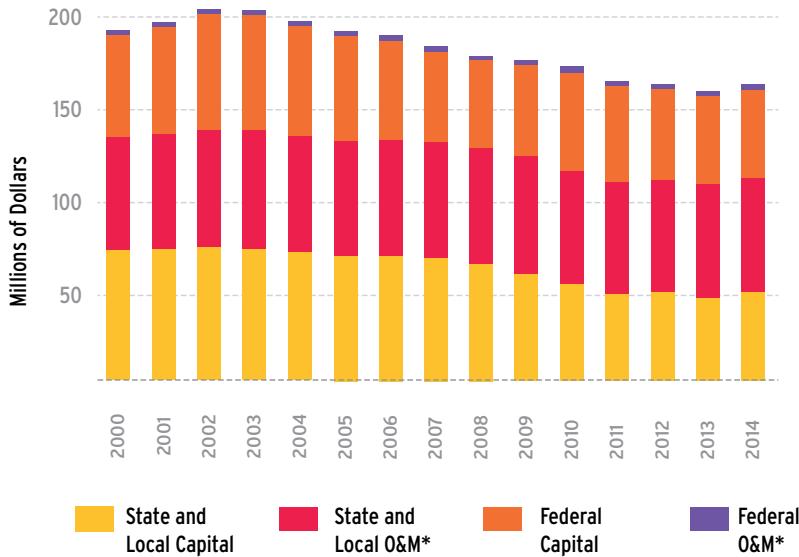
Not all infrastructure is flunking,



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PUBLIC SPENDING ON HIGHWAY INFRASTRUCTURE



*Operations & Maintenance

SOURCE: ASCE 2017 Infrastructure Report Card

however. Rail infrastructure received a respectable B, up from C+ in 2013. Bridges held steady at C+, though roads and highways still sit firm with a D grade. Inland waterways narrowly escaped failure, moving up from D- to D, and ports also advanced, going from C to C+. Meanwhile, airports and aviation infrastructure maintained a D.

Despite a lack of funding and constant government borrowing from trust funds that are supposed to be dedicated to infrastructure, some areas have shown progress. Now it's up to the new administration and private investors to not only find ways to provide additional funding, but to look at the sectors of the nation's infrastructure that are making advancements and find ways to apply those successes across all aspects of our nation's transportation infrastructure before it's too late.



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GLOBAL

THE WORLD AT A GLANCE

by Jason McDowell



Trade With China: A Question of Balance

President Trump hasn't been shy about his desire to put America on more equal trade footing with China, but business leaders have traditionally fought against efforts to force the trade rival into an agreement that's more equitable for both sides. Dissent is growing, however, according to the American Chamber of Commerce in China's (AmChamChina) 2017 *Business Climate Survey*.

Early in 2017, China opened its doors wider to foreign investment, but investors have complained that government regulators from the country's government frequently intercede to make sure more money comes in than goes out. Four out of five companies feel foreign business is unwelcome in China, and more than 50 percent of American businesses operating in China claim that they receive unfair treatment when

compared to Chinese companies, according to the AmChamChina survey. More than 80 percent don't see the relationship improving any time soon.

As such, business leaders are increasingly willing to take risks in China to get the reciprocity they've historically been denied. While some are demanding an eye-for-an-eye approach—deny Chinese investors access to anything in the United States that American companies are denied in China—many stakeholders fear such aggressive action would spark a trade war, the results of which remain difficult to predict.

The Trump administration's official position, put forth in the National Trade Policy Agenda for 2017, released March 2017, appears to side with those U.S. companies that are tired of unequal opportunity: "It is time for a more aggressive approach. The Trump

Administration will use all possible leverage to encourage other countries to give U.S. producers fair, reciprocal access to their markets. The purpose of this effort is to ensure that more markets are truly open to American goods and services and to enhance, rather than restrict, global trade and competition. Such a policy will help grow the global economy by breaking down long-standing trade barriers and promoting increased competition."

The best possible outcome would be a positive, reciprocal trade agreement in which both the United States and China benefit, but the odds of getting there without a lot of posturing and retaliation are slim. Shippers and providers holding stakes in China should be taking action to buffer whatever collateral damage might come from negotiations that are sure to get worse before they get better.

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Can Forwarders Survive an App Attack?

With rumors that Uber and Amazon may be about to launch their own global freight brokerage businesses, traditional forwarders and brokers are understandably nervous. But the British International Freight Association (BIFA) reacts to current speculation by underlining “the vastly challenging and circuitous landscape” that forwarders and brokers operate in daily.

Uber has already soft-launched Uber Freight, notes the trade association for UK freight forwarders. And, the company has ambitions to cut out freight intermediaries by introducing load-matching apps that would provide real-time pricing, according to *Business Insider UK*. Smaller start-ups such as Cargomatic, Convoy, and CargoX share the same idea.

Amazon recently unveiled plans to build a worldwide services hub in the U.S. Midwest, and has acquired thousands of its own trucks, which may hint at its plan to take on brokers and forwarders.

But traditional forwarders and brokers have nothing to fear, notes BIFA Director General Robert Keen.

He outlines three reasons why:

1. Resilience. “I have been working in the industry for more than 40 years and have watched the naysayers and doom mongers in the media, and the wider industry, predict the demise of forwarders and brokers, only for them to have been proven wrong,” he says. “In fact, the opposite is true. We have more forwarders now than ever before.”

2. Complexity. “Freight industry supply chains are highly complex and multi-layered,” Keen notes. “I find it hard to believe that there is an algorithm that can successfully absorb, understand, and counter all the challenges that forwarders face every day. How, for example, does an app react to freak weather and negotiate customs issues?”

3. Trust and confidence. “Freight forwarders are often described as the



‘architects of the supply chain’ and for good reason, too,” he explains. “They understand the intricacies of the mosaic-like supply chain frameworks that exist. And, most importantly, they have acquired knowledge, experience, and agility over the decades that the tech startups will find almost impossible to match.

“How will they cope, for instance, when a truck carrying expensive and time-sensitive cargo breaks down?” he adds. “Who will arrange for a replacement truck? And who will guarantee the load? Many of these questions cannot be suitably solved by an app alone.”

Where Global Logistics Brands Stand

UPS remains the world’s most valuable logistics brand at US\$22 billion, while TNT Express’s brand value dropped 42 percent, making it the fastest-falling brand in 2017. That’s according to valuation and strategy consultancy Brand Finance, which values the brands of thousands of the world’s biggest companies.

The company first evaluates brands to determine their power/strength (based on factors such as marketing investment, familiarity, loyalty, staff satisfaction, and corporate reputation) and assigns a corresponding letter grade up to AAA+.

The consultancy uses brand strength to determine what proportion of a business’s revenue the brand contributes, then projects that into perpetuity to determine the brand’s value.

Not only is UPS the most valuable logistics brand, it is also the most powerful. The company recently invested in 14 Boeing 747s, in addition to smaller aircraft, as it joins Amazon in the race toward drone deliveries. UPS rolled out its “What’s Your Story?” campaign in March 2016 to further develop its relationship with small business customers. This forms part of its broader

“United Problem Solvers” strategy intended to position UPS as not only a delivery service, but also a go-to service to help companies achieve business goals or overcome hurdles.

Though still in second place, FedEx’s brand value grew by 31 percent. The company increased its spending to US\$5.1 billion for the year starting June 1, 2016 to update its aircraft fleet and to facilitate e-commerce growth.

FedEx also recently handed its UEFA Europa League sponsorship assets to the UEFA Foundation and the Street League children’s charity to give more

The 10 Most Powerful Logistics Brands

- | | |
|---------------------|------------------|
| 1. UPS | 6. Union Pacific |
| 2. Royal Mail | 7. CSX |
| 3. MTR Shenzhen | 8. FedEx |
| 4. Deutsche Bahn | 9. Deutsche Post |
| 5. Norfolk Southern | 10. CN Railway |

The 10 Most Valuable Logistics Brands

- | | |
|------------------|-------------------|
| 1. UPS | 6. McLane |
| 2. FedEx | 7. Poste Italiane |
| 3. JR | 8. LaPoste |
| 4. DHL | 9. CSX |
| 5. Union Pacific | 10. CN Railway |

than 100 children the chance to walk out with Liverpool Football Club's players. Though there is a risk that this move will reduce FedEx's awareness scores, the goodwill gesture may improve recommendation and scores for governance and CSR measures.

FedEx and UPS have been embroiled in disputes over their controversial takeover bid of Holland's TNT Express. In 2013, EU anti-trust authorities blocked UPS from acquiring the business for US\$5 billion over concerns about market dominance in Europe.

Eyebrows were raised, however, when FedEx was subsequently allowed to acquire the business. In a significant decision, the EU's general court ruled that UPS's rights of defense had been infringed, opening the door for UPS to sue for damages.

UPS, though understandably frustrated, may have dodged a bullet. FedEx acquired TNT Express for US\$1 billion less than the previous agreed price, and over the course of 2016 the brand's value plunged. Brand value is down to US\$810 million,

making TNT Express the fastest-falling brand this year. Profitability has been weak for years, but brand value remained high on optimism that the picture would change. Time and optimism have now run out for TNT Express, and even FedEx may find maximizing value a challenge.

Royal Mail is another poor performer, down 21 percent year on year. Royal Mail's troubles go beyond the Brexit referendum. Its share price has dropped consistently from September 2016 and now stand at a near all-time low.



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Shopping for a Transportation Management System: Factors to Consider

Is your organization seeking to replace its current Transportation Management System (TMS) or obtain a TMS for the first time? Besides the obvious factors, such as overall cost, functionality that meets your requirements, and the ability to integrate with your current system and trading partners, below are five points to consider when shopping for a TMS:

1. Understand how the software works. Do your homework and define your requirements! Does your company need a cloud- or premises-based technology? Similarly, whether you seek an auction-based TMS, a TMS based on your preferred carriers, or a combination of both, each TMS provider you consider should have a website with accompanying marketing materials. Read the website content, including digesting any available case studies and/or whitepapers offered about similar customers' successes with the product.

Above all, be sure to view any marketing or demonstration videos the company has made about their products. If you do not come away from a marketing video without at least a cursory understanding of how the company's TMS product works, move on to stronger options with clearer explanations. If you have questions about the TMS features, be sure to reach out to your contact at the TMS provider. A strong provider will respond with prompt and thorough information.

2. Seek a partnership rather than just a product. A company with a solid website, informative videos, and detailed case studies typically will have a long history of customer partnership. Your organization will cherish this partnership when onboarding the RFP. Rather than simply choosing a "plug-and-play" TMS, consider providers who are able to understand your business' unique rules and needs. If you work in procurement for a small to medium-sized organization without a robust, dedicated IT department to onboard the product, a friendly, professional relationship with your TMS provider is paramount.

For example, should your volume suddenly escalate, you will need open and effective communication lines with a provider that can quickly and accurately respond to your

needs and adjust the product's rules. A good TMS partner will teach you how to adjust the unique rules in the future, adding to the product's utility and convenience.

3. Prioritize scalability. Similarly, the partnership you seek with your TMS provider should allow you to scale up—and down—according to your business needs. If you need to integrate the new TMS with an Enterprise Resource Program (ERP) or an existing Warehouse Management System (WMS), the TMS should be able to deliver integration with little fuss. A customizable solution is best, especially if your organization merges with another, is purchased as part of an acquisition, or simply grows in size. TMS providers with dedicated, in-house developers can respond to these needs quickly, adding features to optimize the product for your organization's needs.

4. Seek value-driven options. Consider TMS companies with cost-per-transaction pricing models. Some customizable TMS programs cost as little as \$1 to process an order. A low per-transaction cost, combined with customizable scalability and a communicative vendor partnership, equals the best value for your buck when it comes to TMS products.

5. Consider the value of quick implementation. A customizable product with low cost—what's the catch? Often, custom products require a steep learning curve. To reiterate point No. 1: "Understand how the software works," and, if possible, try before you buy. A dedicated TMS partner will take the time to demonstrate the product for you, or it will have resources you can use to try the product by yourself before committing to a purchase and contract.

The onboarding process for a new TMS should not be painful; prioritize a simple interface and the software's ability to integrate easily with your existing systems. If anything feels or looks unintuitive to your eye during the set-up process, point it out to your provider. A truly custom solution will change those screens or buttons to appear exactly how your organization wants them to appear.

Best of luck in your comparison shopping for a new TMS! When you do begin researching, be sure to evaluate each TMS equally on these 5 factors.



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Consumer Demand Helping Drive 3PL Industry Growth

In recent years, shippers have encountered new standards of velocity, market choice, and cost for their products. Consumers are demanding better variety and greater availability at the lowest possible cost.

These demands put increasing pressure on retailers, who in turn, pass that burden on to their suppliers—further increasing complexity and intensifying pressure on supply chains.

In order to meet continually changing consumer demands and expectations in an increasingly competitive market, shippers need a fast, efficient supply chain. As a result, many organizations are turning to third-party logistics (3PL) providers and enhanced transportation management technology to deliver the velocity, visibility, predictability, and control they need.

Today's Next-Gen TMS Meets Today's Supply Chain Needs

Today's supply chain requirements demand more advanced tools. Fortunately, as the supply chain has evolved, so too have transportation management systems (TMS)—now providing organizations with greater visibility and control over their supply chain than ever before.

This next-generation TMS technology provides a comprehensive, graphical view of all shipments and dynamic dashboards of key performance indicators, while also incorporating relevant information from the web, including weather and traffic alerts, to give organizations a 360-degree view of their entire transportation network at all times. Some systems can even help “predict the future” and alert shippers of potential disruptions, allowing them to proactively take steps to address those issues in order to maintain smooth operations and high levels of customer service.

Combining Technology and Industry Expertise

The need for this next-gen technology has contributed to the continued growth of the 3PL market. While 10 to 15 years ago shippers would engage with 3PLs as a means to access technology, that technology is more ubiquitous and readily accessible today.

Technology, however, is only part of the solution. I could put a piano in my home, and have noise instead of music,

as I have the tool, but not the expertise to create the music. Today's 3PLs provide a deeper understanding of the key processes that are necessary for supply chain excellence within the specific verticals in which a shipper resides. This specialized knowledge and capability is as critical as advanced technology. Furthermore, their ability to truly leverage the strength and depth of their 3PL's network of shippers is how maximum value is ultimately delivered.

Understanding and executing upon on-time delivery is a given nowadays. 3PLs are being asked to create better metrics to provide both added understanding and a deeper perspective as to what's occurring inside their business yesterday, in real time, and tomorrow. Status updates that are more timely and proactive are becoming essential in the supply chain.

True Partnership to Drive Operational Excellence

While a TMS can have a significant impact on your supply chain operations, it's not automatically going to “fix” your entire network. You need the right strategy and processes behind it. Shippers looking for technology to incorporate into their transportation operations should first take the opportunity to benchmark their network around service, customer experience, and cost. This exercise will provide specific intelligence about opportunities in their network and whether a technology solution, or outsourcing to a 3PL, is best for their business.

For shippers, a 3PL should not just be prescribing a technology for your transportation network, but must truly have the ability to offer the operational expertise and ideas for continual improvement necessary to drive supply chain excellence. Transportation optimization is more than moving freight at the lowest cost/best mode or finding a short-term performance boost; it's about continuous improvement delivered through smart, data-driven planning and efficient execution at both the lane and network level. Shippers should find a partner that has a demonstrable ability to deliver and execute throughout the entire supply chain, creating both enhanced velocity and a high level of service to customers.



LOGISTICS knowledgebase®

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Achieving Greater Visibility and Agility

Pressure for lower FOB prices while dealing with the upward movement of production is the biggest challenge for retailers today. And all of this comes at a time when companies are under intense pressure to meet the fast-evolving demands of every-channel retail, where consumers expect a more convenient shopping experience, as well as a superior quality product.

This trend is reflected in the recent AAEI Benchmark Survey on e-Commerce, in which supply chain operators point to an increased need to accelerate time to market, eliminate waste and errors, and reduce operational and product costs – while still pushing for the lowest price. So it's not surprising that manufacturers are looking to invest in productivity and process improvement. Leaders are exploring supply chain efficiencies with tools that enable stability, cost reduction, supply chain agility, product innovation, speed and visibility. The right mix of these features will help brands, retailers and manufacturers navigate the increasingly complex challenges throughout the supply chain.

Know Your Supply Chain

It is obvious that import enforcement is rising, so companies need to be tuned in to every aspect of their sourcing, production and shipping activities – from start to finish – in order to avoid delays and additional costs. Organizations are most likely to invest in Product Lifecycle Management (PLM) software to streamline the early processes of design and product specifications, supplier management, and factory-side operations. These will certainly help to enhance efficiency during these phases of the lifecycle, but they also impact downstream activities. To achieve true agility – the power to respond to meet short notice demands – companies need to build a “glass pipeline.”

Visibility Via a Glass Pipeline

Organizations must be aware of every facet of their supply chains. From sourcing and manufacturing through transportation and delivery, visibility can prevent problems before they happen and allay the possibilities of delays and

detentions. What does a glass pipeline look like in practice?

- Innovation should be supported, and not hindered, within supply chains via increased visibility during the design and product development stages.
- Direct management of supply and demand for raw materials enables companies to make design changes based on actionable information while reducing the development cycle for new products.
- Monitoring factory production milestones with management-by-exception reporting gives early warning to missed events that impact activities downstream.
- Regulatory blockages in the form of restricted party screening, certificates of origin, and complex entry requirements can be mitigated with visibility into customer, product, and country (ship to/ship from) data. When delays and detentions do happen, agile organizations respond immediately with documentation to speed cargo release and mitigate further problems.
- Today's technology can provide unmatched clarity throughout the supply chain. Every piece of cargo is tracked and monitored electronically, and the best systems integrate all points of the supply chain into one accessible solution.

How to Remain Agile

With the unpredictability in consumer spending and market fluctuation, the best reaction is the one that happens fast, with the instant knowledge to make changes and decisions on the fly. An agile “glass pipeline” provides the highest levels of visibility, mitigates risk, and supports the rapid resolution to issues as they arise, through strong collaboration tools with every partner in the network. The most agile companies are best stationed to weather the volatility in global trade and commerce that is sure to come. Enterprise-class technology solutions that offer flexibility and visibility at every step are a crucial part of every company's playbook for 2017 and beyond.



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TMS Launches New Era: Control Tower Visibility

It wasn't long ago that top executives around the world had to be convinced why they needed accounting software to run their companies. Today it is unthinkable of any company operating without accounting software to manage their company's finances.

The importance of technology in shipping is starting to reach this same critical point for most shippers. The transportation management system (TMS) was born at a time of the perfect storm for any industry. In the United States, deregulation and adoption of computers arrived simultaneously. Shippers were suddenly able to consider multiple carriers for the same lane and use basic technology to assign carriers to shipments. The TMS industry was created with the idea to execute one critical function: Make a label to get the freight off the dock.

Thirty years later, the core functionality of TMS systems has changed very little. The current TMS market leaders operate in much the same way today as during the birth of the TMS industry 30 years ago. Many legacy technology platforms simply route the shipment to the provider according to the "rules" manually entered into a static table. Mission accomplished (get freight off the dock). Little regard is given to dynamic planning prior to the shipment nor visibility after the shipment document is created (parcel label or BOL for freight).

Shippers today are beginning to pinpoint the future functionality needed to modernize and automate their supply chains. Large shippers with complex supply chains are aware that different business units within their company are extremely isolated and operating independently across business segments. Users at one facility process shipments differently than users at another location. Executives overseeing multiple shipping locations need centralized visibility into all locations. Shippers demand centralized control and visibility of their supply chain in real time. Shippers demand a control tower.

A control tower that offers visibility of worldwide shipping across all modes of transportation, all vendors, across all business locations, down to the user level will be the objective of the next generation of TMS systems. The effects of real-time supply chain data have potential for tremendous impact upon a business. Analyzing real-time visibility of carrier performance, routing exceptions, shipping errors, customer

service, vendor compliance and freight accrual can greatly influence every aspect of a company's operations—from which vendors products are purchased from to the policies for how salespeople mark up freight. The possibilities of what can be done with live data are infinite as a business experiences real-time visibility from a centralized control tower.

Perhaps the most important benefit from centralized control tower visibility of the supply chain is the level of flexibility that comes as a result of real-time analytics and alerts. The centralized control tower allows for a robust provider network that enables shippers to become agnostic in the decision of who actually hauls the freight. Many shippers have used a singular 3PL network as their coping mechanism for achieving centralized visibility. Is one of your locations suddenly experiencing service issues to Canada? View the other providers in the market and consider "what-if" results if you had utilized services of companies not part of your currently active providers. Centralized control tower visibility makes the exclusion of under-performing providers as well as inclusion of new providers a real-time function in the next generation of TMS technologies.

The industry is entering an era where the current state of legacy TMS technology as we know it is approaching the end of its lifecycle. To further complicate the topic, most ERP companies now offer their own TMS systems, which equate to little more than simply generating a shipping document, and get freight off the dock. The gap between the needs of shippers and TMS providers' capabilities is rapidly widening by the day. It will be interesting to watch and see if the legacy TMS companies that have defined TMS technology begin to rebuild their fragile infrastructures to accommodate the artificial intelligence demanded in tomorrow's supply chains, or whether they will acquire companies with cutting-edge technology architecture as a means of staying relevant.

While the latter seems more likely, the real-time, centralized control tower demands of shippers and legacy table based label making are about to collide as existing IT infrastructures are pushed to their limits to keep up with real-time visibility of all shipping events across all worldwide shipping locations. Your next TMS will soon serve as your company's control tower with widespread visibility across all departments in your organization.



VIEWPOINT

BY ROEI GANZARSKI

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3 Steps to a Demand-Driven Supply Chain

The on-demand economy means customers expect instant gratification via immediate access and convenient delivery options. Companies must adapt and start optimizing their supply chains to stay competitive.

Many companies are still supply driven, constrained by resource capacity, archaic scheduling technologies, and inefficient decision-making. Typically, these businesses match demand by increasing the supply and infrastructure to support it. To become demand-driven, companies must consider three actions:

1. Leverage real-time data. Data is key to providing valuable insights into what is working in the supply chain and what can be improved. Analyzing data in real time can help answer the most critical question: 'What do I do now?' Dynamic real-time optimization of the supply chain enables companies to use data to make rapid decisions and create actionable plans by taking all aspects into account.

For example, a same-day grocery delivery service may have extra delivery trucks on standby, ready for an influx of orders, to ensure it meets ad-hoc demand and delivery timeframes. Or alternatively it tries to 'box' its delivery schedules with

large time windows to allow more perceived flexibility. This model is not sustainable.

What if the company's supply chain was optimized to handle random ad-hoc same-day orders, completing all the deliveries with fewer trucks within accurate time windows? Leveraging data with dynamic real-time optimization, companies can consider all factors and determine what truck should take new deliveries while also keeping the rest of its previously scheduled orders on time.

2. Optimize staff. Having the right person at the right time is crucial for employers. Many organizations often understaff, overstaff, or assign one person to a task when another is better suited, impacting productivity and customer service.

Just as a company may overbuy delivery trucks to have on hand for surge times, it also tends to have more employees than necessary for the same reason.

Companies can do more with fewer employees if they properly

identify the inefficiencies and constraints. With interruptions to staff availability, changing shift schedules and demand, as well as regulatory and operational constraints happening each day, businesses must be able to quickly adapt. Resource optimization can adjust accordingly and also take into consideration issues such as required breaks, logical shift planning, and who can best cover when an employee calls in sick.

3. Prepare for disruptions. Being able to adapt to any disruption keeps a business operating smoothly and efficiently. No matter the size of the disruption, the financial impact can be severe for a company with a supply chain that isn't optimized and prepared to react in real time.

The key is making the supply chain nimble and able to react quickly with an actionable plan when (not if) a disruption occurs—mitigating as much risk and financial loss as possible.

If businesses leverage data to its fullest potential, converting it in real time to actionable operating plans, they could see a significant reduction in operating costs and resources, while also increasing customer satisfaction and improving the bottom line. ■

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[IT MATTERS]

BY JOHN MALEY

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Blockchain Set to Shake Up Shipping

International trade is a maze of regulations, and mostly manual, inefficient processes that lack transparency. This is all about to radically change with blockchain technology.

Shipping today is riddled with documentation, regulations, and policies that require certificates of origin, letters of credit, bills of lading, vessel manifests, and customs declarations.

Blockchain converts documents, such as traditional vessel manifests, into a digital ledger that all parties can see and share. This distributed database maintains a continuously growing list of data records hardened against tampering and unapproved revision, and is about to shake up the industry in much the same way containerized shipping did 60 years ago.

Increasing Transparency

The mere size of the ships transporting cargo around the world today requires technology, such as smart containers, to monitor what is onboard a vessel. But this technology can only monitor factors such as the container's location, and doesn't track the numerous hands it passes through as it is transported, loaded, unloaded, bought, sold, and stored en route from the start of the supply chain through delivery.

Blockchain technology will help

increase transparency. For example, information from smart devices will be able to communicate to blockchain-based ledgers to update or validate smart contracts.

Supply chain operators could also begin using blockchain to track information such as the movement of intermodal containers. This information can then be enriched with third-party situational data such as weather or traffic information, which can help address if a delivery is late or behind schedule.

For example, if the temperature in a container drops while shipping frozen food, the technology will know where and when the food melted. The distributed ledger is the centralized point of control and can be reviewed to determine which party is at fault.

Blockchain will benefit the logistics process by building trust, reducing costs, and accelerating transactions. Transactions and device data can be viewed peer-to-peer, removing most legal or contractual costs.

By removing the middleman from

the process, blockchain enables more transactions overall. Contracts are verifiable, signed, and encoded in programming language to allow organizations to reduce the time they need to complete legal or contractual commitments.

Transforming Networks

Blockchain technology has the potential to radically transform multi-party business networks, enabling significant cost and risk reduction, while introducing innovative new business models such as real-time transfer of ownership while goods are in transit. Other business models allow for services such as shipping, finance, ground transportation, and insurance to be packaged together.

For years, record keeping in the freight and logistics sector has been inaccurate due to human error and/or incorrect calculations. Computers have helped, but there is still room for improvement.

Blockchain is a technology for a new generation of transactional applications that establishes trust, accountability, and transparency while streamlining business processes. It is an operating system for interactions and has the potential to vastly reduce the cost and complexity of getting things done. ■

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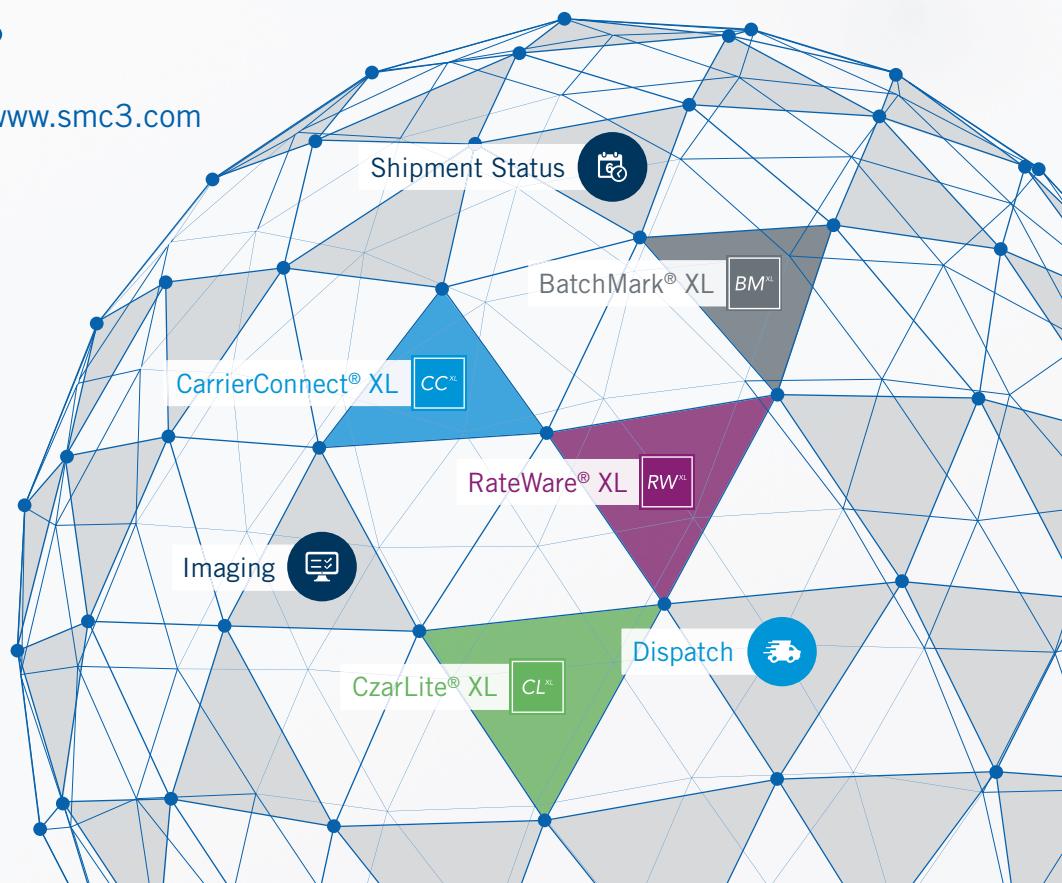
SMC³ solutions enable shippers, 3PLs and carriers to simplify LTL:

- Price negotiations and bid management
- Rating and transit-time requests
- Shipment tracking
- Freight bill auditing

Going beyond simple connectivity, the SMC³ Platform orchestrates among dispatch, tracking and imaging, leveraging real-time analytics to sense and respond to logistics issues.



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[SC SECURITY]

BY JEAN-PIERRE GERONIMI

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5 Ways to Cut the Risk of Cargo Theft

Risk models provide a key advantage to firms operating globally, and are the first step in identifying key trade lanes, business partners, and the areas most likely to cause harm. The more you know, the easier it is to manage the risk.

While risk modeling is an important part of the Customs-Trade Partnership Against Terrorism (C-TPAT), few companies use the information to identify threats within their supply chain by trade lane, and their vulnerability against those threats. Part of threat analysis includes how the shipment is routed, the number of stops it makes, and identifying each player in the supply chain.

What's Working, What's Not?

In 2017, the C-TPAT will celebrate its 15th year. It was the first program to formally present minimum security guidelines for U.S. importers. It later expanded to include exporters, and became the catalyst for similar programs around the world.

Yet in 2016, cargo theft topped \$26 billion, according to the British Standards Institute, and the long-standing trends of drug smuggling, human trafficking, and phishing scams are as prevalent today as they were 15 years ago.

Typical firms address the most glaring security needs, such as physical and access controls. Yet often, while the front door is locked, the back-door staging area is rife with access points for unscrupulous agents.

To reduce risk, follow these five sound security practices.

1. Know the minimum security guidelines. C-TPAT is a trust and verify program with U.S. Customs and Border Protection (CBP) validations occurring every three to four years. Many firms flunk the annual training and brush up their program in advance of a CBP validation meeting. Be prepared with ongoing training and monitoring.

2. Update your risk model. Risks within supply chains change, even if your trade lanes don't. At a minimum, an annual risk model review is necessary to consider where you conduct business, and any changes that may cause your firm to be a target. Best practices include risk model reviews more frequently, ideally at least once every quarter.

3. Identify and manage all business partners. Primary and secondary business partners are often easy to identify. However, service agents often subcontract. Best practices in this area include auditing service providers and the procedures they have in place for choosing subcontractors.

4. Manage the routing. Direct routing may not always be possible. When it isn't, does your team know how the cargo is arriving? Firms with advanced cargo security programs monitor everything from the routing of product to managing the transit time. Taking measures to control product routing reduces the risk of loss while the product is in transit.

5. Automate for greater visibility. A holistic approach to cargo security includes the ability to see your product at all stages of transportation and distribution. Updating automation capabilities to include visibility from the supplier to your warehouse is critical to managing risk and monitoring business partners.

These five steps, along with a program to fully implement C-TPAT minimum security guidelines, will help reduce your risk of cargo theft or loss. ■



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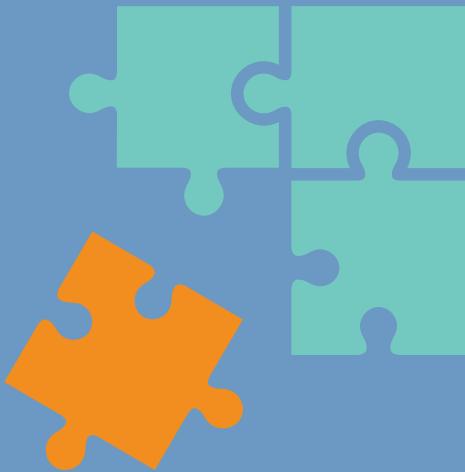
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Have a supply chain problem? These providers have answers. From logistics IT solutions to equipment improvements, these companies help shippers streamline their supply chains.

Read on to see the scope of the challenge and the ingenuity of the solution.



Supply Chain Challenge? SOLVED!

48 AUDITING BEYOND COMPLIANCE

ProTrans

49 UNIFORMED BOOKING PLATFORM IMPROVES VENDOR COMPLIANCE

Unyson

50 LARGE MULTI-NATIONAL SEEKS GLOBAL SUPPLY CHAIN VISIBILITY

Clearview Audit

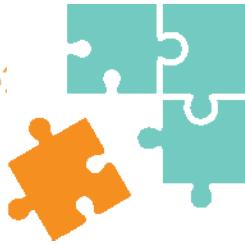
51 LEADING LOGISTICS PROVIDER CLOSES MORE BUSINESS, DEVELOPS STRONGER CUSTOMER RELATIONSHIPS

Amber Road

52 INCREASED CAPACITY AND FLEXIBILITY

Transplace

Supply Chain Challenge:
SOLVED!



Auditing Beyond Compliance

Evaluating the continuing alignment of customer requirements, acceptable associated risk and service provider capability.

THE CHALLENGE

ProTrans' customer, a global leader in safety technology, requested corrective action to resolve potential damages observed on arriving shipments. This "Voice of the Customer" provides valuable input in ProTrans' continuous improvement program and regardless of root cause, the resolution of a complaint plays a role in strengthening the customer-business relationship.

An audit of core input elements: Material, Customer Specifications, Manpower, Methods and Equipment plus observation of arriving freight for two months revealed the majority of damage observations pointed to the packaging configuration from three customer suppliers (i.e. dilapidated pallets, improper shrink wrap, un-taped flaps torn during freight movement).

THE SOLUTION

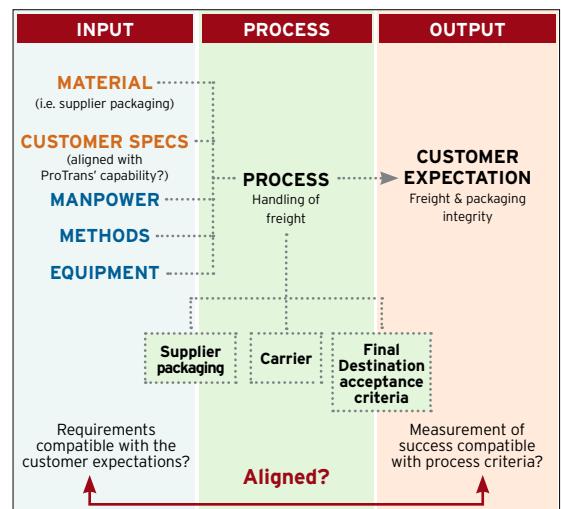
Once the problem was identified ProTrans selected the 'vital few' – those with the most significant impact on the expected output to audit.

- Improved packaging: After notification, these suppliers made modifications and showed significant improvement.

- Clarified customer damage/cosmetic specifications: Customer-specific packaging cosmetic criteria was found to be greatly different from ProTrans' typical customer requirements (i.e. shipping box cosmetic creases or box scratches resulting from typical freight movement).
- Reduced time consumed: Greatly reduced email/phone discussions regarding customer dock inspections.

RESULT: Once the criteria were clarified to align customer expectations versus the handling associated with the freight movement and suppliers' improved packaging, our customer experienced a substantial decrease in observed damages as well as a reduction in personnel time associated with dock inspections.

LESSONS LEARNED: A problem needs to be identified to find the true root cause. Root cause analysis must explore all aspects so an efficient and effective action plan may be deployed.



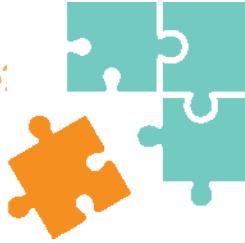
Ref: "Auditing Beyond Compliance" – publisher ASQ/Quality Press

DAMAGES	BEFORE IMPROVEMENT	AFTER IMPROVEMENT
SUPPLIER A	20%	6%
SUPPLIER B	15%	5%
SUPPLIER C	13%	5%



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Supply Chain Challenge:
SOLVED!



Uniformed Booking Platform Improves Vendor Compliance

A retailer needed to bring suppliers together and optimize processes so they teamed up with Unyson for a platform.

THE CHALLENGE

A leading retailer had difficulties managing its multi-modal transportation network that included 4,800 stores, 500 vendors, and 20 carriers. With multiple brands beneath its corporate umbrella and continuing to grow through further acquisitions, the retailer was operating several separate companies under the same roof. It needed a tool that could bring its brands' suppliers together and optimize processes.

THE SOLUTION

After analyzing the retailer's transportation network, Unyson implemented an inbound web portal to manage all 500 vendors. This provided a consolidated platform for the previously decentralized brands to view their transportation and analytics. With the addition of the portal, the retailer was able to identify inefficiencies in its network and cut costs from its supply chain.

Moreover, with the inbound portal serving as a central warehouse of information, the

retailer was able to manage vendor and carrier compliance more accurately. In turn, this led to precise information being added to the portal and better on-time service from carriers.

This portal also allows the retailer's vendors to go online and route orders when they're available to ship. Moreover, this gave the retailer better control over how those requests were routed and provided additional visibility for consolidation and mode conversion opportunities. With a uniformed booking platform across the entire vendor network, the Online Vendor Portal also improves vendor compliance oversight and carrier management.

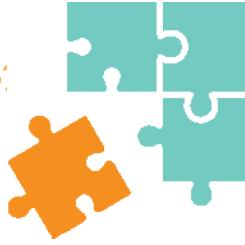


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Supply Chain Challenge:
SOLVED!



Large Multi-National Seeks Global Supply Chain Visibility

An oil services company found transportation cost savings and complete shipment visibility with ClearView's TMS.

THE CHALLENGE

After interviewing dozens of TMS providers on the market for a new solution, a major oil services company had been seeking a single technology platform to manage its 32+ fragmented business units. Over 100+ years, this multi-billion-dollar supplier had acquired companies on six continents with hundreds of shipping locations. The problem this multi-national needed to solve was to unify supply chain strategy across all locations and how to provide visibility in execution as well as freight payment and audit (across 60 currencies) from not only the individual business units, but down to the user level.

THE SOLUTION

This publically traded company had selected ClearView TMS to rollout more than 60 North America locations after interviewing technology providers in all tiers. Most legacy TMS systems had estimated 18-24



month timelines to execute design, implementation, and training. ClearView had agreed to rollout all North America locations in 60 days. After successful launch of North America, this oil services company has already experienced savings of more than 22% in transportation costs and complete visibility of shipments in transit and shipping errors down to the user level.

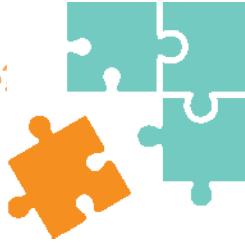
A large part of the success of the rollout of the ClearView

TMS was the ease of use of the system. The simple user interface of the ClearView TMS made user adoption, training, and deployment very easy. The flexible framework of this cutting edge technology provided for flexibility in user configuration in addition to easy setup of user permissions and functional roles. Today, the TMS is running at 100% efficiency across North America. This large manufacturer of oil services products is currently expanding functionality by integrating the ClearView TMS with its large number of 240+ freight forwarders to achieve the same level of visibility and control for all global shipments, as has been achieved for North American operations.



To learn more about ClearView Audit's solutions, visit www.clearviewaudit.com.

Supply Chain Challenge:
SOLVED!



Leading Logistics Provider Closes More Business, Develops Stronger Customer Relationships

When a logistics provider needed to automate its processes, it turned to Amber Road for a solution.

THE CHALLENGE

With its growing international customer base, this global logistics and transportation service provider for the chemical and process industries recognized the need to automate its contract management and pricing process and to expand its global operations.

However, the logistics team realized it would be very difficult to handle the increased number of contracts and rates using its current manual process of a simple one-to-one look-up. The



company also wanted to integrate an automated system into its own solution platform to allow its customers, with little or no experience in pricing, to compare full bottom-line rates across multiple service contracts on their own.

THE SOLUTION

The logistics provider selected Amber Road's Transportation Management solution to automate its contract management process and provide its customers with flexible and competitive routing and rate options for international shipments. This web-based solution manages costs, automates the generation of quotes and proposals, and helps in complying with tariff filing requirements.

It enabled the logistics provider to grow its international business, develop stronger customer relationships, and centrally manage its ocean service contracts, describing every term

with a powerful rules engine to create 'calculable contracts.'

The company can compare total bottom-line costs and develop margin by applying mark-up rules and adding other value-added services. The solution enables this logistics provider to automatically generate proposals that help shippers compare and select among alternative routes, service levels, and equipment types.

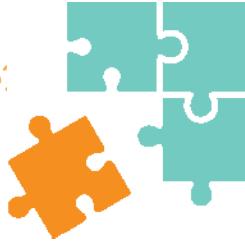
Thanks to optimized carrier selection, reduced transportation costs, and powerful multi-factor search and rating engines, the company has now differentiated its logistics services with a powerful, integrated solution.



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Supply Chain Challenge:
SOLVED!



Increased Capacity and Flexibility

Rust-Oleum turned to Celtic International for an intermodal solution to quickly move shipments.

THE CHALLENGE

As a leading manufacturer of premium paint and coating products, Rust-Oleum is a supplier to many top retailers. With customers ranging from big box stores to small shops, there is tremendous pressure to deliver high quality, on-time service—often with short notice. Having primarily worked with a single intermodal provider, running one rail line, Rust-Oleum was very dependent on that provider and rail line to maintain smooth, on-time operations.

Following a harsh winter where severe storms created supply chain disruptions throughout the country, Rust-Oleum recognized the need to partner with another

intermodal provider to run additional lines and build greater flexibility into its supply chain.

THE SOLUTION

Rust-Oleum selected Celtic International, Transplace's intermodal business unit, to provide intermodal and over-the-road transportation services for domestic shipments between its own facilities as well to its retailer customers. By partnering with Celtic, Rust-Oleum gained access to a larger network of rail lines and capacity, giving them greater flexibility in shipping lanes. In the event of weather disruptions, increased freight volumes or capacity

constraints, Rust-Oleum can now quickly move shipments from one line to the other to keep its supply chain flowing.

By having Celtic manage intermodal shipments, and serve as the point of contact listed for those shipments, Rust-Oleum improved its communication and relationships with key suppliers, customers and rail lines by providing them with the attention and customization they need. This also increased shipment visibility, and in the event of a disruption, Rust-Oleum is able to quickly gain insight into delayed shipments and how the situation is being handled.



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ALASKA: CONQUERING THE LAST FRONTIER

Alaska has much to offer. It encompasses nearly 600,000 square miles, is home to one of the largest oil fields in North America, and boasts breathtaking scenery. It also presents logistics challenges and requires experienced service providers to weather any storm.



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Alaska Air Cargo's new freighter fleet will offer more flexibility and capability across its network, with more service to Alaskan communities, new routes between Seattle and Alaska and connectivity to more than 100 other destinations.

Although Alaska's oil revenues—a mainstay of the state's economy—dropped precipitously between 2012 and 2015, largely due to lower prices, many logistics companies operating in the state remain optimistic about its prospects. Oil prices ebb and flow, and both Alaska's population and its tourism industry show steady growth.

Because of Alaska's location, harsh weather, and many remote villages—despite the state's size, it has only 16,000 miles of roads—effective logistics and supply chains are critical.

In addition, many companies employ a just-in-time inventory management approach to rein in costs. In Alaska, logistics delays don't simply leave shoppers without the latest videogame or outfit. Instead, they can mean parents waiting for food or diaper deliveries for their children have to go without, or construction projects and oil drilling operations remain on hold until key parts arrive.

Moving products to, from, and within Alaska efficiently, safely, and on schedule is a responsibility the individuals involved in the state's logistics and supply chain sector take seriously. "We take a lot of pride in moving cargo safely and

on time, so towns have what they need," says Jason Berry, managing director of cargo, Alaska Airlines. "Many of our employees come from communities throughout Alaska, and everyone on the team takes that mission to heart."

Access by Air

Air cargo is vital to the state, Berry notes, given the small number of roads and the fact that ice can limit movement via ship. "Air is the only access to some communities," he adds.

Alaska Airlines is boosting its cargo capacity by 15 percent, as it replaces aircraft that flew both cargo and passengers with three new cargo-dedicated airplanes. These will fly to and from Alaska and within the state.

This change also enhances flexibility, as the planes won't be tied to passenger schedules. Instead, the cargo-only

planes can optimize their schedules to support the communities they serve. "We want to maximize morning flights," Berry says, as those often are used to move parts and equipment needed for just-in-time operations.

Alaska Airlines also will be able to enhance its cargo service to markets that are not big passenger destinations, Berry says. For instance, Alaska Airlines' cargo operation is adding service to Unalakleet, and reintroducing seasonal and scheduled flights to Dillingham and King Salmon.

"We are bullish on Alaska for the long term," Berry says, noting that the increase in e-commerce is changing the environment. "We want to be in the middle of that growth. We want to grow our business in a way that brings value to the community, and use our efficient fleet to cover the state," he adds.

Indeed, Alaska Airlines has been hauling critical supplies around the globe since its founding in 1932. In the 1940s, its planes carried food for the Berlin Airlift and flew refugees to Israel. The carrier also hauled drilling rigs to Alaska's North Slope and Ecuador's jungles.

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The company's fleet incorporates special navigation tools that allow it to safely fly in areas, such as the mountainous southeastern region of Alaska, where some other operators might not be able to. That's key when the plane is carrying perishable food stuffs. "A plane cannot circle in the air because it's unable to land," Berry says. "We can get in consistently, safely, and on time."

Moreover, because Alaska Air also serves cities across the United States, suppliers can move goods from the mainland to the 49th state, all via the same carrier. "They can ship fresh flowers from Florida to Alaska on one airline," Berry says. "This brings the state of Alaska much closer to the rest of the country."

Connections Within Alaska

Another firm with a long history of connecting cities within Alaska to each other, and Alaska to other parts of the world, is Span Alaska, which became a Matson Logistics subsidiary in 2016.

"We are one of the largest less-than-truckload (LTL) carriers throughout the state," says Bill Meszaros, vice president, sales and marketing, with Span Alaska. Based in Auburn, Wash., Span Alaska operates terminals in Anchorage, Fairbanks, Kenai, Kodiak, and Wasilla.

Each year, Span Alaska and its

subsidiaries ship more than 400 million pounds of freight to Alaska, Hawaii, and Puerto Rico. In addition to shipments to southcentral Alaska, the company offers overnight service from Anchorage to Fairbanks and the Kenai Peninsula. It also provides LTL service from Seattle to southeast Alaska via barge.

Span Alaska works with almost all industries, except food, handling a range of products, from those headed for retailers' shelves, to those used on construction projects. The company prides itself on quality service. "There's nothing we won't do for clients," Meszaros says.

For instance, if a customer doesn't have enough product to create a full shipment, Span Alaska will consolidate freight until it does. Many other freight companies simply bring in products and then ship them out immediately, which can boost costs, he adds.

Meszaros and his team notify customers if their freight arrives damaged and check whether Span Alaska should refuse the product. He and his team members also call ahead before deliveries. While other companies do this as well, they often charge for the service. "We don't," Meszaros says. "It's part of our value-add service."

Especially important in Alaska, Span Alaska offers lift-gate deliveries.

Meszaros notes that many Alaskan businesses lack the volume needed to justify the cost of dock-high delivery doors that would allow the trailer to back up to a door that's level with the truck back. Instead, Span Alaska unloads using liftgate service, which is lower to the ground. "These are just some of the value-add services we offer," he adds.

Lead Time Challenges

Keeping freight moving accurately and on time is critical when serving Alaska, given the lead time required to move goods from the rest of the country to the state. Ocean shipments from Seattle/Tacoma, the nearest large metropolitan area on the mainland, take four days. Once in Alaska, unloading the barge takes another day. "A contractor in California who needs building materials can pick up the phone and have the shipment there in one hour," Meszaros notes. "A contractor in Alaska has to wait one week."

To serve its customers and help them streamline their inventory, Span Alaska works hard to ensure that its shipments travel efficiently and on time. Its drivers know how to move safely even in bad weather. Snow or ice might prompt drivers to slow down, but they still venture out. "Alaska is no different than any other northern state," Meszaros says.

Span Alaska Transportation specializes in moving freight to, from, and within Alaska, offering daily LTL and LCL service.





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Matson's fleet is equipped with computerized tracking and supported by experienced operations personnel in all specialties, including transporting fragile and refrigerated items. The carrier offers twice-weekly, consistent day-of-the-week service between Tacoma, Anchorage, and Kodiak, among other Alaskan services.

"If we get two or three feet of snow, we shrug it off as just another snow day."

While Span Alaska focuses on less-than-containerload shipments, its parent company, Matson, helps companies move full containers over the ocean. Matson traces its roots to 1882, when Captain William Matson sailed his three-masted schooner from San Francisco to Hawaii, bringing 300 tons of food, plantation supplies, and general merchandise. It has since grown to become one of the leading U.S. carriers operating in the Pacific Ocean. The company's fleet of 22 vessels includes containerships, combination container and roll-on/roll-off ships, and custom-designed barges.

Matson serves three primary ports in Alaska: Anchorage, Kodiak, and Dutch Harbor, says John Lauer, senior vice president of ocean services with Matson. The company added its Alaska service in 2015, when it purchased the business from Horizon Lines, which had done business in the state for 50 years. Horizon employees remained on board and continue to bring their knowledge and dedication to their roles in helping to move more than 60,000 containers each year, Lauer says.

"We're thrilled to be in the market,"

he says. "The companies in our core markets, including Alaska, depend on a reliable supply chain." Matson's clients include retailers, wholesalers, and forwarders, as well as the government; Matson handles many items headed for retail stores on military bases.

Year-Round Service

Its ships make two trips each week from Tacoma, Wash., to Anchorage and Kodiak, with one also serving Dutch Harbor. Together, that represents more Alaska ports served than any other shipping line. And service is year-round. "Even in rough conditions, we're able to get in there 52 weeks a year," Lauer adds.

Most shipments begin in the lower 48 states. One of the firm's sister companies, Matson Logistics, uses rail and truck networks that traverse the U.S. mainland to feed the cargo ships in Tacoma.

When Matson purchased Horizon Lines' Alaska service, Horizon had been in financial distress, which hampered efforts to invest in its business. "We've been able to invest in a significant number of containers," Lauer says. Matson also has invested in containers designed to keep products, such as cases of soda, from freezing.

The company also brought in the largest crane in Alaska; it's located in Kodiak. The crane expedites the time required to unload the ship.

Matson also invested heavily in its newly acquired Alaska fleet. Along with other upgrades, the ships received new equipment that allows them to comply with new emissions regulations well in advance of 2020, when they go into effect. "We're ahead of the game," Lauer notes.

Matson has refurbished and updated two ships that it keeps in reserve in Tacoma, should anything happen to one of its three primary ships that serve Alaska. "We've never missed a beat meeting our schedules," Lauer says.

For instance, when a vessel had to return to Tacoma so a mechanical issue could be resolved, Matson replaced it with one of its reserve ships and maintained its schedule. In other instances, Matson offered customers a range of delivery options that would keep their products moving. In a few cases, it flew cargo to grocery stores in Kodiak and Dutch Harbor. "We go above and beyond to make sure shelves are stocked," he says.

The company also installed systems that allow customers to book services



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and track the status of their goods online. “It’s like tracking a UPS package,” he says.

These investments are key, given many companies’ move to lean inventory models. “Companies that rely on lean supply chains have to pick quality service providers that can move cargo on time,” Lauer says. Matson’s long track record demonstrates this is a company strength.

Matson also established a branch of its foundation, a corporate giving program, in Alaska. “We’re excited to work with different organizations and contribute to the community,” Lauer says. “We’re a company shippers can rely on, and we’re committed to this market.”

Linking Alaska to the Lower 48

Lynden Incorporated is a multi-modal company that focuses on linking Alaska with the contiguous United States. “We’re an LTL and truckload carrier servicing and connecting the lower 48 states to Alaska,” explains Paul Grimaldi, president of Lynden Transport.

One differentiating factor is the breadth of service Lynden offers. Its steamship service travels from Seattle to Anchorage, while its barges—slower, but less expensive than steamship travel—go to Central, Southeast, and Western Alaska. Lynden’s trucks travel



Lynden Transport’s network of service centers is the largest in Alaska and provides extensive coverage with integrated truck, marine, and air services.

between Seattle, Anchorage, and Fairbanks; the trip is faster than barge or steamship. Finally, the company also can expedite shipments through its air forwarding service. “Shippers can pay for the speed they need,” Grimaldi says.

Offering multiple transportation options is key to Lynden’s customer service. “Alaska is a large state,” Grimaldi says. “If a provider is to be of service, it has to do everything. Lynden covers it all.”

Grimaldi breaks the state into three main regions. First is Southeast Alaska,

home to the capital, Juneau, and serviced primarily by barges, as the region lacks both roads and the deep water ports needed for steamships. Second is Central Alaska, which houses Anchorage and Fairbanks, and extends to Prudhoe Bay. It contains most of the roads in the state and can accommodate steamships and trucks. The third region, Western Alaska, surrounds Bristol Bay, and can be served by air and barge.

An Array of Services

Most of the company’s shipments move from the lower 48 to Alaska, although Lynden also handles intra-Alaska shipments. The company serves a range of industries, including oil and gas, retail, construction, mining and tourism. Its service centers in Seattle, Houston, Calgary, Edmonton, Los Angeles, Portland, and other locations throughout the lower 48 work with customers that are shipping to Alaska. “We are their connection,” Grimaldi says.

Lynden’s steamships leave Seattle on Wednesday and Friday, and travel about 1,200 nautical miles before arriving in Anchorage on Sunday and Tuesday. A barge also leaves on Tuesday for Central Alaska and arrives about eight days later. Barges also leave Seattle every Wednesday and Friday for Southeast Alaska. The trucks leave on Tuesday and Friday, and cover the approximately 2,300 miles by Friday and Monday, respectively.

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With the ability to land on unimproved airstrips and the flexibility to carry payloads up to 48,000 pounds of palletized or breakbulk freight, Lynden Air Cargo can meet a wide range of requirements and tight deadlines for Alaskan shippers.

Weather can be a factor in travel times. “We never want to put our employees, customers, or the public in harm’s way, so we’ll make prudent weather decisions,” Grimaldi says. “However, we have the experience and the professionalism to handle many weather situations.”

Lynden uses advanced technology and works closely with customers to coordinate deliveries and ensure they have products on their shelves when they need them. It offers Keep-From-Freezing (KFF) service through insulated trailers with heaters, which keep paint and other liquids from freezing.

Few carriers operating in the lower 48 also operate in Alaska. “It’s a difficult place to operate,” Grimaldi admits. “But we’ve been here for well over 60 years—Lynden was one of the first carriers to bring fresh meat into the state—and have it figured out.”

Moving Commodities

While ships, planes, and trucks carry numerous products to and from Alaska and its many communities, rail remains an effective transportation option for many commodities and equipment.

“We’re able to carry heavy, dense products,” says Tim Williams, director of freight sales and marketing with Alaska Railroad. The Alaska Railroad

Corporation, a public corporation of the state of Alaska, owns and operates the railroad.

Since the first stretch of the railroad was laid in 1903, it has played a key role in moving freight. In the 1940s, two tunnels built through the Chugach Mountains allowed rail access to Whittier, a military port and fuel depot that helped support U.S. military efforts in World War II. In the 1970s, the Alaska Railroad hauled pipe from Valdez and Seward to Fairbanks, where it was then trucked to the North Slope for the Trans-Alaska Pipeline.

In 2014, the Alaska Railroad hauled nearly 5 million tons of freight. Its freight service fleet includes 863 railcars owned or leased by Alaska Railroad Corporation, and 180 railcars that its customers lease.

The typical railcar can hold about 100 tons, or four truckloads of product, and loading one takes about eight hours, Williams says. Most carry products for the oil and gas, construction, and mining industries, including chemicals, pipes, structural steel, building materials, machinery, and other products. The company also moves coal, aggregate, and fuel throughout the state.

Once the products are loaded into railcars, the cars travel via barge from Seattle to Whittier, a week-long trip. Alaska Railroad also operates a barge

service that starts in Prince Rupert, Canada, and heads to Alaska. Most barges can hold between 45 and 50 cars. When they arrive in Alaska, the railcars roll off the barge and head to various points throughout the state.

Railcars Keep on Rolling

Alaska Railroad can move railcars from anywhere in North America to or from Alaska. “We’ve moved freight from as far as Mexico and Florida in railcars that come to Seattle, and roll onto the barge,” Williams says.

For many products, once they’re loaded on a railcar, they don’t come off until they’ve arrived at their final destinations. “There’s no transloading,” Williams says. “Companies cut costs because they don’t have to re-handle the freight.”

The company also can transport products that come in containers and trailers via steamships from the Port of Anchorage to Fairbanks. Moving these via trailer-on-flatcar (TOFC) service takes trucks off the road, Williams says.

While bulk commodities account for much of the cargo on the railcars, they also can transport containers on flatcars, or COFCs, Williams says. Once a barge arrives in Whittier, Seward, or Anchorage, the containers are offloaded to flat train cars to continue to



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Workers unload a salmon delivery from Alaska, transported by Alaska Air Cargo.

Anchorage and/or Fairbanks. The containers moving via COFC and TOFC typically house retail items, as well as products and equipment for the oil/gas and mining industries, he adds.

Center of the Air Cargo World

While many logistics providers focus on moving goods to, from, and within Alaska, the Ted Stevens Anchorage International Airport helps cargo move around the globe. Anchorage is both the largest city in Alaska and within 9.5 hours flying time to much of the industrial world, including Tokyo, Chicago, and Moscow, notes John Parrott, manager of Ted Stevens Anchorage International Airport. “We’re the center of the air cargo world,” he says.

About 80 percent of cargo traveling on freighter aircraft between Asia and North America comes through the airport. Each day, 70 widebody cargo planes land at the airport. “We’re the gas station,” Parrott says, noting that the airport is halfway between Shanghai and Chicago, and that North America, Asia and the EMEA region all are within 4,000 miles. The airport is the second-busiest cargo airport in North America,

and the fourth busiest in the world.

“We’re a significant node in the global air cargo supply chain,” Parrott says. It’s one the airport is well positioned to handle. Since opening in the 1970s, the airport has never closed for snow. “We get a lot of snow, but we take it personally,” Parrott says. “No one wants that first closure to happen on their watch.” Employees go extra lengths to make sure the snow doesn’t hinder the planes’ ability to take off and land as scheduled, and to keep the airport open and operating 24/7.

To further aid operations, the airport boasts a Category III B instrument landing system that uses radio beams to provide pilots with vertical and horizontal guidance during their landing approaches, helping them land planes when weather hinders visibility to the runways. For qualified pilots and planes, the airport has the navigation aids to help them land in all kinds of weather.

That said, Parrott notes that the airport can regularly—and favorably—compare its weather to other northern cities. Pilots can rely on visual meteorological conditions more than 90 percent of the time. “They can fly into

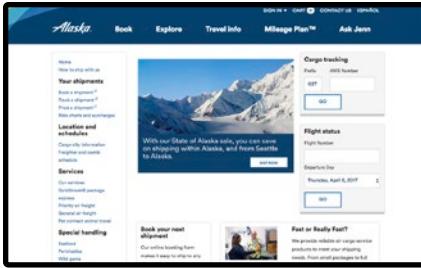
the airport visually, rather than rely on instruments,” he explains. Ted Stevens Airport also can accommodate Aircraft Design Group VI. This means the largest aircraft in the world can land there.

Getting in the Zone

Airport management can designate any area of the airport a free trade zone. Again, that boosts efficiency for the companies using Ted Stevens to move cargo. The airport also offers 24/7 customs services onsite, Parrott says.

Expanded air cargo transfer rights allow companies to move goods between aircrafts quickly and efficiently. Parrott provides an example: Two airlines fly from Asia into Alaska on the same day. They move on to Chicago and Atlanta, but not on the same day. By transferring cargo from one airline to another, both airlines can offer customers daily overnight service to Chicago and Atlanta.

Alaska’s nickname is “The Last Frontier” and many of its citizens embrace a pioneering spirit. The companies that provide logistics services to, from, and within the state take pride in their ability to help Alaskan residents and companies conquer this frontier. ■



Alaska Air Cargo • www.alaskacargo.com

Alaska Air Cargo provides reliable air cargo services to meet your shipping needs. Whether it be small packages, full ULD shipments, or chartered freighter service, Alaska Air Cargo offers a variety of options, including GoldStreak® Package Express, a next-available-flight service for items up to 100 pounds; Priority Air Freight for time-sensitive shipments that are larger than GoldStreak and need to be at a destination by a specific time; and Animal Express, a priority express service that ensures animals a safe and comfortable journey.

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If you have freight or equipment to transport to or from Alaska, or within Alaska, contact the Alaska Railroad first. We have the people, equipment, and experience to move difficult, heavy, large, and unusual dimensioned freight, as well as containerized and hazardous materials. With the Alaska Railroad's Rail-Marine Service, customers can load their goods onto a railcar in the Lower 48, and it will be seamlessly transferred to Alaska and railbelt communities via the Alaska Railroad's port in Seattle.



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Matson is a leader in Pacific shipping and most noted for its long-standing service to Hawaii, Guam, and Micronesia. Matson's China-Long Beach Express offers premium, expedited service from Ningbo and Shanghai to Long Beach, including a guaranteed expedited service option to many U.S. destinations. Its subsidiary, Matson Integrated Logistics, is one of the nation's leading logistics providers, with expertise in all aspects of U.S. mainland transportation: truck, rail, and air.



Span Alaska • www.spanalaska.com

Span Alaska understands Alaska and has everything it takes to transport your shipments to, from, and around the state. Span Alaska moves more LTL freight than any other carrier to Alaska—for several good reasons. It has the equipment, the people, and the clout with ocean carriers necessary to transport your freight quickly and efficiently. These kinds of connections enable Span Alaska to give you the best value and to get things done that others simply cannot.



Ted Stevens Anchorage International Airport • www.dot.state.ak.us/anc

For more than 50 years, Ted Stevens Anchorage International Airport has played an integral role in the growth of Anchorage and the state of Alaska. Today, the airport has an exciting and dynamic future, with geographic location providing unlimited potential moving goods, and services and infrastructure to be used in the global marketplace. The mission of the Ted Stevens Anchorage International Airport is to Develop - Operate - Maintain The Airport for Anchorage - Alaska - the World.



IT'S

NOW

TIME

Companies keep finding new ways to gain supply chain improvements with help from the Internet of Things.

By Merrill Douglas

Every day, more data than we can imagine zings across that global conduit we call the Internet. Much of that data comes directly from devices, without human intervention.

Drivers carry cell phones in their cars to feed GPS locations to a traffic information and navigation service, which uses the data to detect congestion. A home security system in Michigan alerts the resident, wintering in Florida, that someone is lingering at the front door. An electronic chair in a dentist's office tells the manufacturer it's time to perform preventive maintenance.

The Internet of Things (IoT) is making its way into every aspect of life. By 2021, 22.5 billion devices will be connected to the IoT, compared with 6.6 billion in 2016, according to a BI Global Intelligence survey. The world will invest \$4.8 trillion in IoT technologies and products during that time, the company forecasts.

The future of IoT is intimately bound with the future of the supply chain. Already, applications are emerging to capture data from "things" equipped with sensors, barcode labels, GPS antennas, and other devices, move that data across the Internet, and use it to improve supply chain operations. IoT technology can help companies manage transportation fleets, inventory, and warehouse operations; make replenishment decisions; refine delivery routes; generate better demand forecasts; and a good deal more.



Robots with transport and lifting functionality operate Swisslog's AutoStore system. Equipped with a lift, robots retrieve the required bins from the AutoStore grid and present them at integrated picking stations, led by a controls and location management system.

Robots on the Grid

At Radwell International in Willingboro, N.J., the “things” that communicate over the Internet include 34 robots that swarm across a three-dimensional storage grid, putting away and picking product. The AutoStore robotic system comes from Swisslog, a Swiss firm with U.S. headquarters for its warehouse distribution systems in Newport News, Va.

Radwell International sells new and surplus equipment used in manufacturing plants and facilities maintenance. It implemented AutoStore in 2016 to gain high-density storage and fast picking, says Brian Janusz, global program manager at Radwell. AutoStore keeps product in bins, which the robots place at various locations within the grid, sharing that information with Radwell's warehouse management system (WMS).

One of AutoStore's big benefits is the way it continuously repositions the bins. “Over time, the fast movers rise to the top of the system, and the slow moving products sink to the bottom,” Janusz says. That shortens the time required to pick high-demand products.

Swisslog calls that strategy “prebubbling,” says A.K. Schultz, the company's vice president, e-commerce and retail. AutoStore receives data on customer

orders from an order management system or WMS, and transmits it to the robots to let them know which products they'll be picking in the coming hours. The robots move those products into more accessible positions before the busy period arrives.

Schultz compares this process to Waze, a trip-routing service that uses GPS data from thousands of vehicles to determine real-time traffic conditions and help drivers avoid congestion. “It's a fully integrated, real-time use of sensors to alter the destiny of what you're doing,” he says.

“Before AutoStore, if I wanted to reorganize the warehouse physically, I had to spend months, and lots of manpower, to bring products up front into the optimum position,” Janusz says. AutoStore does this work continuously.

Because sensors on the robots send data to Radwell's information systems, AutoStore also tells the company how often robots touch each bin. “That provides immense benefit by letting us know which items are selling and which are not,” Janusz says. “We can then stock accordingly.”

Data passing between the robots and the system also help to keep AutoStore up and running. “The robots know when they need a charge, and then they

move off to be charged on their own,” Schultz says. If the workload surges, the system might command a robot to get just a top-off, rather than a full charge, so it can return to work quickly.

“We also have the ability to monitor the status of the robots remotely,” Schultz says. If a problem appears—for instance, if a slowdown in the facility's network infrastructure affects the robots—often Swisslog can put a solution in place before the customer even knows there's anything wrong.

Lift Truck Network

Collecting data from sensors to monitor activities in real time is valuable, of course. But the power of IoT doesn't lie just in tracking a collection of discrete units, such as lift trucks in a warehouse.

“It's the interaction between the sensors, the server, and other servers that bring the whole Internet of Things to bear,” says Neil O'Connell, senior vice president, technology, innovation and product development at TotalTrax in Newport, Del. “The network effect is greater than any one thing inside it.”

The TotalTrax SX/VX Advanced Telematics Platform uses sensors on lift trucks to capture data on factors such as motion, distance and direction traveled, impacts, raising and lowering of the forklift, and whether there's a pallet on the lift. That data crosses a wireless network to a server, which uses the data in applications for fleet management, labor management, and maintenance management.

“It gets exciting when that data is accumulated and can either trigger actions, predict actions, or prevent consequences,” O'Connell says.

For instance, by collecting data every time a truck collides with an object on the warehouse floor, the system identifies hazardous intersections. Then, tracking a truck in motion around the warehouse, the system alerts the driver to any upcoming hazards, via a monitor mounted on the truck.

Users also can configure the system to issue alarms. For example, if a truck hits an object with substantial force, it might send a text or e-mail to a supervisor.

In addition, the system can help make sure that each truck receives preventive maintenance as needed. Rather than bringing in each truck every 30 days to change the oil, check fluid levels, and perform other routine procedures, TotalTrax can monitor distance traveled, how many pallets the truck lifted, and other factors to tailor the best maintenance schedule for each vehicle.

Users also employ the system to monitor productivity. The Advanced Telematics Platform continually measures each truck's activity, and an optional sensor indicates when the forklift is carrying a pallet.

Beyond simply calculating how much work each truck and driver performs, the Advanced Telematics Platform can help a company right size its fleet. One graph the system produces indicates how many trucks the facility uses over 24 hours, in half-hour increments.

"The system provides amalgamated statistics over one month, one year, or multiple years, which tells you quickly, for example, that your peak was 50 trucks, your average was 30, and your minimum was 15," O'Connell says.

Using that data, managers might decide that instead of owning 50 trucks, they should own 30, and then lease an extra 20 in December to handle peak season activity, he adds.

Urban Traffic And the Last Mile

At the Massachusetts Institute of Technology (MIT), the Megacity Logistics Lab at the MIT Center for Transportation and Logistics has used IoT technology to help improve last-mile delivery routes in major cities.

The lab conducted tests in 2016 in São Paulo, Brazil, with Anheuser-Busch InBev (ABI) and with B2W, Brazil's largest e-commerce company. In each case, researchers combined location data collected from delivery trucks, and data from mobile devices carried by drivers, with company data on orders, deliveries, and delivery attempts, plus public data on factors such as population density and road infrastructure.

The goal was to learn what keeps drivers from making their deliveries



The TotalTrax SX/VX Advanced Telematics Platform intuitively provides the data to help logistics managers control costs, improve safety, and maximize productivity of vehicles, labor, and warehouses.

according to plan, and then put that knowledge to work.

"With B2W, for instance, we designed an optimization that would help them redesign their urban distribution network," says Matthias Winkenbach, director of the Megacity Logistics Lab. "With ABI, we took various sources of data together to identify logistics-critical areas within that city, so they would know which areas to focus on when they were piloting new delivery models or changing the way they serve customers."

One finding the study revealed is that even the most widely used route planning solutions make imprecise assumptions when they estimate travel times in cities. That's because they misjudge the complexity of urban roadways. "For instance, they underestimate the detours that vehicles have to make in a city's most congested and dense areas," Winkenbach says.

By combining GPS data from actual trips with data from Google Maps and other public sources, the MIT team was able to quantify travel times at a much higher level of accuracy. "We can tell them, for every square kilometer, the detour factor to take into account when coming up with the true distance and the true time needed," he says.

Route planning systems also tend to discount variability. "When they plan their logistics operations, most people work with average value assumptions,"

Winkenbach says. "They look at an average day with average traffic and average demand." Then, when traffic grows extra heavy, or order volumes peak, deliveries fall behind the plan.

Using data derived from the São Paulo tests, MIT researchers hope to help companies incorporate uncertainty in their planning models. They might use different kinds of vehicles to negotiate different kinds of traffic. Or they might store inventory in satellite locations to reach customers more easily despite congested routes.

Truckers Check In

One of IoT's great promises lies in using mobile devices, such as truck drivers' smart phones, to monitor the status of freight in transit. "Almost everyone today has a smart phone," says Greg Braun, senior vice president at C3 Solutions. "You can leverage that to the nth degree for capturing data."

As a developer of yard management and dock scheduling software, Montreal-based C3 has focused its own IoT initiative on the interface between driver and shipper or consignee. C3 has developed a free app, downloadable on any iOS or Android phone, that a driver can use to do an advance check-in for loading or unloading at a dock, much as a traveler might check in for an airline flight.

"The distribution center is expecting



After testing passive tags on large appliances, Kenco rolled out IoT tracking technology at dock staging areas throughout its 750,000-square-foot facility.

the drivers, and because they have checked in on the app, DC workers see their ETA,” Braun says. “As drivers get closer to the facility, workers can pre-allocate the parking area.” That might be a door, or a parking spot in the yard.

Most likely, the drivers have also provided security information in advance. “So when they show up—similar to airport security—the security guard at the distribution center will just confirm the information already provided,” he says. Then drivers follow the instructions to the assigned parking spot.

If drivers are also scheduled to pick up an outbound load, the app allows them to go elsewhere for a while, rather than wait in the DC. The app provides load status updates, so they can return to the DC when the shipment is ready.

Where's the Washing Machine?

Kenco Logistics in Chattanooga, Tenn., recently implemented two versions of an IoT technology, one for tracking product in its warehouses, and the other for tracking leased material handling equipment. The technology, developed by Locatible, a Dublin firm with offices in Chattanooga, is similar to radio frequency identification (RFID) technology but uses different technology—Bluetooth and Wi-Fi—and costs less to deploy, says Kristi Montgomery, Kenco Logistics' vice president of innovation.

Locatible's tracking devices are tags that come in two varieties. Passive tags transmit data only when they're close to a reader. Active tags transmit data to a server periodically, as defined by the user. In Kenco's case, it's every 15 minutes.

Kenco tested the passive tags on large appliances in a 40,000-square-foot section of a Kenco warehouse. The goal was to track the location of each appliance, which Locatible can do to within 5 centimeters.

“When the material handling truck picks up a group of appliances, a reader mounted on the truck reads the tag on each unit,” Montgomery says. Comparing xyz coordinates for that location with a schematic drawing of the facility, the system calculates where the appliances are. The same thing happens when the truck places the product in a new location.

The system also notices mistaken moves. “If an operator picks up an appliance and moves it more than 5 centimeters from the location where it's supposed to be, they'll immediately get an alert on the tablet device mounted to the material handling equipment,” Montgomery says. “It won't let operators do another task until they put it back in the right location.”

Although that feature helps to avert errors, Kenco's main goal is to reduce labor costs. “I know exactly where every product is within the confines of my building, so I shouldn't have to do cycle

counts or a physical inventory regularly,” Montgomery says.

Having proven the technology in three aisles and dock staging areas, Kenco is now implementing it throughout the 750,000-square-foot facility.

Kenco Fleet Services Division is already using Locatible's active technology to keep tabs on equipment it sends out for short-term rentals. “We're able to track that inventory at a granular level—how often it's coming and going, even how many times it's moving in and out of the maintenance shop, to get an idea of how often we maintain that piece of equipment,” Montgomery says. The active tags don't report location as precisely as the passive tags, but that isn't crucial for this use, she says.

In another IoT development, in 2017 Kenco challenged three teams of students at the local science, technology, engineering, and math (STEM) high school to develop a way to warn supervisors visually when trucks have been parked at dock doors so long that Kenco might incur retention fines.

“The students are developing a sensor-based solution that would display red, yellow or green and a timer clock,” Montgomery says. Yellow means the truck is due to leave soon; red means it has missed its deadline. Kenco will choose one solution for further development, including integration with its warehouse and yard management systems.

Waxing Poetic

While some companies focus their IoT efforts on transportation and logistics, others are peering all the way down the supply chain to the end user. One of those is supply chain service provider ModusLink, which is developing new applications for Poetic, an IoT platform it acquired in 2008 along with a company called Open Channel Solutions (OCS).

Poetic was first developed to manage software licenses and entitlements. Today, ModusLink is adding applications that would, for example, track how an end consumer uses a product, generating both marketing and replenishment data.

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● **SAP Connected Goods takes existing customer-facing products, such as vending machines, and connects them with business processes and backend systems to allow for efficient monitoring and control of a large number of such devices.**

Poetic currently sells coffee by subscription, sending new shipments at regular intervals. “But we’re working with them to track actual consumption and move to a consumption-based replenishment model,” says Neil Hampshire, chief information officer at ModusLink.

Under that model, a smart coffee-maker—one designed for the home, or for a business setting such as a company break room—monitors how much coffee the customer uses and then, when supplies run low, automatically orders more.

Opportunities for automated replenishment go far beyond coffee. “If you abstract that into the business-to-business world, any consumable items that can be tracked and measured in a device could be replenished,” Hampshire says. For example, a smart printing press might reorder its own ink.

Beyond helping to streamline replenishment—and giving more brand owners a way to sell directly to customers—a platform such as Poetic can generate a great deal of business intelligence.

“Five or 10 years ago, for large consumer products companies, the Holy Grail was increased point-of-sale data, gaining visibility into what retailers were selling to consumers, and using that to enhance replenishment,” Hampshire says. But consumer

appliances equipped with smart sensors will provide even better data.

“You can drill down into Mr. Smith’s coffee machine at 240 Acacia Avenue and see exactly what he has been doing,” Hampshire adds. Aggregating the data from thousands of customers, you could, for example, find out if people who drink coffee before 9 a.m. respond differently to marketing campaigns than those who drink it between 9 and 11:30.

An Eye on Consumption

Coffee is also a hot topic for the IoT researchers working on “Connected Goods” solutions at software company SAP. One customer, a producer of industrial coffee machines, is working with SAP to equip those appliances with sensors to track consumption of different products.

This work has yielded some valuable insights, says Elvira Wallis, senior vice president, IoT Smart Connected Business at SAP in Palo Alto, Calif. “The company didn’t realize that in certain geographies, people consume primarily black coffee.”

This information has helped the company better hone its marketing strategy, promoting milk-based drinks only in regions where those are actually popular, she adds.

Along with coffee makers, SAP is

exploring the use of sensors to amass data from many other customer-facing devices, such as beverage coolers, vending machines, and power tools. For example, the company is working with a large consumer packaged goods firm to capture data from coolers and shelves in retail stores to track consumption.

One goal of this effort is to improve inventory management. “We provided real-time replenishment by identifying when inventory falls below a certain threshold,” Wallis says. That means stores never run out of the products consumers want most.

Data from sensors in the stores also lets the company track the temperature in coolers, to make sure product stays in optimal condition. The data may also reveal how location within a store affects product sales. Do customers snatch up more cold sodas kept in a cooler near the front of the store than in the back?

In addition, sensors on doors can indicate how long a cooler stays open and, therefore, how quickly customers are finding the products they want. “If people have to search too long, they might not return,” Wallis says.

Another SAP customer, a fragrance company, wants better insight into how its food manufacturer customers use its product. For example, the company wants to change a product’s expiration date dynamically, based on the storage temperature at the customer’s site.

“They also want to monitor consumption rates, so they can get back to their customers and say, ‘You’re getting low; we need to replenish,’” Wallis says. Sensors in containers that carry the fragrance chemicals will collect data to help the manufacturer achieve both goals.

Clearly, the range of “things” that can supply data to an IoT application is vast. Like many observers, Wallis cautions that capturing the data is only the start of the process. The real key is extracting useful insights from these masses of detail.

“It’s all about managing, monitoring, and capturing value from these smart devices, then making sense out of the data,” she says. “Then the business can make intelligent decisions.” ■

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Inbound Logistics surveys the logistics technology market to discover the latest trends and determine which providers are pioneers in their field.

By Jason McDowell



TOP 100

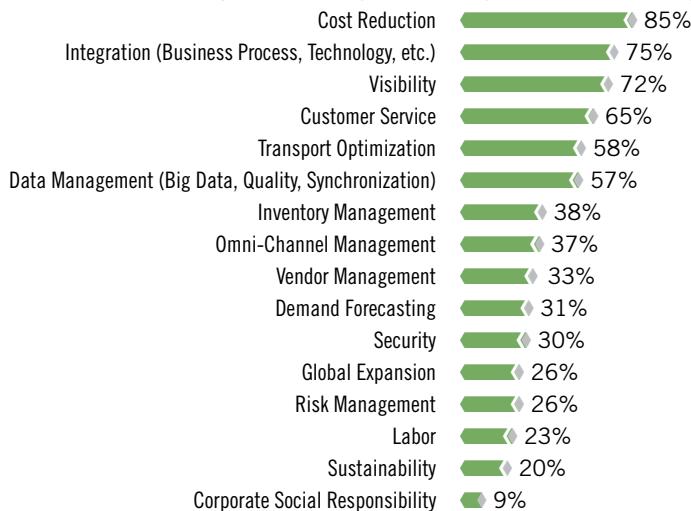
Logistics IT Providers & Market Research Survey

It's not our father's supply chain anymore, and nobody knows that better than logistics technology providers. It wasn't so long ago that the most innovative technology solutions were available only to large shippers and providers with money to burn, but legacy systems that require a huge investment have become a thing of the past. Thanks to Software-as-a-Service—or cloud-based solutions—the game has changed considerably in recent years.

Not only can shippers now implement high-quality solutions at affordable prices, but they can also crowdsource their data and freight to gain economies of scale, allowing them to negotiate competitive rates, increase visibility, and benchmark performance—something many couldn't do easily even one decade ago, and not at all a decade before that. The shared efficiencies offered by these newer platforms enable users to glean top value along the entire supply chain with minimal effort.

With so many options flooding the market, it can be difficult for shippers to decide where to get their technology solutions from. They can go direct to vendors, or let a third-party logistics (3PL) provider or carrier partner guide them through the process.

FIG. 1 CHALLENGES: Which transportation and logistics challenges are most critical to your customers?



Having the right information helps users and buyers of all sizes stand on even ground with an equally varied set of competitors, but staying on top of trends in such a rapidly changing environment can be difficult. Fortunately, *Inbound Logistics*' annual logistics technology perspective research provides decision makers a pulse of the industry so they can make informed decisions about where, what, when, why, and how to implement new solutions. We surveyed nearly 150 logistics IT solutions providers to keep you abreast of what's happening in the marketplace, and showcase trends that will help in your decision-making.

The annual *IL Top 100 Logistics IT Providers* list (page 80) celebrates companies on the forefront of supply chain technology solutions that continually enable shippers to operate with best-in-class supply chains.

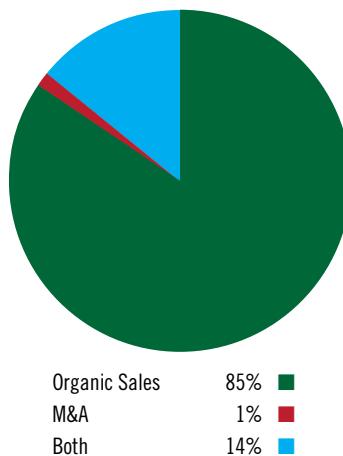
At What Cost?

Logistics technology aims to limit headaches and increase performance for supply chain stakeholders. As such, we asked IT providers to name the biggest hang-ups for their customers (*Figure 1*). Cost still tops the chart, with 85 percent of respondents naming the overall cost of logistics ownership as a concern. Integration claims the number-two spot, with 75 percent naming it as a pain point, up 7 percent from 2016, suggesting that the rapidly changing pace at which solutions are developed has customers nervous about

an ability to integrate into existing business processes.

Seventy-two percent cite visibility as an issue, only a slight drop from 2016. Customer service, transport optimization, and data management also deserve honorable mentions as

FIG. 2 LOGISTICS IT PROVIDERS REPORT GROWTH



major concerns, though all experienced slight declines over 2016 figures.

The logistics IT sector remains hot for another year, with respondents reporting an average 14-percent

increase in sales and more than 12 percent in profits, year-over-year. The customer base for technology solutions also experienced substantial growth, with IT companies reporting an average of slightly less than 13-percent customer growth.

Good old-fashioned elbow grease takes the credit for most of these gains, with 85 percent of technology companies reporting organic gains, though 15 percent achieved gains through mergers and acquisitions or a mixture of the two methods (*Figure 2*).

At Your Service

There's no shortage of need for logistics and supply chain technology in the transportation sector, with nearly 88 percent of technology company respondents providing services to 3PLs, carriers, forwarders, brokers, and everything in between—an increase of nearly 3 percent over 2016 (*Figure 3*). Manufacturing experienced a slight drop year-over-year, with 79 percent of providers reporting that they support the industry. This is a reversal of the 2016 trend, which saw manufacturing on an uptick.

Retail took that jump instead, with companies served in that sector clocking in at 79 percent, an increase of 5 percent over the previous year in a strong showing for brick-and-mortar, especially with e-business showing a 4-percent drop to 58 percent. Providers also increased their services to the wholesale sector by about 3 percent over 2016, and services/government held steady at 44 percent.

It's often difficult to differentiate between logistics and supply chain solutions, but each year *IL* splits that hair by asking respondents to report separately on which logistics and supply chain solutions they offer.

Logistics solutions such as load planning and inventory management

FIG. 3 INDUSTRY SERVED: What industries do your solutions serve?



FIG. 4 LOGISTICS SOLUTIONS OFFERED

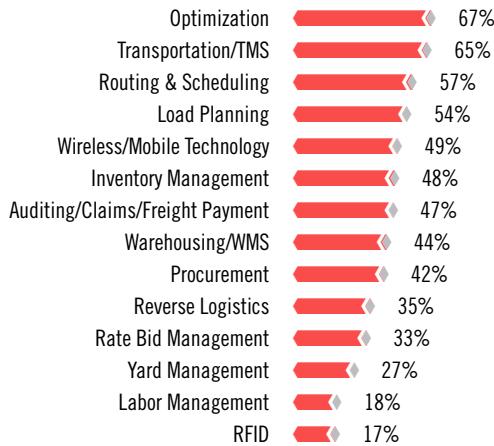


FIG. 5 SUPPLY CHAIN SOLUTIONS OFFERED

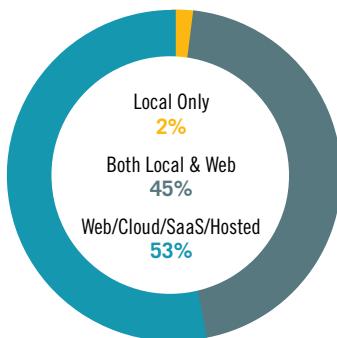


(Figure 4) are often more transactional, as shippers focus on squeezing every penny out of each shipment and process. Supply chain solutions (Figure 5) cover strategic, enterprise-level processes, such as global trade or product lifecycle management.

The logistics technology sector continues to soar into the cloud, with 53 percent of providers exclusively offering web/cloud/SaaS/hosted solutions, just 2 percent offering only local solutions, and 45 percent offering both (Figure 6). This is a drastic shift from a time not so long ago when customers demanded locally hosted solutions and mistrusted the cloud's ability to provide data security.

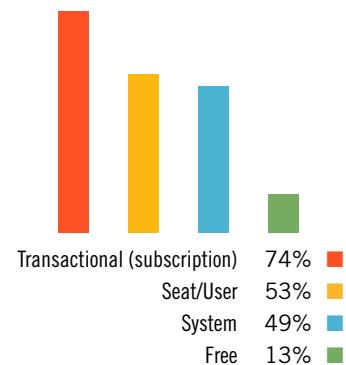
transactional or even free (Figure 7). Lower costs and easy implementation enable even small operations to stand toe-to-toe with the biggest corporate giants.

FIG. 6 PLATFORM: How do IT providers deliver their solutions?



In the several decades that *IL* has conducted this survey, one trend is clear: Customers continue to demand cost-effective solutions, and the logistics technology sector continues to deliver. Once upon a time, only huge operations could afford the cost and interruption involved with implementing a best-in-class logistics technology solution. But today, providers offer solutions that are

FIG. 7 COST BASIS: How do users pay for technology solutions?



PERSPECTIVES METHODOLOGY

Every year, *Inbound Logistics* conducts an extensive survey of the logistics technology market to explore how solutions providers are adapting to change, and pushing the technology needle in new directions.

Our outreach effort comprises two parts. First, *IL* solicits questionnaires from nearly 300 logistics IT providers detailing the solutions they offer and their areas of expertise. We also ask solutions providers to supplement this empirical data with contextual insight about business during the past year, relationships with customers, and emerging logistics technology trends.

Our Logistics IT Perspectives provides a robust overview of the trends that are impacting logistics technology, and how service providers are responding.



TOP 100

LOGISTICS IT PROVIDERS 2017

COMPANY NAME & URL	PHONE	WEB/CLOUD/SaaS/HOSTED	LOCAL	COST				INDUSTRY SERVED						VERTICAL SPECIALIZATION												
				TRANSACTIONAL (SUBSCRIPTION)	SYSTEM	SEAT/USER	FREE	MANUFACTURING (ALL KINDS)	RETAIL	WHOLESALE	E-BUSINESS	SERVICES/GOVERNMENT	TRANSPORTATION	AEROSPACE	AGRICULTURE	APPAREL & TEXTILES	AUTOMOTIVE	CHEMICALS	CONSTRUCTION & BUILDING MATERIALS	CONSUMER PACKAGED GOODS	ELECTRONICS	RENEWABLE ENERGY	FOOD & BEVERAGE	FURNITURE	GROCERY	HEALTHCARE
360data www.360data.com	920-831-3700	●		●	●			●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
3Gtms www.3Gtms.com	203-567-4610	●	●	●				●	●	●	●	●	●			●	●	●	●	●	●	●	●	●	●	●
3PL Central www.3plcentral.com	888-375-2368	●		●				●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
A3 Freight Payment www.a3freightpayment.com	901-759-2966	●		●				●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Acuitive Solutions www.acuitivesolutions.com	704-321-4992	●		●				●	●	●				●	●	●	●	●	●	●	●	●	●	●	●	●
Agistix www.agistix.com	650-362-2000	●		●	●			●	●	●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Amber Road www.amberroad.com	703-677-3680	●	●	●	●	●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Apprise www.apprise.com	610-991-3900	●	●			●		●	●	●			●	●	●	●	●	●	●	●	●	●	●	●	●	●
ASC Software www.ascsoftware.com	937-429-1428	●	●		●	●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Avercast www.avercast.com	208-538-5380	●	●			●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
BestTransport www.besttransport.com	614-888-2378	●		●				●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Blue Ridge www.blueridgeglobal.com	877-547-0346	●			●			●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
BluJay Solutions www.bluejaysolutions.com	866-584-7280	●	●	●				●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
C3 Solutions www.c3solutions.com	514-315-3137	●		●				●	●	●		●		●	●	●	●	●	●	●	●	●	●	●	●	●
Cadre Technologies www.cadrettech.com	303-217-7051	●	●	●	●	●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
CargoSmart www.cargosmart.com	408-325-7600	●		●	●	●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Carrier Logistics www.carrierlogistics.com	914-332-0931	●	●			●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Cass Information Systems www.cassinfo.com	314-506-5500	●		●				●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
CDM Software Solutions www.cdmssoft.com	877-689-1611	●	●	●	●	●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Cheetah Software Systems www.cheetah.com	805-373-7111	●		●	●	●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●



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TOP 100

LOGISTICS IT PROVIDERS 2017

COMPANY NAME & URL	PHONE	WEB/CLOUD/SaaS/HOSTED	LOCAL	COST			INDUSTRY SERVED					VERTICAL SPECIALIZATION												
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ClearTrack www.cleartrack.com	877-377-4400	●		●			●	●									●							
Cloud Logistics www.gocloudlogistics.com	561-800-1212	●		●			●	●	●	●	●	●	●	●	●	●					●	●		
CT Logistics www.ctlogistics.com	216-267-2000	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
CTSI-Global www.ctsi-global.com	888-836-5135	●		●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Data2Logistics www.data2logistics.com	609-577-3756	●		●			●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Datex www.datexcorp.com	800-933-2839	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Deposco www.deposco.com	678-596-5692	●		●	●	●	●	●	●	●			●	●		●	●				●			
Descartes Systems Group www.descartes.com	800-419-8495	●	●	●	●	●	●	●	●	●			●	●	●	●	●	●	●	●	●	●	●	●
DXC Technology* www.dxc.com	972-605-5000	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Elemica www.elemica.com	484-253-4674	●		●			●		●	●				●		●		●	●					
Epicor www.epicor.com	800-999-1809	●	●	●	●	●		●	●			●	●			●	●	●	●		●			●
Expertek Systems www.expertek.com	508-624-0006	●				●		●				●	●	●	●	●					●			
Fortigo www.fortigo.com	866-376-8884	●		●	●	●	●	●	●	●			●				●				●			
FourKites www.fourkites.com	773-717-5603	●		●			●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Foxtire Software www.foxtiresoftware.com	864-630-8592	●	●	●		●	●	●	●	●			●			●	●				●			
Freight Management www.freightmgmt.com	714-632-1440	●	●	●	●	●	●		●				●	●	●	●	●	●	●	●	●	●	●	●
Freightgate www.freightgate.net	714-799-2833	●			●	●	●		●	●			●	●	●	●	●	●	●	●	●	●	●	●
Freightquote www.freightquote.com	913-642-4700	●				●	●	●	●	●			●	●	●	●	●	●	●	●	●	●	●	●
GT Nexus www.gtnexus.com	510-808-2229	●		●		●	●	●	●	●			●	●	●	●	●	●	●	●	●	●	●	●
Highjump www.highjump.com	800-328-3271	●	●	●		●	●	●	●	●			●		●	●	●	●	●	●	●	●	●	●

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		LOCAL		TRANSACTIONAL (SUBSCRIPTION)	SYSTEM	SEAT/USER	FREE	MANUFACTURING (ALL KINDS)	RETAIL	WHOLESALE	E-BUSINESS	SERVICES/GOVERNMENT	TRANSPORTATION	AEROSPACE	AGRICULTURE	APPAREL & TEXTILES	AUTOMOTIVE	CHEMICALS	CONSTRUCTION & BUILDING MATERIALS	CONSUMER PACKAGED GOODS	ELECTRONICS	RENEWABLE ENERGY	FOOD & BEVERAGE	FURNITURE	GROCERY	HEALTHCARE	
IBS Software Services Americas www.ibsplc.com	346-444-3300	●	●	●	●	●						●															
Info-X Software Technology www.infoxusa.com	646-915-0333	●		●								●				●	●				●			●	●		
Infor www.infor.com	800-260-2640	●	●	●		●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Integration Point www.integrationpoint.com	704-576-3678	●		●				●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Invata Intralogistics www.invata.com	860-806-3330		●	●	●	●			●			●	●	●	●	●	●	●	●	●	●		●	●	●	●	●
Iptor Supply Chain Systems www.iptor.com	262-510-0800	●	●	●	●	●				●		●			●	●	●	●	●	●		●				●	●
JDA Software www.jda.com	800-479-7382	●				●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
JTS (FreightOptixx) www.johansontrans.com	559-458-2200	●		●			●	●	●			●			●	●	●	●	●	●	●	●	●	●	●	●	●
Kuebix www.kuebix.com	978-298-2100	●		●		●		●	●	●		●			●	●		●	●	●	●		●	●	●	●	●
LLamasoft www.llamasoft.com	734-418-3119	●	●	●				●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
LOG-NET www.log-net.com	732-758-6800	●		●		●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Logility www.logility.com	800-762-5207	●	●	●	●	●		●	●	●	●	●			●	●	●	●	●	●	●	●	●	●	●	●	●
Logisuite www.logisuite.com	305-222-7084	●	●			●						●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
MacroPoint www.macropoint.com	216-369-0144	●		●				●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Made4net www.made4net.com	201-645-4345	●	●			●		●	●	●	●	●			●	●	●	●	●	●		●		●	●	●	●
Magaya www.magaya.com	786-845-9150	●	●	●	●	●			●	●	●	●			●	●		●	●	●	●		●	●		●	●
MagicLogic Optimization www.magiclogic.com	250-594-6322	●	●			●		●	●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Manhattan Associates www.manh.com	770-955-7070	●	●			●		●	●	●	●	●			●	●	●	●	●	●	●	●	●	●	●	●	●
McLeod Software www.mcleodsoftware.com	205-823-5100	●	●									●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
MercuryGate www.mercurygate.com	919-469-8057	●	●	●	●			●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●



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				TRANSACTIONAL (SUBSCRIPTION)	SYSTEM	SEAT/USER FREE	MANUFACTURING (ALL KINDS)	RETAIL	WHOLESALE	E-BUSINESS	SERVICES/GOVERNMENT	TRANSPORTATION	AEROSPACE	AGRICULTURE	APPAREL & TEXTILES	AUTOMOTIVE	CHEMICALS	CONSTRUCTION & BUILDING MATERIALS	CONSUMER PACKAGED GOODS	ELECTRONICS	RENEWABLE ENERGY	FOOD & BEVERAGE	FURNITURE	GROCERY	HEALTHCARE	
ModusLink www.moduslink.com	781-663-5000	●	●	●			●	●	●	●																
Next Generation Logistics www.nextgeneration.com	847-963-0007	●	●	●	●	●	●	●																		
Nulogx www.nulogx.com	416-816-3341	●	●	●	●	●	●	●	●	●																
nVision Global www.nvisionglobal.com	770-474-4122	●	●	●	●	●	●	●	●	●	●															
Omnitracs www.omnitracs.com	800-348-7227	●	●	●	●	●																				
Optricity www.optricity.com	919-237-4846	●	●			●	●	●	●	●																
Oracle www.oracle.com	650-506-7000	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Paragon Software Systems www.paragontruckrouting.com	972-731-4308		●		●	●	●	●	●	●																
PeopleNet www.peoplenetonline.com	888-346-3486	●		●	●					●																
PINC www.pinc.com	510-474-7500	●	●	●	●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Precision Software (QAD) www.precisionsoftware.com	630-719-4937	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
QuestaWeb www.questaweb.com	908-838-4328	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Quintiq www.quintiq.com	610-964-8111	●	●		●	●				●																
Railinc www.railinc.com	919-651-5045	●		●			●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
RateLinx www.ratelinx.com	262-565-6150	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
ShippersEdge TMS www.shippersedge.com	888-237-2465	●		●			●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
SMC³ www.smc3.com	770-486-5823	●	●	●		●				●																
Solvoyo www.solvoyo.com	617-671-0590	●		●			●	●	●	●																
SphereWMS www.sphereWMS.com	214-382-2680	●			●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
SPS Commerce www.spscommerce.com	866-245-8100	●		●			●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●



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Suntek Systems www.suntekscm.com	949-789-0070	●	●			●					●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Supply Vision www.supply-vision.com	847-388-0065	●				●					●			●											
Synergy NA (Snapfulfil) www.snapfulfil.com	843-577-5007	●	●	●	●	●	●	●	●	●			●	●	●	●	●	●	●	●	●	●	●	●	●
Systems Logic www.warehouseinabox.com	519-740-2580	●	●			●		●	●	●			●	●		●	●	●	●	●	●				
TECSYS www.tecsys.com	514-866-0001	●	●	●				●	●	●				●	●	●	●	●	●	●	●				●
TMW Systems www.tmwsystems.com	440-721-2020	●	●	●	●	●					●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
TOPS Software www.topseng.com	972-739-8677	●	●			●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Trans-i Technologies www.trans-i.com	954-683-6570	●	●	●	●	●		●	●	●			●		●	●	●	●	●	●	●				●
Transporeon Group Americas www.transporeon.com/us	267-281-1555	●		●		●	●			●			●	●	●	●	●	●	●	●	●	●	●	●	●
TransportGistics www.transportgistics.com	631-567-4100	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
TransVoyant www.transvoyant.com	703-778-3500	●		●		●	●	●	●	●			●	●	●	●	●	●	●	●	●	●	●	●	●
Transwide www.transwide.com	877-766-3240	●		●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Truckstop.com www.truckstop.com	800-203-2540	●		●	●	●			●	●			●	●	●	●	●	●	●	●	●	●	●	●	●
U Route www.uroute.com	313-600-5308	●		●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
U.S. Bank www.usbpayment.com/freightpayment	866-274-5898	●		●		●	●	●		●	●		●	●	●	●	●	●	●	●	●	●	●	●	●
UltraShipTMS www.ultrashiptms.com	800-731-7512	●		●		●	●	●		●			●	●		●	●	●	●	●	●	●	●	●	●
Veraction www.veraction.com	800-755-0110	●		●		●	●	●	●	●			●	●	●	●	●	●	●	●	●	●	●	●	●
Visual Compliance www.visualcompliance.com	877-328-7866	●	●	●	●	●	●	●	●	●	●		●	●	●	●	●	●	●	●	●	●	●	●	●
WIN (Web Integrated Network) www.gowithwin.com	203-448-3900	●						●	●	●			●	●	●	●	●	●	●	●	●	●	●	●	●
YardView (Cypress Inland Corp.) www.yardview.com	303-781-3430	●	●	●		●	●	●		●			●	●	●	●	●	●	●	●	●	●	●	●	●



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President and Founder
RateLinx

93 STEPHEN WILSON

Senior Director, Logistics
Operations, Unyson

94 RAINER TAUCHERT

Implementation Manager
UltraShipTMS

95 RISHI PARTI

Director
Info-X Software Technology

96 DOUG SURRETT

Chief Product Strategist
BluJay Solutions Co.

97 RICK ERICKSON

Global Director of Freight
Payment Solutions, U.S. Bank

THOUGHT LEADERS

The Answer to Logistics Problems is Always in the Data

Q: How can data solve logistics problems for shippers?

A: The right data can create the intelligence required to know where to begin to solve many common problems. These can include freight costs that are too high, transit times that are too long or not charging enough for freight. Many shippers have good rates, but they aren't using them correctly, which causes a problem of spending too much. Having the right data will show how to change this.

Q: What data is best?

A: Data must provide the proper context to answer the question "why?" Why did we use that carrier for this shipment? Why did the shipment have to be expedited? Why did we underestimate the freight cost?

To answer these questions, a shipper needs four datasets to be integrated, cleansed, and standardized: 1) shipment data; 2) freight invoice data; 3) track & trace data; 4) order & item level data. The shipment data shows how the freight was prepared (weight, pieces, dimensions, and accessories). The freight invoice data verifies what really happened (Were measurements correct? Were other accessories required?). The track & trace data shows if any exceptions occurred once the freight left your ware-

Q: What analytics best reveal the answers to problems? How can analytics drive strategy?

A: Analytics must be real-world. The two most popular ones we see show the shipper how well they are following their current strategies, and how much their constraints are costing them. The first is called "Lost Savings," which shows the shipper how much it costs not to follow their own strategy. The second is called "Lost Savings by Constraint," which shows how much each routing rule is costing the shipper. These two analytics help a shipper successfully implement a strategy by ensuring their Lost Savings is zero, and will show which routing rule should be examined when developing the next strategy.



SHANNON

VAILLANCOURT

President &
Founder
RateLinx

house (weather delays, mechanical problems, etc.). The order and item information shows what was shipped and to whom (Was it a back order? Is this a customer with a specific routing guide? Does this item require special handling? etc.). By having all four datasets, you now have the proper insight into why, and it helps you understand what you can do (if anything) better.

Q: What's the payback for investing in data analytics for logistics management?

A: The payback for investing in data and analytics can be almost immediate. We see many shippers throttle their own strategies to fit their current systems. Once you have data, it's easy to make the business case internally to make the strategic changes that are found in the data.

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The Advantages of a Pop Up Supply Chain

Q: How can I keep up with volume surges with minimal disruption?

A: If you find yourself looking at a significant volume surge that is temporary, it is a good time to think about a pop up supply chain. Surges like this can put strain on the current infrastructure you have built and disrupt daily operations. This situation is a common occurrence in the automotive sector, where campaigns to repair or replace vehicle components can cause sudden surges in parts demand. If you follow your established process, you run the risk of stretching your transportation and warehousing beyond their limits, which can put your ability to service the campaign in jeopardy. It can disrupt normal operations to the point that your customers become affected and notice.

Q: Why choose a pop up supply chain?

A: It's helpful to keep in mind that you're not expanding the supply chain for a new normal velocity. Instead, you're temporarily trying to force more through the pipeline, so you want to minimize the amount of damage you do in the process. There's value in bringing in experts in a surge demand environment. Decisions will be made quickly to adjust to changes in demand, and experts accustomed to this type of environment will assist

in providing sound advice. A pop up supply chain allows you to handle the surge without impacting current daily operations. And once the surge is over, your customers will never know what was going on behind the curtain.

Another component to consider is that as volume increases so does the opportunity to enhance efficiency and lower your incremental transportation costs. A solid logistics company identifies the savings potential of volume leveraging via advanced optimization technology and creative solutions that come from investing in and focusing on their core competency. The infrastructure most 3PLs have built brings flexibility to your supply chain and the ability to quickly and easily handle changing demand.

Q: What are the advantages of a pop up supply chain?

A: The most important advantage of utilizing a pop up supply chain is the increased visibility and focus. At the most basic level, this is beneficial because of the reporting and visibility a 3PL offers. This brings us back to the investment in technology and TMS platforms, which drive visibility. We understand the importance and need for advanced reporting. This understanding pushes the development of visibility tools like automated reporting engines and customized project dashboards, allowing organizations to have instant visibility, to support quick decisions for your end goals.

While it can be difficult to look outside your organization and your entrenched supply chain structure, there are clear advantages in doing so, due to the experience and resources gained from forming a partnership with a 3PL.



STEPHEN
WILSON

Senior Director,
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THOUGHT LEADERS

Can Exception Management be Automated?

Q: Managing exceptions in freight settlement is, by definition, a manual process even when a shipper has a transportation management system (TMS) and freight payment/audit solution in place. Why can't exception management be automated?

A: The truth is, it can be, and to a surprisingly high degree. Significant exceptions such as large discrepancies in rates will always require manual intervention. But UltraShipTMS has perfected “tolerances & allowances” strategies and features that automate the process of identifying and screening out trivial exceptions, significantly paring back the volume of exceptions requiring manual intervention.

Q: How does this “tolerances & allowances” strategy automate exception management?

A: It allows invoices exceeding the approved cost figure – up to a specified dollar amount or percentage of the overall invoice – to pass through the TMS to settlement without triggering an exception. Customers set the amount of “wiggle

room” allowed above the approved cost.

For example, a shipper can opt to allow the automatic approval/payment of invoices up to say, \$50 above the approved rate. When there's an unexpected cost of less than \$50 encountered during shipment – an entrance fee, stop charge, toll, etc. – these small overages pass through without triggering an exception requiring managers to manually review and approve.

Q: Do the tolerances and allowances have to be applied uniformly to all types of charges and to carriers across all lanes?

A: No. The potential charge types and line items are all captured during system implementation so they can be configured to appear in drop-down menus in the freight payment module of the TMS. Tolerances can be assigned by carrier, by lane and by line item. Allowances can also be applied to any or all carriers across any or all lanes.

It takes a bit of configuration at the outset, but it is worth the effort to boost automation levels with respect to exceptions.

Q: What does success look like when it comes to automating exceptions?

A: Our goal is to attain automation of 90 percent or better when it comes to freight invoice exceptions. In the programs where we've been able to achieve this, managers are freed from spending hours managing trivial exceptions. As a result, they have more bandwidth to focus on strategic activities and planning, and they're able to raise overall efficiency and efficacy of their TMS initiative.

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RAINER

TAUCHERT

Implementation Manager
UltraShipTMS

The Wave of New Technologies in Logistics Requires Data Management Excellence

Q: Technology seems to be having its moment in the logistics space. What do things like the Internet of Things, Big Data, and Blockchain mean for shippers and logistics providers?

A: These elements are becoming critical parts of modern supply chains because they allow companies to harness data they might already have, or incorporate previously inaccessible external data, to increase revenue. It shines a light on the actionable data that companies have been sitting on but didn't know how to use because they didn't have the right solutions to tap into it.

Q: Shippers are increasingly turning to international logistics service providers (LSPs) for areas other than just buying capacity. Are these LSPs up to the challenge?

our experience, if you can take things like systems development and maintenance or documentation entry off a forwarder's plate, that frees them up to do more things that drive actual revenue.

For instance, if you outsource the rate manage-



RISHI

PARTI

Director
Info-X Software Technology

A: The truly valuable commodity in supply chains these days is data, but it's hard for freight forwarders and NVOs to find the resources to collect and manage that data internally. In a low-margin industry like international logistics, there is limited bandwidth to throw at technology initiatives like rate management or documentation. Yet, shippers want those services more and more from their logistics providers. Anyone can pick up a phone and find space on a vessel or a truck, but the LSPs that are differentiating themselves are those that can provide true value add and actionable data.

Q: When you say forwarders and NVOs struggle with resources and bandwidth, what do you mean?

A: Not every logistics company is adept at technology development. In fact, most are better served concentrating their resources on what they're exceptional at, which is sales, customer service, and application of industry expertise. In

ment process and documentation entry, then there aren't valuable resources tied to repetitive (though important and complex) tasks. Those people who would have been filing rates or searching through spreadsheets for accurate rates, can actually be in front of customers figuring out how to better serve them. That translates directly to a stronger bottom line.

Q: How does data management come into play? Are these things linked?

A: Absolutely. If a logistics provider is not burdened with data entry, that helps in multiple ways. First of all, as mentioned above, resources are freed up to think more creatively about serving customers, not entering data. Second, when data entry is automated, it is more accurate and more real time.

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THOUGHT LEADERS

Global Trade Network: A Strategic, Competitive Asset

Q: Why do companies have such a hard time embracing global trade management?

A: The Amazon effect is wreaking havoc on supply chains globally. Consumers are buying online from everywhere in the world and expecting delivery in one to two days. International shipping presents real challenges for suppliers and shippers attempting to keep up with the velocity expectations of these consumers. Following the traditional supply chain model feels safe and comfortable—like your favorite pair of sneakers. But over time, those sneakers wear down and stop supporting your feet as they once did. Companies are realizing they must change their mindset to remain competitive. Embracing a global trade network model removes some of the constraints that make global trade management a challenge.

In the traditional supply chain model, the supply chain is viewed as a cost center. A global trade network is viewed as a strategic, competitive asset. Gone are the days of only planning and executing the shipment booking through the delivery process. Now the attention is directed to streamlining the entire order life cycle, ranging from purchasing order management to import/export compliance in order to deliver the best customer experience.



DOUG

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Chief Product Strategist
BlueJay Solutions Co.

In the old model, stand-alone supply chains were focused on internal automation for cost-cutting and time-saving measures. The problem is stand-alone supply chains still rely on partners that reside outside their system. When things change with their partners, not only are those changes impossible to see but the effects of the change create chaos. This chaos increases the cost to serve customers and forces partners to add inventory buffers into their supply chains.

The competitive advantage achieved through a global trade network is connecting partners using real-time data and speed to ensure everyone is on the same page. The interconnectivity removes barriers created from static linear processes and allows a supply chain to function as a dynamic living ecosystem where each action gets an immediate reaction to streamline processes. The cost to serve goes lower while customer service improves.

Q: Are there other advantages?

A: Another advantage to the global trade network model is the amount of actionable intelligence the network can provide to help make better business decisions. It eliminates black holes and guesswork by providing real-time data on what is happening in the supply chain. The analytics can be used to enhance optimization opportunities so companies can expand beyond their own network.

Companies interested in adapting the modern global trade network model need to start by self-assessing their current network strength. The technology to support a global trade network is available today. It's just a matter of looking at supply chain design in a new way.

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Gaining Visibility Through Data

Q: Data impacts the way many organizations make decisions. Can a freight audit and payment system provide added visibility?

A: If shippers don't have valid insight, they can't make valid decisions. Data analysis and benchmarking can provide this visibility, allowing shippers to identify outliers in performance and cost. Yet most companies don't have the technology and expertise in house to effectively collect, cleanse and analyze data. That's one key reason they turn to outside vendors.

By using business intelligence tools, like those available through U.S. Bank Freight Payment, companies can benefit from a really detailed view of what freight costs they're paying for such as line haul, fuel, demurrage and toll charges. Companies can then take these insights in order to comprehensively evaluate their processes and procedures, and take the action required to prevent any issues from becoming trends. For example, are there operational changes they could make to cut demurrage charges? Is every carrier billing equally for demurrage, or is one carrier in particular ending up with wait times?

Q: Organizations today are acquiring extraordinary volumes of data. How can they be assured the data they are assessing is "good?"

A: While any company that processes payments electronically should have extensive data, if that data hasn't been cleansed it won't lead to trustworthy, actionable results. Simply put, imagine how much



RICK

ERICKSON

Global Director of
Freight Payment
Solutions
U.S. Bank

Q: Once data is collected, it's important to have a basis for comparing the information. What can companies do to establish a benchmark?

A: Benchmarking freight costs against similar shippers can be an interesting way to ensure that your costs are in line. The process for doing so doesn't always have to be formal research. It can include conversations with peers, networking and even feedback from carriers. When shippers make benchmarking—both formal and informal—part of their everyday processes, they can identify cost reduction opportunities and also determine if they're leveraging their systems appropriately.

a cost-per-mile metric would be skewed if mileage details were missing from a group of shipments. An effective data cleansing process takes care of those anomalies, looking for outliers and duplicates, filling in incomplete data when possible and removing inaccurate data.

Shippers are increasingly learning that to uncover efficiencies and forecast effectively they need visibility into their supply chains—including their payment process. And getting that visibility requires both the right data and the ability to analyze it. It's not an overnight solution, but once you're analyzing the data correctly, you can become almost systematic about how you approach controlling costs.

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Stepping Out in Style

Apparel Logistics:

Brand owners and retailers try refashioned supply chains on for size.

By Merrill Douglas

Beset in 2016 by global turmoil and economic uncertainty, the \$2.4-trillion global fashion industry looks ready to recover in 2017, according to a McKinsey and Company report.

In 2016, the apparel market suffered from tremors such as the terrorist attacks in France, the vote for Brexit in the UK, and the ups and downs of the Chinese stock market, says *The State of Fashion 2017*. At the same time, fashion companies raced to keep up with an ever-more demanding customer base, and with technology that continuously remakes the way we shop.

Some apparel industry trends, such as “fast fashion” and the market for “ath-leisure wear,” have been developing for several years. Other movements that are making an impact include customized apparel, e-commerce consignment, merging e-commerce with brick-and-mortar showrooms, and a push for more environmentally sustainable business models.

Each trend brings its own supply chain challenges. How are brand owners and fashion retailers responding? Let’s have a look.



Indochino sells menswear custom-tailored to the consumer's exact dimensions. The company had to restitch its supply chain to enable quick delivery and fulfill its "perfect fit" promise.

As You Like It

Nowadays, personalized style isn't reserved just for wealthy consumers who can take their desires to a dressmaker or tailor. Thanks to e-commerce and "mass customization," you can buy anything from a pair of shoes to a complete ensemble made to your measurements, with the fabric, color, trim, and other elements you prefer.

Among the notable players in this personalized fashion market is Indochino, a Vancouver-based firm that specializes in custom-tailored men's suits and shirts, plus accessories. Indochino sells its made-to-measure clothing through its website and one dozen showrooms in Canada and the United States.

Whether he checks out suits in person or peruses the selection online, the customer who orders from Indochino starts by providing measurements. For e-commerce customers, Indochino uses a video to show how to collect the right data and provide information about posture and body shape. These details are crucial for ensuring that the garment will fit and drape correctly, says Clay Haeber, Indochino's chief operating officer.

Next, the customer picks a fabric and color. "Then we'll walk the customer

through the customizations, giving recommendations on what's trending in fashion, whether it's the style of the pockets, one button or two, wide or narrow lapel, pleats in the pants or not," Haeber explains.

Indochino allocates the right fabric from its inventory and feeds all the details to its factory in China, where a software-driven system creates the custom pattern. Then the fabric, pattern, and associated buttons and trim move from station to station on the production floor. Workers cut the fabric, assemble the garment, iron it, and send it through several stages of inspection and quality control.

Indochino ships its finished products from the factory via air to customers around the world, with most packages bound for North America.

It takes about 11 days from the time a customer places an order to the time the finished product goes out the door. That quick turnaround is crucial, as is air transportation. "A high percentage of our customers are buying clothes for an occasion—a wedding, a graduation, a new job—so they're on a deadline," Haeber says.

Indochino ships packages to the United States individually, to take advantage of a rule that allows items worth \$800 or less to enter the country duty-free, as long as the shipment is addressed to the actual end consumer.

An alternate strategy applies to shipments bound for Canada, which has different regulations. "We package individually for the end user, but those packages are consolidated into a single entry," Haeber says. "That reduces our costs." After a shipment enters Canada, Indochino breaks it down for final delivery.

Like any fashion company, Indochino must carefully manage its relationships with overseas contractors. "Doing business in China is all about capacity planning and commitments," Haeber says. "Forecasting is critical."

Indochino used to spread its production across five contract manufacturers in China. "We reduced our risk by having many sources of production capacity," Haeber says. Then, a new production partner offered to make a strategic investment. Company officials decided to name that partner its exclusive suit supplier. "We will be moving a lot of our shirt production to them also," he says.

Working with one production partner makes vendor management much simpler. "We have our own production management staff that oversees what's going on in the factory," Haeber says. That presence provides visibility, a crucial element in the made-to-measure business model.

"If we have a production problem, we can't just tell the customer, 'Sorry, the suit for your wedding will arrive late,'" Haeber says. "Having a tight partnership with the factory, being able to track orders and proactively identify bottlenecks or other production issues, becomes critical."

Life of Athleisure: Spandex Meets Cashmere

Leggings, running shoes, yoga pants—you see them everywhere from family parties to the grocery store to Sunday brunch. The athleisure wear trend stems from the public's love of comfortable fabrics, and from a desire to look fit and energetic even in

venues where no one breaks a sweat.

The difference between active wear and athleisure wear has a lot to do with the look and quality of clothes. “Athleisure wear is more about the design and the fabrics than it is about throwing on basic sweatpants and deciding you’re dressed OK to go to lunch,” says Andrew Lynch, president of Zipline Logistics, a third-party logistics (3PL) provider based in Columbus, Ohio.

For example, some designers today use cashmere blends for the kinds of items they used to make in cotton. “Or the designers are finding ways to blend cashmere with other fabrics to make it machine washable,” he adds.

Those fabrics have nudged what used to be ordinary sports apparel into a higher-value fashion category, creating new concerns about security. “If that product is on a truck, we know that we need to follow routes that are similar to how we handle high-theft products,” Lynch says.

So Zipline is taking greater precautions for some retailers that sell sports apparel. For example, it uses trucking companies that carry insurance sufficient for high-value loads and make sure drivers stay in communication with the dispatch team. “We also give drivers advice about how to park at truck stops—for example, under lights wherever possible,” Lynch says.

Second Time Around

If you want to snag a Chanel skirt or a Saint Laurent blazer at a bargain price, you don’t need to hunt down the nearest consignment boutique. Online resale is thriving.

One player in this segment, SnobSwap, says the market for online consignment is growing by 10 percent annually. Investors backed e-commerce consignment companies to the tune of more than \$500 million between 2011 and 2016, according to Forbes.com.

“It’s a growing trend,” agrees Michael Roe, account executive at Carlstadt,

N.J.-based materials handling automation solutions vendor DMW&H, which works with several clients in the online consignment fashion segment. “Online resale gives shoppers access to brand-name, gently used high-end goods—shoes, purses, jewelry—at a fraction of the price of new.”

The boom in e-commerce consignment poses an interesting supply chain challenge for one DMW&H client: how to build a distribution infrastructure to keep pace with rapid growth. “We had to look at their forecasts and projections, and design a system that can flex and grow with them,” Roe says.

A second challenge stems from the fact that every item in a consignment business is different. There’s no point installing storage slots designed to hold 100 units of a single stockkeeping unit (SKU). “The company handles a wide range of apparel—men’s fashion, women’s fashion, shirts, pants, scarves, gloves, shoes,” Roe says. “Everything has to have its own, unique location, and that takes up a huge amount of space.”

Some items the client sells, especially accessories such as designer golf bags and men’s watches, require special handling; shoes do as well. Conveyors and rails don’t work for them. But standard apparel is more amenable to automation. “We installed a garment-on-hanger rail system,” Roe says. “We also added some flat storage for other items that can be handled in that space.”

Given the client’s pace of growth, DMW&H decided it was best to go slow on automation in the company’s distribution centers. “They can grow into the system that we’ve already designed and implemented,” Roe says. “We can further automate as growth continues.” DMW&H recommends that a company in this situation build out its equipment in phases, based on which products are seeing increased demand.

“If the faster-growing segments of their business justify automation—if the product will convey well, if it’s an item you can get in and out by moving it around on a machine—that makes a lot more sense,” Roe says.

As the e-commerce consignment market continues to grow, apparel

companies must take care to avoid bottlenecks in their distribution networks.

“The people who shop at these sites are very ‘right now,’” Roe explains. “If they order an item and it doesn’t get to them in a reasonable time, they will not come back. So we see apparel companies increasingly focused on how to get their products in and out more efficiently.”

Need it Now

The “right now” attitude applies throughout the world of e-commerce apparel sales. Retailer efforts to satisfy customers who want immediate delivery extend beyond the distribution center into the transportation network.

“Many of our customers historically shipped all their products by ground transportation, which involves a longer transit time than they require to satisfy consumers’ ‘need it now’ expectations,” says Melissa Runge, vice president of analytical solutions at Spend Management Experts (SME), an Atlanta-based transportation consultancy. SME has helped those customers negotiate transportation agreements that include the use of second- and next-day air, along with ground options, anticipating that faster service will become more important in the future.

SME also helps apparel companies adapt to another industry trend. While e-commerce has changed the way people shop for clothes, as well as for many other products, ordering jeans, a bathing suit, or shoes online is never as simple as ordering, say, a coffeemaker. What looks great on the on-screen model may not look the same on you.

Many merchants approach this challenge by offering free return shipping. Others use a strategy that puts a little brick-and-mortar back into the e-commerce channel.

“Some of our clients provide guide-shops or customer experience centers that allow customers to touch, feel, and try on apparel, and then order through mobile devices,” says Runge. The guide-shop stocks samples of the retailer’s product lines, but there’s no inventory

for customers to carry out the door.

For those companies, a foolproof inventory replenishment system is even more crucial than it is for merchants who rely purely on e-commerce. “We can’t get a ‘not available at this time’ message when the customer has just spent the time to go in and touch and feel,” Runge says.

One SME client ran into this problem when its 3PL provider failed to provide up-to-date inventory data. “Not only did they lose business, but they had offered guaranteed availability,” Runge says. “They were giving away an incentive when an item was not available.”

SME helped the retailer set up service level agreements (SLAs) with its 3PL. “The agreements included fill rates and penalty language for not meeting the requirements of fast inventory replenishment and accurate inventory availability,” Runge says.

Make it Snappy

As the need for speed has altered the way apparel companies fill customer orders, it has also forced changes all along the supply chain.

Catering to shoppers who love to keep snapping up whatever is new and trendy, fast fashion retailers such as H&M, Zara, and Forever 21 have learned to propel new styles from sketchpad to store in just a few months. These companies hit the market with wave after wave of new items, priced low enough to keep customers continually refreshing their wardrobes.

Zipline Logistics increasingly encounters the logistics ramifications of fast fashion in its work for clients, Lynch says. Consumers are buying differently, and that influences apparel companies’ supply chain strategies.

In the past, it made sense for large clothing retailers to buy 1 million units of one pair of pants: they would sell 90 percent of that product at full price across perhaps 2,000 stores, and then put the other 10 percent on sale.

“Today, however, everyone is on their toes from an omni-channel perspective,”



Roman Kirsch, founder and CEO of Lesara, visits China to research the latest international fashion trends for customers. Working with a network of global suppliers helps Lesara quickly get these new fashion offerings into production, and for sale on its website.

Lynch says. “It’s harder to track what volumes will be at different stores.” So companies are sourcing items in smaller quantities, joining the fast fashion market even if that wasn’t the original plan.

Shifts in consumer tastes are pushing fast fashion as well. “The generation that seems to have a lot of retail buying power isn’t necessarily interested in mass-produced product,” Lynch says. “They’re more interested in what seems like curated product.” That’s why retailers such as Zara and H&M have performed so well.

One result of fast fashion is greater demand for less-than-truckload (LTL) transportation services compared to full truckload. “These retailers are not stocking their stores in the same way they used to,” Lynch says. Demand for package delivery is increasing as well, as more retailers rely on suppliers to drop-ship e-commerce orders directly to customers.

In a world of ever-shorter attention spans, fast fashion might not be speedy enough. That’s the premise of Lesara, a German e-commerce apparel merchant that calls itself not simply fast, but agile.

“Agile retail is about understanding

through data what trends are popular with consumers at this moment, and being able to act on that instantly, with a seamlessly integrated supply chain,” says Roman Kirsch, founder and CEO of the Berlin-based firm, which currently sells into 24 countries in Europe.

Lesara has developed tools for analyzing information drawn from numerous sources—such as Google Trends and various fashion blogs—to continuously track what people want to buy. “Additionally, we constantly evaluate our own data to identify bestsellers in our online shop,” Kirsch says.

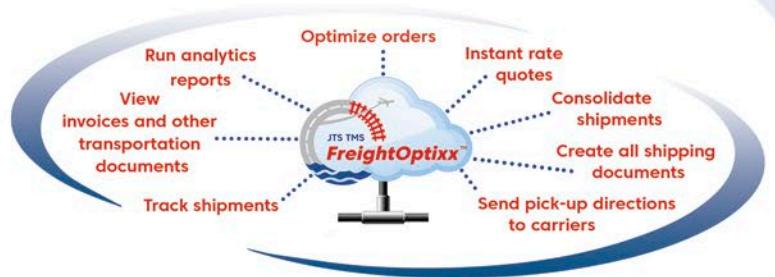
Working with a network of international suppliers, Lesara gets new products into production, based on the latest trends, sometimes in a matter of days.

“For example, last year we came across a blogger wearing LED sneakers and knew right away that this was a product with huge potential,” Kirsch says. The merchandising team chose one of the company’s qualified suppliers to make LED sneakers, and Lesara’s in-house photographers used product samples to take pictures for

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the e-commerce site. “We managed to have the sneakers online and available on our website only one week after spotting them,” he says.

To stay in synch with quickly shifting customer desires, Lesara manufactures its products in small volumes at the outset, and then replenishes based on real-time demand. “Our model works well in an online world, where it’s the selection that matters,” Kirsch says. “Low initial inventory levels allow us to test different styles and offer a selection that is unparalleled among other offline and online fast fashion retailers.”

Sustainable Fashion

While sparking new supply chain strategies, fast fashion has also created waves of anxiety about what happens to clothes that consumers cast aside to embrace new offerings. *Fast Fashion is Creating an Environmental Crisis* reads the headline of a September 2016 *Newsweek* article.

Some of the big fast-fashion brands have launched sustainability initiatives. H&M, for example, operates a large used-clothing recycling facility in Germany. Some other companies make clothes from recycled textiles.

The Renewal Workshop, a small startup in Hood River, Ore., takes a different approach, partnering with several apparel brands to bring new life to clothing that is otherwise unsellable. Those partners bundle up hoodies with broken zippers, shorts with ripped seams, and sweaters that got left behind in the clearance sale, and send them to Hood River instead of to the landfill. These items include product that never went out the door and product that customers have returned.

The Renewal Workshop repairs and freshens many of those items and offers them for sale on its e-commerce site.

“We had to create a unique website and architecture to be able to do that, because we don’t sell 1,000 of one item,” says company co-founder Nicole Bassett. The Renewal Workshop co-labels its



The Renewal Workshop takes damaged, returned, and unsold clothes from other apparel companies and refurbishes or “upcycles them”– for example, turning a damaged skirt into a handbag.

products with its brand partners, which currently include prAna, Ibex, Toad&Co, Mountain Khakis, and Indigenous. “They get a revenue share back when we sell the product,” she adds.

The Renewal Workshop currently receives about 2,500 items per month in its 7,500-square foot facility and processes about 1,000 each month.

If an item is too damaged to resell, the company might “upcycle” it into a new product. “For instance, we could turn a pair of pants into a pencil case or a tote bag,” Bassett says.

In the long run, the company plans to aggregate some of the clothing it can’t repair and send it to textile recyclers. Brand owners have a tough time doing that themselves because each company uses multiple materials—polyester, nylon, cotton and so on. “You need to have multiple relationships with recyclers,” Bassett says. “Brand owners can’t do that because they don’t have enough product.”

Plans also call for brand partners eventually to take back some of their repaired items and sell them as refurbished product.

Like an e-commerce consignment shop, The Renewal Workshop faces the challenge of managing an inventory

of unique items. The company uses a warehouse management system that has been modified to locate items that are not grouped by product type. “Pants are next to shirts, for example,” Bassett says. “We organized it that way so there’s a lot of flexibility in stocking and finding products.”

Each item has a unique identifier, contained in a barcode label. Those labels used to pose a problem when it came time to fill an order. Some were attached in ways that made items hard to locate quickly—affixed to the waistband of a pair of pants, for instance. “We can’t just open every product, unfold it, and find the barcode,” Bassett says.

Eventually, employees devised a solution: a paper wrapper that holds the barcode and doubles as a packing slip. “Now the barcode is on the outside, where it’s easy to scan,” Bassett says. “And the wrapper contains all the information we need for marketing and customer service.”

One unchanging principle in fashion is ongoing change. That’s true in commerce as well, especially commerce backed by new technology. Brand owners and retailers can’t keep pace simply by refreshing their designs; they also need to restitch their supply chains. ■

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Hitting a Freight Management Bull's Eye

Ben E. Keith takes aim at freight management inefficiencies with Crossbow technology.

Ben E. Keith, one of the oldest and largest foodservice distributors in the United States, had an increasing need to make its 30,000 yearly inbound freight loads as full and efficient as possible. So the company took a hard look at its logistics program and zeroed in on its antiquated transportation management system (TMS).

Ben E. Keith, headquartered in Fort Worth, Texas, is a heavy hitter in the crowded food distributor playing field. It offers a full line of food service products: produce, frozen foods, meats, dry groceries, paper goods, and equipment. The foodservice division serves 14 states and includes a beverage division.

The company employs more than 4,000 people and purchases more than 2 billion pounds of product from close to 2,000 vendors. It services about 18,000 retailers throughout Texas. Ben E. Keith has to manage all of this product as it flows through its eight distribution centers (DCs).

A serendipitous encounter at

a trade show led the company to ArrowStream, a foodservice logistics software developer, and to its performance management platform. Crossbow sits on top of the company's TMS, and gives Ben E. Keith access to the information it needs to see into its routes, loads, and timing in a more usable way, leading to consistently fuller trucks and lower freight costs.

Most importantly, Crossbow allows the purchasing and logistics departments to partner together to increase managed freight—by 20 to 30 percent in some departments.

Owen Stull, Ben E. Keith's director of logistics, has to keep track of all these moving parts. He says



the journey that led to incorporating Crossbow software was indirect. In 2014, his department started seeing some stagnation in its mature logistics program. After 13 years in place, the transportation management program had become antiquated.

“We knew the TMS was not up to date,” he says. “And the way our program and company were growing, we needed to see what we could do to be more efficient.” The company was not looking at optimization at that time, but the more it investigated TMS programs, the more it realized a new system was needed to grow to the next level.

“We had conversations with our logistics managers at the DCs, and from those discussions, we developed a wish list for the new TMS,” Stull recalls. “As those discussions evolved, we realized we needed a new tool to capture the freight’s full potential.

“As we were evaluating the different systems on the market, we couldn’t find one that addressed our issues,” he says. “Ben E. Keith was good at monitoring progress, but did not have a system to help us make intelligent decisions.”

Time for an Upgrade

Stull and his DC managers were searching for a bigger and more actionable picture of their program. With the old TMS, in order to retrieve data to make decisions, for example, the company needed to download data into spreadsheets and sift through a lot of information.

Stull and his team were frustrated because by the time they came up with a productive idea, it was already outdated. The team needed a way to access the data in real time, and be able to take immediate action based on that data. They also wanted a centralized view so the general office could offer help to the DCs.

The company needed a bird’s eye view of all its moving parts. “We do a lot of load consolidations,” Stull explains. “Our networks are big, and we could



Ben E. Keith distributes more than 11.5 million pounds of food every day. It needed a TMS upgrade to efficiently supply its customers—restaurants, hospitals, schools, nursing homes, and other institutional businesses.

not figure out where the changes were needed to prevent situations when one truck would be overloaded while another truck was empty.

“If we could affect the order sizes, we could do a better job of routing the orders,” he adds. “But because we could not see the whole picture, we would often fix one problem and create two more.”

Ben E. Keith made its TMS choice when it upgraded its software through a foodservice group that the company belongs to. And although the new system allowed for load tendering and certain levels of auto routing for simple loads, it did not have the deep level of optimization the group needed.

Then Mike Roach, who was president of the company at the time, happened to visit with ArrowStream at an industry trade show, and started the discussion about Crossbow, the new Software-as-a-Service (SaaS) technology ArrowStream had developed.

Stull’s search was unexpectedly over. “We found out ArrowStream was thinking along the same lines as we were about load optimization, so from the beginning, it was a natural fit,” Stull says. “Crossbow concentrates on inbound logistics and food service. The platform sits on top of the TMS, so we could integrate it without turning our operation upside down.”

“Ben E. Keith is buttoned up managing their supply chain,” says Bill Michalski, chief solutions officer at ArrowStream. “It has a process for managing inbound freight and everyone is aligned with it. But it was seeing unpredictability and volatility, and had a project underway to figure this out. But it is not something you can take on manually—there is too much data.”

Improving Efficiency

The first thing ArrowStream’s team did when the companies started working together was set up a structure to see the inefficiencies. They established plans for the freight lanes and began measuring the buyers’ adherence to those plans. That was crucial because it offered the metrics to measure the impact on freight costs.

Then they looked at what they could do to create freight efficiency. This is the ongoing part of utilizing the software. For example, Ben E. Keith had a set of vendors with perishable products and one-way moves with varying volumes. Using the information Crossbow extracted and compiled, they changed the configuration of the loads and routes for those vendors and were able to take 20 percent of the trucks off the road.

“We can group vendors into super vendors, and then sit down with purchasing to discuss the merits of

grouping those vendors together,” Stull says. “And they can see if it is a good idea from their cycle standpoint and make sure it is not damaging inventory levels or increasing carrying costs.

“Knowing up front that it will work is a lot better than what we were doing in the past, which was hit and miss,” he adds.

“Crossbow allows companies to analyze their order patterns and identify opportunities to change them without negatively impacting inventory levels,” Michalski says. “There is an ingrained assumption that what is good for one side is not good for another.

“Inbound logistics typically asks purchasing to buy in larger increments, but that assumption doesn’t reflect reality,” he adds. “You can manipulate the patterns to order more frequently and yet fill the trucks better.

“If you bring in freight from a vendor

twice every month with full truckloads, no one is ever going to think about or route those trucks any differently. With another vendor, you are only partially filled weekly,” Michalski says. “The Crossbow system will find that you can take those full trucks, run them weekly, and swing by and get the inventory from the other vendors. You can run four trucks instead of six trucks.”

Heading Into the Future

The two companies worked together successfully to train the staff. “It has been a big change from how we were doing business in the past,” says Stull. “Using the technology is easier than getting all our supply chain partners to be proactive. They are used to being reactive. The buy-in has been good.”

Ben E. Keith has seen some impressive results:

■ Freight under management increased by 3 percent.

■ 55 percent of all managed freight is now measured against pre-optimized ordering and routing plans.

■ 77 percent of orders meet the pre-optimized targets.

■ Increased freight consolidation drove an average of 8.7 percent year-over-year reduction of total inbound freight costs.

■ For orders projected to fall short of freight financial targets, 14 percent of potential savings loss is avoided through real-time monitoring and corrective action.

Stull says the technology is a success story, and he and his team are continuing to explore Crossbow’s functionality. They are also extending their partnership with ArrowStream as beta testers of new functions. ■



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WhitePaperDigest

Industry experts amass supply chain management best practices and skill sets, and invest in new research and evaluation tools. Now you can benefit. *Inbound Logistics* has selected this collection of whitepapers that will give you a jump on important supply chain issues. For more information on any of these whitepapers, visit the Web sites listed below.



Veraction

TITLE: *Game Changer: Transportation Spend Intelligence*

DOWNLOAD: <http://bit.ly/Veraction>

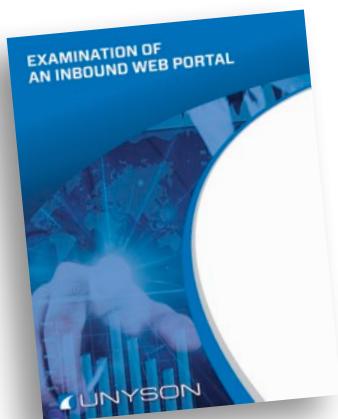
SUMMARY: Best-in-class analytics can transform transportation cost data into an advantage for any company. Analytics can eliminate the pain involved with managing raw transportation data and converting it into actionable intelligence—reducing the time required to produce analyses or take action. But with such promise comes hype, making it difficult to distinguish between solutions. In this whitepaper, you'll learn what a best-in-class transportation spend analytics solution should deliver.

Amber Road

TITLE: *AAEI Benchmark Report: e-Commerce Impacts Global Trade*

DOWNLOAD: <http://bit.ly/AmberRoad>

SUMMARY: As globalization continues to expand and contract, e-commerce will rapidly spread into every retail category. AAEI and Amber Road conducted an online survey of global trade professionals to create a report that provides a snapshot of e-commerce today. Download this whitepaper to learn how your company can simplify operations, address common challenges, and provide your customers with a positive online shopping experience.



Unyson

TITLE: *Examination of an Inbound Web Portal*

DOWNLOAD: <http://bit.ly/UnysonWP>

SUMMARY: Regardless of the size of a business, everyone is looking to save money and streamline processes. However, often companies overlook the cost of their supply chain, particularly their inbound transportation. Inbound web portals have the ability to bring several companies together in one place to share accurate and necessary information and provide an opportunity for business-to-business growth. Overall, each component of the supply chain—whether it is customers, 3PL providers, carriers or vendors—can reap the rewards of reduced costs, advanced visibility, improved reliability and increased savings.



3PL Central

TITLE: *How 3PL Warehouses Can Profit From 5 Challenges in 2017*

DOWNLOAD: <http://bit.ly/3PLCentral>

SUMMARY: With its many changes and challenges, it's no secret that 2017 will be a momentous year for the 3PL warehousing industry. But along with great change comes new opportunities. To help you navigate the year ahead, download 3PL Central's free eBook, *How 3PL Warehouses Can Profit From 5 Challenges in 2017*.

United Fresh Produce Association

TITLE: *Recall Resource Guide*

DOWNLOAD: <http://bit.ly/UFPAGuide>

SUMMARY: This whitepaper was designed to help the produce industry better prepare for potential recall events. This resource provides a general overview and outline, explaining why it's critical for companies to have a recall plan; the basic components of a recall plan and response processes; how a recall plan differs from a food safety plan and traceability; and also offers additional recall-related resources.

SEKO Logistics

TITLE: *Supply Chain Visibility*

DOWNLOAD: <http://bit.ly/SEKOLogistics>

SUMMARY: The emergence of supply chain software providers in the cloud that span the entire supply chain is happening now. This shift will provide the smaller hard goods manufacturers and distributors more efficient and collaborative supply chains, which ultimately lower cost and increase profitability.

AEB

TITLE: *Bans and Restrictions in Global Trade*

DOWNLOAD: <http://bit.ly/AEBGuide>

SUMMARY: Companies that manage supply chains across borders need to consider numerous global trade regulations. AEB, a provider of software and services for global trade and supply chain management, offers this new whitepaper, providing an overview of the most common bans and restrictions. It also provides tips for automating and simplifying screening processes through manual restrictions.

enVista

TITLE: *Find the Money: How a Transportation Spend Diagram Can Help*

DOWNLOAD: <http://bit.ly/enVistaDiagram>

SUMMARY: Transportation leaders look for ways to reduce costs while improving service levels as they conduct strategic assessments or solution designs. In this whitepaper, you'll learn how developing a simple, one-page transportation spend diagram at the beginning of your strategic assessment will identify savings opportunities throughout your transportation operations.



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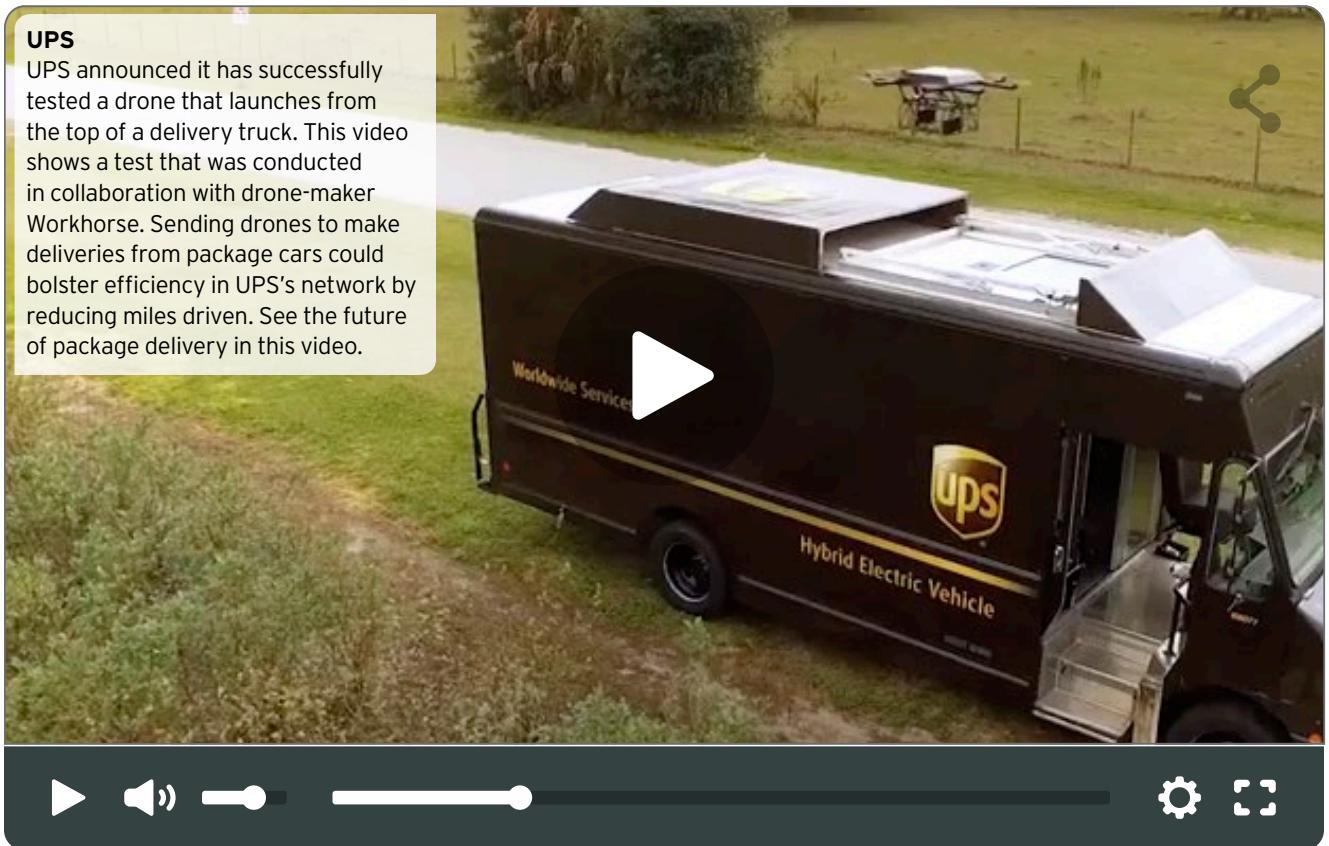
Inbound Logistics selects the best logistics and supply chain videos available anywhere and serves them up on www.YouTube.com/InboundLogistics

The Future of Package Delivery

bit.ly/UPSVideo

UPS

UPS announced it has successfully tested a drone that launches from the top of a delivery truck. This video shows a test that was conducted in collaboration with drone-maker Workhorse. Sending drones to make deliveries from package cars could bolster efficiency in UPS's network by reducing miles driven. See the future of package delivery in this video.



Ahead in the Cloud

bit.ly/KuebixVideo

Kuebix

Discover how Kuebix brings shippers into the 21st century with its cloud-based transportation management system (TMS). The system lets shippers manage freight anywhere, on any mobile device; track freight in real time; and manage all service providers and modes on the same platform. You'll learn why Kuebix believes that every business that ships freight should have a TMS.





Get a Handle on Robotics

bit.ly/BostonDynamicsVideo

Boston Dynamics

Is Handle a precursor of the warehouse worker of the future? The research robot stands 6.5 feet tall, travels at 9 mph, and jumps 4 feet vertically. It uses electric power to operate both electric and hydraulic actuators, with a range of about 15 miles on one battery charge. See Handle in action in this very cool video.

The Skinny on Skinny & Co.

bit.ly/SkinnyCo

FedEx Fulfillment

Skinny & Co. is a lifestyle brand that creates products from high-quality coconut oil to enable people to live healthier lifestyles. Seeking a solution that accommodated its unique logistics needs, Skinny & Co. now relies on FedEx Fulfillment – a turnkey e-commerce logistics solution – to help address post-order challenges and meet customers' evolving needs. As you'll hear Skinny & Co. say in this video, the relationship is more than supply chain; it's building a brand.



A True Supply Chain Enabler

bit.ly/CNCollaboration

CN

CN helps rail shippers grow their business one market at a time, by accessing 75 percent of the North American population and enabling \$250 billion of business. With fast transit times, focused collaboration with key partners, and serving all industries with a steadfast focus on safety, CN provides greater reach and new destinations. Oh, and you won't get the song from this video out of your head.

Rock 'n Roll 'n Logistics

bit.ly/IAGCargo

IAG Cargo

The Who's Roger Daltrey discusses the importance of logistics in a rock tour, and reviews a successful 50 years of working in partnership with IAG Cargo to deliver the logistics involved in the rock group's concerts and tours.

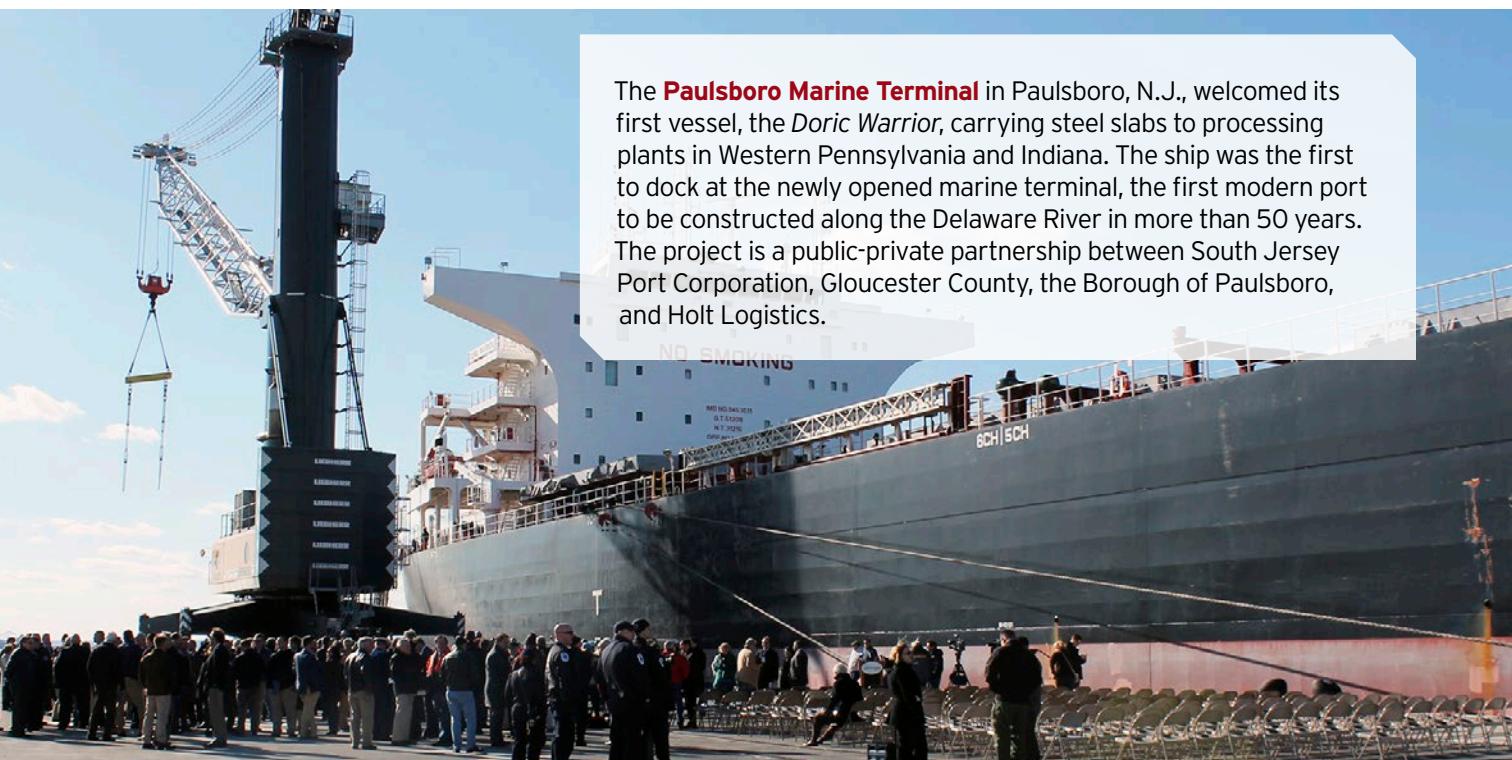


Florida's Powerhouse Port

bit.ly/PortEverglades

Port Everglades

Port Everglades is Florida's powerhouse for moving cargo. Every shipment moves faster, easier, and more efficiently. The port, located at the center of global trade, just down the street from Ft. Lauderdale Airport, is home to Florida's first Foreign Trade Zone. Cargo moves in and out quickly through deepwater channels, with fast intermodal connections. You'll enjoy this beautifully shot video, which also highlights the port's expansion plans for the future.



The **Paulsboro Marine Terminal** in Paulsboro, N.J., welcomed its first vessel, the *Doric Warrior*, carrying steel slabs to processing plants in Western Pennsylvania and Indiana. The ship was the first to dock at the newly opened marine terminal, the first modern port to be constructed along the Delaware River in more than 50 years. The project is a public-private partnership between South Jersey Port Corporation, Gloucester County, the Borough of Paulsboro, and Holt Logistics.

//Services//

Maersk Container Industry

expanded its reefer container system for the ocean transport of high-value fresh produce. By controlling the ripening process, the new Star Cool CA+ system keeps sensitive low-respiring perishables such as blueberries and lychee in optimal condition so they don't over-ripen or decay in transit. Compared to high-respiring perishables such as bananas and avocados, low-respiring perishables require a different atmosphere composition in the container.

Dallas Fort Worth (DFW) International Airport

is adding refrigeration capabilities to better serve shippers of perishable goods. It will install a cold chain facility that will be operated by AirLogistix USA. Expected to be operational in summer 2017, the transfer facility gives DFW the ability to precisely control warehousing temperatures for shipments of pharmaceuticals, flowers, and fresh foods.

Roadrunner Transportation Systems

launched Roadrunner Temperature Controlled, which combines transportation providers M. Bruenger and R&M Transportation. The service provides transportation solutions for frozen foods, meat, seafood, produce, beverages, ice cream, pharmaceutical goods, and other products requiring temperature-controlled transit. It offers Hazmat and SmartWay certifications, real-time load tracking, EDI, and FMSA compliance.



Conveying systems maker **BEUMER Group** unveiled its new stretch hood high-capacity system. The machine series offers higher throughput, and gentle transport of the film in the system. It also requires 40-percent less floor space than older systems. In addition, its opening hood lets workers in retail stores and logistics centers quickly remove the film when unpacking or repacking the goods, without using any cutting tools.

machinery and engines, autos, pharmaceuticals, and footwear. The Milan-Miami service, a 14-day transit, is CaroTrans' fourth direct service from Milan to the United States.

Crowley Maritime's liner services group expanded its ocean container transportation services by adding a weekly sailing connecting Jacksonville and Port Everglades, Fla., more directly with Manzanillo, Panama. Two Crowley 1,100-TEU containerships now alternate carrying cargo southbound from Jacksonville on Thursday and Port Everglades on Friday before arriving in Kingston, Jamaica, on Sunday; Limon, Costa Rica, on Tuesday; and Manzanillo on Thursday.

//Technology//

FR8 Revolution, a developer of cloud-based tools for freight transportation, launched the FR8Star Heavy Haul Marketplace at fr8star.com. FR8Star's marketplace includes a rate calculator for pricing oversize/overweight loads. Shippers of these loads can get pricing estimates and shipping routes, and request quotes directly from carriers. Shippers and carriers complete their contract directly through the platform.

Kenco Logistics teamed up with mobile solutions provider **Smart Gladiator** to roll out a new mobile app that increases supply chain visibility. Available at loadproof.com, *LoadProof* is an image-capture app that lets warehouse workers, truck drivers, supervisors, and others involved in shipping and receiving to photograph shipments and instantly

//Transportation//

DHL Global Forwarding, the air and ocean freight division within Deutsche Post DHL Group, started a direct LCL service from New York to Cartagena, Colombia. DHL's LCL offering allows U.S. exporters and Colombian importers to ship cargo from New York directly, rather than routing via Miami. The weekly service offers a nine-day transit from New York to Cartagena, a key entrance point for petrochemicals and agricultural commodities.

CaroTrans, a global non-vessel-operating common carrier and ocean freight consolidator, started a direct weekly LCL service from Milan to Miami. Main U.S. imports from Italy include beverages, industrial

Online marketplace **BuildDirect** opened its global supply chain platform for heavyweight goods, giving any third party the ability to access its network for any part of the shipping process, from point of manufacture through last-mile delivery. The platform provides options for delivering heavyweight products from anywhere in the world to homes across North America.

Averitt Express now provides single due date delivery service to help retail suppliers meet product delivery windows to distribution centers and stores. The freight transportation provider offers the option as a standard service with no upcharges.

upload photos to a cloud server with supporting information about date, time, and load details.

Analytics firm **TransVoyant** launched *Precise Predictive Risk*, a live and continuous machine learning-based solution for supply chain and enterprise risk management. It lets organizations analyze a diverse set of risks to facilities, inventory in transit and in storage, human capital, competitors, and trading partners around the world. It collects and analyzes real-time big data streams from IoT devices to give a global view of live and predicted supply chain risks.

Logistics solutions provider **Odyssey Logistics & Technology** now offers its *WIN for Salesforce* application on the Salesforce AppExchange. The new app enables shippers to quote, book, track, and trace LTL and truckload freight shipments through Salesforce. *WIN*, a no-cost, no-fee transportation management system, gives shippers the option to choose from current carriers and brokers or those within the WIN network.

//Products//

Storage technology company **KASTO** unveiled the KASTOecostore tower storage system, a compact, standardized solution for storing pallets and flat goods of various sizes. The automated system has a low space requirement, high storage density, flexible clamping and fastening, and short access times. The KASTOecostore is equipped with a drive and control system for precise operation.

SATO, a provider of auto-ID solutions, launched the WS4 compact desktop label printer line. Designed for retail, healthcare, logistics, and manufacturing environments, the WS4 is available in two models: thermal transfer or direct thermal. It can be used to print labels, receipts, and tags at a resolution of 203 or 305 dpi. The series also offers optional Bluetooth or 802.11 WLAN communications.



Materials handling equipment and safety products manufacturer **Wildeck** unveiled a new line of structural steel end-of-aisle rack protectors to guard against fork truck impact at rack aisle corners in storage facilities, warehouses, and distribution centers. The new Wilgard products offer heavy-, medium-, and lighter-duty rack protection against forklift impact.

Pelican BioThermal, a cold chain packaging solutions provider, now offers its passive pallet shipper system, Credo Cargo, for purchase or rental. The reusable bulk shipper utilizes phase change material coolants and maintains the temperature for more than 120 hours. Designed to accept a full ISO pallet, it is impact resistant for global logistics applications.

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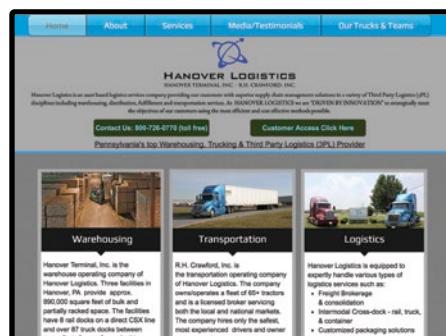


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Atlanta Bonded Warehouse (ABW) has been providing public and contract food-grade, temperature controlled distribution services for over 69 years. ABW is a leader in providing integrated asset-based logistics solutions for the food, pharmaceutical, 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.

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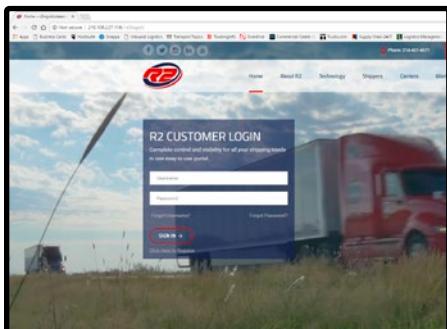
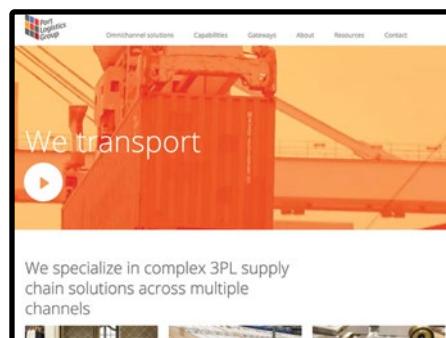


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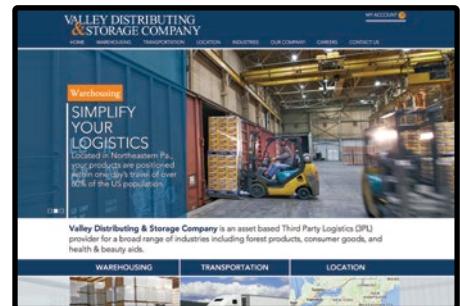
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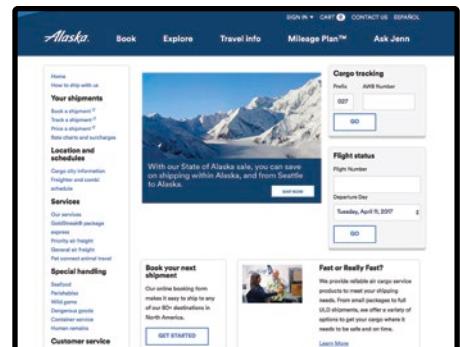
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AIR CARGO

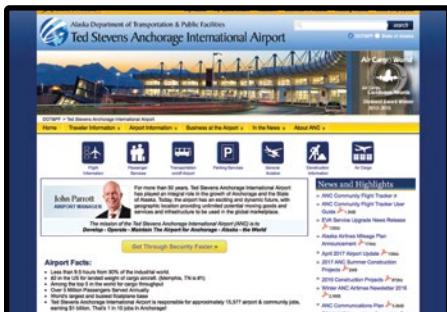
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Air Cargo - Bulk: Liquid-Dry



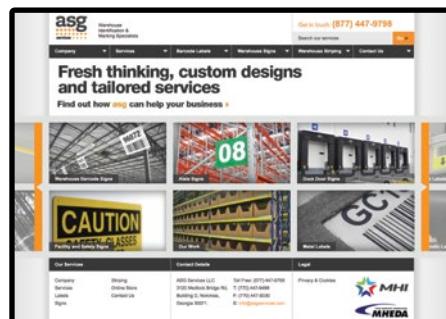
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BULK: LIQUID-DRY



Lynden • 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.

Odyssey Logistics & Technology • www.odysseylogistics.com

Odyssey Logistics & Technology combines deeply skilled industry professionals with a leading technology solution to provide multimodal logistics management services to the chemical industry and other process manufacturers. Odyssey Logistics & Technology enables these companies to outsource any part of the management and transportation of their raw materials and finished goods. They achieve cost savings through reduced transportation and infrastructure costs, measurable customer service and process improvements, and improved data quality and management.



IN THIS SECTION:

Chemical Logistics

CHEMICAL LOGISTICS



Dupré Logistics • www.duprelogistics.com

From energy transport to dedicated contract carriage logistics and freight brokerage, Dupré does more. For over 35 years, we've been a leading provider to both Fortune 500 and mid-sized companies with a specialization in chemicals, energy, and hazmat materials.

Lynden • www.lynden.com

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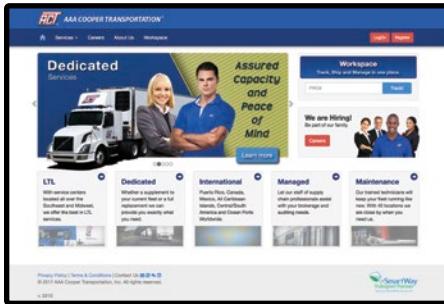


Transplace • www.transplace.com

Transplace delivers supply chain excellence through an optimal and flexible combination of industry-leading global and domestic logistics services and technology. Tap into our dense network of shippers and transportation providers through on-demand transportation management and a suite of professional services tailored to your organization's needs.



DEDICATED CONTRACT CARRIAGE



AAA Cooper Transportation • www.aacooper.com

AAA Cooper Transportation has been delivering safe, efficient transportation for more than 60 years. With strategically located service centers, we are prepared to give individual attention to your shipping needs. AAA Cooper Transportation is dedicated to the long-term sustainability of the environment, and continues to implement processes that will make the world a better place to live for generations to come.

Ruan • 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 our website – ruan.com.



EDUCATION



California State University-Long Beach • www.ccpe.csulb.edu/citt

The Center for International Trade and Transportation (CITT) acts as a catalyst for growth, and offers a neutral ground for addressing issues along the entire global logistics pipeline. CITT is a partner with METTRANS, a University Transportation Center funded by the U.S. DOT and Caltrans. The Global Logistics Specialist (GLS) and the Marine Terminal Operations Professional (MTO) are industry-driven training programs. The GLS serves both users and providers of global logistics services. Classes are offered on the CSULB campus and in an innovative online format. The MTO program addresses all aspects of terminal operations from container terminals, breakbulk, and RoRo to cruise terminals. For more information, visit this website.

Duquesne University, Palumbo-Donahue School of Business www.duq.edu/business

Duquesne University's Palumbo-Donahue School of Business has been developing Supply Chain leaders for over 25 years. The School has garnered national recognition and continues to lead the way with an innovative program and deep ties to corporate partners. Our hands-on curriculum cuts across disciplinary boundaries and imparts the practical wisdom students need to add sustainable value to any company's supply chain. BSBA with a supply chain management major and an optional health care supply chain track. Accredited by AACSB-International.



IN THIS SECTION:

Education



Elmhurst College
www.elmhurst.edu/admission/school_for_professional_studies

Whether you're pursuing graduate studies or an accelerated undergraduate program, the School for Professional Studies at Elmhurst will open the door to a wealth of opportunities. Wherever you are in your career, a certificate in your field can help you reach your goals. The School for Professional Studies at Elmhurst offers a wide range of certificate programs at both the undergraduate and graduate level. From the Elmhurst MBA to a master's in supply chain management to a leadership-focused MSN, our dynamic graduate programs will hone your leadership skills and prepare you for success. Courses are conveniently scheduled online or in the evenings.

Georgia Tech Supply Chain & Logistics Institute • www.scl.gatech.edu

The Georgia Tech Supply Chain & Logistics Institute (SCL) offers a comprehensive curriculum of short courses and seminars in which participants can earn a professional certificate in Supply Chain and Logistics or a professional certificate in Lean Supply Chain. More than 18 open enrollment supply chain and logistics short courses are offered each year. SCL can also assemble a curriculum designed for individual company needs. SCL students come from all segments of the logistics community—from manufacturing and distribution, warehousing, transportation, and third-party logistics to consulting and information technology.



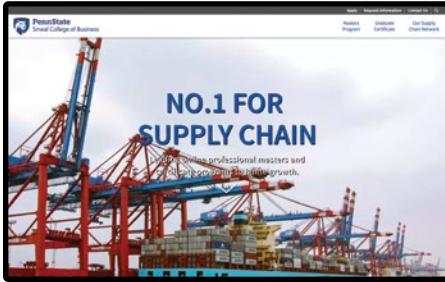
Illinois Institute of Technology • www.appliedtech.iit.edu/intm

Industrial Technology and Management (INTM) at Illinois Institute of Technology (IIT) offers Bachelor and Masters degrees, with specializations in Supply Chain Management, Industrial Facilities, Industrial Sustainability, and Manufacturing Technology. The Bachelor (BINTM) is a transfer degree, requiring an Associates degree or equivalent college credits in a technical field. The Master of Industrial Operations (MITO) prepares students for management positions in industrial companies. Evening and online courses allow flexibility for working adults.

Maine Maritime Academy
mainemaritime.edu/academics/graduate-programs/online

Maine Maritime Academy is a co-educational, public college on the coast of Maine offering 18 degree programs in engineering, management, science, and transportation. The college serves undergraduate and graduate students in career-oriented programs of study. The Graduate school offers two MS degree programs, one on campus and one online. Maine Maritime Academy was ranked the #1 Best Public College by Money magazine's Best Colleges list released in August 2014.





Penn State University, Smeal College of Business supplychain.smeal.psu.edu

Master of Professional Studies in Supply Chain Management and Graduate Certificate in Supply Chain Management. Through mastery of curriculum grounded in proven theory, best practices, and emerging innovation, graduates of Penn State's online master's and graduate certificate supply chain programs attain the knowledge and analytical skills for designing and managing the future's most sophisticated supply chains. Students engage in problem-based exercises coupled with collaborative learning experiences emphasizing interaction among fellow students, guided by top flight experienced faculty in courses offered through a convenient digital learning space, unconstrained by a set time or place.

Syracuse University, Whitman School of Management whitman.syr.edu

The Whitman School of Management at Syracuse University, a nationally recognized leader in logistics and supply chain education and research since 1920, offers the oldest such program in the country. Whitman supply chain graduates gain professional experience as students and enjoy a strong alumni network. For practitioners, we offer a talented intern/employee pool, and events to renew and update your skills. We also offer BS, MBA, MS, PhD, and executive programs in supply chain, as well as electives in Whitman's highly regarded distance-learning MBA option.

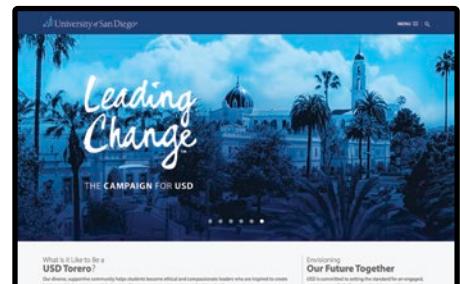


University of Alaska Anchorage • logistics.alaska.edu

The Department of Logistics at the University of Alaska Anchorage offers a Master of Science in Global Supply Chain Management (30 credits, 20 months, emphasis on strategy, leadership, knowledge management, and international business practices). Also offered are: a BBA in Global Logistics and Supply Chain Management (4 years); an Associate of Applied Science in Logistics and Supply Chain Operations (2 years); and a Certificate in Logistics and Supply Chain Operations (1 year).

University of San Diego • www.sandiego.edu

The University of San Diego's ISM-approved Master of Science in Supply Chain Management is delivered via e-learning with only a few on-campus sessions per year. Through relevant curriculum with applied learning, you'll develop leadership competencies that will enable you to initiate change and drive improvements across increasingly complex supply chain networks. Join us now for two years that will change your life.



IN THIS SECTION:

Education - Food Logistics



University of Wisconsin-Madison Executive Education • exed.wisc.edu

Network and discuss your work-related challenges with expert faculty and your industry peers from around the country in our short two- and three-day budget-friendly courses. Through intelligent decision making and innovative problem solving learned in our courses, you'll discover exciting solutions to implement viable changes to your workplace. Prove your dedication to your career and your trade by earning your Professional Development Certificate in Supply Chain Leadership or Transportation and Logistics Management.

Washington University, Olin Business School • www.olin.wustl.edu

Located in the heart of the Midwest, Olin is one of the country's leading research-oriented business schools. Its degree programs are known for their demanding scholastic standards and emphasis on experiential learning. "Research-driven thinking, applied" is the organizing principle across the school's degree and non-degree programs, which emphasize developing analytical, critical-thinking skills; global competence; and communication and collaboration skills needed to solve today's complex business challenges. The school's small size fosters key relationships that provide endless opportunities for continuous achievement.



FOOD LOGISTICS



Odyssey Logistics & Technology • www.odysseylogistics.com

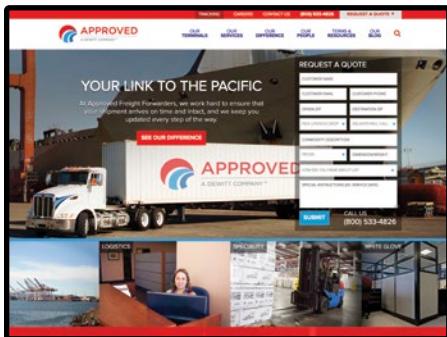
Odyssey Logistics & Technology combines deeply skilled industry professionals with a leading technology solution to provide multimodal logistics management services to the chemical industry and other process manufacturers. Odyssey Logistics & Technology enables these companies to outsource any part of the management and transportation of their raw materials and finished goods. They achieve cost savings through reduced transportation and infrastructure costs, measurable customer service and process improvements, and improved data quality and management.

Transplace • www.transplace.com

Transplace delivers supply chain excellence through an optimal and flexible combination of industry-leading global and domestic logistics services and technology. Tap into our dense network of shippers and transportation providers through on-demand transportation management and a suite of professional services tailored to your organization's needs.



FREIGHT FORWARDING



Approved Freight Forwarders • 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, sailing schedules, and competitive rates, visit the website.

Lynden • www.lynden.com

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FREIGHT PAYMENT/AUDIT SERVICES

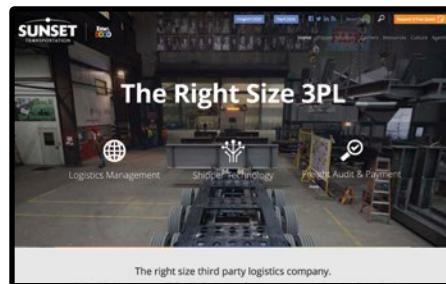


SaaS Transportation • web.saastransportation.com

SaaS Transportation, Inc. is a provider of cloud-based TMS solutions to third-party logistics companies, freight payment companies, shippers and carriers. Its TMS solution is unique in that it has developed APIs, which allow easy integration with numerous trading partners with minimal setup time. This integrated solution automates freight management from carrier selection to final delivery. SaaS Transportation's system enables transparency by providing visibility into shipments during transit, and alerts shippers when exceptions occur so they can proactively resolve issues.

Sunset Transportation • www.sunsettrans.com

Through our diversity of services and technology to our transparent and customer-focused culture, Sunset Transportation is positioned as a dominant logistics management partner for mid-market and large businesses. Sunset's flexibility and entrepreneurial spirit makes us The Right Size 3PL for your growing business—large enough to provide professional, multi-modal solutions while remaining agile and committed to our roots with personalized service.



IN THIS SECTION:

Food Logistics - Fulfillment

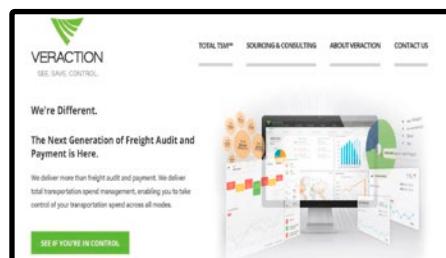


TransportGistics • www.transportgistics.com

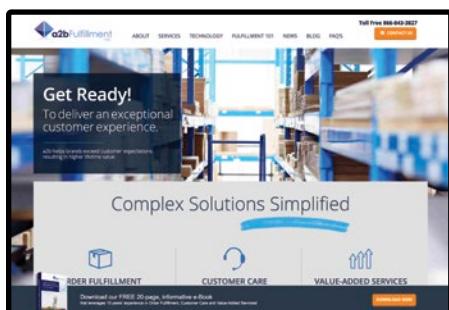
TransportGistics is a global, multi-product and services company that provides market-leading, simple, incremental solutions for transportation management and logistics functions within the supply chain. Our Web-based solutions enable our customers to source, procure, and execute transportation services; 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.

Veraction • www.veraction.com

Veraction is the leader in Transportation Spend Management solutions. Veraction combines industry-leading cloud-based applications with best-in-class services to help companies realize savings, visibility and control of their transportation spend across all transportation modes. With a global footprint and solutions spanning freight and parcel audit, bill payment, spend analytics, and expert consulting, Veraction enables companies to manage their critical and significant transportation spend more effectively.



FULFILLMENT



a2b Fulfillment • www.a2bfulfillment.com

Free storage and a same-day shipping guarantee have made a2b Fulfillment famous. a2b is an innovative and progressive 3PL provider of distribution support services to both retail and consumer direct. Services include warehousing, order fulfillment, Canadian fulfillment, order and continuity management, discounted shipping, logistics, contact center and value-add services, as well as our innovative "Returns to Profit" program. We leverage low-cost structure, state-of-the art distribution systems, modern and expansive warehouse facilities, carrier relationships, and overall logistics expertise to deliver best-of-breed service to customers.

DM Fulfillment • www.dmfulfillment.com

DM Fulfillment provides best-in-class fulfillment and distribution solutions so that manufacturers, merchants and trading partners can seamlessly integrate with today's omni-channel, e-commerce world. Five strategically located, highly-automated fulfillment centers offer cost-effective shipping solutions and speed to customer and shelf. DM Fulfillment's mission is to deliver an exceptional customer experience with every order. Visit www.dmfulfillment.com to learn more.



FURNITURE TRANSPORT & LOGISTICS



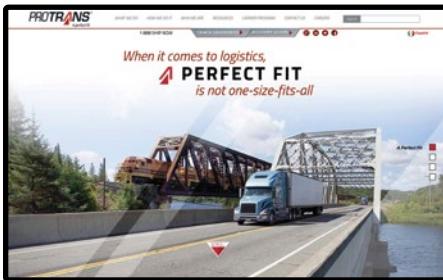
Pro-Line • www.1proline.com

Pro-Line is a leader in modular ergonomic industrial workbenches and workstations. From basic four-leg stations to hand-crank or electric height-adjustable stations to top-of-the-line technical systems, we have it all. Retractable ball transfers, seating, packaging stations, and much more. Since 1979, Pro-Line has offered strength, ergonomic design and esthetics all at an affordable price, many models in stock. Our vast array of in-stock optional accessories makes it easy for you to configure a workstation to fit your needs.

GLOBAL LOGISTICS

**Magic Logistics, A Division of Magic Transport, Inc.
www.magictransport.com**

Magic Logistics is a company with global reach that has been leading the logistics industry for more than 30 years, offering full solutions, highly competitive process, day-definite and excellent intermodal freight transportation, warehousing and supply chain management services. We manage ocean and air cargo from any point in the world, through 6 terminals in PR and the USA and a solid network of more than 400 agents in 93 countries. We offer more alternatives worldwide than other cargo companies, servicing the USA, Caribbean, Asia and Europe.



ProTrans International • www.protrans.com

With nearly 25 years of experience in North America, ProTrans knows your supply chain is one-of-a-kind. That's why we specialize in designing impactful solutions that are uniquely customized to fit your company's needs. Our strong network, innovation, and professional experience make us more than just logistics providers to our clients. We're their one-of-a-kind strategic problem solvers.

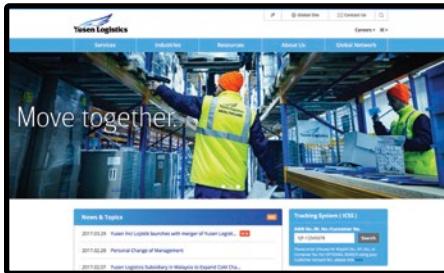
Quick International Courier • www.quickintl.com

Quick International Courier is a full-service global priority transportation and logistics company, shipping life-saving organs and blood for transplant and research; critical parts for the high-tech, medical, and manufacturing industries; as well as high-security, confidential, and valuable items for the legal and entertainment industries. Quick provides a wide range of priority services: next-flight-out, next-drive-out, secure handcarry, warehousing, third-party logistics, and aircraft charters. With a focus on providing global logistics, Quick is at the forefront of innovation, offering precision, individualized service, and dependability.



IN THIS SECTION:

Global Logistics - Insurance



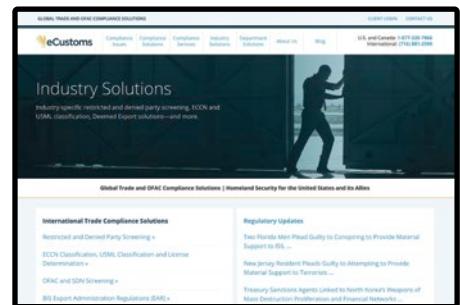
Yusen Logistics (Americas) Inc. • www.yusen-logistics.com

Yusen Logistics offers a complete transport and logistics portfolio of services to some of the world's largest companies. We offer full end-to-end service coverage including origin cargo management, ocean freight forwarding, airfreight forwarding, warehousing, reverse logistics, surface transportation, and integrated supply chain solutions. We are committed to contributing to the sustainable development of our society through safe, environmentally friendly options.

GLOBAL TRADE

eCustoms (Visual Compliance) • www.ecustoms.com

For over 35 years, eCustoms has helped organizations fulfill their foreign trade and cross-border compliance obligations. From our comprehensive suite of Visual Compliance™ solutions for restricted party screening, audit, classification, and import and export automation, to our ACI, ACE and eManifest solutions, companies of all sizes—and in every industry, including manufacturers, retailers, wholesalers, distributors, importers and exporters, third-party logistics providers, carriers, and freight forwarders—have long relied on the breadth of eCustoms solutions to help them meet their global trade compliance needs.



QuestaWeb • www.questaweb.com



QuestaWeb is a premier provider of integrated, Web-based global trade management software. QuestaWeb's applications unify import, export, logistics, compliance, and financial processes under one roof. The applications include U.S. Customs, self-entry, foreign trade zone, landed costs, HTS, PO management, export licensing, drawback, reconciliation, denied party screening, product catalog, tracking, and international document repository. The centralized global database maintains up-to-date trade content and currencies. QuestaWeb can also be efficiently integrated to your ERP system if designated.

INSURANCE

Roanoke Trade • www.roanoketrade.com

Roanoke Trade is a division of Roanoke Insurance Group Inc., a sales, service and underwriting organization specializing in insurance and bond solutions for international trade and transportation. A subsidiary of Munich Re and affiliate of Munich Re Syndicate, Ltd., Roanoke is the primary North American provider of marine insurance and customs bonds for this worldwide organization.



INTERMODAL

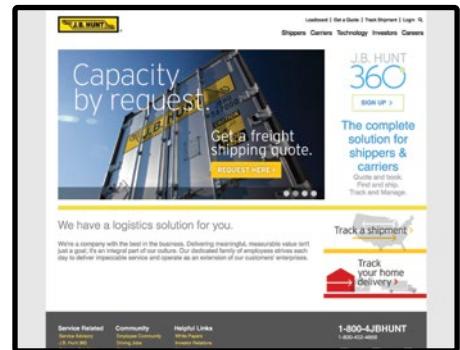


Alliance Shippers Inc. • www.alliance.com

Delivering The Perfect Shipment® from pick up to destination. With operating facilities in the United States, Canada and Mexico, Alliance Shippers Inc. combines excellent customer care with state-of-the-art rail, highway, ocean and air transportation solutions. Additional services include warehousing, distribution, customs clearance, equipment/driver leasing and expedited transportation. For cost-effective logistic solutions tailored to your company's exact needs, contact Alliance Shippers Inc.

J.B. Hunt Transport • www.jbhunt.com

J.B. Hunt Transport focuses on providing safe and reliable transportation services to a diverse group of customers throughout the continental United States, Canada and Mexico. Utilizing an integrated, multimodal approach, the company provides capacity-oriented solutions centered on delivering customer value and industry-leading service. J.B. Hunt Transport Services, Inc. stock trades on NASDAQ under the ticker symbol JBHT, and is a component of the Dow Jones Transportation Average. J.B. Hunt Transport, Inc. is a wholly owned subsidiary of JBHT. For more information, visit www.jbhunt.com.



Transplace • www.transplace.com

Transplace delivers supply chain excellence through an optimal and flexible combination of industry-leading global and domestic logistics services and technology. Tap into our dense network of shippers and transportation providers through on-demand transportation management and a suite of professional services tailored to your organization's needs.

V.M. Trucking • www.vmtrucking.com

Newark, N.J.-based V.M. Trucking specializes in intermodal trucking; container depot services; expedited shipments; and dedicated contract carriage. With V.M. behind the wheel, surprises are virtually eliminated. Everyone on V.M.'s team—from safety-minded drivers to experienced logistics professionals—is dedicated to making sure your goods and materials get where they need to go as quickly, safely, and cost-effectively as possible. Find out more about V.M. Trucking by visiting the site today.



IN THIS SECTION:

Logistics IT

LOGISTICS IT



Amber Road • www.amberroad.com

Amber Road's (NYSE: AMBR) mission is to improve the way companies manage their international supply chains and conduct global trade. As a leading provider of cloud-based global trade management (GTM) solutions, we automate and optimize the supply chain functions required to import and export goods: collaborating with foreign suppliers on design and quality assurance; executing import and export compliance checks; booking international carriers and tracking goods as they move around the world; and minimizing the associated duties through preferential trade agreements and foreign trade zones.

BluJay Solutions • www.blujaysolutions.com

When you partner with BluJay, you gain the advantage of the largest global trade network, a cloud-powered portfolio of application services, hands-free customs, real-time data analytics, and the visibility and velocity to adapt quickly. BluJay's proven, advanced technologies scale with your business. Equally important, its customer-centric team has the transportation expertise and passionate commitment to help you soar.



CargoSmart • www.cargosmart.com

CargoSmart provides global shipment management software solutions that enable shippers, consignees, and logistics service providers to improve planning and on-time deliveries. Connected to over 30 ocean carriers, CargoSmart leverages big data sources and a cloud-based platform to offer sailing schedules, visibility, documentation, contract management, compliance, and benchmarking solutions. Launched in 2000, CargoSmart helps transportation and logistics professionals increase delivery reliability, lower transportation costs, and streamline operations. Visit CargoSmart's website to learn more.

Cass Information Systems Inc. • www.cassinfo.com

Cass is the nation's oldest and largest provider of freight bill payment, audit, and rating services. We offer a wide array of services for processing and paying freight bills, as well as our industry-leading Internet reporting service, CassPort. In business since 1906, and providing freight payment services since 1956, Cass continues to offer stability, security, and expertise in the freight audit, payment, and information market.





CDM WinFrt • www.cdmsoft.com

CDM WinFrt is a robust, fully integrated, compliant and e-commerce driven trade management system specifically designed for freight forwarders, NVOCCs, exporters and importers. CDM WinFrt is a *certified* U.S. Customs software solution for ACE AES, AMS, ISF and soon ABI. Shipment compliance includes Canada, Japan, European Union and other countries. E-commerce includes Customer EDI, e-AWB, e-Booking, e-Shipping Instructions and e-Tracking. Our Supply Chain Visibility solution integrates to all major ERP systems.

ClearView Audit • www.clearviewaudit.com

Founded in 2008, ClearView Audit, LLC is a leading transportation consulting and technology firm specializing in supply chain best practices and cost reduction strategies. Its supply chain experts serve clients as trusted advisors to identify, develop, and execute an optimized supply chain model by integrating cutting edge technology and comprehensive market knowledge into an evolving set of best practices. ClearView Audit helps companies leverage their shipping volume, resources, and relationships with all carriers.



CT Logistics • www.ctlogistics.com

CT Logistics can help you save money, no matter your company's size. For small and medium-sized shippers, CT Logistics offers its TranSaver shipper cooperative buying program. Larger shippers can simplify their freight spending with CT Logistics' exclusive FreightRater freight bill rating and processing system. And businesses of all sizes can benefit from AuditPay freight payment services. Add to these offerings a wealth of online collaboration and reporting tools, and it's easy to see why shippers have trusted CT Logistics with their freight payment needs for more than 86 years.

CTSI-Global • www.ctsi-global.com

For more than 50 years, CTSI-Global has been a valuable resource to companies by providing the technology and industry expertise to help them manage all aspects of their supply chain—physical, informational, and financial—through freight audit and payment, transportation management systems (TMS), information management tools, and global consulting. The end results are improved shipping efficiencies, greater control, and significant ongoing savings. CTSI-Global is your link to supply chain solutions.



IN THIS SECTION:

Logistics IT



Freightgate • www.freightgate.com

Freightgate is the leader in logistics and supply chain cloud computing, offering importers, exporters, and logistics providers innovation with bottom-line sustainability to help manage best practices and cost control in your supply chain. The adaptive Freightgate Universe encompasses ISO9001:2008-certified end-to-end Transportation Spend Management solutions with procurement, optimization, carbon initiatives, dynamic multi-leg routing, capacity management, booking, visibility, metrics, compliance, audit, and payment. Enable real-time collaboration between global vendors, logistics providers, and your offices.

Info-X Software Technology • www.infoxusa.com

Since 2001, Info-X has been a premier provider of logistics management software and back-office support services for global transportation companies in the ocean, air and ground sectors. Info-X specializes in outsourced back-office services and is a quality-driven, professional, and experienced outsourcing partner. Leveraging its extensive industry knowledge of logistics, and understanding of the complexities involved, it helps companies improve efficiencies, get 99.9-percent accuracies, and experience cost reductions of up to 40 percent.



KINEXO • www.gokinexo.com

Formerly known as International Traders, Inc. & First American Carriers, Inc., (ITI & FAC), KINEXO strategically propels companies forward by providing highly customized supply chain solutions that are proven to reduce costs, increase transactional visibility, and maximize operating efficiency. Part of the Berkshire Hathaway portfolio of companies, KINEXO's vast experience has led them to become one of the most trusted partners in supply chain management. For more information, visit gokinexo.com.

MacroPoint • www.macropoint.com

MacroPoint offers a unique logistics tracking solution for freight transported by third parties. Its patented logistics software transforms any operators' pre-existing cell phone, smartphone, or in-cab device into an automated location tracking system capable of tracking any load, anywhere, anytime. Today, MacroPoint's software tracks more than 500,000 drivers across North America and is used by more than 6,000 trucking companies and other third-party logistics providers to provide complete supply chain visibility.





nVision Global • www.nvisionglobal.com

nVision Global is a leading international freight audit, payment, and logistics management solutions provider. With locations in North America, Europe, and Asia, our staff is fluent in more than 25 languages, and processes and pays freight invoices from more than 190 countries worldwide. Over the years, our customers have come to rely on our prompt, accurate Sarbanes-Oxley-compliant freight payment services, as well as our leading-edge information management analytical tools including global mapping, graphing, benchmarking, modeling, and network optimization analysis to help them manage their overall supply chain costs.

Open Sky Group • www.openskygroup.com

Open Sky Group specializes in rapid implementation of the newest versions of JDA Warehouse and Labor Management for mid-market companies. Authorized Reseller of JDA WMS, WLM and TMS, Open Sky Group strives to be the best consulting partner on the planet for companies implementing supply chain solutions. Contact Open Sky Group today to learn more about how we help mid-market companies have less risky and shorter supply chain software implementations.



Peoplenet • www.peoplenet.com

Headquartered in Atlanta, Peoplenet was founded in 1990 with the goal of simplifying time-keeping so that HR and Operations leaders could get back to managing people. Driven by a passion to provide targeted solutions for its clients, Peoplenet focuses on two distinct markets: healthcare and contingent labor. Its healthcare offerings are geared toward renal care, long-term care and urgent care facilities, while the contingent labor market focuses on being the network that connects buyers, suppliers, and talent.

RateLinx • www.ratelinx.com

For 15 years, RateLinx has developed and implemented the only logistics management software that standardizes freight invoice, track and trace, shipment, and order/item data. This creates unparalleled visibility and Integrated Shipping IntelligenceSM to solve your freight management problems. RateLinx deploys the modules you need to integrate with any ERP/WMS. Leveraging big data to provide predictive analytics, the multi-carrier, multi-modal, multi-location software monitors performance by product line, sales channel or entity.



IN THIS SECTION:

Logistics IT



REZ-1 • www.rez1.com

For over 20 years, REZ-1 has provided critical container inventory, reservation and financial settlement services to North American railroads, intermodal marketing companies and motor carriers. With its recent acquisition of IAS, REZ-1 has broadened its capabilities to include first- and last-mile visibility of ocean, air and LTL shipments, global trading partner connectivity, and container and chassis maintenance and repair functionality. Most recently, REZ-1 has developed and implemented a comprehensive special equipment booking system for DCLI Specialty Chassis, a leading specialty chassis provider in North America.

SMC³ • www.smc3.com

SMC³ is the foremost provider of data, technology, and education as an integrated solution to the freight transportation community. SMC³'s core competency is its pricing expertise, which it delivers through products and services that simplify processes and promote collaboration between buyers and sellers of transportation services. The company currently serves more than 5,000 customers operating throughout the contiguous United States, Canada, and Mexico. SMC³'s customer base includes shippers, carriers, logistics service providers, and freight payment companies.

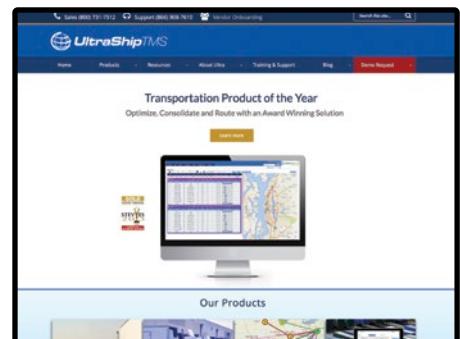


Transplace • www.transplace.com

Transplace delivers supply chain excellence through an optimal and flexible combination of industry-leading global and domestic logistics services and technology. Tap into our dense network of shippers and transportation providers through on-demand transportation management and a suite of professional services tailored to your organization's needs.

UltraShipTMS • www.ultrashiptms.com

UltraShipTMS offers award-winning software-as-a-service solutions to leading shippers in food production, packaging, retail and other industries. UltraShipTMS and LoadFusion Transportation Optimizer (the Stevie Awards' 2013 Transportation Product of the Year) provide a single-source solution for optimization, transportation, and settlement for inbound and outbound shipping across all modes of transport. Robust private fleet management capabilities unmatched by any other solution currently available make UltraShipTMS an emerging leader in the supply chain management industry.



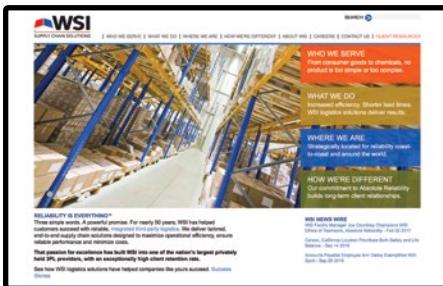


Veritiv • www.veritivcorp.com

Veritiv Corporation is one of North America's largest business-to-business distributors, and employs the most experienced professionals. Serving virtually every industry, Veritiv provides print and publishing, packaging, facility, and logistics solutions that give customers a competitive edge and help shape their success.

WIN (Web Integrated Network) • www.gowithwin.com

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WSI (Warehouse Specialists, LLC) • 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.

MATERIALS HANDLING

Akro-Mils • www.akro-mils.com

Akro-Mils is a leading manufacturer of plastic and metal storage, organization, transport and material handling products designed to improve inventory control and productivity in any setting—including industrial, medical, commercial, and consumer. As the industry leader, Akro-Mils strives to continually provide customers with innovative, quality products; unsurpassed customer service; and the fastest, most reliable shipping in the industry.



IN THIS SECTION:

Materials Handling - Oil/Gas/Energy Logistics



Pro-Line • www.1proline.com

Pro-Line is a leader in modular ergonomic industrial workbenches and workstations. From basic four-leg stations to hand-crank or electric height-adjustable stations to top-of-the-line technical systems, we have it all. Retractable ball transfers, seating, packaging stations, and much more. Since 1979, Pro-Line has offered strength, ergonomic design and esthetics all at an affordable price, many models in stock. Our vast array of in-stock optional accessories makes it easy for you to configure a workstation to fit your needs.

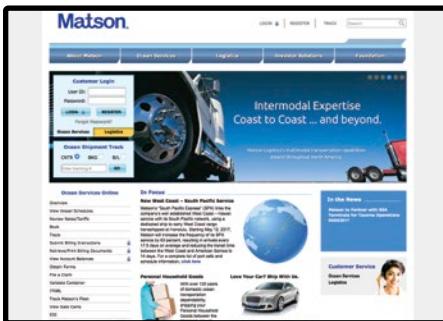
MULTI-MODAL

Lynden • 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.



OCEAN



Matson • www.matson.com

Matson is a leader in Pacific shipping and most noted for its long-standing service to Hawaii, Guam, and Micronesia. Matson's China-Long Beach Express offers premium, expedited service from Ningbo and Shanghai to Long Beach, including a guaranteed expedited service option to many U.S. destinations. Its subsidiary, Matson Integrated Logistics, is one of the nation's leading logistics providers, with expertise in all aspects of U.S. mainland transportation: truck, rail, and air.

OIL/GAS/ENERGY LOGISTICS

Dupré Logistics • www.duprelogistics.com

From energy transport to dedicated contract carriage logistics and freight brokerage, Dupré does more. For over 35 years, we've been a leading provider to both Fortune 500 and mid-sized companies with a specialization in chemicals, energy, and hazmat materials.



PORTS

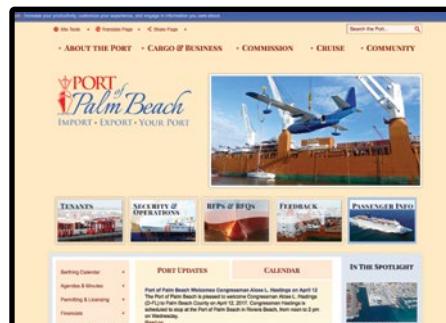


JAXPORT • www.jaxport.com

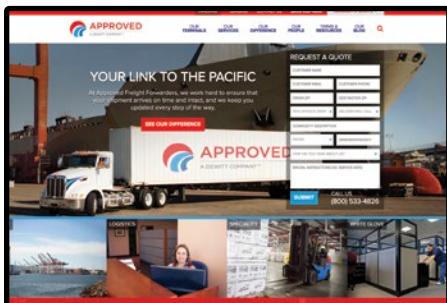
JAXPORT is a top U.S. vehicle handling port, the No. 1 container port complex in Florida, and home to one of the nation's highest weight-bearing capacity docks. The port offers worldwide cargo service from dozens of ocean carriers with service to more than 100 ports in 70 plus countries around the world. Located in Northeast Florida, in the heart of the South Atlantic, JAXPORT is a full service, international trade seaport situated at the crossroads of the nation's rail and highway network with access to more than 60 million consumers within a one-day truck drive. JAXPORT offers award-winning customer service. JAXPORT. It's Just Smart Business.

Port of Palm Beach • www.portofpalmbeach.com

The Port of Palm Beach is a 162-acre, full-service, diversified port, handling a full range of cargoes and moving \$7 billion worth of commodities, 2.5 million tons of diversified cargoes, and more than 500,000 passengers annually. The port is committed to the highest levels of service and to fiscal and environmental responsibility while ensuring the utmost safety and security. For more information on the Port of Palm Beach, please visit www.portofpalmbeach.com.



PROJECT LOGISTICS



Approved Freight Forwarders • 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, sailing schedules, and competitive rates, visit the website.

Lynden • 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:

Project Logistics - Real Estate



Quick International Courier • www.quickintl.com

Quick International Courier is a full-service global priority transportation and logistics company, shipping life-saving organs and blood for transplant and research; critical parts for the high-tech, medical, and manufacturing industries; as well as high-security, confidential, and valuable items for the legal and entertainment industries. Quick provides a wide range of priority services: next-flight-out, next-drive-out, secure handcarry, warehousing, third-party logistics, and aircraft charters. With a focus on providing global logistics, Quick is at the forefront of innovation, offering precision, individualized service, and dependability.

RAIL

Alaska Railroad Corporation • www.alaskarailroad.com

If you have freight or equipment to transport to or from Alaska, or within Alaska, contact the Alaska Railroad first. We have the people, equipment, and experience to move difficult, heavy, large, and unusual dimensioned freight, as well as containerized and hazardous materials. With the Alaska Railroad's Rail-Marine Service, customers can load their goods onto a railcar in the Lower 48, and it will be seamlessly transferred to Alaska and railbelt communities via the Alaska Railroad's port in Seattle.



RAPID RESPONSE LOGISTICS



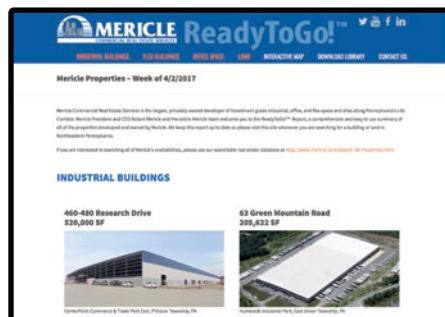
Lynden • www.lynden.com

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REAL ESTATE

Mericle Commercial Real Estate Services • www.mericlreadytogo.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.mericlreadytogo.com.



SHIPPING SOFTWARE



RateLinx • www.ratelinx.com

For 15 years, RateLinx has developed and implemented the only logistics management software that standardizes freight invoice, track and trace, shipment, and order/item data. This creates unparalleled visibility and Integrated Shipping IntelligenceSM to solve your freight management problems. RateLinx deploys the modules you need to integrate with any ERP/WMS. Leveraging big data to provide predictive analytics, the multi-carrier, multi-modal, multi-location software monitors performance by product line, sales channel or entity.

SIGNAGE AND MARKINGS

ASG Services • www.asgservices.com

ASG Services is a warehouse identification and marking specialist. We manufacture custom warehouse labels and warehouse signs in Atlanta, Ga., while providing fully managed installation services and warehouse striping solutions throughout the United States, controlled centrally from our head office.



SOURCING/NEGOTIATIONS



ClearTrack Information Network • www.cleartrack.com

ClearTrack operates a global cloud-based business network and collaboration platform for supply chain management software enabling the global sourcing of goods, management of supplier and product compliance, logistics collaboration and visibility and the sourcing of ocean and domestic freight. ClearTrack's configurable software solutions and services connect over 26,000 suppliers, factories, service providers and shippers to improve the flow of goods, reduce costs and minimize risk every day. Contact us to learn how ClearTrack can help you transform the management of your multi-enterprise supply chain.

RateLinx • www.ratelinx.com

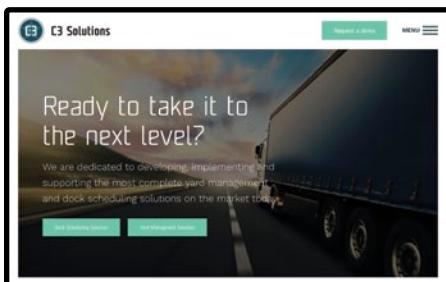
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IN THIS SECTION:

Supply Chain Mgmt/Optimization - Supply Chain Visibility

SUPPLY CHAIN MGMT/OPTIMIZATION



C3 Solutions • www.c3solutions.com

C3 Solutions is an information technology company specialized in yard management (YMS) and dock scheduling (DSS) systems. Since its founding in 2000, C3 has gained the confidence of clients around the world and across many industries including retail, grocery, distribution, manufacturing and parcel post. Headquartered in Montreal (QC), Canada and privately owned, C3 is dedicated to developing, implementing and supporting the most complete yard management and dock scheduling products on the market today. For more information on C3's products, schedule a free online demonstration.

ProTrans International • www.protrans.com

With nearly 25 years of experience in North America, ProTrans knows your supply chain is one-of-a-kind. That's why we specialize in designing impactful solutions that are uniquely customized to fit your company's needs. Our strong network, innovation, and professional experience make us more than just logistics providers to our clients. We're their one-of-a-kind strategic problem solvers.



SUPPLY CHAIN VISIBILITY

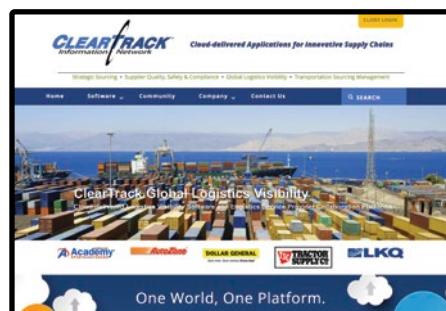


Cargo Intelligence • www.cargointelligence.com

Cargo Intelligence, Innovation Powered by CDM Software Solutions, is an intelligent tracking solution that utilizes data capture mechanisms from all possible tracking data sources including GPS, RTLS, IoT, RFID, Bar Code and e-Commerce EDI/XML in to one *unified* portal. Cargo Intelligence allows shippers, consignees and other parties to track Mission Critical high-value/high-visibility commodities such as weapons, explosives, hazardous material, human tissue, computer chips, pharmaceutical items and many others. Cargo Intelligence provides real-time tracking and exception management and integrates to major ERP systems.

ClearTrack Information Network • www.cleartrack.com

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TMS

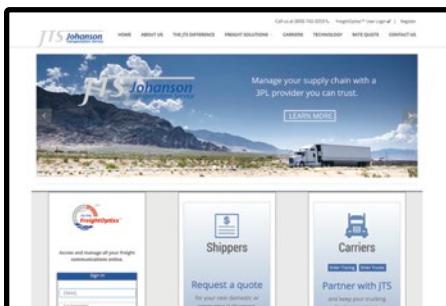
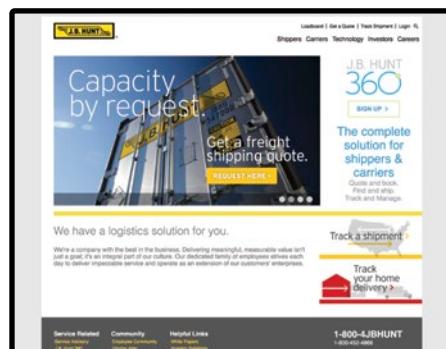


3Gtms • www.3gtms.com

3Gtms is a leading provider of transportation management system (TMS) software. Built as a single platform, 3G-TM delivers a comprehensive, end-to-end, transportation lifecycle management solution which addresses the most pressing logistics management issues for shippers and 3PLs. The company was founded with a focus on providing the most advanced functionality in an architecture that emphasizes usability, flexibility and expansion, providing a platform that will produce results today and well into the future.

J.B. Hunt Transport • www.jbhunt.com

J.B. Hunt Transport focuses on providing safe and reliable transportation services to a diverse group of customers throughout the continental United States, Canada and Mexico. Utilizing an integrated, multimodal approach, the company provides capacity-oriented solutions centered on delivering customer value and industry-leading service. J.B. Hunt Transport Services, Inc. stock trades on NASDAQ under the ticker symbol JBHT, and is a component of the Dow Jones Transportation Average. J.B. Hunt Transport, Inc. is a wholly owned subsidiary of JBHT. For more information, visit www.jbhunt.com.



Johanson Transportation Service • johansontrans.com

Johanson Transportation Service provides its customers with cutting-edge logistics technology with the cloud-based FreightOptixx™ TMS. Shippers can manage Truckload, LTL, Intermodal and International shipments, gaining greater visibility, increased service levels and time savings on logistics tasks including: instant rate quotes, tracking, order optimization, shipment consolidation, reporting, retrieving shipping documents, sending pick-up directions to carriers and viewing accounts payable status. Carriers can enter available equipment and tracing and find available loads within the TMS to increase their efficiency. www.freightoptixx.com

RateLinx • www.ratelinx.com

For 15 years, RateLinx has developed and implemented the only logistics management software that standardizes freight invoice, track and trace, shipment, and order/item data. This creates unparalleled visibility and Integrated Shipping Intelligence™ to solve your freight management problems. RateLinx deploys the modules you need to integrate with any ERP/WMS. Leveraging big data to provide predictive analytics, the multi-carrier, multi-modal, multi-location software monitors performance by product line, sales channel or entity.



IN THIS SECTION:

TMS



SaaS Transportation • web.saastransportation.com

SaaS Transportation, Inc. is a provider of cloud-based TMS solutions to third-party logistics companies, freight payment companies, shippers and carriers. Its TMS solution is unique in that it has developed APIs, which allow easy integration with numerous trading partners with minimal setup time. This integrated solution automates freight management from carrier selection to final delivery. SaaS Transportation's system enables transparency by providing visibility into shipments during transit, and alerts shippers when exceptions occur so they can proactively resolve issues.

ShippersEdge • www.shippersedge.com

Shipping management software for companies of all sizes. Works with all carriers and modes. Use it to compare freight rates, select carriers, track shipments and audit freight bills. Provides end-to-end supply chain visibility. Use as a stand-alone application or integrate with your other software. Visit our website for more information.



Transplace • www.transplace.com

Transplace delivers supply chain excellence through an optimal and flexible combination of industry-leading global and domestic logistics services and technology. Tap into our dense network of shippers and transportation providers through on-demand transportation management and a suite of professional services tailored to your organization's needs.

TransportGistics • 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.





WIN (Web Integrated Network) • www.gowithwin.com

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TRANSPORTATION

Colonial Cartage Corporation • 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 63 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.



Lynden • www.lynden.com

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TRANSPORTATION MGMT/FREIGHT MGMT

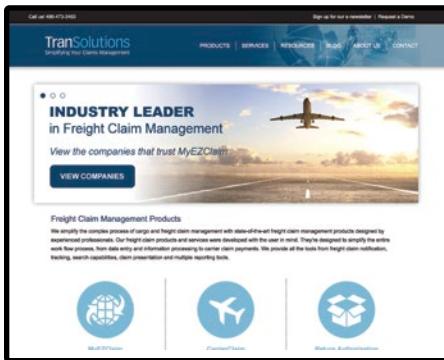
Echo Global Logistics • www.echo.com

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 30,000 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.



IN THIS SECTION:

Transportation Mgmt/Freight Mgmt - Trucking



TranSolutions • www.transolutionsinc.com

TranSolutions Inc. is a leading supplier of freight claim management, logistics, claim recovery, loss and damage software, freight claim overcharge, loss prevention database, and Web-based applications. Our clients include Global 5000 companies in the specialty chemicals, pharmaceuticals, consumer packaged goods, and food and beverage industries. Since 1997, TranSolutions Inc. has helped companies decrease freight claim-generation cycle time and increase claim documentation organization, while reducing data input errors, accelerating carrier claim payment, increasing efficiency, improving quality, and directly influencing the freight claims management process.

Transplace • www.transplace.com

Transplace delivers supply chain excellence through an optimal and flexible combination of industry-leading global and domestic logistics services and technology. Tap into our dense network of shippers and transportation providers through on-demand transportation management and a suite of professional services tailored to your organization's needs.



TRUCKING



AAA Cooper Transportation • www.aacooper.com

AAA Cooper Transportation has been delivering safe, efficient transportation for more than 60 years. With strategically located service centers, we are prepared to give individual attention to your shipping needs. AAA Cooper Transportation is dedicated to the long-term sustainability of the environment, and continues to implement processes that will make the world a better place to live for generations to come.

U.S. Xpress • www.usxpress.com

Founded in 1986, U.S. Xpress Enterprises, Inc. is the nation's second-largest privately owned truckload carrier, providing a wide variety of transportation solutions throughout North America. We are committed to being at the forefront of safety compliance, using comprehensive training for our staff and drivers and ensuring our trucks feature the latest safety innovations. With a dedication to minimizing our impact on the environment, U.S. Xpress is a SmartWay Transport Partner. For more information please visit www.usxpress.com.



TRUCKING-LTL

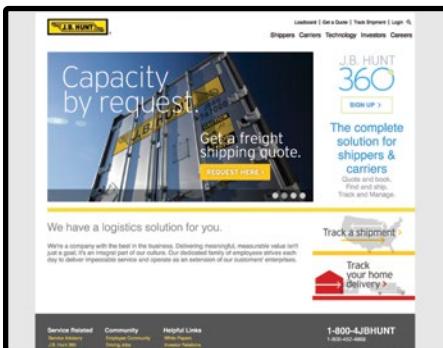


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J.B. Hunt Transport • www.jbhunt.com

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Span Alaska • www.spanalaska.com

Span Alaska understands Alaska and has everything it takes to transport your shipments to, from, and around the state. Span Alaska moves more LTL freight than any other carrier to Alaska—for several good reasons. It has the equipment, the people, and the clout with ocean carriers necessary to transport your freight quickly and efficiently. These kinds of connections enable Span Alaska to give you the best value and to get things done that others simply cannot.



IN THIS SECTION:

Vendor Compliance - Warehousing

VENDOR COMPLIANCE



ClearTrack Information Network • www.cleartrack.com

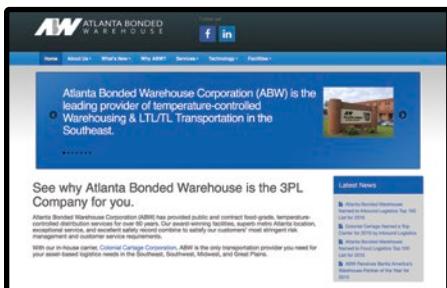
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WAREHOUSING



Atlanta Bonded Warehouse Corporation • www.atlantabonded.com

Atlanta Bonded Warehouse (ABW) has been providing public and contract food-grade, temperature controlled distribution services for over 69 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.

D&D Distribution Services • www.dd-dist.com

A full-service public warehousing and distribution services provider, D&D Distribution Services is centrally located in York, PA, near the mid-Atlantic region's major metropolitan areas and seaports. We serve customers around the globe, developing customized logistics and customer service solutions. We handle raw materials at the front end of the supply chain and finished goods at the back end. D&D develops flexible programs to accomplish customers' goals.





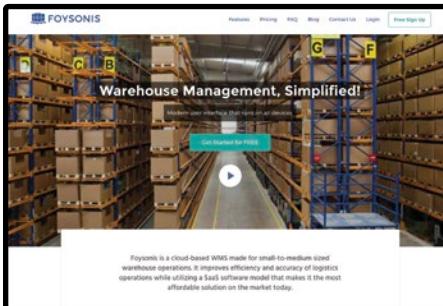
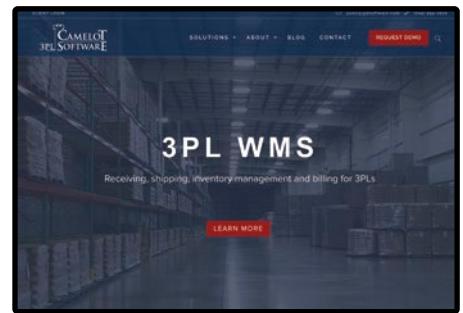
Metro Park Warehouses • www.mpwus.com

Metro Park Warehouses is a full-service 3PL offering 2 million square feet in Kansas City of modern food-grade warehousing space, including medical temperature-controlled space, ATF and national pharmaceutical licensed distribution, AIB Superior ratings, and 5 rail facilities, all open to reciprocal switching. Value-added services include end-to-end call center, shipping, and invoicing; retail display building; heat-tunnel packaging and shrink-wrapping; and a dedicated local and regional trucking fleet. Contact Metro Park to gain the competitive edge.

WMS

Camelot 3PL Software • www.3plsoftware.com

Camelot 3PL Software has provided innovative software solutions to the 3PL industry since 1987. Camelot offers a full suite of software solutions for multi-tenant inventory management, 3PL billing, mobile scanning technology, EDI, accounting and transportation management, all within a single package. With a customer-centric focus, we build lasting partnerships with each customer to help them achieve their goals of growth and profitability.



Foysonis • www.foysonis.com

A pioneering cloud-based WMS company, Foysonis delivers the solution for small-to-mid-sized warehouse operations as a SaaS application. We excel at running your warehouse in the cloud. Built on the most advanced cloud computing architecture, Foysonis simply requires your device plus a modern browser to get started. Transform your business to the new digital age by signing up for a 30-day free trial today. Plans start at just \$9 per month.

Interlink Technologies • www.thinkinterlink.com

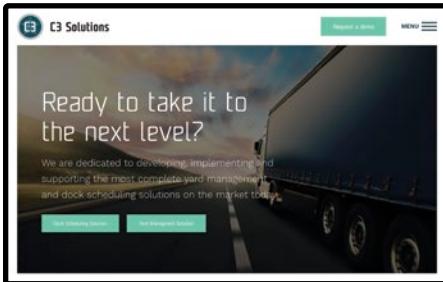
Think Interlink! Do you need to improve inventory accuracy? Eliminate shipping errors? Use real-time information? Manage distribution activities better? Increase productivity? For over 20 years, Interlink has been providing robust software solutions to increase efficiency and productivity goals in the warehouse. Think Interlink Technologies for WHSe-LINK® warehouse management software.



IN THIS SECTION:

Yard Management

YARD MANAGEMENT



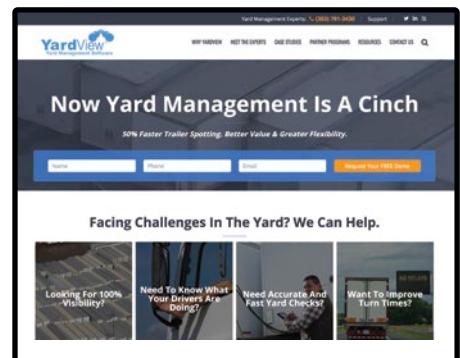
C3 Solutions • www.c3solutions.com

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Cypress Inland (Yardview) • 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. Call 303-781-3430.



Sentier Systems Inc. (Yard Commander) • www.yardcommander.com

Yard management software shouldn't be complicated or expensive. Yard Commander is a Web-based YMS that's simply effective. We've made the software fully functional while avoiding unnecessary "features." At the same time we've kept it intuitive and user friendly. Yard Commander offers the most affordable and easy-to-use YMS on the market.

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AUDIENCE: Supply chain stakeholders
FOCUS: The importance and benefits of global trade to the local and national economy; key technology trends; advanced mapping and analytics

JUN 20-21, 2017 La Jolla, Calif.

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AUDIENCE: Supply chain, logistics, and e-commerce executives
FOCUS: How retailers and e-tailers can bolster their fulfillment capabilities and inventory visibility; exceeding shipping expectations of web customers with expanded fulfillment options and accurate forecasting

NOV 1-3, 2017 Miami, Fla.

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AUDIENCE: Executives from the aviation, maritime, and logistics sectors
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Georgia Center of Innovation for Logistics

Georgia Logistics Summit

bit.ly/GALogisticsSummit

AUDIENCE: Supply chain and logistics professionals
FOCUS: Roundtable discussions of logistics success stories; tackling operational visibility through technology; next-generation analytics for supply chains

MAY 21-24, 2017 Orlando, Fla.

Institute for Supply Management

ISM 2017 Annual Conference

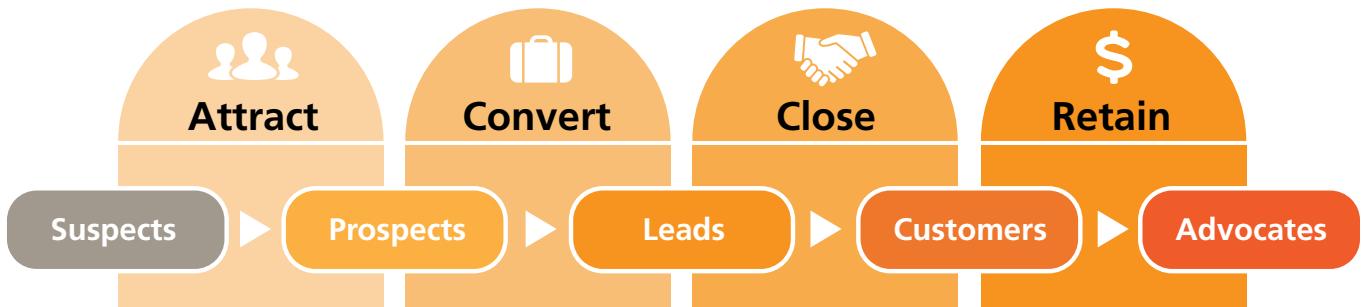
ism2017.org

AUDIENCE: Supply chain managers
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Mention drones in logistics and most people envision compact flying objects carrying small packages.

Startup drone company Natilus says: Think bigger. Instead of modest last-mile deliveries, its gigantic aircraft drones aim to transport as much as 200,000 pounds of cargo from one international port to another.

Natilus drones are designed to be amphibious, able to take off and land in the water—meaning no pricey airstrips required—and then taxi to the port of call.

The company's plan for take-off is aggressive, with a 30-foot prototype scheduled for its first flight in late 2017 and a 140-foot drone currently in development to begin flights from Los Angeles to Shanghai, China, in 2020.



In the workshop with the Natilus founding team.

Giant Drone in the Zone

17

Number of times faster a Natilus drone can deliver cargo than a standard cargo ship.

50

Percent fuel burn reduction of a Natilus drone compared to a Boeing 747.

30

Estimated hours of travel time from Los Angeles to Shanghai, compared to 504 hours for a cargo ship and 11 hours for a Boeing 747.

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Projected operating cost per hour of Natilus vehicle flight from LA to Shanghai, compared to \$25,000 per hour for a Boeing 747.

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Miles away from port: current at-sea landing target of Natilus drone.



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